The Routledge Handbook of Sport and Sustainable Development

Edited by Brian P. McCullough, Timothy Kellison, and E. Nicole Melton

THE ROUTLEDGE HANDBOOK OF SPORT AND SUSTAINABLE DEVELOPMENT

The Routledge Handbook of Sport and Sustainable Development is a comprehensive and powerful survey of the ways in which sport engages with its social, environmental, and ethical responsibilities.

It considers how sport can use its unique profile and platform to influence the attitudes of sport fans and consumers to promote positive social and environmental action around the world and to contribute to sustainable development, perhaps the most important issue of our time. The book is structured around the 17 UN Sustainable Development Goals, with a section devoted to each goal that contains chapters reviewing key theory and current research, measurement and evaluation issues, and the application of current knowledge in real-world development situations. Drawing on research and expertise from management, sociology, development studies, psychology, and other disciplines, the book examines the role that sport must play in areas such as health and well-being, poverty, education, gender equality, decent work, responsible consumption, and climate action.

Representing a keynote work on the wider social responsibilities of sport as both an industry and sociocultural activity, this is essential reading for any advanced student or researcher working in sport development, sport management, sport sociology, event studies, development studies, or environmental studies, and for any development practitioner or sport management professional looking to understand how to achieve positive social change in and through sport.

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Foreword

Julie Duffus

The 2030 Agenda for Sustainable Development recognizes sport as an essential enabler of sustainable development and contributor to the United Nations Sustainable Development Goals. These "global goals" provide a framework for businesses, governments, and other institutions to set policies and strategic action plans that address their material impacts within the broader context of providing a healthy and decent living and working environment for all. Thus, to a greater or lesser degree, sport touches upon all the SDGs. However, sport's far-reaching potential to contribute to development has long been discussed but rarely quantified.

Many recognize the contribution of sport to development and peace, especially when considering promoting the Olympic Values of tolerance and respect. However, many tend to ignore the role sport has in the economic, social, and environmental regeneration of areas; women and young people's empowerment; the cohesion of communities; and health, education, and social inclusion. Sport unites people, bringing people together through mega-events and the grassroots and communities. And if we all see sport through these lenses, together, we can achieve and realize the SDGs.

Regardless of age, gender, or ethnicity, and geographical location, all can enjoy sport. However, in an unprecedented time with the COVID-19 pandemic, we must reach out to sport and help each other use sport as a means to improve mental health, self-esteem, and self-confidence.

If we learn to use sport as a means of education, children can learn critical values such as teamwork, respect, fair play, tolerance, equality, friendship, and cooperation. We can use sport to stimulate social cohesion and unite communities and cities. In times of instability, sport can provide us with a sense of normality.

However, sport still faces many challenges and one of those is getting sport organizations to integrate the SDGs into the very core of their operations. We must realize the opportunities sport has *and* the negative impacts sport can bring and learn to work together in partnerships to address these. We must unite to seek a place for SDGs in our day-to-day work and strive to use sport as an enabler of social, environmental, and economic excellence.

Despite these challenges, the vast positive power and passion of sport will continue to bring people together, promoting a more inclusive and peaceful world through its universal values and principles. Historically, sport has played an essential role in all societies and acted as a robust communication platform that can be used to promote values. It will continue to be one of the most cost-effective and versatile tools to promote UN values and achieve the SDGs.

Sport, across all levels, needs to create and foster partnerships more than ever. We have the power to connect a diverse set of partners who share the same vision of "building a better world through sport." Only when we are united will we reap the true potential sport has as an enabler of sustainable development.

This handbook strives to raise that conversation and foster partnerships with the SDGs. Thus, it is an essential piece in the puzzle to advance sustainable development in and through global sport.

Acknowledgments

Abbreviations

COVID-19	Coronavirus Disease 2019
EPL	English Premier League
FIFA	Fédération Internationale de Football Association
GHG	Greenhouse Gas
IOC	International Olympic Committee
IPC	International Paralympic Committee
IPCC	United Nations Intergovernmental Panel on Climate Change
LMICs	Low-to-Middle-Income Countries
MLB	Major League Baseball
NASCAR	National Association for Stock Car Auto Racing
NBA	National Basketball Association
NCAA	National Collegiate Athletic Association
NFL	National Football League
NHL	National Hockey League
SDG	Sustainable Development Goals
SIDS	Small Island Development States
UN	United Nations
UNFCCC	United Nations Framework Convention on Climate Change
UNESCO	United Nations Educational, Scientific and Cultural Organization
WNBA	Women's National Basketball Association
WHO	World Health Organization

An introduction to sport and sustainable development

Brian P. McCullough, Timothy Kellison, and E. Nicole Melton

Together, technological advances and today's global economy have connected humankind like never before. There is a degree of interdependence on all societies to survive and more profound importance and reliance on humanity's connection to thrive. Such relationships may seem utopian—but the reality of sustainable development is within grasp. Sustainable development is "development that meets the needs of the present without compromising the ability of future generations to meet their needs" (World Commission on Environment and Development, 1987, p. 8). Sustainable development is achieved through inclusive, sustainable, and resilient effort, which is at the core of humanitarian values.

Despite the well-intentioned nature of humankind, some obstacles prevent collaborative behaviors to ensure the well-being and survival of all. Undoubtedly, there are exploitations of people, governmental systems, and the natural environment that subjugate communities. In essence, there are functions within our global society that see people as a means to an end of personal profit. Regardless of its name—capitalism, crony capitalism, envy, greed, or any other particular name—profits, personal financial gains, and the pursuit of power reign preeminent among too few without empowering all. Strong institutions are needed to promote sustainable industry and infrastructure for cities and communities worldwide. Without these strong institutions, there are no guardians for fundamental human rights, much less support for all people to thrive.

Individual people and organizations hold the power to make significant changes in light of so much oppression and obstacles to self-fulfillment. We do not need to look much further than examples of the present-day exploitation of human labor in forced labor camps and sweatshops, global poverty rates, rampant unemployment, and underemployment. Additionally, women and girls are the most impacted across societies regardless of the degree of national freedoms they are afforded. Women and girls have less access to education, earn less, and are more likely to suffer from poverty, malnutrition, and starvation when compared to men and boys. Thus, it is necessary to engage and elevate half of the world's population to be recognized as equals. Additionally, all humankind is impacted by the prioritization of profits over the protection of the natural environment.

The planet's health is an essential consideration to the well-being of all life on Earth. Without an environmentally sustainable future that balances profits concerning people and the Earth, humankind suffers. The delicate balance of economic security and sustainable

development should be a priority among all organizations and individuals to protect the natural environment. Weak organizational structures and governance systems that ignore people and the planet in favor of profit have detrimental impacts on two essential elements of human survival—air and water quality. The current lack of concern or immediacy among governments and corporations to protect the natural environment is exponentially magnified. This lack of concern then extends into unjust food systems where crops are unsustainably harvested, and polluted waters strangle wildlife in oceans.

This grim picture is not intended to suggest that the problems of development are insurmountable. Instead, it provides a snapshot of systems that have failed to equitably balance growth with humankind's welfare and the natural world. These dire situations are the inspiration for human action that led to the United Nations' creation of the Sustainable Development Goals (SDGs). Through these goals, the UN strives to accelerate a global effort to support people, the planet, prosperity, peace, and partnership (General Assembly, 2015).

At the core of the goals is the need for strong institutions, which require all institutional agents (e.g., governments, business sectors, corporations, and individuals) to fulfill their responsibility. The sport sector is no different. Sport has contributed and, to some extent, contributes to the exploitation discussed above. Still, the sector as a whole has the potential (and responsibility) to reduce harm and use its platform for good both within and through itself. A sport federation or organization has to fulfill the relevant SDGs within its organization and subsequently through its interactions with external stakeholders and its surrounding community. The purpose of this handbook is to advance the global conversation on how sport can reduce its negative impacts while contributing to the fulfillment of the SDGs.

1.1 The sustainable development goals and early efforts to integrate sport

The SDGs first gained traction during a group of meetings in advance of the 2012 UN Conference on Sustainable Development in Rio de Janeiro. Viewed by many as a corollary of the Millennium Development Goals, which focused on eradicating global poverty, the SDGs were intended to "produce a set of universal goals that meet the urgent environmental political and economic challenges facing our world" (United Nations, 2021, para. 1). Following several years of work, the 17 SDGs were unveiled and ratified by the UN General Assembly at the 2015 UN Sustainable Development Summit in New York (Sengupta, 2015). These goals are listed in Table 1.1.

Each goal includes multiple targets designed to guide more specific, measurable actions. These targets were introduced in 2017. The targets include specific years that it is expected that a target should be fulfilled. However, these targets are specifically designed for national and global metrics, making it challenging for business sectors or individual organizations to track and report their direct contribution to the SDGs. Yet, additional policies have been created to provide frameworks to shepherd the sport sector and respective organizations toward sustainable development.

From the onset, the UN has linked sport to the SDGs. As noted throughout this book, the UN explicitly called upon sport to champion the goals introduced in their guiding proclamation, *Transforming Our World: The 2030 Agenda for Sustainable Development*:

> Sport is also an important enabler of sustainable development. We recognize the growing contribution of sport to the realization of development and peace in its promotion of tolerance and respect and the contributions it makes to the empowerment of women and of young people, individuals and communities as well as to health, education and social inclusion objectives. (General Assembly, 2015, p. 10)

Table 1.1 Sustainable Development Goals

Goal 1	End poverty in all its forms everywhere
Goal 2	End hunger, achieve food security, and improved nutrition, and promote sustainable agriculture
Goal 3	Ensure healthy lives and promote well-being for all at all ages
Goal 4	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all
Goal 5	Achieve gender equality and empower all women and goals
Goal 6	Ensure availability and sustainable management of water and sanitation for all
Goal 7	Ensure access to affordable, reliable, sustainable, and modern energy for all
Goal 8	Promote sustained, inclusive, and sustainable economic growth, full and productive employment, and decent work for all
Goal 9	Build resilient infrastructure, promote inclusive and sustainable industrialization, and foster innovation
Goal 10	Reduce inequality within and among countries
Goal 11	Make cities and human settlements inclusive, safe, resilient, and sustainable
Goal 12	Ensure sustainable consumption and production patterns
Goal 13	Take urgent action to combat climate change and its impacts
Goal 14	Conserve and sustainably used the oceans, seas, and marine resources for sustainable development
Goal 15	Protect, restore, and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss
Goal 16	Promote peaceful and inclusive societies for sustainable development, provide access to justice for all, and build effective, accountable, and inclusive institutions at all levels
Goal 17	Strengthen the mean of implementation and revitalize the Global Partnership for Sustainable Development

Source: General Assembly (2015).

The above statement indicates the importance and role that the global sport sector has to contribute to the fulfillment of sustainable development through each of the 17 SDGs. More recently, in 2019, the UN appointed football legend Marta (Viera da Silva) as one of 17 SDG Advocates whose charge is to "use their unique global platforms" to raise "global awareness of the [SDGs] and the need for accelerated action" (United Nations, 2019, para. 1).

Momentum to incorporate sport into sustainable development grew with the Declaration of Berlin (2013), adopted by the International Conference of Ministers and Senior Officials Responsible for Physical Education and Sport (MINEPS) and the International Charter of Physical Education, Physical Activity and Sport at the General Conference of UNESCO at its 38th Session. The Declaration of Berlin stressed the importance of sport policy to advance sustainable development in sport. The resulting policy was realized through the creation of the Kazan Action Plan (KAP). The KAP was endorsed by 116 member countries of UNESCO in 2017. The KAP strives to ensure that sport is accessible to all, contributes to the SDGs, and maintains integrity. The most encouraging aspect of the KAP was the momentum inspirited by the SDGs to engage the global sport sector to (1) focus on sport policy, (2) measure progress, and (3) encourage collaboration and partnerships across different stakeholders. These three objectives are achieved through the action plan outlined in the Table 1.2.

Table 1.2 Kazan Action Plan

Action 1	Elaborate an advocacy tool presenting evidence-based arguments for investments in physical education, physical activity, and sport
Action 2	Develop common indicators for measuring the contribution of physical education, physical activity, and sport to prioritized SDGs and targets
Action 3	Unify and further develop international standards supporting sport ministers' interventions in the field of sport integrity
Action 4	Conduct a feasibility study on the establishment of a Global Observatory for Women, Sport, Physical Education, and Physical Activity
Action 5	Develop a clearinghouse for sharing information according to the sport policy follow-up framework developed for MINEPS VI

Source: UNESCO (2017).

The overarching aspects of the KAP focus on participation in sport and highlight the importance of policy as the impetus to eliminate inequities in access to sport, physical activity, and recreation. The KAP has undoubtedly created an opening for other organizations to engage in new conversations across UNESCO and among the corners of the sport sector.

Perhaps no other governmental body has engaged more in linking sport with the SDGs than the Commonwealth (Commonwealth of Nations). The Commonwealth has authored multiple publications and convened several high-level meetings dedicated to this cause. Specifically, *Enhancing the Contribution of Sport to the Sustainable Development Goals* (The Commonwealth, 2017) is a primary and fruitful resource. The document proposes ways to analyze and further implement the SDGs the Commonwealth identified as directly related to sport. This publication builds on the initial research conducted in this space commonly referred to as Sport for Development and Sport for Development and Peace. Most notably, the SDGs are related to participatory sport, which has the broadest reach. Subsequent documents have outlined plans of action for participatory sport organizations to better address and fulfill the select SGDs (SDG Fund, 2018).

As discussed previously, a significant challenge with the SDG targets is that they are designed to be measured on a national scale. This issue is addressed in the Commonwealth's documents (2017) and makes it challenging for international sport federations, national organizing bodies, singular organizations, and sport participants to evaluate their contribution to fulfilling one or more of the targets at a national level. The inability of sport organizations to track their contributions to the SDGs is further magnified by the lack of guidance and specific meso- or micro-level targets. The lack of these evaluative tools creates both a barrier and daunting task to assess and report sport's contribution to each SDG. Despite these obstacles, more work can be done to refine and clarify how sport can contribute. This effort starts by engaging all types of sport organizations.

1.2 A call for focus on *all* sport organizations

Much like the efforts across the UN, Commonwealth, and academics who focus on sport for development and peace, *all* sport organizations ought to consider how they can contribute to the SDGs in and through their organizations. The UN speaks to the power of sport and its unique position in a global society. Specifically, the UN has recognized "the unique ability of sports to transcend linguistic, cultural and social barriers makes it an excellent platform for strategies of inclusion and adaptation" (United Nations, 2019, para. 1). To this end, *all* sport

organizations can leverage their social platform, reach, and ability to bring people together and promote the common good, including environmental, social, and economic sustainability.

For example, sport organizations can implement measures within their organization to ensure gender equity. This research area is quite extensive, yet sport organizations that embrace these values do not report or frame their efforts within the context of Goal 5. Similarly, the sport sector is notorious for hiring hourly and temporary employees. Likewise, sport is often referred to as the great equalizer, while others claim sport is a microcosm of society. We take the latter approach by acknowledging that inequity in sport is extensive and causes harm to its participants and employees. Thus, sport organizations must make concerted efforts to reduce disparities internally (Goal 10). The same could be applied to sport organizations' responsible consumption and production (Goal 12) and the resulting environmental impact (Goal 13) of sport organizations and events.

Externally, sport organizations can promote social good because of their social significance among their fanbase, participants, surrounding communities, and countries. Sport organizations are used commonly as linchpins that connect diverse groups within one common identity. As a result, how sport organizations interact within their communities and beyond can promote the SDGs. For instance, sport organizations, coaches, and players can promote social programs to help within the community to strive to reduce community poverty (Goal 1), eliminate hunger (Goal 2), promote good health and well-being (Goal 3), and ensure access to quality education (Goal 4).

Connections between sport and the SDGs are not limited to the international stage, nor may they only be formed by sport organizations and federations (Lindsey et al., 2015). For example, in Cape Town, South Africa—the subject of this book's cover—several SDG-related challenges have converged. In 2018, Capetonians were forced to confront "Day Zero," the projected date on which the city's water supply would run dry (SDG 6; Onishi & Sengupta, 2018). As a result of this threat, many sporting events were concentrated to a single site, Athlone Stadium (Blaustein, 2018). Interestingly, just a decade earlier, Athlone was controversially replaced by a new stadium in the relatively affluent Green Point neighborhood to host matches during the 2010 FIFA Men's World Cup (see Goal 11; Kellison et al., 2020).

Meanwhile, many organizations are working to address problems identified in the SDGs, including Play Sport4Life, a nonprofit group based in Cape Town whose mission is "to improve the lives and well-being of disadvantaged communities" (SDGs 3 and 5; Play Sport4Life, 2017). A second Cape Town-based group, I AM WATER, a conservation group that aims "to facilitate physical and emotional connections to the aquatic environment, to build an understanding of the interdependence of healthy humans and healthy oceans and to influence behaviours to protect our global seas" (SDG 14; I AM WATER Ocean Conservation, 2019, para. 3). These examples illustrate the possibility that links between sport and sustainable development can be fully realized (or imperiled) at any level and at any time. That theme is repeated throughout this handbook, as discussed in further detail in the next section.

1.3 Structure of the handbook

This handbook is designed to assist practitioners, researchers, and academics with conceptualizing how sport may contribute to each SDG. Excluding the introductory and concluding chapters, we have organized the handbook into 17 sections—one section per SDG, with three chapters dedicated to each SDG. Chapters throughout the handbook have more details and examples that readers will find rather accessible and easily applicable to practice.

In each SDG's first chapter (Overview), the authors clearly define the SDG based on the UN's original language (General Assembly, 2015). Authors then translate how the respective

SDG aligns with the business and delivery of sport. The authors describe how sport organizations can adhere to the SDG in their daily operations and how sport organizations have engaged their communities in promoting the SDG from various approaches. These approaches will include managerial, sociological, psychological, and other academic disciplines that examine the application of the respective goal in the context of sport.

In each SDG's second chapter (Measurement), the authors discuss how the SDG can be (or has been) reported or evaluated, particularly in academic research when possible. These chapters include various international examples representing multiple continents, with some care given to highlight issues in the Global South where appropriate. This chapter's role for each SDG is to summarize and highlight proven methodologies for evaluating the success of implementing the respective goal.

In each SDG's third chapter (Application), industry professionals presented case studies that directly engaged in implementing an SDG in their organization. This culminating chapter for each SDG demonstrates practical examples, frequently beyond those provided in the SDG's preceding chapters. These practitioners' work directly applies the SDG in and through sport, and their case studies highlight ways to address various social, environmental, and economic issues.

The chosen theoretical lens, methodological approach, or practical application of the respective SDG is not prescriptive. The authors propose, rather than impose, their respective way to approach, address, and fulfill a specific Goal. The authors' expertise is leveraged through this handbook to capture individual experiences, visions, and approaches to aligning the SDG to the sport industry more broadly. At times in this handbook, readers may observe contradictions and varying outlooks on sport's efficacy to promote sustainable development; paradoxically, these differences may exist within the same SDG section. These dissimilarities underscore both the complex nature of the SDGs and the challenges associated with measuring progress.

There are, of course, other theoretical lenses, methodologies, and applications to examine each SDG. This handbook seeks to engage practitioners and academics alike to understand how the SDGs can be applied to sport *and* open new theoretical lines of inquiry into sport's role in addressing and fulfilling the SDGs.

It is not the intention of the handbook nor the authors to limit future discussion of sport's role in addressing sustainable development. Instead, we hope to open discussions and applications to advance sport's role in the global effort of sustainable development. We hope that this innovative handbook inspires more in-depth dialogue across academic disciplines, among practitioners and academics, and within broader organizational contexts to elevate sport's role in sustainable development worldwide.

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Sustainable Development Goal 1: no poverty

An overview of Sustainable Development Goal 1

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In 2015, all UN Member States adopted the UN Sustainable Development Goals, a set of 17 development objectives meant to "achieve a better and more sustainable future for all" by 2030 (General Assembly, 2015). Notably, the world was making headway on the SDG 1, "No Poverty"—when in 2015, people living in extreme poverty (less than $1.90 per person, per day) decreased from 36% in 1990 to 10% in 2015 (General Assembly, 2015). In 2020, the COVID-19 pandemic drove more than 176 million people into extreme poverty, thwarting any progress made on SDG 1 (United Nation OHCHR, 2020). Indeed, estimates from the United Nations University World Institute for Development Economics Research contends that close to half a billion people could now face extreme poverty, the majority of whom reside in Global South countries.

Although poverty has existed for generations and there have been a number of proposed solutions for its reduction and elimination, the majority of poverty alleviation schemes and strategies have failed (e.g., food for work, ration cards) for a number of reasons. For example, some poverty alleviation strategies fail to account for the perspectives of the poor and minimal consideration of structures of inequality (e.g., gender discrimination and local power dynamics) that shape poverty-related development programs. The failure of many poverty eradication approaches and the consistent nature of poverty in, for example, base-of-the-pyramid markets that are located in low-income countries and rural areas of middle- to high-income countries, has led to international development agencies (e.g., United Nations), non-governmental organizations (NGOs), corporations, governments, philanthropists, researchers, practitioners, communities, and individuals seeking new strategies to resolve poverty.

For instance, in Canada, government strategies for poverty reduction include a Canada Child Benefit (to families who need support with the cost of raising children) and a Guaranteed Income Supplement (assisting seniors in retiring with economic security; Government of Canada, 2020). Working directly with organizational partners and people around the world, the NGO Oxfam seeks to "end the injustice of poverty" by using innovative strategies to deliver education, development programs (e.g., focused on gender justice and women's rights), and advocate for basic needs services (e.g., food, humanitarian assistance in conflict settings) in a number of different countries and regions (Oxfam, 2021). There are also numerous

philanthropic organizations, such as the Bill and Melinda Gates Foundation, that engage in work to eliminate extreme poverty (Gates Foundation, 2021).

In turn, there are a variety of actors across the sport industry that work toward poverty alleviation. The International Olympic Committee often boasts of the benefits of hosting the Olympic Games in relation to the building of infrastructure that supposedly will enhance the utility of sport facilities on the individual and community level; draw worldwide attention to the social, cultural, and political novelty of specific nations; and increase tourism both before and after the hosting of the Games (Leopkey & Parent, 2012; Preuss, 2007). Although not a direct poverty alleviation strategy, hosting the Games is, in part, perceived as a way to enhance the economic development of a hosting nation (Owen, 2005). Of course, similar to the way multiple specific poverty alleviation schemes have been critiqued, there have been a number of challenges and questions related to the actual hosting of the Olympic Games and its perceived benefit, including the displacement of those in low-income communities for the building of sport infrastructure and long-lasting debts of nations due to the increasingly high cost of hosting the sport mega-event (Kennelly, 2015; Whitson & Horne, 2006). Sport scholars have likewise showcased how participation in competitive sport, particularly for athletes who have migrated from, for example, regions of Africa, to play in a professional sport league (e.g., UEFA Champions League) may lead to economic security and even prosperity due to their athletic performance and related financial income. This opportunity for economic stability also supports family and local communities through remittances (Acheampong, 2019; Darby & Van der Meij, 2018). Certainly, the growing number of sport for development and peace (SDP) interventions in both Global North and Global South contexts has increasingly highlighted—and also critiqued—the ways that sport may be useful for livelihood creation and the enhancement of employability to eradicate poverty (e.g., McSweeney et al., 2020; Smart et al., 2020; Stewart-Withers & Hapeta, 2020; Stewart-Withers et al., 2017).

Despite the growing attention paid to the implications of poverty worldwide and increased consideration given to poverty by actors within the sport industry, few scholars have critically assessed how sport (holds the potential) to contribute to poverty eradication, and its place therein. In particular, there remains an opportunity to examine and expand on the multi-dimensional nature of poverty and the contribution that sport may offer, if any, in working toward poverty alleviation. To address these lacunas, the purpose of this chapter is to introduce the Sustainable Livelihoods Framework (SLF) and its application for understanding the use of sport to address SDG 1. The chapter proceeds as follows: first, we will define the SDG and its specific targets outlined by the UN; second, we will discuss the theoretical foundations of the SLF and its connections to sport and SDG 1; third, and last, we will draw attention to the ways in which SDG 1 is related to sport by providing relevant examples of how actors in the sport industry have implemented strategies to contest the prevalence of poverty.

2.1 Definition of Sustainable Development Goal 1

According to a 2015 report by the World Bank, 10% of the global population (equal to approximately 736 million people) lived in extreme poverty on less than $1.90 a day (World Bank, 2019). Furthermore, more than half of the people living in extreme poverty are located in nations within sub-Saharan Africa (World Bank, 2019). Although poverty around the world has decreased since 2013 by a margin of approximately 11%, and nearly 36% from 1990 (World Bank, 2018), poverty still remains a pressing international issue (particularly due to its un-evenness across continents) and hence remains a focal point of the UN. As part of the UN SDGs that are hoped to be achieved by 2030, ending poverty is 1 of the 17 goals listed.

Table 2.1 Targets of Sustainable Development Goal 1

1.1	By 2030, eradicate extreme poverty for all people everywhere, currently measured as people living on less than $1.25 a day
1.2	By 2030, reduce at least by half the proportion of men, women, and children of all ages living in poverty in all its dimensions according to national definitions
1.3	Implement nationally appropriate social protection systems and measures for all, including floors, and by 2030 achieve substantial coverage of the poor and the vulnerable
1.4	By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology, and financial services, including microfinance
1.5	By 2030, build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social, and environmental shocks and disasters
1.a	Ensure significant mobilization of resources from a variety of sources, including through enhanced development cooperation, in order to provide adequate and predictable means for developing countries, in particular least developed countries, to implement programmes and policies to end poverty in all its dimensions
1.b	Create sound policy frameworks at the national, regional and international levels, based on pro-poor and gender-sensitive development strategies, to support accelerated investment in poverty eradication actions

Source: General Assembly (2015).

Specifically, the aim of SDG 1 is to "end poverty in all its forms everywhere" (General Assembly, 2015, p. 15). Included in this goal is specific targets, listed in Table 2.1.

Clearly, the targets set out by the UN to achieve SDG 1 are wide-ranging and will require extensive work from multiple actors across different fields, particularly those working in the realm of international development. Ultimately, achieving the eradication of poverty requires the application of specific theoretical and conceptual frameworks that take into consideration the multiple dimensions of poverty. It is notable, then, that the framework we outline in the following sections, the SLF, has been adopted in various development projects by the United Nations Development Programme.

2.2 The Sustainable Livelihoods Framework

2.2.1 Brief background of the SLF

The SLF is an approach to studying poverty eradication that emphasizes field-based, grounded empirical investigations. First developed by Chambers and Conway (1992)—and subsequently adopted by the United Nations Development Programme (UNDP), the Department for International Development (DFID), and CARE (one of the largest international NGOs in the world)—the SLF has gained global recognition for its utility for exposing and contextualizing circumstances of poverty. A livelihood is defined as:

Compris[ing] the capabilities, assets (including both material and social resources) and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from stresses and shocks, maintain or enhance its capabilities and assets, while not undermining the natural resource base. (Scoones, 1998, p. 5)

Three elements of this definition must be clarified in relation to poverty. First, although economic growth is often vital for poverty alleviation, "there is not an automatic relationship between the two since it all depends on the capabilities of the poor to take advantage of expanding economic opportunities" (Krantz, 2001, p. 2). Second, poverty is not understood as simply low income, but rather involves multiple dimensions including health, inadequate social services, accessibility to education, vulnerability, and lack of powerlessness more broadly. Third, is that the inclusion of the poor in regard to conceptualizing poverty is crucial, particularly since they know their needs and situations best, and "must therefore be involved in the design of policies and projects" (Krantz, 2001, p. 2) intended for their betterment.

There is no universal approach for the application of the SLF; however it does have three important basic features, including: (1) a focus on the livelihoods of the poor; (2) a concern with the local level and agency; and (3) an emphasis on people (i.e., those identified as poor) in specific selection and implementation of livelihood activities (Krantz, 2001; Scoones, 2009). The SLF is holistic in its approach in that it underlines the combination of resources that are crucial to those living in poverty including, for instance, social and human capital as well as physical and natural resources (Scoones, 1998). The framework, in turn, uncovers the underlying structures and factors (across different levels such as individual, organizational, and policy) that impact the (in)ability of people to access resources and assets for their livelihoods, moving beyond a focus on one dimension of poverty such as income productivity (Chambers & Conway, 1992). In the next section, we more clearly outline and describe the multiple components of the SLF by summarizing Scoones' (1998) foundational article.

2.2.2 Components of the SLF

The SLF is an approach that has been created for application at a number of different levels. For instance, it can be applied at an individual, household, community, regional, or even national scale for the purposes of assessing livelihoods (Scoones, 1998). There are also five key elements, or subdimensions, involved in conceptualizing sustainable livelihoods. As Scoones notes:

> Five key elements of the definition can be recognized, each relating to a wider literature with, in some cases, established ways of assessing outcomes. The first three focus on livelihoods, linking concerns over work and employment with poverty reduction with broader issues of adequacy, security, well-being and capability. The last two elements add the sustainability dimension, looking, in turn, at the resilience of livelihoods and the natural resource base on which, in part, they depend. (p. 5)

In Table 2.2, we offer an overview of the five key sub-components of the definition.

The scope of the sub-components of sustainable livelihoods are diverse and range from specific indicators that may be evaluated utilizing quantitative assessments to sub-components larger in scope that require qualitative investigations (Scoones, 1998). Furthermore, the components are highly selective given the level of investigation into the livelihoods, appropriateness of the different indicators, and overall, always subject to negotiation based on how the framework is made up of various ideas and interests from diverse strands of development literature. As Scoones emphasizes,

> Different people will inevitably have different views as to the priority indicators, and, where conflicts are highlighted, choices then have to be made. By disaggregating the

Table 2.2 Five key sub-components of the SLF definition

Sub-component	Definition
Creation of working days	Defined as the ability of livelihood strategies to lead to effective employment for a portion of the year, viewed widely as approximately 200 days at a minimum. Sen (1975) outlines three features of employment: income (i.e., a wage), production (i.e., an output), and recognition (i.e., being engaged in something worthwhile).
Poverty reduction	There are numerous measures to assess poverty reduction and create a "poverty line" measure in regard to income or consumption levels. Both quantitative and qualitative assessments and indicators are useful but many challenges remain in measuring poverty reduction.
Well-being and capabilities	This sub-component represents Sen's (1984, 1987) understanding of capabilities that moves beyond a focus on income and human capital into what is most valued by people for their own well-being (people should define criteria in regard to well-being such as self-worth, pleasure, power, or stress).
Livelihood adaptation, vulnerability, and resilience	If a livelihood is able to cope (i.e., make adjustments due to change) and adapt (i.e., make shifts in strategies for livelihoods) in order to recover from stressors (a minimal and predictable disruption with an overall impact) and shocks (a large, irregular disruption with a direct impact), rather than lead to the avoidance of shocks and stressors.
Natural resource base sustainability	Some livelihoods, particularly rural livelihoods such as agriculture, rely—in part—on a natural resource base. Understanding the natural resource base and any shocks or stressors that deplete its resources (e.g., flooding, soil levels) is important for the purposes of measuring the sustainability of some livelihood's strategies.

Source: Adapted from Scoones (1998).

definition into a series of indicators, however, such choices become explicit, making negotiation between outcome possibilities possible as part of any policy development, planning or implementation process which has sustainable livelihood concerns at its centre. (p. 7)

Certainly, the sport industry includes multiple actors who support the use of sport for poverty alleviation, economic development, and livelihoods creation. Hence, the ways that the SLF connects to more specific investigations of sport's role in poverty alleviation (and in achieving SDG 1) depends on the relevance of each component in particular contexts. For example, when conducting an examination of the role of hosting mega–events, that may (in some cases) contribute to reducing poverty levels in nations (e.g., through employment opportunities), the level of scale and use of the SLF would differentiate from its utility for examining how a local sport for development organization would teach employability skills to create livelihoods for people living in poverty. Sport industry actors applying the SLF must therefore make clear indicator choices and be explicit about the decisions they make and how they relate to SLF components.

Table 2.3 Types of capital

Sub-component	Definition
Natural capital	Includes the natural resources (e.g., soil, water) and environmental amenities available for the creation and sustainment of livelihoods.
Economic capital	Includes the financial capital available (e.g., cash, savings, loans, technologies) to pursue a livelihood.
Human capital	The knowledge, abilities, health, and physical competencies to pursue livelihoods.
Social capital	Networks, social relations, connections, and links to others that people use to pursue a livelihood.

Source: Adapted from Scoones (1998).

Additional components of the SLF include different types of capital, livelihood strategies, and institutions and organizations (Chambers & Conway, 1992). With respect to capital, the SLF combines multiple types of capital for its measurement and for understanding how livelihoods are constructed based on the "basic material and social, tangible and intangible assets that people have in their possession" (Scoones, 1998, p. 7). In Table 2.3, an overview of the four types of capital is offered. It is important to remember that the four types of capital are not exhaustive; other forms of capital may be identified depending on the level of investigation in which the SLF is applied (Chambers & Conway, 1992).

The inclusion of capital in the SLF is particularly notable for its use in achieving SDG 1. For instance, targets 1.4 and 1.a listed earlier emphasize that those living in poverty have access to sources and rights to make a living, and furthermore, that development actors work with partners to ensure that sources are available to those identified as poor. Analyzing the different types of capital that the poor have access to (or not) is hence key for the purposes of understanding the conditions in which they live and how they construct livelihoods.

In addition, the combination of different forms of capital in the SLF is directly relevant to ongoing research in the domain of sport. For example, Spaaij (2009, 2012a, 2012b) and others (e.g., Theeboom et al., 2020) have contributed insights into the varying forms of capital that participants in sport programs may accrue and utilize for the purposes of gaining employment. More recently, researchers have unpacked how sport may play a role in the livelihoods of diverse groups of people involved with sport (Smart et al., 2020; Stewart-Withers & Hapeta, 2020). This includes crucial commentaries from practitioners about the potential sport may serve for people struggling to make a living and their engagement with sport-based development programs (DeMartini & Belasik, 2020; Warner et al., 2020). Of central importance here is to highlight that sport, in diverse ways, does involve the accumulation of capital that connect directly with the SLF to enhance access to resources of the poor as outlined in SDG 1.

A second component of the SLF is to understand the portfolios and pathways of livelihood strategies (Scoones, 1998). Although this component was developed in relation to rural sustainable livelihoods, its elements apply to the SLF more generally and other livelihood strategies. For this component of the SLF, agricultural intensification (i.e., increasing capital investment and labor) or extensification (cultivating more land or agricultural resources) to gain more from your livelihood (e.g., forestry, livestock) may occur. Indeed, there remain few studies that examine agriculture in relation to sport—with fewer still that investigate the livelihoods of participants within sport-for-development programs more specifically (with some exceptions; see Kaur, 2016). This remains a fruitful area worthy of further investigation, especially with recent insights into the use of bicycles for development by rural populations

(many of whom are agricultural workers) to access markets and extend their ability to acquire livelihood resources (Ardizzi et al., 2020; McSweeney et al., 2020). Furthermore, a number of sport for development program participants live within rural areas and communities, particularly in the Global South (Svensson & Woods, 2017), where it is more likely that people are involved in livelihood strategies pertaining to agriculture. Thus, a future focus on how the SLF may offer particular guidance in examining the connections between sport, poverty, agriculture and livelihoods would be valuable.

Diversification is another livelihood strategy. This refers to the variety of income-earning activities one engages in to cope with any shocks and stressors pertaining to their primary livelihood strategy. In turn, a person may, for example, diversify their livelihood in order to develop more opportunities for income-earning activities. The final element of the portfolio and pathways component of the SLF is migration, in regard to both voluntary and involuntary mobility and its effects on livelihood strategies (e.g., moving away to pursue the intensification of a livelihood strategy; Scoones, 1998). These three portfolios and pathways do not always operate in silos, but may overlap and interconnect. Taken together, the combination of activities and pathways are linked through a "livelihood portfolio" which may be highly specialized or quite diverse.

Lastly, while the above discussion highlights elements of the SLF in relation to strategies and differentiated outcomes that may (or may not) be realized, the SLF also considers structures and processes that act as catalysts to the (in)ability to achieve a sustainable livelihood through multifaceted and complex processes (Scoones, 1998). Previous frameworks for the study of livelihoods often focused on quantitative assessments and relationships between particular measurable variables (often economic indicators). Without understanding the social structures and processes in which livelihood strategies take place, such quantitative investigations limit the ability to fully comprehend and understand sustainable livelihoods and the barriers that constrain opportunities for sustainable livelihoods (Scoones, 1998). Hence, the SLF incorporates the examination of *both* structures and institutions.

Institutions are both formal and informal and are not stable nor concrete—that is, they are enmeshed *with* and produced *out of* power relations, which make structures and institutions malleable, dynamic, and continuously (re-)shaped (Clegg, 2010; Scoones, 2009). Livelihood opportunities and strategies and the capitals in which they are molded are thus adapted and adopted through structures and institutions that influence people living in poverty to adequately make a livelihood sustainable. Social processes and relations ultimately underlie sustainable livelihoods, includer gender structures, poverty inequalities, formal laws and government regulations (e.g., in relation to informal sector work), and social networks (Scoones, 1998). Explicating and making sense of the complex norms and rules that underlie livelihoods within specific institutional environments and across individual, household, regional, and international contexts, although not easy tasks, allow for more in-depth analyses when applying the SLF.

Understanding the structures and institutions of sustainable livelihoods is crucial when considering the livelihoods of those living in poverty in relation to sport and SDG 1. Scholars studying sport have continuously emphasized the importance of structures and institutions within attempts to use sport for development (Darnell, 2012; Hayhurst, 2013, 2014; McSweeney et al., 2019). As organizations in sport commonly work across institutional levels (e.g., organizational, regional, national, international), structural inequalities that inhibit or must be challenged when pursuing development goals—in this case for sustainable livelihoods—are paramount. Indeed, SDG 1's targets highlight that restrictions or barriers to eliminating poverty, such as institutional structures, must be broken down and challenged in order to achieve no poverty by 2030. Still, and as we discuss in the next section, there are some weaknesses of the SLF that are important to unpack in order to ensure robust analysis of livelihoods in relation to sport and poverty.

2.2.3 Weaknesses of and ways forward for the SLF

In order to advance the SLF, Ian Scoones (2009) suggests a number of ways to apply the framework, including a focus on knowledge, politics, scale, and dynamics. For the purposes of this chapter, we briefly highlight two (a focus on knowledge and politics) that are significant for applying the SLF when considering livelihoods, sport, and SDG 1.

First, understandings of livelihood have oft been underpinned by clear normative commitments and principles that center on people, contexts, and capacities and capabilities, rather than an emphasis on needs, poverty, and marginalization (Scoones, 2009). Furthermore, livelihoods have generally been understood as a "neutral term" based on policy documents and reports by international entities (e.g., World Bank) that frame livelihoods through binaries such as "good" and "bad" livelihoods or "positive" or "negative" rural futures. Such framing defines "progress" in a way that assumes certain states are better than others. Hence, dominant conceptualizations of livelihoods must not be seen as neutral, but rather a form of knowledge production that is based on historical values, politics, and institutional commitments that need to be challenged, questioned, unpacked, and recast (Keeley & Scoones, 2003). Inclusive deliberation about framings of livelihoods would be able to bring change to the fore and move away from rationalistic understandings that are based on political agendas. As Scoones (2009) succinctly puts:

> As a malleable concept which opens up such rich diversity in empirical description, it [livelihoods] can equally be squashed down into the narrow instrumentalism of logframes and planning formats, or get deployed by particular political commitments, dominated in recent years by neo-liberal reform. In order to avoid such closing down, and maintain a process of appraisal, assessment and intervention which remains open, attention to the processes through which livelihoods knowledge is negotiated and used is required (cf. Stirling, 2008). (p. 185)

Second, and in relation to the points above, is the need to foreground power and politics within livelihoods analysis (Clarke & Carney, 2008). The SLF has commonly been utilized for micro-level analyses focusing on local specifics and an emphasis on action and agency rather than connecting such analyses to structural conditions and political-economical processes that constitute constraints and opportunities for sustainable livelihoods (Scoones, 2009). Though the SLF encompasses a focus on structures and institutions, there is an opportunity to broaden its scope by examining the individual and collective actions across scales (e.g., individual, community, national) in order to draw and interconnect with critical theories (such as feminist theory; Kabeer, 1994). This is essential for advancing the SLF and widening its analysis in relation to globalization, structural inequalities, and political economies. Again, Scoones (2009) clearly stipulates a need for consideration of power and politics in the SLF and livelihoods in relation to poverty:

> Attention to how livelihoods are structured by relations of class, caste, gender, ethnicity, religion and cultural identity are central […] Social relations inevitably govern the distribution of property (including land), patterns of work and divisions of labour, the distribution of income and the dynamics of consumption and accumulation. (p. 186)

For SDG 1, and sport organizations and actors seeking to alleviate poverty, utilizing the SLF and including a focus on knowledge as well as power and politics is key to addressing targets set

out by the UN. For example, understanding the SLF in relation to the broader political economy, globalization, climate change and shocks and stressors that may inhibit sustainable livelihoods of those living in poverty would assist in reaching target 1.5 and enhancing the resilience of those in vulnerable situations. In the final section of this chapter, we turn to how sport organizations have implemented strategies to achieve SDG 1, and discuss further work that the sport industry needs to engage in to fulfill its targets.

2.3 Connecting sport to SDG 1

Although there is limited research in relation to livelihoods, poverty, and sport, there are various organizations around the world which utilize sport as a way to alleviate poverty. We will first highlight some of these organizations to provide connections between sport and SDG 1, and then provide a brief discussion of the work that still has to be done—some of which would be enhanced by adopting the SLF—to eliminate poverty around the world.

Some professional sport organizations, through supporting local and regional social justice initiatives, as well as through corporate philanthropic arms of their organization, have become involved (mostly in regard to offering financial capacity) with poverty reduction strategies. For example, the Detroit Lions of the National Football League have donated to fresh drinking water campaigns to help improve the quality of drinking water in Detroit (Detroit Lions, 2016). Specifically, donations were secured by both the team and individual players to finance a Detroit Public Schools Community District initiative to install permanent water filtration systems (Campelli, 2019). The Detroit Lions also partnered with numerous local charities that offer educational and food provision services to address poverty levels and inaccessibility to education within the city. Other professional sport teams, such as Liverpool Football Club, Everton Football Club, and other UK-based football teams have pledged to be accredited living wage employers—meaning they offer club employees living wages rather than the minimum wage (Campelli, 2019). These community projects, while may not be seen as eliminating poverty, seek to offer local communities a way to gain employment, particularly in areas with high rates of poverty.

Youth sport programs in a number of different nations and communities also use sport to address poverty, usually through educational initiatives that teach life skills to help area youth secure future employment. For instance, Tiempo de Juego in Colombia partners with local schools and families to use football to deliver social opportunities and train youth in technical and psychosocial skills (Tiempo de Juego, 2019). In addition, the organization supports families and youth in small business endeavors through the provision of resources (e.g., vendor opportunities; Niz, 2019). Waves for Change, which is based in Cape Town, South Africa, is another youth sport organization that uses surfing as a way to enhance mental well-being among youth who have faced trauma. The organization partners with mental health foundations and uses programming grounded in self-care, combined with practices to address psychological and emotional wellbeing, to support youth in improving their future. The organization also employs former participants as coaches in the program, which provides an opportunity to earn additional income (Waves for Change, 2021).

In the field of sport-for-development, there are numerous organizations that adopt sport to enhance livelihood opportunities to respond to poverty. In addition to providing participatory sport experiences, many of these organizations also form partnerships with other NGOs and development actors to provide internship and employment positions. For instance, Peace Players International works within 15 countries and adapts sport programs that are relevant or popular in the local contexts. Youth are involved in educational programs that teach about

HIV/AIDS, drug and alcohol abuse, unemployment, and social cohesion in order to increase the participants' understanding of structural barriers to employment (Hinteregger, 2017). MLSE Launchpad in Toronto, Canada, employs a "ready-for-work" program that combines sport activities with in-class sessions that are designed to provide skills related to working in specific fields, such as telecommunications and STEM (MLSE Launchpad, 2021).

There are many more organizations working within the sport industry, from government actors, to professional sport organizations, to various sport-for-development programs in various geographical locations, that utilize sport and seek to disrupt, and address poverty. Together, these organizations aim to respond to the targets discerned in SDG 1. For example, employing individuals above minimum wage addresses the need to eradicate extreme poverty by ensuring that people living on less than $1.25 a day (target 1.1) may earn a living. The focus on youth by many sport and sport-for-development organizations may contribute to reducing unemployment rates and address poverty levels of children and families (see target 1.2). Many sport organizations also focus on reaching youth who may not have safe spaces to learn employment skills. This directly complements target 1.3, which focuses on creating social protection systems for those living in poverty and in vulnerable situations. Through the development of strong partnerships with wide-ranging NGOs and development actors (as noted above), sport offers the possibility to mobilize resources from a variety of sources through enhanced cooperation amongst a number of actors to address poverty (target 1.a). Finally, given many sport organizations focus on providing access to basic services, such as education as well as financial services in some cases (e.g., through micro-finance; Hayhurst, 2014), actors within the sport industry are also responding to target 1.4 to ensure those living in poverty have access to economic and basic services. Hence, there are many ways in which sport organizations are seeking to move beyond a focus only on sport to play a role in achieving SDG 1.

While we are supportive of the important work taking place within the sport industry, as other scholars have emphasized, there is a great need to consider the multiple factors and structures that influence the achievement of development through sport (Coalter, 2010; McSweeney & van Luijk, 2019; Schulenkorf, 2017). Overall, and in regard to SDG 1 and its connection to the SLF, it seems clear that the multiple components that (in)directly underpin poverty and strategies to alleviate poverty must be considered holistically in order to reach the targets set out by the UN. As we suggest, then, the application of the SLF—and decisions and reflections on what components are considered when utilizing sport to induce employment opportunities and seek to resolve poverty—are essential for addressing SDG 1. We hope that this chapter provides a starting point for both sport organizations and researchers alike to enhance analyses and strategies to end poverty in all its forms everywhere.

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3

Measuring Sustainable Development Goal 1

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From one perspective, the fight to end global poverty is going well. According to the *Secretary-General's Progress Towards the Sustainable Development Goals* report (United Nations Economic and Social Council, 2019), international efforts to "end poverty in all its forms everywhere" have continued to good effect, albeit at rates that have slowed in recent years. Indeed, over the last generation, the world has made rapid progress against the very worst poverty. The number of people in extreme poverty has fallen from nearly 1.9 billion in 1990 (36% of the world's population) to about 650 million in 2018 (less than 10%). The United Nations had set out to achieve the target of less than 3% of the world living in extreme poverty by 2030. Toward this end, many experts have suggested that while the effects of the recent COVID-19 global pandemic might further exacerbate the slowing (or potentially even reverse), these general downtrends in global extreme poverty should continue in years to come.

From a more critical perspective, scholars and key actors within the UN have grown increasingly skeptical of what has been argued to be over-stated effectiveness of global poverty eradication initiatives. In a 2020 report titled *The Parlous State of Poverty Eradication*, UN Special Rapporteur Philip Alston warned that states and international organizations are "completely off track" to meet the 2030 goals. He argued that "even before Covid-19, we squandered a decade in the fight against poverty, with misplaced triumphalism blocking the very reforms that could have prevented the worst impacts of the pandemic" (as cited in Alston, 2020, para. 2). Alston and other assessors have been particularly skeptical of the UN's reliance on one of the key metrics used internationally to measure extreme poverty: the World Bank's international poverty line of $1.90 (£1.52) daily income as the measure of the amount below which people are said to be extremely impoverished. In the report, Alston points out that a large percentage of the world's population live in high levels of precarity close to that limit, with nearly half of the world's people living on below $5.50 a day. Moreover, in many developing economies, the $1.90 standard is not an accurate representation of an individual's ability to meet their needs: "The result is a Pyrrhic victory, an undue sense of immense satisfaction, and dangerous complacency. Using more realistic measures, the extent of global poverty is vastly higher and the trends extremely discouraging," Alston noted. "Even before the pandemic, 3.4 billion people, nearly half the world, lived on less than $5.50 a day. That number has barely declined since 1990" (as cited in Alston, 2020, para. 7).

Hence, the complexities of global poverty are compounded by challenges regarding *how to accurately measure poverty* and *what is being done about it*, or the interrelationships of: (1) the definition of "global extreme poverty," (2) the measurement thereof, and (3) the identification of specific strategies, programs, or interventions most effective in leading to the elimination thereof. On the surface, the definition of global poverty is simple (Roser & Ortiz-Ospina, 2013). The $1.90 poverty measurement is based on the monetary value of a person's ability to consume (often measured in terms of purchasing price parity). However, that income measure is not always an accurate representation of an individual's ability to sustain themself and more generally, income is perhaps not the best metric from which to assess if the individual is impoverished. Some agencies look at alternative measures of welfare include subjective views (e.g., self-reported life satisfaction), basic needs (e.g., caloric requirements), capabilities (e.g., access to education), and minimum rights (e.g., human rights) to more comprehensively assess national poverty rates (Bradshaw et al., 2017; Chzhen et al., 2018; Lang & Lingnau, 2015). In total, various definitions of poverty can be collated under a common assumption: that an individual lives in poverty when the resources available to them fall below that which is required to meet a minimum standard of living (Ferreira et al., 2016).

Nonetheless, the universal starting and ending point for the United Nation's assessment and evaluative activities remains the $1.90 per day standard (hence poverty is most regularly measured quantitively and based on income level). For decades, the UN operated under the assumption that increased national employment levels correlated directly to a reduction in national poverty rates. In other words, a greater percentage of income-earners within a re-spective national economy would translate to a few people living in conditions of poverty within that context. However, income is often an inaccurate measure of poverty on two levels: many employed wage-earners—particularly in the developing Global South—earn wages that are still below, and often well below, that which meet needs or achieve subsistence. Moreover, there are many non-employed people in countries providing high levels of social welfare who are classified below the poverty line but who, through such social support, have their needs met and live at a reasonable standard of living. Finally, measuring poverty rates at the individual level (number of people earning less than $1.90 per day) often tells us very little about systemic problems (e.g., corruption, structural inequalities) and systemic solutions (comparative effects of market or government intervention) nor about short- or long-term effects of non-systemic problems (e.g., natural disasters, war).

3.1 Ending poverty everywhere: measurement in sport

This link between poverty definitions and measures is important as it relates to how we evaluate the effectiveness of sport programs. The basic assumption guiding most sport for development programs is this: local and foreign agencies can establish sport programs in underserved, de-veloping, or high-poverty areas and use sport to bring children and/or adults together to play—and in so doing to offer these participants supplementary programs intended to create opportunities for social mobility, educational enhancement, and other well-being promotional activities (Jarvie, 2011). In many national contexts, sport for development programs are used to promote economic or social development. These programs are often implicitly, and sometimes explicitly, tied to the UN Sustainable Development Goal of poverty eradication. Less often, a sport program is established to directly improve the local economy through job creation (which then assumedly leads to poverty eradication) or to enhance the productivity, labor capacity, or human capital of a local or regional population. According to the international Sport for Development agency Right to Play (2006), both types of sport programs can help eradicate poverty such that:

- participants, volunteers, and coaches acquire transferable life skills that increase their employability,
- vulnerable individuals are connected to community services and supports through sport-based outreach programs,
- sport programs and sport equipment production provide jobs and skills development,
- sport can help prevent diseases that impede people from working and impose health care costs on individuals and communities, and
- sport can help reduce stigma and increase self-esteem, self-confidence, and social skills, leading to increased employability.

A range of sport-based programs from around the world have been founded on these principles. For example, Street Soccer USA (United States) and the Homeless World Cup (international, first played in Austria) were formed to use soccer as a platform to help men, women, and youth experiencing homelessness gain access to the social and educational support systems needed to move out of homelessness and back into gainful employment. Another international soccer program, Football in the Streets, uses the game as a point of entry to other programs that empower underserved youth through soccer, character development, mentoring, and employability programs. In the UK, Cricket for Change has since 1981 provided access to cricket participation and to support systems that help to serve disadvantages children throughout the country. The South African program Hoops 4 Hope utilizes the sport of basketball to build capacity for thousands of young people across the nation. The Sports Plus Global program uses a variety of sport programs to promote positive human development for participants in Asia, North America, and Europe.

It is important to note here, and returning to our point about the complexities of the definition–measurement–implementation relationality, these programs often differ fundamentally in terms of level of intervention. Many programs operate under the assumption that sport can be used to build capacity for individuals. Aligning with a human capital model popularized by Gary Becker and other Chicago School economists, many sport programs seeking to help eradicate poverty engineer their aims and measures at the level of the individual. These measures often include increased access to education (human capital), social development programs, access to jobs or employment, and in rare cases, direct access to wage-based income. It is usually the case that wage rates, measures of life satisfaction, changes in city-level, regional, or national public health, or increased rates of sustenance are considered in evaluating sport programs' success in the area.

By contrast, many programs are based on community-level support or interventions. These sport for development initiatives tend to use sport as a catalyst for new jobs, direct inflow of capital into the community, or to provide necessary service or infrastructure that should, in turn, lead to new jobs, new forms of social development, or new growth modalities. For example, the Chinese Communist Party (CCP)—in partnership with local non-government organizations (NGOs)—has sought in recent years to use sport programs and events as an engine for community-level development and poverty reduction. The biggest reductions in poverty eradication over the past three decades have taken place in Asia, and specifically in China. According to the World Bank, more than 850 million Chinese people have been lifted out of extreme poverty. Indeed, China's poverty rate fell from 88% in 1981 to 0.7% in 2015 (FAO, IFAD, UNICEF, WFP & WHO, 2019). One sport-based strategy in China has been the development of hundreds of "sport towns"—initiatives in which local, provincial, or State governments launch large scale infrastructure projects (e.g., new stadiums, competition venues, digital or physical sport-based networks) themed around a specific sport (e.g., esports, soccer) and intended to bolster tourism and commercial activities in the area (Upton, 2019).

One clear example of this type of sport-based development project can be found in the Sanhe Village in the Sichuan Province of central China. Located in Banzhuyuan Town, Xindu District, about 27 km away from downtown Chengdu, Sanhe Village consists of 15 sub-village groups and around 50 residential complexes with 751 households and 2,137 people (Cddyjy.com, 2018). Shanhe Village has historically been an economically underdeveloped area that heavily relied on subsistence agriculture and lacked basic infrastructure. The main road in the village was an unimproved muddy track (Global Times, 2017). Even into the 21st century, it was often reported that most villagers were suffering deprivation (Chengdu Nongye Hao, 2019). The village, however, underwent significant changes after a series of soccer-based development projects initiated under the new leadership since 2013, as discussed further below.

3.1.1 Phase one

In the initial stage, Sanhe Village sought to build soccer facilities and develop grassroots tournaments to attract participants—and capital and consumers—from outside the village. In 2013, the village first established a peasant soccer club consisting of local residents, which became the first registered peasant soccer club within the city of Chengdu (Xinhua News Agency, 2017). Later, in 2014, the new Chair of the village, Jie Tan, decided to build related soccer facilities for training and tournament purposes (Chengdu Nongye Hao, 2019). The project, however, was once on hold due to a lack of funding. According to Tan, the construction budget was estimated nearly 500,000 RMB (approximately $70,700), whereas the village itself did not have sufficient capital to finance the project at that time (Xinhua News Agency, 2017). Tan negotiated with the village committee and convinced them of the potential economic opportunities such as rental benefits associated with building soccer facilities. The committee then initiated a financial plan including seeking state financial support and gathering social donations. The construction of a seven-person natural grass soccer field measuring 53 meters in length and 38 meters in width was finally completed in 2015 (Xinhua News Agency, 2017). A year later, a second field with artificial grass was also built in the village (Xinhua News Agency, 2019).

As soon as the soccer fields were constructed, the village leader team started (1) recruiting talented coaches and youth players and (2) hosting soccer tournaments, for which it believed higher profitability could be obtained through developing grassroots soccer insomuch a "soccer village" reputation can be built. The village first partnered with a German corporation GR on developing youth soccer programming by which players who train with the village soccer academy would have an opportunity to visit German soccer clubs and study there (Zhong & Wang, 2017). Second, the village strategically incorporated selling a local specialty—grapefruit—into the management of soccer games. The tournament is called the Baoyou ("precious grapefruit") Cup, and the winning prize includes grapefruit (e.g., the winner obtained 12,000 RMB cash—about $2,120—and a 3,000 RMB—about $424—grapefruit voucher) to not only support and promote the local farming community but also to build a new sustainable business ecosystem (Zhong & Wang, 2017).

The construction of soccer fields and development of youth soccer and tournaments (1) helped the village generate rent income and accrue revenue from local fruit selling and (2) more importantly becomes part of the local village marketing strategy. The facilities generate approximately 1,600–1,920 RMB (about $225–270) each week in terms of rent revenue (Zhong & Wang, 2017), while the soccer tournaments boosted the sales of grapefruit and other local agricultural products. For example, one villager said he can make 30,000 RMB (about $4,239 USD) from selling grapefruit during the tournament while it was difficult to sell anything before (Chengdu Nongye Hao, 2019; Zhong & Wang, 2017). Lastly, the village has registered 1,078

soccer players, and each year, approximately 100,000 spectators turn out for 248 games hosted in the village (cddyjy.com, 2018; Zhong & Wang, 2017). By attracting nation–wide media attention, the Baoyou Cup has become the landmark of Sanhe Village, as well as a festival for amateur soccer enthusiasts in the region. According to the media, Sanhe Village has become "the Top Soccer Village" in Chengdu (Zhong & Wang, 2017).

3.1.2 Phase two

Given the increased popularity of the soccer tournament, Sanhe village leaders expanded their entrepreneurial plan to include local tourism and entertainment toward transforming the village into an attractive imagery and eventually realizing economic growth (Zhong & Wang, 2017).

3.1.2.1 Tourism

By cooperating with the township officials, Sanhe Village leaders specifically designed an "Internet + Sport and Fitness + Ecological Tourism" model (Chen, 2015, para. 5) by integrating technology (e.g., social media platforms such as WeChat) into the development of sporting facilities (e.g., basketball and tennis courts) and related recreational facilities including soccer restaurants, agricultural products supermarkets, fishing yards, angertainment, and modern-style homestays (Beike Soccer, 2018; Cddyjy.com, 2018).

3.1.2.2 Music

Music festivals and events have also been deployed to facilitate the village's entrepreneurial transformation. In March 2019, the first Star Music Festival was hosted where local villagers formed bands and sang songs in front of over 100,000 concertgoers (Peng, 2020). The village also partners with the Sichuan Conservatory of Music to attract famous music bands. The rationale behind promoting those music events, according to the village Chair Tan, again, is to attract tourists and boost consumption such as bringing customers to local coffee shops (Xinhua News Agency, 2019).

The causality of sport program-to-poverty eradication in Sanhe, as with most global sport for development program assessments, is largely suggestive or implied. Apparently, in the Sanhe Village case, the local government leaders have utilized sport-based entrepreneurial transition as an efficacious pathway toward sustainable economic growth and thereby reducing local poverty. It was reported that the investment grew from 2 million RMB (around $286,000) to 10 million RMB (around $1.4 million) in 2018 (Beike Soccer, 2018). Simultaneously, as more people within the township have become involved, and as the infrastructural projects thereto related have expanded (e.g., roads, tourism sites), the levels of income have concurrently risen. For example, the new construction of entrepreneurial projects such as restaurants and museums have created over 200 jobs for local villagers (Chen, 2019). The average gross annual income of local villagers increased from 12,700 RMB in 2014 to 23,400 RMB in 2019 (from approximately $1,816 in 2014 to $3,346 in 2019; Peng, 2020). However, due to the lack of reliable data, we may not be able to contend that poverty has already been eradicated in Sanhe Village. Yet, with these numbers, it is valid to argue the living condition of the local villagers has significantly improved over the duration of the program. However, so, too, have levels of State aid supporting those in the area whose income levels fall below the poverty line. Hence, while it could certainly be the case that soccer changed a town for the better, claims made to that

effect should be tempered or qualified to acknowledge the influence of other factors and events that might be co-constituting these changes within the local community.

3.2 Implementation challenges

In many ways, the challenges of implementing poverty eradication-focused sport programs are inextricably bounded to the challenges with accurately measuring their effectiveness. In the Sanhe Village case above, as with most sport for development initiatives, it is clear that a sport-based program was created to bring about change in the local community. The sport program led to increases in state support (e.g., infrastructure) and also increases in private economic activities (e.g., tourism, fruit sales). However, the challenge in Sanhe is consistent with those in other regional and national contexts: to accurately measure the extent to which a sport program is directly contributing to the reduction of poverty (or any SDG goal; Lindsey & Darby, 2019). These difficulties in measurement are then cyclically bounded to the sustainability of the programs themselves, whereby program administrators sometimes struggle to convince funding agencies (e.g., state, local, foundation, NGOs) to renew their commitments to existing or new programs on the basis that there is no evidence of their direct impact of eradicating poverty (Black, 2017). Moreover, it is often the case that program administrators might overstate the impact of a program—where a sport program is credited with significant shifts in poverty reduction when in fact larger investments in education, technical training, infrastructure, and so on were significant contributing factors and the sport program served more as complementary to, rather than catalysts for, these shifts.

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4

Applying Sustainable Development Goal 1

Marika Warner

MLSE (Maple Leaf Sports & Entertainment) LaunchPad is a Sport For Development (SFD) facility for youth facing barriers in Toronto, Canada. Situated in the Moss Park neighborhood of downtown Toronto and operating since 2017, the organization uses a collaborative partnership model to support youth alongside other local youth-serving organizations. Through this approach, MLSE LaunchPad seeks to achieve positive youth development outcomes in four pillar areas: Healthy Body, Healthy Mind, Ready for School, and Ready for Work. By applying youth-centered core values to a range of free programs and services provided in an SFD context, MLSE LaunchPad enables youth facing multiple and intersecting barriers to positive development to use sport to recognize and reach their potential (Warner et al., 2019).

4.1 End poverty in all its forms everywhere

The Moss Park community is home to an incredible diversity of human life, including a large number of high-occupancy subsidized housing complexes and Canada's highest concentration of homeless shelters (James, 2010; Kumbi, 2013). The rate of families living in poverty is high (City of Toronto, 2016). The area is densely populated by groups who, due to systemic inequities, are more likely than others to experience poverty, including Black and other racialized people, Indigenous people, and those new to Canada (Dhungana, 2012; James, 2010). The community is also known for above-average rates of the types of criminal activities accurately classified as crimes of poverty (CBC News, 2012).

The profound negative impacts of poverty on youth, families, and communities are wide-reaching and well-documented, affecting multiple aspects of physical health, mental wellness, academic achievement, and vocational attainment (Benner & Wang, 2014; Garner et al., 2012). SFD interventions have demonstrated the potential to influence short- and long-term outcomes relating to each of these foundational elements of a life's trajectory (Schulenkorf et al., 2016; Svensson & Woods, 2017; Whitley et al., 2017). In Toronto, youth living in poverty are unlikely to have access to the high-quality sport or SFD experiences that may support the development and maintenance of positive outcomes relating to health and wellness, school, and work. Intersectionalities such as gender, race, and religious minority status make access and engagement in impactful SFD activities even less likely (Toronto Foundation, 2019).

SFD is well-positioned to contribute to the achievement of the first sustainable development goal through individual and community impacts created by accessible and equitable programming, employment, and other intentionally designed and delivered opportunities for youth (Schulenkorf et al., 2016; Svensson & Woods, 2017; Whitley et al., 2017). By working to address poverty and related issues among youth and families served through advocacy and intervention, MLSE LaunchPad supports youth facing barriers as they pursue objectives relating to sport, education, careers, and personal wellbeing.

4.2 MLSE LaunchPad's developmental approach to poverty elimination

MLSE LaunchPad serves youth aged 6–29 years and their families. The organization's Theory of Change uniquely considers the needs of each age group served (Warner et al., 2019). Primary outcomes of interest for youth aged 6–10 years include the development of life skills such as physical literacy and self-esteem and continued sport participation. These foundations facilitate favorable outcomes that may buffer youth against the risk of adverse sequelae as they mature, and decrease the likelihood of indicators that increase the risk of poverty in adulthood: chronic disease, mental illness, and social isolation (Danese & McEwen, 2012; Bolíbar et al., 2019). For youth aged 11–14 years, the development of life skills remains a high priority, with a focus on life skills that directly support academic engagement and attainment, such as critical thinking, social competence, and grit. Community engagement is also a principal outcome in this age range, realized through volunteerism, civic engagement, and other leadership activities that build and compound social capital. For youth aged 15–18 years, work readiness adds to the list of critical outcomes. Through programs, professional development opportunities, direct employment opportunities with appropriate supports for success, and multi-sector advocacy, youth explore their potential and begin to pursue work-related objectives. Employment becomes the central focus for youth aged 19–29, with outcomes relating to sport participation, wellness, and community engagement also viewed as essential. Programs for this eldest age group involve significant collaboration with proven leaders in the youth employment sector for the co-development of curricula that utilize sport and physical activity synchronously with traditional and practical learning methods. As well as conducting research and sharing evidence-based practices for the use of sport to achieve livelihood-related youth outcomes, MLSE LaunchPad contributes to municipal, provincial, and federal policy and has become a sectoral catalyst for practices in youth employment support services (Warner et al., 2020).

MLSE LaunchPad's hourly staff team represents another branch of a comprehensive poverty-elimination strategy. The hourly staff team consists of coaches, supervisors, youth mentors, and administrative and operations personnel—themselves youth facing barriers, often hired from the local community or demographically similar neighborhoods. The support and opportunities developed for hourly staff are extensive and based on an innovative approach to human resource management. Components of this approach include ongoing mentorship, supportive pre-shift huddles, frequent check-ins with supervisors, all-staff meetings designed to empower hourly staff as leaders and contributors, a values-based performance review process, the appointment of hourly staff to high-profile advisory committees, and institutionalized opportunities for internal promotion.

4.3 Learnings

At a six-month follow-up, 78% of participants in employment-focused SFD programs were sustainably employed compared to 3% at baseline (Warner et al., 2020). This increase in

employment levels is maintained at a one-year follow-up, indicating strong retention attributed to increased skills relating to teamwork, leadership, and self-esteem that help youth succeed in interviews and the workplace (Ross et al., 2018). Youth in these programs also demonstrate statistically significant increases in personal income at both six-month and one-year follow-up (Warner et al., 2020). Increased personal income helps youth to move above the poverty line and achieve food security, housing security, and access to additional social capital, leading to positive health and wellness outcomes and often breaking a generational cycle of poverty. The same youth demonstrate a statistically significant increase in physical activity at a one-year follow-up (Warner et al., 2020). Sustained and adequate participation in physical activity underpins positive outcomes relating to physical health, mental wellness, and success at work. Active youth have a lower risk of developing chronic disease and a decreased likelihood of substance use (Bradley & Corwyn, 2002; Kroenke, 2008). Physical activity also decreases rates of depression, anxiety, and stress, and increases cognitive function and self-esteem (Liang et al., 2017). Active employees demonstrate better leadership, work performance, and job attendance (Sack & Allen, 2019). The outcomes described above are often critical antecedents of income stability, job retention, and career progression (Matsuba et al., 2008).

MLSE LaunchPad recognizes that poverty has significant structural and systemic causes that cannot be addressed simply through youth employment opportunities and related supports, and a SFD approach (PwC, 2018; Sabeel Rahman, 2018; Santos-Brien, 2018; The Balgrave Trust, 2018). Beyond individual skill development and related advocacy, elements of social inclusion such as housing, urban planning, transit, and child care must be considered in programming and policy-making to authentically and sustainably address poverty as a complex social issue (Coalter, 2015; St. Stephen's Community House & Access Alliance, 2016). MLSE LaunchPad urges SFD organizations to align with charitable foundations and anti-poverty organizations well-versed in advocacy and activism and to create a programming culture that supports youth to thrive as partners and leaders in poverty elimination.

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Part II

Sustainable Development Goal 2: zero hunger

5

An overview of Sustainable Development Goal 2

Lizzy Anast and Nicole Civita

The moment a soccer ball escapes the reach of a goalie.
The rush of the crowd at the end of an exhilarating game.
The high-fives of teammates.

Sport brings people together and builds a community based upon collective effort, exuberant exertion, and shared interests. The power of sport can emanate from a baseball diamond behind a middle school as quickly as it can from a packed stadium during the playoffs. Not merely concerned with elite athletes' exceptional feats, sport is also about reveling in what is possible when humans dedicate themselves to accomplishing that which requires persistence, determination, and almost unreasonable optimism. In other words, sport spans the ordinary and the extraordinary: a soccer ball kicked between a father and daughter; the perfect shot to score the winning goal of the FIFA World Cup. Sport both supports well-being and exalts human potential.

The fragrance of a late-summer tomato.
The sound of sauce simmering slowly.
The flavor of the first bite, the nourishment of the next.

The potent proximity between the ordinary and extraordinary that makes sport so resonant is also present in food. At its most basic, food is the antidote to emptiness, the fuel for the basic physiological processes that propel human life. Food can also transmit fond memories of an ancestor and create cultural connections across place and time. A plate of pasta may be hurriedly placed in front of a ravenous child after Tuesday evening baseball practice. But candlelit and wine-sluiced, a similar dish, can anchor a memorable meal. Food supports human well-being and exalts our sensory experiences in a variety of contexts.

Sport and food are also linked through their connections to physical health—each contributing mightily to human well-being. This link is unidirectionally dependent: without adequate food, sport falls away. An active body requires food as fuel. In the absence of adequate food, attention must focus on obtaining the nourishment sufficient to sustain life; there is simply no allowance for recreation, no energy for extra exertion. Moreover, athletic performance and

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vital processes such as recovery from exertion are enhanced through good nutrition (Pruna & Lizarraga, 2019). Thus, those who participate in or promote sport would be wise also to join efforts to enhance equitable access to nutritious food produced in ways that support linked human and planetary health (Demaio & Rockström, 2015; Whitmee et al., 2015). As efforts to eradicate hunger and sustainably produce food intensify, increased access to adequate nutrition—and the subsequent ability to exert oneself—would likely increase both participation in and enthusiasm for sport-related activities, creating a win–win situation for both sport organizations and food-insecure communities.

Sport and food, in their ideal forms, can also both be influential creators of community. Part of the allure of sport is its potential to provide an escape from the complexities of society by being a zone in which values are clear, shared, and unifying (Houlihan, 2008). Likewise, localized agriculture and food exchange, what Thomas Lyson (2004) terms "civic agriculture," can be tightly linked to and supportive of a community's social and economic development.

Unfortunately, these idealized versions of sport and food are often unrealized. In sport, rivalries can expand into enmity—the drive to win overpowering the urge for connection. Accumulation of achievement and accolades, especially at the organizational or league level, can morph into a relentless, single-minded pursuit of prestige and profit, which exacerbates social issues such as gender, racial, and ethnic inequality, and other forms of exclusion (Houlihan, 2008). For example, women's participation in sport is less than participation by men in nearly every country in the world and often promotes conformity with conventional notions of femininity (Kay & Jeanes, 2010). Additionally, [as demonstrated throughout this volume], sport can have a substantial environmental footprint (Anast & Mullen, 2020). Part of this harmful footprint is associated with the food served, consumed, and all too often wasted at venues—which often skews toward the unhealthful and the unsustainably produced (Koenigstorfer, 2018; Wooster, 2020).

The same is true of modern food systems: driven by the logic of global markets and organized around profit-generating imperatives, food system actors cause a wide range of grave eco-social harms, snare producers and consumers in ethical quandaries, and fail to ensure equitable access to adequate nutrition (Goldberg, 2020; Patel & Moore, 2017).

With both sport and food, problematic conduct and attendant harms tend to get amplified at scale. There are 61 billionaire controlling owners of teams in major sports leagues around the world (Badenhausen, n.d.). The professional sport organizations that they control are a part of bringing in substantial amounts of money. For example, during the 2018–19 NBA season, total revenue reached $8.76 billion (Reiff, 2020). A significant portion of that revenue enriches owners. At least 50% of the revenue goes to player salaries (Wertheim, 2018), with little accruing to the rank-and-file workers who keep the enterprise chugging along. At this level of play, multi-million dollar salaries reinforce an acquisitive ethic that eclipses the game's foundational values and contributes to the normalization and exacerbation of wealth and income inequality. Collegiate athletics, too, are profit centers. The difference here is that few college athletes are compensated for their contributions—a circumstance that further entrenches inequality and limits opportunity for intergenerational wealth building (Armstrong & Jennings, 2018; Islam, 2020; Nadkarni, 2020). Moreover, sport is connected through commerce to other well-financed enterprises. A wide range of recognizable brands advertise in arenas, during broadcasts, and through corporate sponsorships (Pyun & James, 2011). In 2017, such arrangements generated $91 billion in revenue for the sporting industry globally (Starnes, 2018). Sport organizations and the companies that provide sponsorship money have an opportunity to build partnerships and shift marketing dollars toward effective anti-hunger efforts. For example, the University of Colorado Boulder athletics and longstanding sponsor, Google, use a portion

of marketing dollars to provide support to the community. Recently, an activation involved increasing public transportation within the city of Boulder, which can in turn help lower-income people living in neighborhoods without ready access to a grocery store or other fresh food retailers attain physical access to food.

Similarly, the globalization of food and the corporate food regime tends to drive "accumulation by dispossession" through a combination of structural adjustment and displacement of smallholder agriculture (McMichael, 2013). Food production and provisioning activities that might otherwise be a place-centered and relational activity must contend with an influx of surplus foods from the global north, agro-industrial supermarkets, and foreign investment in land for export commodity production or other forms of resource extraction. In combination, these forces constrain opportunities for smallholding farmers to support themselves and meet their own basic needs (McMichael, 2013). At the same time, in wealthier nations and urban regions, people have come to view themselves as consumers first. They are separated from their food by a long chain (or complex web) of intermediaries driven by profit motives over a desire to nourish in the full sense of the word (Levkoe, 2006).

This need not always be the case. The Olympic games, for example, ritually remind global citizens of peace, cohesion, and stewardship, encouraging athletes and spectators alike to "build…friendships and draw…lines of respect across borders" (International Olympic Committee, 2016). Even in a world marked by poverty, inequality, hunger, war, and loss, the Olympics represent the best of what people can offer each other: motivational challenge, mutual respect, common cause, and an equal playing field. Assuredly, competition is present—and often centered—but the competition motivates achievement and pushes people to accomplish audacious goals.

Indeed, it may be the audacity of sport that makes the sector well-suited to pursuing bold goals like the one in SDG 2, which aims to "end hunger, achieve food security and improve nutrition and promote sustainable agriculture" (General Assembly, 2015, p. 14). This goal, like many of the SDGs, is at once straightforward and ambitious. It is straightforward because humans have figured out how to produce more than enough food to meet the needs of all people currently living today (Holt-Giménez et al., 2012). Yet, it is ambitious because, even in the context of significant surplus, hunger persists at consistently unacceptable and once-again rising levels (Fitzpatrick et al., 2020). Climate-related shocks, anticipated migration, more numerous conflicts (including conflicts over food and the land and water resources needed to produce it) can be expected to make it more difficult to produce food as the 21st century goes on (FAO, 2020). Additionally, areas without significant conflict or climate-related incidents may still experience disrupted access to food due to economic slowdowns and, as we now know all too well, global pandemics (FAO, 2020).

5.1 Defining Sustainable Development Goal 2

SDG 2 sets a goal to "end hunger, achieve food security and improve nutrition and promote sustainable agriculture" (General Assembly, 2015, p. 14). Hunger is a public health problem of moral significance (Rush, 2013), evidence that the internationally recognized right to food has been abrogated, and a substantial barrier to sustainable development. The UN notes:

> Extreme hunger and malnutrition remain a barrier to sustainable development and creates a trap from which people cannot easily escape. Hunger and malnutrition mean less productive individuals, who are more prone to disease and thus often unable to earn more and improve their livelihoods. (United Nations, 2020a, p. 1)

Table 5.1 Targets of Sustainable Development Goal 2

2.1	By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round
2.2	By 2030, end all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in children under 5 years of age, and address the nutritional needs of adolescent girls, pregnant and lactating women, and older persons
2.3	By 2030, double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition and non-farm employment
2.4	By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality
2.5	By 2020, maintain the genetic diversity of seeds, cultivated plants and farmed and domesticated animals and their related wild species, including through soundly managed and diversified seed and plant banks at the national, regional and international levels, and promote access to and fair and equitable sharing of benefits arising from the utilization of genetic resources and associated traditional knowledge, as internationally agreed
2.a	Increase investment, including through enhanced international cooperation, in rural infrastructure, agricultural research and extension services, technology development and plant and livestock gene banks in order to enhance agricultural productive capacity in developing countries, in particular least developed countries
2.b	Correct and prevent trade restrictions and distortions in world agricultural markets, including through the parallel elimination of all forms of agricultural export subsidies and all export measures with equivalent effect, in accordance with the mandate of the Doha Development Round
2.c	Adopt measures to ensure the proper functioning of food commodity markets and their derivatives and facilitate timely access to market information, including on food reserves, in order to help limit extreme food price volatility

Source: General Assembly (2015).

Around the time that the SDGs were launched, nearly 690 million people (8.9% of the global population) were undernourished. The majority of the world's undernourished resided in Asia, followed by Africa, where the ranks of the undernourished are growing more rapidly than anywhere else in the world. 2019 estimates revealed a worsening problem: close to 750 million—nearly 1 in 10 humans—experienced severe levels of food insecurity and some 2 billion did not have regular access to safe, nutritious, and sufficient food. Of particular concern are the 144 million children under age 5 who were affected by stunting and the 47 million affected by wasting, or acute undernutrition, a condition caused by limited nutrient intake and infection.

At the dawn of the 2020s, the Food and Agriculture Organization of the United Nations (the FAO) projected that the number of people affected by hunger would surpass 840 million by the turn of the next decade. In other words, the FAO projected that the global community would not only fall short of SDG 2's marquee goal but that hunger would spread unchecked. This unsettling projection would soon be seen as a rosy underestimate. As COVID-19 rampages across the globe, ravaging bodies, interrupting livelihoods, crashing economies, complicating harvest, and disrupting supply chains, hunger rates have reached alarming levels. While

official estimates of global increases have not yet been published, in December 2020, David Beasley, the Executive Director of the World Food Programme, warned that the number of people "marching towards starvation" (i.e., suffering from acute starvation) spiked from 135 million to 270 million during the pandemic—a terrifying 82% increase. Beasley grimly predicted that 2021 would almost certainly play host to catastrophic famine, making it the "worst humanitarian crisis year since the founding of the United Nations" (United Nations, 2020b). Additionally, the coronavirus economic crisis has also caused food insecurity rates to skyrocket in wealthy nations. For example, prior to March of 2020, food insecurity within the United States hovered between 11% and 12% (Wolfson & Leung, 2020); during the onset of the pandemic, food insecurity rose to 38% (Fitzpatrick et al., 2020).

In this context, focused attention to the targets under SDG 2 is even more critical today than at the time that the SDGs were drafted. SDG 2, at its core, is focused on the achievement of food security, which exists "when all people, at all times, have physical and economic access to sufficient, safe, nutritious food to meet their dietary needs and good preferences for an active and healthy life" (IFPRI, 2021). The four pillars of food security are:

- *availability*, which refers to the supply side of food and is determined by production, stock levels, and net trade;
- *access*, which refers to individual households having adequate money and knowledge to purchase food;
- *utilization*, which refers to community-level or household processing, storage, preparation, and consumption; and
- *stability of supply*, which refers to both the reliability and consistency of food access and consumption (Gross et al., 2000).

To drive toward the achievement of SDG 2, the United Nations has set five key targets, as listed fully in Table 5.1 and summarized here.

Target 2.1 embraces all people but places special emphasis on the poor and people in vulnerable situations, including infants. The UN uses hunger to capture the specific times or periods when populations experience food insecurity and describe the psycho-emotional distress associated with lack of food (FSIN, 2020). In other words, hunger is the product of food insecurity. It is essential for all people to have access to sufficient food for an active and healthy lifestyle. Access and availability to foods that promote a healthy lifestyle is the only way to fully end hunger.

Target 2.2 focuses on ending all forms of malnutrition by 2030, with interim goals of achieving internationally agreed targets on stunting and wasting in children under 5 years of age by 2025. According to 1,000 Days, the leading advocacy group for early nutrition interventions:

> Poor nutrition in the first 1,000 days can cause irreversible damage to a child's growing brain, affecting her ability to do well in school and earn a good living—and making it harder for a child and her family to rise out of poverty. It can also set the stage for later obesity, diabetes, and other chronic diseases which can lead to a lifetime of health problems. (1,000 Days, 2021, para. 3)

Recognizing that this early window is a time of tremendous potential and vulnerability, target 2.2 focuses particular attention on the special nutritional needs of adolescent girls and pregnant and lactating women. It is also concerned with the needs of older persons, who may have a

difficult time accessing food and are at risk of exacerbating illnesses associated with aging if they are malnourished (General Assembly, 2015).

Target 2.3 centers on doubling the agricultural productivity and incomes of small-scale food producers by 2030. The UN evinces concern with raising the productivity incomes of producers who operate on small landholdings relative to other producers in their geographic area. For context, there are at least 570 million farms worldwide, 475 million of which are very small family-operated farms on less than 2 hectares of land (Lowder et al., 2014). Conservative estimates indicate that, globally, these smallest of the smallholder-operated farms are responsible for 28–31% of total crop production and 30–34% of food supply on just 24% of gross agricultural area (Ricciardi et al., 2018). Other estimates indicate that they produce up to 80% of the food consumed in the developing world (IFAD, 2011). These diversified farms focus their resources on producing an array of food crops and making important contributions to global and regional food supplies. Nevertheless, smallholder farmers comprise the majority of the world's undernourished population and most of those living in absolute poverty (IFAD, 2011; UN Millennium Project, 2005). The factors that place smallholders on the economic margins vary by region but include low yields, regular shocks that reduce yields, and inadequate coping strategies (Harvey et al., 2014), as well as age, migration, and asset ownership (or lack thereof; Alpízar et al., 2020).

Smallholder farmers are also exceedingly vulnerable to the climate crisis's impacts given their reliance on rain-fed agriculture, small and increasingly fragmented landholdings, minimal assets, relatively low education levels, spotty access to technical assistance and credit, and lack of capital to fund adaptation measures. Suppose smallholder agriculture is less productive and smallholder poverty rises as climate volatility worsens. In that case, the effects on global food security will be doubly deleterious—less available food in parts of the world that already struggle most with hunger and more severe food insecurity for farmers already on the economic margins (IFAD, 2011).

Target 2.4 relates to ensuring sustainable food production systems and implementing resilient agricultural practices by 2030. Sustainable and resilient agri-food practices and systems increase productivity and production, progressively improve land and soil quality, and help maintain ecosystems. They also strengthen capacity for adaptation to climate change, extreme weather, drought, flooding, and other disasters. Resilient agriculture promotes healthy communities and gives them access to affordable and nutritious food, essential conditions given the projection that population, income growth, and rapid urbanization will drive global food demand up by at least 60% (relative to 2006 levels) by midcentury (FAO, 2016). In this context, projected productivity declines associated with climate volatility have an extremely deleterious effect on food security. Target 2.4 is further premised on the recognition that one-fifth of global Greenhouse gases (GHG) emissions are attributable to agriculture, forestry, and land-use change. Unless there is a rapid transition to sustainable food production systems that are less emissions-intensive—and, in some cases, even increase soil-carbon sequestration potential (Ranganathan et al., 2020)—the manner in which we produce food in the present will continue to imperil our ability to do so in the future. This target also embraces efforts that enhance the capacity of individual farms and the food system as a whole to bounce back from the increasingly frequent shocks (Civita, 2015).

Target 2.5 focuses on maintaining the genetic diversity of seeds, cultivated plants, and farmed and domesticated animals and their related wild species by 2020. Genetic diversity is the foundation of a nutrient-rich, abundant, and resilient food supply. But in many parts of the world, our food supply is practically homogenous. For example, roughly 60% of the calories consumed in the US are from only four crops (Food Forever, 2019). Reliance upon so few crops may generate efficiencies in processing and trade, but it can undermine nutrition and

expose food systems to catastrophic losses (e.g., if a dominant crop is subject to disease or extreme weather hits a region and damages its monocultures.) To promote genetic diversity, a cornerstone of food resilience, target 2.5 calls for the establishment and maintenance of soundly managed and diversified seed and plant banks at the national, regional, and international levels. These banks will better enable farmers and scientists to cultivate or develop new crops and livestock breeds that can tolerate heat, drought, and disease. Additionally, there must be efforts to promote access to genetic resources and associated traditional knowledge, as well as to fairly and equitable share the benefits that flow from the utilization of the same.

The persistence of such widespread, worsening, and acute hunger is even harder to swallow when we consider that humans produce 1.5 times more food (in terms of calories) than would be needed to feed every person on the planet (Holt-Giménez et al., 2012). A calorically profuse food supply that may not be the same as a nutritionally appropriate one demonstrates that food insecurity is more a function of malapportionment than undersupply (Holt-Giménez et al., 2012). Food is *available* on the planet, but it cannot be reliably *accessed* or *utilized* by the poor in a stable manner. In this context, the kinds of interventions that have the greatest potential to make durable progress on SDG 2, particularly targets 2.1 and 2.2, are those that affirm the human right to food, promote equitable distribution of food resources, and prioritize the production of culturally appropriate staple food crops over less energy- and input-efficient feed crops that must be cycled through livestock and fish before becoming suitable human food (FABLE, 2020). Simultaneously, efforts to re-localize a larger proportion of food-related activity and support community-level capacity and resilience, respect indigenous wisdom and traditional ecological knowledge, and finance and supply technical assistance to cooperative business models can be expected to support progress toward targets 2.3, 2.4, and 2.5 without replicating the flawed and extractive logic of the corporate food regime.

5.2 Characterizing *effective* anti-hunger and pro-nutrition efforts (which make meaningful progress on SDG 2)

Hunger is a distinctive challenge because it needs to be addressed immediately to avoid acute harm to individuals, especially in sensitive human physiological and neurobiological development stages. But if anti-hunger efforts focus solely on getting a ration of calories or even a complement of nutrients to people in need, the conditions that produce hunger will persist. Hunger is also a persuasive problem—one that tugs at the heartstrings of people and organizations of means and compels them to "do something" about it. In the face of hunger, the most obvious intervention is to offer food without charge. Giving food to those without it—or, more frequently, to the large organizations that make up the food banking and nutritional aid networks at national and global levels and, in turn, distribute food to people in need—tends to be a relatively uncontroversial form of social impact action. Whether in harmoniously pluralistic or deeply polarized societies, few argue against food drives and donations to feeding charities, which endeavor to address an individual's immediate lack of food (Fisher & Jayaraman, 2017; Poppendieck, 1998). However, charitable feeling efforts are not meant to and cannot effectively address the root causes of poverty and inequality of opportunity, nor do they aim to resolve the range of logistical and market failures that allow hunger and food waste to exist alongside each other (Fisher & Jayaraman, 2017). Often, people and organizations that collect and distribute many pounds or even tons of food feel accomplished and absolved of guilt about the disparities in food access. Possessing evidence of their salutary impact and positive reinforcement for their altruistic efforts, donors to, as well as volunteers and workers in, the charitable food system remain unaware of or unwilling to face the larger structural drives of poverty and hunger

(Caraher & Furey, 2017). Andrew Fisher, a 25-year anti-hunger practitioner, sums this well: "It's not that the emergency food system is bad in the moralistic sense, but instead, ill-suited to the purpose to which it is put" (Fisher & Jayaraman, 2017, p. 261).

Likewise, popular approaches to improving diets and reducing both under- and over nutrition are focused on ascetic individual conduct rather than structural change. For example, such interventions encourage eating more fresh produce, reducing consumption of added sugars, fats, and oils, and resisting the allure of highly processed foods (Thomas, 1991). Such suggestions, while both well-intended and well-founded, demand that individuals exercise a high level of individual agency to benefit. They also hinge on an individual's ability to follow through, which is, in turn, influenced by factors including level of education, income, time, and food availability. As a result, highly agentic interventions are less effective and equitable than alternatives that require less agency (Adams et al., 2016) such as policies that ban health-harming ingredients like trans fats, food manufacturer-led initiatives to formulate healthier products (e.g., products with lower salt or sugar; vitamin and mineral fortified products), or "nudge" interventions that use insights from behavior psychology to make changes to the food environment (e.g., placing the fresh vegetables in the easy-to-reach parts of a buffet or using smaller plates to control portion size and discourage overeating; Adams et al., 2016).

With the knowledge that neither emergency feeding efforts nor highly agentic interventions are tremendously effective at resolving the causes of hunger and malnutrition, we encourage parties working toward the achievement of SDG 2 to consider how they can support systemic change that is consonant with Right to Food (e.g., "RTF Guidelines"; FAO, 2016). As articulated by the UN Committee on Economic, Social and Cultural Rights, "the right to adequate food is realized when every man, woman and child, alone or in community with others, has the physical and economic access at all times to adequate food or means for its procurement" (CESCR, 1999). While the RTF Guidelines are written for public sector actors and are aimed at the national level, they encourage multi-sectoral approaches (FAO, 2016).

Taken together, and contrasted with a human rights based approach to food, the critiques of the corporate food regime, the emergency food system, and public health/nutrition interventions that require a high degree of individual agency demonstrate the need for alternate approaches. This is especially true given the trends on global hunger statistics—prevailing efforts have not made meaningful progress toward zero hunger (even in a pre-COVID context). We contend that all who seek to support meaningful progress on SGD 2, inclusive of those in the sport sector, must move beyond charity-centered and individualistic approaches to stanching hunger and toward efforts that create systemic changes, rebalance resources, and support greater community agency around food.

Over two decades ago, Welsh and MacRae (1998) argued for a move toward "food citizenship," an approach to achieving food security that disrupts the prevailing notions of food as a commodity and people as consumers; they also recommended reinforcing pairings of policy development and community action. Their work was reflective of the early food justice movement, which envisions food systems that are inclusive, community-led and participatory, and that do not exploit people, land, or the environment. Food justice advocates prefer to confront hunger by addressing the structural inequities in and reinforced by food and economic systems. As the sport sector directs its attention more firmly toward initiatives that aim to end hunger and malnutrition while also promoting the transition to a more sustainably productive and resilient global food system, there is tremendous opportunity to simultaneously advance SDG 10 (reduced inequalities).

Inspired by Welsh and McRae's recommended best practices and informed by over a decade of subsequent food justice praxis, we recommend that sport organizations advancing SDG 2 take the following equity and justice-grounded steps toward ending hunger:

1   Eschew strategies based exclusively on charity (with the exception of food rescue efforts that follow robust attempts at source reduction).
2   Aim to simultaneously address multiple problems at their common causes, recognizing the tight nexus between food justice and racial justice and food sovereignty and decolonization movements.
3   Ground anti-hunger work in health promotion, without the use of obesity-villainizing or body-shaming rhetoric.
4   Align anti-hunger work with environmental conservation, agro-ecological farming, and sustainable food production practices.
5   Emphasize efforts that support the co-development of food, athletic, and civic skills.
6   Support efforts that reclaim a degree of cooperative local control over food production, processing, and distribution, especially in disinvested areas with high rates of food insecurity, allowing the value in and through food transactions to circulate and multiply within a community.

Because food justice efforts of the sort characterized above are often thinly resourced, sophisticated sport organizations with resources to spare are well-positioned to offer "game-changing" kinds of support. We recommend that professional sport organizations use their financial resources, public profile, and political power to amplify or build upon the work of community food security and food justice activists who pursue structural change, empowering communities to replace hunger with equitable food access. For example, NFL player Sam Acho and Commissioner Roger Goodell joined forces with several local leaders to address food insecurity in the Austin neighborhood on Chicago's West Side. The USDA designated this part a food desert: within a half-mile radius there are 17 liquor stores but just two retailers that stock groceries (USDA, 2020). Acho rallied other Chicago professional athletes to fundraise for and partner with By The Hand, a local non-profit, to purchase one of the liquor stores and transform it into a grocery store, improving physical access to affordable, fresh, and healthy food for area residents, many of whom are live in low-income, food insecure households (National Football League, 2020).

5.3 An appraisal of recent efforts to address hunger by athletes and sport organizations

Recent efforts to address problems with which SDG 2 is concerned by sport organizations and athletes typically take the form of (1) organization-, athlete-, or fan-led food donation efforts; (2) venue-led food rescue and donation efforts; and (3) largely athlete-led behavior change campaigns and educational programs to jointly promote physical activity and healthy eating. In this penultimate section, we provide some examples of such efforts and commentary about how to improve their effectiveness in the context of SDG 2. We also highlight a few recent sport-related examples of athletes approaching anti-hunger work with an ethos that leans toward food-citizenship, food justice, or food sovereignty.

5.3.1 Classic food charity efforts

Currently, there are many sport organizations working with food banks and other local charities to provide food for individuals in the community. For example:

*   On Giving Tuesday in 2018, the Los Angeles Chargers teamed up with Lift Up America and Tyson Foods to provide 17,850 pounds of Tyson protein to the Los Angeles Regional Food Bank (Los Angeles Regional Food Bank, 2018).

- In their city, the Cleveland Browns hosted a fundraiser featuring local celebrities, players, and chefs, raising more than $350,000 to provide meals for more than 1.4 million people (Greater Cleveland Food Bank GCFB, 2019).
- At the league level, the NFL kicked off its 100th season with the *Huddle for 100* initiative and helped Bridge to Kids package and deliver 8,000 backpacks full of food to children in need (National Football League, 2019).
- After noticing a lack of stock on foodbank shelves, a group of Liverpool and Everton football fans launched the *Fans Supporting Food Banks* initiative, which has received support from coaches and players of their rival teams and expanded to other clubs (Everton, 2019; Goulding, 2019).

To be clear, the efforts inventoried above are but a few examples of a larger trend. We reiterate that charitable efforts are like band-aids placed over wounds that have not been disinfected. We are of two minds about these programs: we recognize that they meet a very real and present need, and they create the impression that a society's hunger problem can (and, perhaps, should) be solved by the private sector alone, leaving a very narrow role for government and tacitly supporting the status quo (Fisher & Jayaraman, 2017). This helps to reinforce an enduring cultural narrative about how to respond honorably in the face of hunger: mobilize more donations! While there is a place for this kind of food first aid—and there will likely always be a role for charity to respond to true emergencies that disrupt food access (e.g., fires, hurricanes, floods)—it is critical to be mindful of how these efforts are framed and messaged. For example, when Fans Supporting Foodbanks urges supporters to play their part in helping "win the battle against food poverty," one might assume this effort will move the world toward Zero Hunger. Instead, it is more likely to keep us locked in what Fisher calls "the Charity Trap" (Fisher & Jayaraman, 2017).

To avoid getting trapped while also not ignoring immediate need, sport organizations and athletes that work with food banks and charitable feeding programs should approach these efforts more strategically. Drawing from Fisher's recommendations for emergency food organizations (which offer useful insights for those supporting such organizations), we recommend that sport organizations and actors implement the following measures to angle their efforts toward eradicating rather than ameliorating hunger.

1 Vet potential partners carefully. Work only with emergency feeding organizations that have developed and are implementing a long-term, benchmarked strategic plan to transform charitable food distribution/international food aid. If an organization that you want to support has not yet done this, first work with and fund them to develop such a plan. In other words, only work with charitable feeding organizations willing to work themselves out of existence in the long run.

2 Match donations of food or funds to purchase meals with funding for policy advocacy, community organizing, or local food system infrastructure development. Inquire about where, other than food and food distribution operational support, the organization needs support.

3 Refrain from celebrating the pounds of food or numbers of meals provided through their efforts as an accomplishment. Message instead about the drivers of poverty, food insecurity, and hunger in the region where you are making donations. Take a stand about what needs to be done to address them. Directly acknowledge the duality in your efforts to address hunger: boldly state that you shouldn't have to continually fund charitable meals, but that you are doing so to avoid acute hunger and suffering while amplifying your efforts to

address root causes. Provide information about how your stakeholders and fans can support policy and community action to durably end hunger.

4   Incorporate the six equity- and justice-grounded steps toward ending hunger (discussed above) into your work.

5.3.2 Food rescue and donation efforts

Food rescue efforts are an interesting variant of food charity. Ultimately food rescue, also called food recovery and donation, is still a donative approach aimed at meeting immediate food needs (Civita, 2016; Dou et al., 2016). However, food rescue differs from a typical food drive in that it not only aims to feed hungry people, but it also aims to avoid sending safe, edible excess food to a landfill, where it will fail to fill its intended purpose and, instead, emit climate-warming methane as it decomposed. The avoidance of food waste is so important that it has its very own target (12.3) under SDG 12, which is focused on ensuring sustainable production and consumption patterns (General Assembly, 2015). Target 12.3 seeks to halve global food waste at retail and consumer levels, as well as to reduce food loss during production and supply. One-third of food produced each year goes to waste while roughly 10% of the world population does not have enough to eat (USDA, 2021)—a blatant sign of global food system dysfunction and market failure.

Moreover, food waste has a tremendously negative environmental and GHG food print: Food waste now accounts for more than one-fourth of total freshwater consumption and approximately 300 million barrels of oil per year (Hall et al., 2009). Additionally, food waste is responsible for 6% of total GHG emissions (Ritchie, 2021). Because the climate crisis's accelerating and resource-depleting consequences of food waste exacerbate challenges to future food production, the wasting of food today represents both a missed opportunity to satisfy the nutritional needs of current humans and complicates the task of feeding future generations. Accordingly, food rescue and donation efforts are more appealing and effective than other, more standard forms of food charity. When it comes to making progress on SDG 2, however, not all food rescue programs are created equal. Ideally, food rescue programs are paired with source reduction efforts—efforts to avoid producing substantially more food than is likely to be consumed (EPA, 2020). They should also be operated with clear standards to avoid the passing along of inedible, contaminated, unsafe, or nearly spoiled foods that will just need to be disposed of by the recipient organization (Feeding America, 2021).

Athletic teams and venues across the globe have taken the initiative to reduce food waste through donating leftover food to local food recovery groups. The food is then distributed to people in the community who need it most. For example, the NHL was an early entrant into the food rescue game; the league committed to reduce food waste at all arenas and issued a league-wide mandate in 2010 to donate all untouched food to different food recovery programs throughout the country (Green, 2015). Other sport organizations use third party companies to help with food recovery. For instance, "Rock and Wrap It Up!" is a 501(c)(3) anti-poverty think tank based out of New York with the goal of finding innovative ways to help fight hunger (Rock and Wrap it Up!, 2020). Their initiative, "Sports Wrap!" focuses on recovering food from sporting events. They currently work with 74 franchises within the professional athletic space to help recover food. The company meets with concessionaires and local food banks to facilitate a relationship and easy way to send leftovers from events. Additionally, "We Don't Waste" is a Colorado-based non-profit that recovers excess food from sporting events (including those of the Rockies, Avalanche, Broncos, and Nuggets) and redistributes the food to local nonprofits across the Front Range (We Don't Waste, 2020). Since 2009, We Don't

Waste has donated more than 100 million servings of food to those in need. This model exemplifies addressing multiple problems by aligning charitable feeding with environmental conservation. When paired with efforts to offer healthier and more sustainably sourced foods at venues, food rescue from sporting events can be even more helpful.

5.3.3 Behavior change and health education efforts

It is not uncommon for high-profile professional athletes to volunteer their time and, in some cases, their leadership prowess to highly agentic nutrition and health efforts (e.g., former US professional basketball player Paul Pierce ran the "The Truth on Health" campaign to encourage physical fitness and healthy eating among youth; J.J. Watt started the JJ Watt Foundation with a mission to provide middle-school aged children opportunities to participate in athletics; and the Michael Phelps Foundation works to promote healthy lifestyles by giving children an opportunity to participate in the sport of swimming). Once again, these efforts are not worthy of scorn and they may have done some real good along several dimensions—but they are unlikely to make meaningful progress toward ending hunger or building a more secure food system into an increasingly volatile future.

We appreciate the intrinsic appeal of interventions based on individual agency in the context of athletics where there is tremendous value in, need and reward for diligent individual effort. While there are undoubtedly circumstances under which the central messages of the aforementioned programs will be both motivating and actionable, the fact of the matter is that the least food secure among us cannot be expected to "good behavior" their way out of hunger, poverty, bias, and long-standing marginalization. We do not intend to give the impression that messages directed toward individual action are never effective or appropriate; it all depends on the audience and context—and whether the messages are paired with capacity building support. One positive example: as an ambassador for Save the Children, Portuguese soccer star Cristiano Ronaldo has funded and promoted efforts to reskill and provide support to smallholder farmers so that they can produce diverse plant foods and goat milk to nourish their young children (Save The Children USA, 2013).

5.3.4 Citizenship, justice, and sovereignty oriented efforts

Food justice is aligned with broader social movements for social and racial justice that have been building to a crescendo in the United States and are tied to global activism (Rosenblatt, 2020; Schlosberg & Coles, 2016). Indeed, the use of a justice-grounded approach to SDG 2 in sport has a prominent recent precedent: In the United Kingdom, Marcus Rashford is using his clout as one of the greatest soccer players of all time to address the spate of youth hunger that resulted from the COVID-19 pandemic (Perrigo, 2020). As a child, Rashford felt the pangs of real hunger first hand and depended on free lunches from school to quell them. As an adult, he was motivated to help youth who shared his struggle. Originally, alongside his mother, Rashford started a project with his mother to feed 400,000 local children. Even though his charitable efforts fed many children, Rashford recognized that providing food alone was not sufficient to create sustainable change. So, he started a petition demanding that the British government expand access to free school meals, provide meals and activities during holidays to prevent hunger, and expand the healthy start scheme to provide more support to young mothers on benefits (Rashford, 2020). After the public rallied behind Rashford's campaign, the British government allowed 1.3 million children to claim free school meal vouchers over the six-week period and Queen Elizabeth II awarded Rashford an MBE "for services to vulnerable children

in the UK during COVID-19" (Perrigo, 2020). When the British government rejected further extensions of youth feeding programs as the pandemic wore on, Rashford asserted: "This is not politics, this is humanity… These children matter. These children are the future of this country. They are not just another statistic. And for as long as they don't have a voice, they will have mine" (Rashford, 2020). In reporting on Rashford's efforts to elevate hunger as a matter of national concern and public sector responsibility, journalist Dave Zirin observed:

> If this generation of athletes can demonstrate that we need activists and organizers, not philanthropists, that would be a vital step away from the nihilism of the Trump years and toward the kind of battle we will need to wage to ensure the very survival of communities on the brink. (Zirin, 2020)

Sport organizations, especially at the collegiate and elite level have, in recent decades, profited tremendously off of the talents of Black, Indigenous, and people of color without adequately reckoning with complex histories of racism, marginalization, and the economic inequities and food insecurity that flow therefrom. Worse, often when these issues are raised by athletes of color and their allies, powerful voices in the sector initially either attempt to silence the message, resist it or respond with weak platitudes (Starnes, 2018). Nevertheless, as Dan Lebowitz, executive director of Northeastern's Center for the Study of Sport in Society, observed:

> [In America,] athletes have embraced [sport's] potential [to build common ground] and the power of their collective voice to raise our national consciousness and start a long overdue conversation about the systemic racism that has caused untold inequity, exacted constant historical violence upon people of color, plagued our country and imperiled our future. (Callahan, 2017)

Accordingly, within a few short years, the sector's predominately underwhelming, unsupportive responses quickly became untenable (Callahan, 2017; PAC–12, 2020). As sport keeps pace with broader social movements, it should turn toward justice framed approaches to hunger that are fitting and responsive to the growing chorus of demands for systemic change (Love et al., 2019). To engage in transformational racial justice and food justice work (inclusive of efforts to advance SDG 2), leaders in the sport sector must courageously develop deeper understandings of racial identity, implicit bias, and institutional racism in both the sport sector and the food system. To do so, we recommend the resources of the Center for the Study of Sport in Society (particularly its Don't Hate the Player Program) and the HEAL Food Alliance.

5.4 Making the case for bold sport-sector action to end hunger

While many of the SDGs are entwined with each other, it bears noting that without adequate nourishment for all people, the prospects for making meaningful progress on other SDGs will be sharply curtailed. For example, SDG 3 (good health and well-being) is founded upon proper nutrition. Moreover, SDGs 3, 6 (clean water), and 12 (responsible production and consumption) are all advanced when people have access to air, water, and food that are not riddled with agricultural pollutants (Mateo-Sagasta et al., 2018). Additionally, SDG 4, which aims at making quality education widely accessible, is hard to realize without proper nutrition because early malnutrition impairs brain development and cognitive capacity and children with empty stomachs struggle to focus on their lessons (Alaimo et al., 2001; Evans & Schamberg, 2009; McIntyre et al., 2018). Of course, those who are too malnourished to learn will struggle to

qualify for decent work or contribute to economic growth (Cook & Poblacion, 2016; Torero, 2014). Sport organizations committed to realizing any of the 17 SDGs should place a heavy emphasis on SDG 2 both because such progress enables more people to contribute to sustainable practices of all kinds and because stable, uninterrupted access to adequate nutrition is necessary for an active and healthy life.

In a world of hunger, there is little space for sport. Athletes are not built in a day; their prowess is honed over years and decades of calorically expensive training, practice, and competition. Because youth who lack access to adequate nutrition are less able to participate in sport (Gundersen & Ziliak, 2015), failure to achieve global food security could prevent future star athletes from cultivating a passion for and skill in sport. Beyond posing a "pipeline problem," lack of youth participation in sport has the potential to suppress fanship, driving a reinforcing feedback loop that undermines the very future of sport or at least limits its potential future. Thus, it is especially mission-aligned for sport organizations and actors to support anti-hunger efforts that are not merely palliative and status-quo enabling but curative and justice-seeking.

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Measuring Sustainable Development Goal 2

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The United Nations Economic and Social Council tracks the progress of all Sustainable Development Goals and releases a yearly report. This section emphasizes progress as stated in the *Report of the Secretary-General E/2019/68*. However, because the Secretary-General's report provides little relevant data on some indicators, where necessary, we supplement with data from other United Nations–affiliated sources. As discussed in Chapter 5, the COVID–19 pandemic and the resultant economic crises have caused hunger to spike after a period of troubling incline. The *E/2019/68* precedes the pandemic, and, therefore, the recent, sharp escalation of the problem is not reflected in the data relayed in this section.

6.1 Indicators of progress

To develop a clearer picture of progress on SDG 2, we pair each of targets 2.1–2.5 and their respective indicators with available evidence regarding progress toward their achievement presented below. A full list of indicators is provided in Table 6.1.

6.1.1 Target 2.1

In 2017, an estimated 821 million people in the world were undernourished (UN ECOSOC, 2019), up from 784 million in 2015. Africa faces the highest prevalence of undernourishment—nearly one-fifth of the African continent population lacks adequate food access. The UN monitors success toward SDG 2.1 through two specific resources and indicators: 2.1.1 uses the prevalence of undernourishment (PoU), and 2.1.2 looks at the Food Insecurity Experience Scale (FIES; FAO, 2019).

The PoU has remained relatively unchanged since 2015 and sits slightly below 11% (FAO, 2019). However, the total number of undernourished (NoU) has steadily increased for several years in a row. Data reported in 2019 show that slightly over 820 million people suffer from hunger. This corresponds to one in every nine people around the world facing hunger. The regions of the world facing the largest increases in PoU are Middle and Eastern Africa, which sit at 25.6 and 30.8%, respectively.

Table 6.1 Sustainable Development Goal 2 indicators

2.1.1	Prevalence of undernourishment
2.1.2	Prevalence of moderate or severe food insecurity in the population, based on the Food Insecurity Experience Scale (FIES)
2.2.1	Prevalence of stunting (height for age <−2 standard deviation from the median of the World Health Organization (WHO) Child Growth Standards) among children under five years of age
2.2.2	Prevalence of malnutrition (weight for height >+2 or <−2 standard deviation from the median of the WHO Child Growth Standards) among children under five years of age, by type (wasting and overweight)
2.3.1	Volume of production per labor unit by classes of farming/pastoral/forestry enterprise size
2.3.2	Average income of small-scale food producers, by sex and indigenous status
2.4.1	Proportion of agricultural area under productive and sustainable agriculture
2.5.1	Number of plant and animal genetic resources for food and agriculture secured in either medium or long-term conservation facilities
2.5.2	Proportion of local breeds classified as being at risk, not-at-risk or at unknown level of risk of extinction
2.a.1	The agriculture orientation index for government expenditures
2.a.2	Total official flows (official development assistance plus other official flows) to the agriculture sector
2.b.1	Producer Support Estimate
2.b.2	Agricultural export subsidies
2.c.1	Indicator of food price anomalies

Source: General Assembly (2017).

Additionally, both PoU and NoU levels have been steadily rising in most areas of Africa since 2015. Indicator 2.1.2 looks at all cases of food insecurity, including moderate levels. The FIES scale is typically used for governments and leaders to create policies that will increase food access to all individuals. According to the FOA, in 2018, 9.2%, or 700 million of the world's population, were exposed to severe levels of food insecurity (2019).

The key difference between the two indicators is that PoU focuses on structural factors that influence inequitable access and availability of food. At the same time, FIES looks at short-term circumstances or events that limit access. Sport organizations following the recommendations in Chapter 5 might find the PoU a more meaningful metric. It relates more to food justice and durable solutions that guard against the perpetuation of hunger–producing inequities. That said, organizations that remain oriented toward addressing the acute need in times of crisis might look to FIES.

6.1.2 Target 2.2

Since 2000, stunting has decreased in nearly every region, a trend that reflects efforts to de-liberately direct food and nutrition assistance to support maternal, fetal, and infant health, as well as interventions focused on the education of women and girls, breastfeeding support, general sanitation measures, and decent livelihoods (WHO, 2014). Yet, 149 million children (more than one in five) under the age of five were stunted in 2018 (UN ECOSOC, 2019). Additionally, in 2018, 40 million children were overweight; while not synonymous with unhealthy, overweight and obesity can also be an indicator of undernourishment and mal-nutrition. During early life, undernutrition can lead to changes in metabolism and physiology

that can cause life-long issues and have a deleterious impact on lifelong earning potential (FAO, 2019).

6.1.3 Target 2.3

The FAO estimates there are nearly 570 million farms worldwide, the majority of which are small scale. Productivity, labor, and income are all systematically lower for small-scale producers than large-scale producers. Additionally, in most countries, small scale producers' income is less than half of large scale producers (FAO, 2019). Due to the small size of the farms, these producers are more prone to food insecurity for themselves and individuals in their region if climate-related events impact their crop yield. In Africa, Asia, and Latin America, small-scale producers make up between 40 and 85% of total agricultural operations. In Europe, by contrast, smallholders account for less than 10% of agricultural operations.

While the Report of the Secretary-General conveys the then-current level of small scale producers, it does not track changes in the size of this population over time.

6.1.4 Target 2.4

Funding to support smallholders and transition to sustainable food production practices is falling drastically when it needs to be increasing. Specifically, the Secretary-General's report indicates that government spending on agriculture compared to agriculture's contribution to the total economy has declined by 37% from 2001 to 2007 (UN ECOSOC, 2019). Moreover, "aid to agriculture in developing countries fell from nearly 25% of all donors' sector-allocable aid in the mid-1980s to only 5% in 2017, representing a decrease of $12.6 billion" (UN ECOSOC, 2019). For context, aid to agriculture in developing countries hit its peak in mid-1980, when donors' sector allocable aid reached 20% and has steadily fallen to sit at 5% in 2017. Additionally, government spending on agriculture compared to agriculture's contribution to the total economy has declined from 42% in 2001 to 26% worldwide in 2017.

6.1.5 Target 2.5

Globally, the genetic diversity of crops and livestock decreases alongside a decades-long march toward standardization and commodification. Of the 7,600 livestock breeds reported globally, only 101 have sufficient material stored to allow them to be reconstituted in case of extinction, and 73% of assessed species are at risk of extinction (United Nations, 2020). Although these statistics are bleak, the trends in the preservation of plant genetic material are inching in the right direction. At the end of 2019, 5.4 million plants genetic material was conserved in gene banks, which was a 1.3% increase from 2018 (United Nations, 2020).

6.2 Measurement in sport

While some sport organizations are currently working toward addressing hunger, there are still no widely used indicators to determine whether these efforts directly align with or make substantial progress on SDG 2. Reporting on SDG 2 is challenging for governments and public sector entities globally, let alone for private organizations. Measurement is difficult because data can be disaggregated across countries, are often collected on differing timeframes, and are assessed pursuant to dissimilar indicators (UN ECOSOC, 2019).

Related challenges vex sport organizations attempting to make and track progress on SDG 2, as well—even when their efforts are more modest and regionally or community-focused. For example, frequent travel and player mobility within a league pose challenges to maintaining sustained community efforts, especially where such efforts are fueled by a particular player's celebrity or good works. Additionally, fans who attend sporting events erratically and might come from areas outside of the team's city or town. The COVID-19 pandemic also isolated sports organizations from their fans and followers except for social media, as leagues worldwide had to play with no fans at venues or in "bubble" environments. While many players and teams readily joined the social justice movements of Summer 2020, we can reasonably infer that collecting community data on hunger and food insecurity has become more challenging for sports organizations faced with their logistical obstacles.

While it is unquestionably important to use rigorous quantitative methods to assess the prevalence of hunger and malnutrition and overall progress toward the goals of SDG 2 in the aggregate, the impact of sport on social and community development can be hard to quantify. What is more, if organizations prioritize approaches that are most amenable to easy quantification (e.g., pounds of food or number of meals donated), they may tend to favor shallow action over more in-depth, systemic change efforts. That said, sport may be well-positioned to model and inspire a shift toward actions with more robust actions, even if those actions have less readily quantifiable impact. While the ingroup effect that fans feel when supporting a sports organization is most closely associated with a city or region, the very global nature of sports (especially basketball and soccer) means that the ideas or actions put forth by one organization may have the potential to spread throughout the sport and engage or aid people all over the world (Cameron, 2004).

It is also difficult for a sport organization to collect any SDG 2 metric data on their own, as the community they rely on for support, revenue, and relevance is often dynamic and borderless (Mander, 2018). Nevertheless, Campo et al. (2019) assert that the inherently emotional nature of sport and the social bonds that it can foster are unique aspects that, if channeled correctly, could galvanize progress toward meeting SDGs and improve food systems as a byproduct of heightened cooperation. Given the common emotional resonance of food and sport discussed in Chapter 5, the galvanizing potential of sport-centered efforts to address hunger could be especially strong. Sport organizations located in regions that are not suffering the most from hunger and food insecurity might begin by taking action in their communities, developing models of action and intervention that demonstrate success on a local level. After that, they might seek to mentor and resource organizations in other parts of the world where their sport is popular and need is more acute.

6.2.1 Using racial and food justice metrics to track SDG 2 progress by professional sport organizations

Athletes worldwide already use their platforms and popularity to create and elevate awareness around racial justice (Robbins, 2020) and gender equality (Mervosh & Caron, 2019). Very recent initiatives like "More Than an Athlete" and "More Than a Vote"—spearheaded by global superstar Lebron James—have been built on years of activism (Hayat et al., 2020) and made a real difference. To wit, over 298,000 votes in the 2020 US election were cast at sporting venues that were turned into voting centers due to the campaign led by James and other athletes (Peter et al., 2020). Additionally, female athletes are taking a stand to address the gender pay gap both in and outside of sports (Povlovich, 2017), an issue that ties directly to food security because single mothers who receive unequal pay may struggle to feed their families. Building on athletes' interest in addressing racial and gender inequities, progress toward SDG 2 for sports organizations might come in the form of racial justice initiatives that, as a byproduct, create or

support a more enabling environment for equitable food systems. Initiatives at the junction of racial justice and food are at home in the food justice movement. They can be assessed using the newly designed metrics for measuring racial equity in the food system (Rodman-Alvarez & Colasanti, 2019).

By recognizing the link between racial inequity and metrics such as the density of super-markets in a given zip code or participation rates in programs like SNAP (Supplemental Nutrition Assistance Program), high-profile athletes and sports organizations can initiate more sustainable progress toward alleviating hunger while continuing to give energy to issues they are familiar with, care about, and have been building momentum on. Community Food Actions, as described in "Evaluating Outcomes of Community Food Actions: A Guide," requires community engagement to succeed (Newberry & Taylor, 2012). Thus, while sport organizations or athletes may not necessarily possess food systems expertise, using their popularity and financial resources to partner with, support, and increase participation in community-building initiatives is a great way to move away from less effective forms of feeding charity and measure SDG progress through an external partnership rather than needing to create their metrics.

6.2.2 The case for direct, measurable efforts to address on-campus and intra-athletic food insecurity by collegiate sport organizations

While professional sports organizations and athletes are typically not involved in tracking city–region food security, efforts at the collegiate level to combat hunger can and should take a more internal, institutional approach. Though it is rarely discussed, collegiate sport is not immune to serious hunger—a problem far more concerning than the appetite that follows a long, strenuous workout. In a 2019 study by the Hope Center, nearly one in four (24%) Division I student-athlete respondents reported experiencing food insecurity in the prior 30 days (Goldrick-Rab et al., 2019). More than half of those students were assessed at a very low level of food security, which is characterized by cutting the size of their meals, skipping meals, or going without food for a day or more because of a lack of money. Student-athletes at Division II and Division III schools experienced food insecurity at 26% and 21%, respectively. Students-athletes attending two-year colleges experienced higher rates of food insecurity, at 39%. It also appears that some college athletes get a reprieve from food insecurity when they are on campus but return home to food insecurity (and worry about the food access and well-being of loved ones while at school). Thus, collegiate sport organizations can begin to make a measurable and meaningful impact on SDG 2 by providing resources, education, and access to quality nutrition even when students are not in the midst of their sport's season.

We assert that owing to the amount of money derived from the exertions of unpaid college athletes, collegiate sports organizations ought to first address the food security of their players and players' dependents. The NCAA brought in revenue of over $1 billion in 2019 and at least 56 college football coaches made a salary of over $3 million in 2020 ("Highest Paid College Football Coaches," n.d.; Peterfy & Carron, 2020). Given that these organizations' very people profit from those suffer from food insecurity, collegiate sport organizations need not look far to make progress on SDGs 2 and 10. Moreover, if these organizations bravely bring to light the food security challenges within their communities, it should be relatively easy to conduct surveys and assess the impact of interventions.

Additionally, the student body, faculty, and staff at colleges may also face food insecurity. Campus food insecurity is a public health concern that can cause lower graduation rates, higher rates of depression among the student body, and worse academic performance (Payne-Sturges et al., 2018). For example, a 2017 study done at a school in Atlanta found that 15% of students

on campus were food insecure while another 16% were at risk (Payne-Sturges et al., 2018). Another 2019 study reported similar numbers, with 19% of first-year students experiencing food insecurity and an additional 25.3% experiencing anxiety about food shortage (El Zein et al., 2019). Student food insecurity is not exclusive to the US, either: a 2018 study done in Greece found that only 17.8% of students surveyed were food secure, which means that the vast majority struggle to access and may rarely have adequate food (Theodoridis et al., 2018). A recent UK study examining the impacts of COVID-19 on student food insecurity found that over 34% of students reported low or very low levels of food security (Owens et al., 2020). In this context, colleges and universities have an opportunity to begin by addressing food insecurity directly on their campuses. (In Europe, where academy athletic clubs are, for the most part, independent and entirely separate from universities; such efforts would entail collaboration between sport organizations and universities, to improve performance on and off the field; Miller, 2020). To do this, colleges and universities can hire a director of food security and assemble a campus-wide food security task force, with strong representation from the athletics department and sport-focused academic units (CUNY UFPI et al., 2020). With this added capacity to advance food security programming, colleges can rigorously measure food insecurity within the campus community and perhaps within the broader web of households and communities to which campus affiliates are connected by one or two degrees of separation, as well as design, implement, and assess the efficacy of interventions.

Previous attempts to assess the efficacy of in-community or on-campus food security interventions by looking at the usage rates for different initiatives demonstrate the need for more upstream solutions. For example, meal plans and food pantries are common relief interventions. Still, El Zein et al. (2018, 2019) found that 70% of food-insecure students reported being enrolled in a meal plan. Another study found that only 38% of food-insecure students were utilizing their university's food pantry. While these studies discuss ways to increase food pantry use, it is clear that forms of emergency relief are not an engaging, especially wide-reaching or lasting solution. To ensure meal plans and other food sources are adequate, affordable, and accessible, universities should consider adopting a "rights-based" approach to food insecurity, which holds governing bodies accountable and places emphasis on linking new policies to specific outcomes (Chilton & Rose, 2009). By making good nutrition, a duty and an obligation, more proactive policies will emerge. Universities can then use the survey methods laid out in the aforementioned studies to regularly obtain data on student food insecurity or anxiety around food shortages. Finally, because food insecurity is, in some cases, linked with factors like housing, unemployment, or unemployed family members, universities can go a step further by investing in their greater community to increase opportunities for families that are investing in them (Defeyter et al., 2020; Theodoridis et al., 2018).

Finally, while the preceding discussion of campus food insecurity and collegiate interventions may, at first glance, appear narrowly applicable to the higher education context, it is worth noting that awareness of campus food insecurity has emerged only in recent years. It is quite possible that, upon investigation, other sport organizations and their closely connected institutions will find hidden hunger in their midst and may be able to draw inspiration from the food security and anti-hunger efforts gathering momentum on campuses to address intra-institutional challenges and then support similar efforts in other parts of the world in more dire need.

6.2.3 Alternate metrics

While the metrics set by the UN are difficult to integrate with the scope and operations of sports organizations, there is a myriad of other resources being used to address and track food

insecurity that we believe may better fit with the inherent aspects of community and culture associated with sport.

First, Michigan State University's Center for Regional Food Systems created a way to measure and track progress related to racial injustices within the food system. The report offers 34 metrics associated with food access, ranging from direct measures of food insecurity amongst different demographics to organizational structures that can either perpetuate or disrupt business as usual (Rodman-Alvarez & Colasanti, 2019).

Second, Gustafson et al. (2016) observe that sustainability considerations are often absent from measurements of food insecurity. They argue that the majority of work related to food security looks primarily at calories without addressing the health of the food or the environmental, social, and economic impacts of feeding an ever-increasing population. Their version of monitoring focuses on what they refer to as "sustainable nutrition security" (SNS), identified via seven metrics that reveal the proficiency and nutrient outcome of food systems. The metrics include: (i) food nutrient adequacy; (ii) ecosystem stability; (iii) food affordability and availability; (iv) sociocultural well-being; (v) food safety; (vi) resilience; and (vii) food waste and loss reduction. The SNS assessment methodology can be used by sport organizations to create a baseline assessment and then develop meaningful goals to track progress and improve sustainability and human nutrition outcomes.

Third, the Public Health Agency of Canada created a guide to evaluate outcomes of community food actions (Newberry & Taylor, 2012). This guide uses a four-step approach. First, it prompts identification of objectives, asking "What is your community food action trying to achieve?" Then, it sets forth a series of evaluation questions aimed at assessing participation. Next, it walks users through a process to gather evidence about outcomes. Finally, it guides analyzing the data, using them to improve programming and communicating results.

By clearly illuminating and identifying the social and economic factors that drive food insecurity, sports organizations will be able to more easily identify actions they can take in their communities and regions to promote structural improvement.

6.3 Implementation challenges

As discussed above, our call to trace hunger and malnutrition through its causal chain within the food system (as well as through other intersecting and overlapping socio-political systems) and aim interventions at root causes are somewhat orthogonal to the standard forms of measurement used by the UN to track progress on SDG 2. For that reason, we point to newer schema and metrics used to guide and assess community-based food interventions and justice-motivated projects. The relative novelty of these methods may make them slightly challenging to implement, in large part because they will require sport organizations to collect their data. Additionally, the data collected by an organization will need clear boundaries; drawing such boundaries will necessarily require discretion as the reach of a sport organization is dynamic, borderless, and hard to measure. Due to the inherent challenges that sport organizations face when it comes to collecting their data on SDG progress, simply gaining a better understanding of what types of initiatives tend to effect more lasting and sustainable change may better enable these organizations to directly support—or galvanize support for—the right movements.

Moreover, due to the disruptions and unanticipated consequences of the COVID-19 pandemic, in the near term, it will likely be difficult to gain an accurate sense of where SDG 2 metrics stand. This might increase uncertainty about where investment and action are needed most urgently. It also may encourage sport organizations that might otherwise have been interested in shifting their SDG 2 efforts toward structural change to stay the course with efforts

focused on immediate relief. In closing, it is worth emphasizing the value of making simultaneous progress on both tracks at the same time. The saying, "give a man a fish, and you feed him for a day; teach a man to fish and you feed him for a lifetime," is a bit reductionist and sets up a false dichotomy. Instead, give a person a fish *while teaching them to fish and make sure they have the resources to do so* (e.g., access to a fishing pole or access to a clean body of water with healthy fish populations). In other words, sport organizations should make efforts and engage in a partnership to address immediate needs, support the capacity to learn, provide tools for self- and community-sufficiency, and make sure that our environments are able to support food foraging and production into the future.

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Applying Sustainable Development Goal 2

Garry Gilliam and Kristen Fulmer

The Bridge Eco-Village is a real estate development company that renovates abandoned buildings in under-resourced neighborhoods, providing basic needs that allow its community to thrive. The Eco-Village provides elements of Work, Eat, Live, Learn, and Play in one centrally-located resource hub. Each Bridge location is not only environmentally sustainable in energy use, carbon emissions, supply chain, and more, but is also a place for "systematic empowerment," aimed to be equitably accessible, combat racism, and overcome systematic oppression.

The Bridge's financial structure is modeled from an indoor shopping mall. A successful mall owner sources tenants that will provide a product or service that resonates with their clientele. Similarly, though not aimed to provide material goods, The Bridge is a physical structure placed on a plot of land. To provide the elements of Work, Eat, Live, Learn, and Play, the development company partners with local organizations and experts to provide services that fulfill the surrounding community's needs.

While an Eco-Village, in concept, offers tremendous opportunities to address the intersection of SDGs through various community engagement strategies, a critical element will be achieving SDG 2: Zero Hunger, especially in community youth, through the power of sports in The Bridge's "Play" area.

7.1 Relationship to SDG 2: zero hunger

While playing in the NFL, Garry Gilliam, Founder and CEO of The Bridge, transitioned to a plant-based diet to support his physical health. After learning more about the benefits, Garry often uses his platform to speak about the physical toll that processed foods and non-organic meat can have on human bodies. He'll often highlight the environmental toll of conventional agriculture as well. Unfortunately, these negative externalities on people and the planet are often racially unjust. People of color tend to live in communities that lack access to fresh food, education about the importance of healthy eating, and adverse environmental effects.

One of the top priorities of The Bridge's acquisitions is to identify these communities, typically located in "food deserts" where there is no grocery store within a 1-mile radius. Due to income disparity and population density, grocery stores can't justify enough demand in their business plan to build a location, so the community is simply overlooked. To fill the gap left by

grocery stores, the "Eat" branch is one of the central elements for The Bridge. The Eco-Village has solidified two strategic partners to efficiently grow fresh vegetables on site and disperse them to the community in need, as discussed further next.

7.1.1 On-site vertical garden

Vertical gardens are an efficient solution to space-constrained areas because they produce more fresh produce per acre than a traditional garden. Given the critical need for fresh, local produce, The Bridge has partnered with a vertical garden operator to build an on-site facility. This facility is projected to produce over 1 million pounds of fresh produce per year, including greens and tomatoes. The efficient vertical crop is projected to feed 33,000 people per year, which is nearly one-third of the population of the pilot site's entire surrounding city. Crop output and distribution will be tracked to measure positive impact, identify distribution improvements, and highlight any areas of waste.

7.1.2 Plant-based fast food

The Bridge recognizes that many community members are not accustomed to eating a tomato directly from a vine. To make these healthier options more accessible, The Bridge has partnered with a plant-based fast-food company to create affordable recipes that may be more familiar to the community. This restaurant will coordinate with the on-site vertical garden to source ingredients and will provide culinary classes to showcase delicious examples of local farm-to-table solutions. Success will be measured in annual revenue and the location of customers. While the restaurant will be accessible to the broader community, it will be critical to ensure that the immediate community utilizes this healthy food option.

7.2 Leveraging sports to achieve SDG 2

The Eco-Village's "Play" element is designed to provide children with a place to recreate through curated programming with new, safe equipment and even "travel" via virtual reality that allows kids to "travel" when they may not otherwise have that ability. As an NFL player, Garry is explicit that the "Play" area is not about encouraging more football stars but more about showcasing the power of sport as a tool to learn responsibilities, understand teamwork, and make healthier choices. While the Eco-Village will not force visitors of the "Play" area—or any other area within The Bridge—to eat healthier options, the visibility and proximity to these options will be critical components of behavior change over time.

To physically gain access to the "Play" area at The Bridge's pilot location, one must travel on a sidewalk that skirts the vertical garden building designed with a glass facade to transparently show visitors what is inside. This intentional design strategy is a passive education tool to engage visitors of The Bridge. During early community engagement efforts, the team realized that many children have never had access to healthy eating—some have never eaten fresh, unprocessed vegetables—and some do not know where vegetables come from or how they're grown. When someone comes to a program in the "Play" area, they are now faced directly with examples of the origins of fresh food. By leveraging all five senses, visitors will also be able to see the crop, smell the plant-based food restaurant, and of course, can taste the quality of these healthier options.

7.3 Making The Bridge a reality

At its core, The Bridge is about making connections where they had not previously existed. In its pilot location in Harrisburg, Pennsylvania, the Eco-Village creates a bridge between its surrounding community to resources that allow the neighborhood to thrive. By integrating these basic physiological needs into safe and engaging resources, the project will build trust in the community, achieving UN SDG 2 through accessible alternatives to unhealthy and expensive eating.

Part III

Sustainable Development Goal 3: good health and well-being

8

An overview of Sustainable Development Goal 3

Eric Brymer and Anne-Marie Lacaze

Health has been identified as a key indicator of international and national development, as evidenced by its inclusion in the United Nations Sustainable Development Goals. The SDGs are a continuation of the UN Millennium Declaration, representing a transformative call to action for individuals, organizations, and governments. The SDGs propose a greater set of challenges—integrated and indivisible—to balance the three dimensions of sustainable development: economic, social, and environmental. The SDGs represent an aspirational set of goals and targets designed to influence policy development and economic investment to address some of the most pressing global issues, including promoting health and well-being across all ages (General Assembly, 2015).

Global health reforms are now more important than ever (World Health Organization, 2020). As highlighted by the 2020 COVID-19 pandemic, global health is everyone's concern. Whether in relation to developed or developing nations, every nation has opportunities to improve healthcare. The reforms in health systems across the world vary depending upon different trends within any nation. This chapter defines SDG 3, including its sub-elements, to frame an exploration of how various forms of sport can provide a more integrated approach to increasing participation in sports activities. The simultaneous incorporation of multiple forms of sports will provide a more comprehensive response across several subcategories of SDG 3, which will produce more integrated successes in relation to other SDGs. This will bring a more holistic sports-based approach to health and well-being and allow sport to provide a more effective contribution under the SDG framework.

8.1 Global health and the sustainable development goals

The United Nations 2030 Agenda for Sustainable Development is an ambitious plan of action designed to simultaneously confront several 21st-century challenges relating to people, the planet, and prosperity. The 17 SDGs are also interconnected, whereby the key to success will involve tackling issues more commonly associated with another. The UN has stated it is essential that each country, depending upon its ecological, historical, and political circumstances, determine the best approach for the preparation and implementation of its national sustainable

Table 8.1 Targets of Sustainable Development Goal 3

3.1	By 2030, reduce the global maternal mortality ratio to less than 70 per 100,000 live births
3.2	By 2030, end preventable deaths of newborns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1,000 live births and under-5 mortality to at least as low as 25 per 1,000 live births
3.3	By 2030, end the epidemics of AIDS, tuberculosis, malaria, and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases
3.4	By 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being
3.5	Strengthen the prevention and treatment of substance abuse, including narcotic drug abuse and harmful use of alcohol
3.6	By 2020, halve the number of global deaths and injuries from road traffic accidents
3.7	By 2030, ensure universal access to sexual and reproductive health-care services, including for family planning, information and education, and the integration of reproductive health into national strategies and programmes
3.8	Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality, and affordable essential medicines and vaccines for all
3.9	By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water, and soil pollution and contamination
3.a	Strengthen the implementation of the World Health Organization Framework Convention on Tobacco Control in all countries, as appropriate
3.b	Support the research and development of vaccines and medicines for the communicable and non-communicable diseases that primarily affect developing countries, provide access to affordable essential medicines and vaccines, in accordance with the Doha Declaration on the Trade-Related Aspects of Intellectual Property Rights (TRIPS) Agreement and Public Health, which affirms the right of developing countries to use to the full the provisions in the Agreement on Trade-Related Aspects of Intellectual Property Rights regarding flexibilities to protect public health, and, in particular, provide access to medicines for all
3.c	Substantially increase health financing and the recruitment, development, training, and retention of the health workforce in developing countries, especially in least developed countries and small island developing States
3.d	Strengthen the capacity of all countries, in particular developing countries, for early warning, risk reduction, and management of national and global health risks

Source: General Assembly (2015).

development strategies. While it is neither possible nor desirable to recommend a "blueprint" approach across nations, a national strategy must incorporate the underlying values that char–acterize an SDG. This will be easier to achieve if the economic, social, and environmental objectives are balanced and well–integrated.

Ensuring the growth and successful increase of human health and wellness is essential to developing prosperous societies. SDG 3 pertains to good health and well–being to promote global efforts to "ensuring healthy lives and promoting wellbeing at all ages is essential to sustainable development" and works toward eliminating the injustices that underlie poor health and development outcomes (General Assembly, 2015).

As listed in Table 8.1, SDG 3 includes nine health–specific targets and four "means of implementation" targets, all of which relate to identifiable health issues across developing and developed nation–states. The 13 health targets provide a framework to address the global burdens pertaining to illness, disability, and premature mortality. However, these targets are not

necessarily designed to force limits on the broader realization of SDG 3. For example, while the COVID pandemic was not explicitly mentioned as a target, it became a focus (Mukherjee & Bonini, 2020).

8.2 The problem with physical inactivity

One of the most common and prevailing global trends afflicting developing and developed countries, directly affecting a range of health issues associated with SDG 3, is the increase in sedentary behavior and physical activity reduction. As countries develop economically, they are accompanied by rapid urbanization, a growing reliance on technology, and changes in transportation patterns, resulting in changes to lifestyle choices and culture that create rising levels of inactivity (Gostin, 2014; Masdeu-Yelamos et al., 2019). These increasing levels of physical inactivity are a significant contributor to global mortality rates. According to the Australian Government, physical inactivity and sedentary behavior are the fourth leading attributable factors for cancer. They are also strongly connected to dementia, diabetes, and heart disease (Dunford & Prescott, 2017). As well as the more well-known relationship between low levels of physical activity and cardiovascular diseases, research has shown that physical activity can be the primary prevention for a total of 35 different chronic diseases, including colon cancer, breast cancer, endometrial cancer, accelerated biological aging and premature death, sarcopenia, obesity, insulin resistance, prediabetes, type 2 diabetes, non-alcoholic fatty liver disease, peripheral artery disease, hypertension, endothelial dysfunction, arterial dyslipidemia, hemostasis, deep vein thrombosis, osteoporosis, osteoarthritis, balance, bone fracture, rheumatoid arthritis, gestational diabetes, preeclampsia, polycystic ovary syndrome, erectile dysfunction, pain, diverticulitis, constipation, and gallbladder diseases (Booth et al., 2012). Sedentary behavior and physical inactivity are often the aggregate results of insufficient participation in physical leisure time activities coupled with an increase in sedentary behaviors across occupational and domestic life aspects (Brymer & Davids, 2016). For these reasons, physical activity has been promoted by governments across the world as a means to minimize the onset of non-communicable diseases and enhance well-being across multiple domains (Brymer et al., 2010)

One of the solutions proposed to increase physical activity is to encourage more individuals to participate in sport. This argument is premised on the idea that positive effects of physical activity are primarily achieved from participating in sport. Still, secondary effects also bring a range of interrelated health benefits. Both younger and older participants experience greater psychosocial and personal development (Malm et al., 2019). Individuals who play sport demonstrate higher physical activity levels later in life (Kjønniksen et al., 2009). Sport also provides the opportunities to educate individuals in relation to nutrition, exercise, and general health (Khan et al., 2012). Participation in sport contributes to preventing and reducing obesity predominantly through increasing energy expenditure (Wiklund, 2016). Sport and physical activity can reduce the onset of cardiovascular disease by improving blood circulation, keeping the heart muscle toned, lowering blood pressure, raising high-density lipoprotein levels, and generally strengthening the cardiovascular system (Nystoriak & Bhatnagar, 2018)

Research has demonstrated that exercise alleviates mental illness symptoms because exercise releases endorphins and other brain chemicals that positively impact mood (Biddle, 2016; Craft & Perna, 2004). Physical activity can help slow the onset of dementia by stabilizing cerebral choline concentrations, whereas raised levels are directly associated with increased chances of dementia (Black Dog Institute, 2012; Farrow & Ellis, 2013). Physical activity has also been linked to improvements in mental health and well-being, such as reductions in cognitive dysfunction, depression, and anxiety. However, the evidence suggests the relationship is

nuanced (Biddle, 2016) and is related to the type of activity, the activity environment, and individual differences (Davids et al., 2016). As part of the global increase in physical inactivity, national trends also indicate declining participation and interest in traditional sports (Eime et al., 2016). For the international community to successfully attain goals where health is a determinant, outcome, and sustainable development indicator, a significant global paradigm shift is required. Rather than relying on activities that only respond to a pathogenic healthcare treatment model, society must incorporate a more holistic salutogenic approach to protecting and promoting health and well-being (Buse & Hawkes, 2015).

Beyond the direct relationship between physical activity and individuals' health, sport has a role in reducing the impact on national health systems more broadly. For example, conservative estimates suggest that physical inactivity will cost billions of dollars (e.g., India: $7.5 billion, UK: $26 billion by 2030) that could be spent in more productive ways. As these estimations usually only consider physical health and chronic diseases, without incorporating the impacts on mental health, the real costs are likely to be much higher. The popularity of sport and the influence that sport has on multiple communities means that sport has been identified to be an ideal medium for education toward healthy lifestyle choices and behaviors.

8.3 Sport and the SDGs

The importance of healthy lifestyles is prioritized in the Sustainable Development Agenda. As noted above, participating in physical activity and sport in all its forms can motivate people to be more active, contributing to the reduction of premature mortality and associated healthcare costs (target 3.4). Evidence shows that an integrated approach to physical activity involving physical education, physical activity, recreation, and sport is connected with improved social health, such as social skills and increased self-esteem, because of sport's social nature. For these reasons, regular participation in physical activity while young supports children and adolescents' healthy development, including their cognitive and psychosocial development. The relationship between sport and the reduction of alcohol and substance abuse is a little more complicated but most likely associated with physical changes in the brain (target 3.5; Volkow, 2011).

Sport events and large-scale physical activity programs can provide a platform for community health messaging and empowerment, engaging a diverse range of people who might otherwise not be reached through conventional health delivery. This supports efforts to address infectious disease and improve access to sexual and reproductive healthcare services (targets 3.3 and 3.7). Nations that bid on the Olympic or Commonwealth Games often do to increase investment in infrastructure development, get economic incentives, and increase public health promotion (target 3.8; Burgo & Cromartie, 2018). High-profile athletes can also effectively assist with the distribution of information on sexual and reproductive health, alcohol and substance abuse, and infectious diseases such as malaria and HIV/AIDS (targets 3.3 and 3.7). While relying on different approaches, youth who play sport are more proactive in relation to sexual health and contraception (Miller et al., 1999). These local efforts become embedded in community attitudes, thereby supporting national policies designed to address infectious disease and improve access to sexual and reproductive healthcare services (targets 3.3 and 3.7)

Sport can help reduce infant, child, and maternal mortality and improve post-natal recovery. For example, the enhanced cardiovascular strength from physical activity and increased personal fitness of mothers has been linked to multiple benefits for both mother and their developing baby (Gebregziabher et al., 2019). However, many countries in the Global South, cultural, lifestyle, and environmental conditions have traditionally impacted physical activity during pregnancy (Harrison et al., 2018). Sport can also be useful for providing opportunities for

women's empowerment because of the social benefits and the link between sport and physical skills and body strength. For example, Iran was one of the first non-western countries to facilitate a women's only surf association (Wynarczyk, 2020). Sport has also been associated with the reduction of health-related issues in childhood and suicidal thoughts (Merkel, 2013).

Considering the range of physical, mental, and social health benefits of sport, research indicates that even before the COVID pandemic, increasing numbers of adults and children were choosing not to participate in traditional competitive sport (Levine, 2017). Despite the significant health benefits in relation to sport, there is also a range of barriers that impact participation in sport. Barriers to sport usually include lack of access to facilities or sporting clubs based on race, class, or ethnicity (McGovern, 2020; Sawrikar & Muir, 2010); gender (Lopez, 2019); age (Eime et al., 2016); disability (Jaarsma et al., 2014); lack of confidence or skill (Somerset & Hoare, 2018); individual or familial attitudes toward sport (Corning et al., 2020); or financial factors (Holt et al., 2011). Other barriers to sport include the perceptions of the association with potential injury (a more severe barrier if you cannot easily access health services; Drew & Finch, 2016) and the negative aspects connected with the overwhelming focus on competition (Eime et al., 2015). To attain the synergies required to meet the SDG targets will require the adoption of more innovative and integrated approaches in sport to overcome these barriers while still encouraging people to participate in different types of sport across the lifespan.

8.3.1 The dynamic nature of sport

Since the formation of the SDGs, there have been some significant global shifts in relation to sport, including the emergence and acceptance of different forms of sport. Globally, there are over 800 recognized types of sport with sport styles and activities continuing to evolve (Wood, 2008). Similarly, there are many different definitions of sport. The Global Association of International Sports Federations (GAISF) is the foremost organization for all Olympic and non-Olympic international sports federations, organizers of multi-sports games, and sport-related international associations. Their definition of sport outlines that:

- the sport proposed should include an element of competition,
- the sport should not rely on any element of "luck" integrated explicitly into the sport,
- the sport should not be judged to pose an undue risk to the health and safety of its athletes or participants,
- the sport proposed should in no way be harmful to any living creature, and
- the sport should not rely on equipment that a single supplier provides.

Assumptions around sport's contribution to the SDGs have predominantly focused on involving traditional sports organizations, such as football clubs, elite athletes, foundations, community trusts, football associations, and sporting leagues. Traditionally, participating in a sport has meant that it was managed by an organization (e.g., school, association, national board), required team membership, involved a level of competition, and provided a level of entertainment. Yet, for sport to achieve the expectations and multifaceted impacts related to improving long-term mental and physical health, aspects of sport such as fun, well-being, and lifelong physical activity need to be emphasized over the traditional competitive focus (Merkel, 2013). Ignoring these findings is likely to have a severe detrimental impact on sports participation and subsequently on lifelong physical activity.

Contemporary research highlights the limitations of the traditional sport model and provides opportunities for a broader perspective on sport, physical activity, and human health (Allan

et al., 2020). More broadly, Immonen et al. (2017) critiqued the notion that sport should be viewed as synonymous with structured competition. They traced the international etymological routes of sport derived from *disport*, an old French word that more accurately denotes "pastime." The Finnish equivalent refers to any activity used for recreation, maintenance of fitness, or competition. They further determined a more appropriate appreciation of sport as broadly recognized across the globe would need to acknowledge sport as personal development as well as task-based notions consisting of "multi-faceted, boundary crossing activities, which do not necessarily involve structured competitive activity, regulated performance environments, rules or institutions" (Immonen et al., 2017, p.2).

Rather than merely trying to increase participation in traditional sports, more holistic response to SDG 3 suggests the need for a broader appreciation of what constitutes sport and physical activity. There is a new focus on sport's role and its capacity to play a central role in providing critical health benefits to counteract the significant declines in physical activity. This new focus has to move beyond a limited number of elite players with large audiences; this new focus needs to increase participation in activities that encourage life-long participation in physical activity. Traditional sport has often been operationally defined by its association with the competition, physical exertion, external regulations, rules, constrained physical environments, and performance measures. Yet there are different forms of sport, all of which have evolved due to new societal norms, popular trends, and emerging directions that should also prove impactful when responding to SDG 3 (Peacock & Brymer, 2020; Richards & May, 2020; Sharma-Brymer & Brymer, 2018; Sharma-Brymer et al., 2018).

8.3.2 Creating healthier sport solutions

According to the United Nations Inter-Agency Taskforce on Sport for Development and Peace (2003), the definition of sport is much broader, where sport is "all forms of physical activity that contribute to physical fitness, mental well-being, and social interaction. These include play, recreation, organized, casual or competitive sport, and Indigenous sports or games." From this perspective, sport provision can and should be available beyond the traditional notions of activities that have formal structures, external regulations, rules-constrained boundaries, and activities outside of the conventional norms such as parkour, extreme sports, adventure, outdoor recreation, and Indigenous games should be included in the mix (Richards & May, 2020). Equally, this broader definition provides the space for traditional sports to adapt, expand, and develop new initiatives and contribute to global health initiatives such as globally funding sporting activities, including sporting initiatives for marginalized groups in developing countries in the Global South.

Modified sports manipulate traditional sport equipment and rules to promote skill learning and performance, broaden the participation base, and increase inclusivity (Buszard et al., 2020). As such modified sports are designed to appeal to a range of participatory groups such as children, mature-age or time-poor individuals, people with disabilities, and generally anyone wanting to try a new sport or social engagement activity (Richards & May, 2020). Modified sports programs are globally increasing and are usually delivered by clubs, schools, or community organizations and generally in collaboration with national or state sporting organizations (Buszard et al., 2020; Richards & May, 2020). High-profile athletes can promote this type of modified sport, for example, cricket players promoting beach or backyard cricket. Cote and Hay (2002) have reported that children use modified sports to "sample" sports and sporting activities. As children age, they choose to focus on one or two sports, at which point sporting activities become more of an "investment" or "recreational" activity.

Recreational and social sport share similarities and are often linked. The most distinctive feature of recreation sport is "when" people engage in it (Richards & May, 2020). In social sports, there is less emphasis on performance results and greater emphasis on the participants' relationships. Recreational and social sports are often played during leisure time. However, organizations for informal social team-building or community groups can also incorporate social sport for fundraising activities. Recreational and social sports are predominantly social activities that encourage interaction between different groups. Regular and moderate participation in recreational and social sports impacts lifestyle choices. It reduces the risk of diabetes, cardiovascular disease, and cancer, and it also influences mortality rates through other health indicators (Chen et al., 2017). Recreational sports increase physical and mental health, reduce psychological pressure, boost self-affirmation, promote positive cognitive and psychological development, and lessen risks related to depressive symptoms (Jonsdottir et al., 2010). The most prominent recreation trend to emerge in the last decade has been the shift away from traditional organized sports to nature-based recreation sport activities (Brymer & Schweitzer, 2017).

Participation in outdoor, nature-based, and adventure sports (ONAS) affords one of the most interesting opportunities for holistic, lifelong involvement in physical activity as well as the development of pro-environmental behaviors (Sharma-Brymer & Brymer, 2018) and providing an ideal medium for responding to SDG 3 (Peacock & Brymer, 2020; Sharma-Brymer & Brymer, 2018). Essentially these types of sport not only provide opportunities for physical activity outside of the usual constrained and rule-bound traditional sports, but as the name indicates, ONAS provide more opportunities to engage with the natural environment actively. Participation rates in ONAS globally suggest that these activities are becoming more popular than many traditional sports, predominantly because they usually non-competitive and not tightly constrained by external rules, regulations, or environments (Brymer & Schweitzer, 2017). Nature-based recreational sports allow for the greatest diversity of users ranging across children hunting for glow-worms, runners competing in cross-country marathons, extreme sports enthusiasts jumping from cliffs, and elderly individuals participating soft-adventure activities. Research over the last few decades has shown that physical activity undertaken in the presence of or immersed in nature has added benefits (Brymer et al., 2010). This is because the natural environment impacts psychological and physiological mechanisms in profound ways (Brymer et al., 2019).

Research and theory exploring the natural world's benefits have delivered different perspectives explaining how natural environments and nature-based activities create benefits for human health and wellness. While theory and empirical research demonstrate how different experiences in the natural world improve the individual dimensions of wellness, research also indicates how nature also provides multidimensional wellness benefits. These benefits reflect a combination of reconnection, restorative states, reflective conditions, and altered states of consciousness or peak experiences, all of which, in any number of combinations lead to highly individualized, integrated holistic wellness outcomes.

From an evolutionary perspective, humans are perceived to possess a deep connection with the natural world as the majority of human existence has been in the natural environment. Biologist E.O Wilson's (1984) biophilia hypothesis proposed the existence of a subconscious urge to connect with all other life and all of the dimensions of the natural environment; animals, oceans, landscapes, plants, wind, even the weather. Kaplan and Kaplan's (1989) Attentional Restoration Theory (ART) proposes that nature possesses special characteristics that induce a unique restorative effect. This restorative experience is based on fascination (an effortless and involuntary form of attention that peaks curiosity), a sense of "being away" providing a temporary escape, compatibility for an individual's preferences, and a sense of extent that gives the

individual the sense of being part of something much larger and richer than everyday life (Greenleaf et al., 2014).

Ulrich's psycho-evolutionary theory (PET) proposes that human behaviors, cognitions, emotions, and attitudes are shaped by the evolutionary adaptions that result due to the forces of natural selection. With the rapid rise of industrialization and urban environments, humans become increasingly alienated from the deep and vital connections to nature, concurrently developing increased needs around controlling and exploitation of natural-world resources (Hay, 2005). Ecopsychologists propose that this condition constitutes a kind of "existential shock," which produces a sense of denial and disconnectedness, and which can only be remedied by direct experiences in nature-based environments. Roszak (2001, as cited in Snell et al., 2011) outlined how ecopsychology focuses on the disconnection occurring between psychology and ecology. Psychology generally emphasizes the importance of personal relationships, including person-to-self, person-to-person, person-to-family, and even person-to-work. Ecopsychology determines that person-to-nature relationships are highly significant and that the connection between humankind and nature is deep, powerful, and essential for survival (Roszak, 2001).

Kjellgren and Buhrkall (2010) identified how nature induces altered states of consciousness by providing an array of exceptional human experiences (EHEs; Palmer & Hastings, 2013). Within the field of transpersonal psychology, these experiences are studied for their meaning and transformational potential. Phenomenological analysis has identified six categories of positive experiences from natural environments including intensified sensory perception; a feeling of harmony and union with nature; well-being and quality of life; renewed energy and awakening; a "here and now" thinking, and a "sense of tranquillity" (Roscoe, 2009). Peak experiences (described as states of optimal mental health), wilderness experiences, and adventure experiences also possess ecopsychological elements that evoke transpersonal experiences (Brymer, 2005; Davis, 1998). Such experiences can range from momentary events with minimal lasting effect to intense events with life-transforming consequences. Peak experiences are usually characterized by awe and reverence, a feeling that the world is unified, ineffability, and a sense of bliss and ecstasy (Davis, 1998). Schreyer et al. (1990) highlighted the role of these wilderness values in the process of self-concept formulation, concluding that wilderness settings are vital for the enhancement of human wellness.

On the most basic level, interaction with nature increases physical activity and physical well-being (Booth et al., 2000; Brymer et al., 2020; Pretty et al., 2003). Viewing nature has been demonstrated to increase pleasurable emotional states to such an extent that it induces reciprocal reductions in desires to engage in unhealthy behaviors (Lawrence, 2004). However, it is also responsible for reducing physical pain, speeding-up healing processes, and improving recovery times (Lechtzin et al., 2010; Ulrich, 1984). Research exploring the relationships between nature and mental health reveals that exposure to nature creates improvements in emotional well-being, reductions in stress levels (Leather et al., 1998), and increases in positive mood (Maller et al., 2006). Nature can also alleviate mental fatigue, creates improvements in attentional capacity and cognitive functioning (Maller et al., 2008), produces reductions in the tendency for aggressive behavior (Kuo & Sullivan, 2001), and enhances life skills (Mayer & Frantz, 2005).

Many traditional sports are conducted "outside" but within human-made structures such as sporting stadiums. Yet, participating in sport in nature can often be more cost effective not only for the individual (think backyard cricket or basketball) but for local communities and governments alike. Physical activity in nature-based contexts has also been associated with value for money and excellent investment return from a health benefits perspective. Expanding definitions of sport and increasing the amount of sporting and physical activities undertaken in nature are most likely to produce the multidimensional benefits related to participating in both sport

and engaging with the natural world. As these multidimensional benefits include ecopsychology benefits this would assist with linking SDG 3 outcomes with the SDGs related to sustainability and the environment.

Broadening the definition of sport to include ONAS activities and promoting the incorporation of ONAS across the lifespan and within the community would open the doors to opportunities for greater collaborations between governments, government departments, sporting bodies, and local communities. By forging greater partnerships around recognizing different types of sports activities in nature-based environments, sport can assist with the promotion of sustainable lifestyles, raising awareness around the needs for sustainable consumption to maintain healthy lives. Using this approach further emphasizes and promotes the importance of clean air required for good health. It is making these vital connections that the aspirational synergies of the SDGs could be met.

8.4 Conclusion

The historical positing of health as part of a healthcare and treatment-focused model, coupled with sport being narrowly defined in a more traditional and competitive sphere, has stunted the development and integration of both. To increase success in achieving the SDG framework targets, meeting this aspiration will require paradigm shifts in both areas. This will include creating a broader, more profound understanding of sport and integrating it with a much more holistic and salutogenic approach to health promotion and protection. This will mean careful thought to ensure that all aspects of sport are associated with health-enhancing behaviors and choices—not only that projects and events have health-related messages, but that less apparent aspects such as the definition of sport, culture of different professional sports and teams, sponsorship, sport policy, and access will also need to reflect a pro-health focus. The effectiveness of sport as a medium for encouraging health-enhancing choices that reduce the burden on health systems might require cultural shifts beyond those that some sporting organizations are ready to make.

A new approach to managing the commercial determinants of ill-health and a shift to a more salutogenic approach is required. A cornerstone of the SDG agenda of "leaving no one behind" represents a significant shift in relation to thinking and achieving global challenges. Available data indicate that there are still significant challenges in relation to essential areas such as reducing maternal and child mortality, improving nutrition, and attaining greater progress in containing infectious diseases. The situational analysis provides evidence in relation to the need to address non-communicable conditions and their risk factors, including tobacco use, mental health issues, road traffic injuries, and environmental health. In progressing or attaining the SDG 3 targets, the health sector's implications will include the development of a series of equitable, coherent, and integrated approaches in conjunction with multisectoral action. Achieving many health targets will require embracing new approaches across global, regional, and country levels. Ministries of health will be unable to attain these targets alone. They will require increased leadership from other ministries, organizations, and community groups to drive locally-led, financially viable, politically savvy, and globally supported approaches and initiatives integrated across multiple policy domains.

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9

Measuring Sustainable Development Goal 3

Anne-Marie Lacaze and Eric Brymer

The UN General Assembly's (2015) landmark formation of the Sustainable Development Goals (SDGs) was designed to end hunger, improve health, eliminate extreme poverty, reduce inequality, address climate change, and halt the loss of biodiversity and ecosystems by 2030. While current progress toward achieving the majority of the SDGs is slower than desirable, significant progress in improving millions of people's health and increasing their life expectancy is underway. There have been substantial reductions in maternal and child mortality and reductions across several leading communicable, infectious diseases (United Nations Economic and Social Council, 2019), the 2020 COVID-19 pandemic notwithstanding. Significant improvements are still required worldwide to ensure that larger percentages of individuals can access essential health services within healthy environments. Health emergencies can even thrust everyday people into bankruptcy, impoverished living conditions, or long-term poverty. Concentrated efforts are still required for attaining universal health coverage, acquiring innovative and sustainable funding for health initiatives, determining new methods to address the increasing burden of chronic, non-communicable diseases (NCDs), including mental illness, and managing the environmental factors that contribute to such as air pollution, water resourcing, and sanitation (United Nations Economic and Social Council, 2019). The education, lifestyle, and environmental changes required to help achieve these targets could be enabled by various facets associated with sport.

The General Assembly (2015) identified sport as "an important enabler of sustainable development" in the 2030 Agenda for Sustainable Development. This was the first time any overarching policy for global development included such a comprehensive statement in relation to sport. In contrast to the Millennium Development Goals (MDGs) that focused on the Global South, the SDGs have been created as a "universal" set of aspirations across developed and developing countries alike (Lindsey & Darby, 2018). This complexity has meant that many in the global health and development community question whether it is possible to honestly assess the progress in attaining SDG targets (Maurice, 2016). Inadequate measures will restrict the SDGs' usefulness as a useful tool for global development (Davis et al., 2015). This chapter outlines how some current sport measurement methods align with SDG 3 and explore possibilities for enhancing measurement strategies.

9.1 Measuring comparative sport development

Despite advancements in comparative sport policy analysis, comparative analysis within sport development and participation remains limited and challenging (Dowling et al., 2018). Measuring the impact of international, national, and local-based sport development; participation; and related outcomes on SDG 3 targets represents a series of complex activities that rely on collaborative, cooperative approaches across multiple societal domains such as governments, business, social enterprise, and societal groups.

Governmental public policy planners and corporate events professionals often measure sporting outcomes using legacy impacts. Due to globalization and digitalization, coupled with 24-hour media and entertainment streaming cycles, mega sporting events have evolved into multi-billion dollar projects (Preuss, 2007). Legacy impacts refer to both hard and soft outcomes that are supposedly linked to long-term benefits relating to infrastructure, knowledge, image, emotions, and cultural change (Preuss, 2007). For the most part, measurement is in terms of economic significance and assumed national pride in relation to competitive outcomes of "elite performance achievement" and "winning" associated with tally boards, medals, and other high-profile recognition processes. Mega-sporting events have also been associated with increases in national participation in sport and physical activity (PA) post-event (Girginov & Hills, 2008; Kokolakakis & Lera-Lopez, 2020; Veal et al., 2012), and volunteers often report short-term well-being benefits. However, research has not always supported these outcomes (Cleland et al., 2020; Pawlowski et al., 2014).

The diverse range of organizations worldwide that support sport provides challenges for data collection, measurement, and evaluation. Sporting organizations can be large for-profit originations or local not-for-profit organizations run by volunteers. When it exists, measurement and assessment of organizational effectiveness often focus on how an organization acquires and processes financial, physical, and human resources, as well as how the organization undertakes processes such as institutional communication, relations with other organizations, service quality, and volume, and in the case of national sporting bodies, the international performance of athletes. This entails gathering and analyzing input and process variables and output measures (Barth et al., 2018; Madella et al., 2005). Many of these measures and evaluations are aimed at securing ongoing funding from government bodies or other sponsors. These underlying needs drive indicators of organizational and elite athlete performance (Barth et al., 2018)—often at the expense of athlete well-being (Giles et al., 2020).

The traditional approach to measurement in sport at the athlete level often focuses on how an individual athlete or a team of athletes reaches optimal performance at precisely the right time. Athletes in high-performance contexts are often supported by teams of specialists, including coaches, psychologists, nutritionists, and physiologists who monitor and quantify performance-related criteria to assess readiness and design strategies to enhance performance. In these instances, athletes might be tested for competitive anxiety, hydration, or injury to determine the best performance levels and, if required, potential remedies (Hudson, 2012). In more recent years, there has been increasing recognition of the importance of measuring, protecting, and enhancing athletes' physical, social, and mental well-being (Giles et al., 2020). Critics point to the need for sport-specific measurement tools rather than the adoption of generic measurement because of athletic populations' specific needs (Rice et al., 2019). Athletes' physical well-being is compromised when they overtrain, become injured and ill, or engage in substance abuse or unhealthy nutritional or supplement practices (Giles et al., 2020). Social well-being is threatened by unsupportive environments, controlling practices, abuse, bullying, conflict, harassment, discrimination, and isolation. Additionally, factors such as

expectations, pressure, burnout, underperformance, and the development of maladaptive psychological symptoms can adversely affect mental well-being. According to Giles et al. (2020), the conceptualization of well-being is not well understood, and no specialist psychometric measurement exists.

Broadly, SDG 3 highlights conceptions of health and well-being that are common to all people across the globe while simultaneously specific to different needs and requirements. Enhancing the take up of and adherence to regular PA will have a robust impact on SDG 3. To maximize the effects of sport and PA on the achievement of SDG 3, sport and PA managers must adopt both a preventative and promotional health policy framework (Sherry et al., 2019). Notions of winning, economic legacy, and other common indicators of successful sport participation would need to be aligned differently within a larger, more inclusive sporting framework. This approach implies that policies relating to sport and PA need to prioritize inclusive PA across the lifespan (Sherry et al., 2019) and other related measures of health, well-being, and social impacts across multiple communities. However, evidence suggests that even when nations, organizations, and local community groups are aware of these needs, most of these groups' measurement methods are currently inadequate (Beneforti & Cunningham, 2005).

The development of tools to measure outcomes focusing on program effectiveness in sport and recreation programs, for the general population and even more so for Indigenous people, women, racial or ethnic minorities, and individuals with disabilities, are in their infancy. Empirical evidence on the links between sport and recreation programs and various health and social outcomes is also limited. To date, most research has focused on exploring the relationships between PA and different health outcomes. This work has essentially been confined to the realm of targeted research and has not extended to routine monitoring and evaluation of service delivery. Where program evaluation has been attempted, the results have often been inconclusive. Anecdotal and qualitative evidence suggests that sport and recreation can directly or indirectly influence several areas of social concern in Indigenous communities, such as crime, school attendance, substance abuse, self-harm, violence, and social cohesion. However, more research is required to provide stronger evidence of these relationships (Beneforti & Cunningham, 2005). Improvements in global comparisons of different sport systems and outcomes will require the use of innovative approaches.

9.2 Aligning measurement in sport relevant to SDG 3

Within the SDG framework, SDG 17 is devoted to the Means of Implementation, promoting the entire agenda's progression via the global partnerships across finance, capacity building, policy coherence, technology, trade, data monitoring, and accountability (Buse & Hawkes, 2015). Guidelines have also been produced to help implement processes to facilitate increased activity toward SDG 3 (WHO, 2018). The WHO outlines four strategic policy objectives (i.e., creating active societies, environments, people, and systems) and 20 policy actions to support effective national action. Recent research in relation to measuring SDG progress has focused on the need for greater accountability, consistency in reporting processes, the creation of specialized monitoring systems, and new data collection methods (Maurice, 2016).

While sport's capacity to enable SDG 3 is in its early days and progress is slow, model indicators have been developed to guide the design and implementation of results-based management (RBM) systems across all SDGs in sport ("Model Indicators," 2020). Using an RBM management strategy ensures that all stakeholders across multiple activity levels are positioning themselves to work toward shared goals (Pazvakavambwa & Steyn, 2014). The UN has promoted this approach as a suitably flexible framework that affords diverse activity

measurement across governments at international, national, or local levels, private sector industries, civil society organizations, and local communities. Results are describable or measurable changes that are the consequence of specific cause-and-effect relationships. One example of implementing a sport program to enable SDG 3 is the Healthy China Plan, where sport is being used to combat NCDs (Dai & Menhas, 2020). However, this model's use in sporting contexts, specifically about the impact of sport on SDG 3, has been rare.

In recognition of this global challenge, a systems-based framework for enhancing and measuring sports contribution to the SDGs, framed under the Kazan Action Plan (KAP; UNESCO, 2017) and the WHO's (2018) Global Action Plan. Regarding SDG 3, the WHO Global Action Plan outlined six policy objectives to enhance PA participation across communities and lifespan. In particular, the report documents global targets to encourage community participation relevant to each country. While the information includes active transport, open blue and green spaces, and urban design as critical developmental needs, it also points to sport as an "under-utilized yet important contributor to PA for all ages" (p. 17). This is apparent not just because it provides opportunities and potential motivators for increased PA but also because the sport sector is a large employer and influences tourism and infrastructure developments. Taking a human rights approach that emphasizes equity and evidence-based practice, the report recommends effective implementation partnerships. The implications here are that measurement will need to consider multiple stakeholders and partners while accounting for physical environments, social environments, and systems and people. Measures will need to assess current PA levels across various communities and across the lifespan to determine developments in PA's takeup.

A report examining the impact of sport for Pacific Island communities highlighted the data needed to thoroughly examine the effect of sport on SDG 3 in the context of Samoa and Fiji (Amosa et al., 2018). The report identified significant health outcome gaps. Population-level data on PA participation were poor and, in some instances, even nonexistent either because organizations did not understand the need for collecting data or the data collected was not aligned to the SDG indicators. Several recommendations were made to strengthen the implementation of SDG-related data analysis, including establishing data collection protocols at a national level that align with the SDG indicators, measuring population PA levels and creating baseline indicators, analyzing sport workforce for different groups, and adding sport- and PA-specific data collection questions to standard household surveys (Amosa et al., 2018).

Program viability and sustainability indicators should use existing tools from health, education, labor, and human rights, among other sectors, to measure sport's contribution to address capacity issues and avoid duplication. Program viability and sustainability indicators measure aspects of program functioning, including turnover of sport and recreation officers; funding levels and stability; community consultation and support; involvement, employment, and training of local people; succession planning; adequacy of facilities and equipment; and access to these facilities and equipment at critical times. These indicators enhance understanding of the processes that can lead to positive outcomes and therefore, how they could be repeated. Participation and engagement indicators provide a summary measure of community participation in sport and recreation programs and PA. Where relevant, the participation of specific target groups (e.g., women, adults, juvenile offenders, drug users). Outcome indicators provide insight into changes in health and social areas, including crime, school attendance, employment, health status, substance abuse, self-harm, and violence.

While the evidence shows strong links between PA and numerous health and well-being outcomes, PA's participation rates are only part of the picture. The type, intensity, frequency, and diversity of participation have a powerful impact on the outcomes, as does the PA

environment. PA in nature-based environments has salutogenic health and wellness benefits. Research has determined that exposure to green environments enhances uptake of physical activity, restores psycho-physiological stress and attention fatigue, increases neighborhood satisfaction, and reduces mortality, with strong associations being observed across urban and socioeconomically challenged areas. Increasing the amount of sport and PA in nature would reinforce the need to maintain healthy, sustainable, natural world settings for human activity. Similarly, more active societies can generate additional investment returns, including reduced use of fossil fuels, cleaner air, and less congested, safer roads. However, critics point out that to achieve highly interconnected preventive outcomes, all governance, strategic planning, and implementation need to be underpinned by robust, relevant theories of change to guide program design and the measurement of program effectiveness (Seidman, 2017).

9.3 Addressing challenges for measuring the impact of sport and PA on SDG 3

Implementing appropriate evaluations of sport and PA's impact on SDG 3 has a range of significant challenges. These challenges include policy coherence, financial limitations, and resources related to data collection. For the measurements to reflect the real aspirations of SDG 3, measurement methods need to reflect both pathogenic and salutogenic outcomes. Salutogenic health focuses on the idea that health results from continuous everyday life interactions between the individual and inevitable social, economic, cultural, physical, mental, and biochemical stressors (Antonovsky, 1996). While measuring decreases in disease is essential, salutogenic measurements that align with SDG 3 include measuring motivations, initial behaviors (e.g., initial participation), processes (e.g., how much PA, fun), and outcomes (e.g., well-being, CV measures) that will induce preventative health behaviors and positive health outcomes for all. Governments have been applying a range of health promotion or behavioral economics strategies to improve population health without producing the desired health outcomes (Matjasko et al., 2016). To date, these initiatives have been adopted to address determinants of the rising pathogenic outcomes rather than relying on data from the population as to what would encourage or motivate them to change their behaviors. As the most significant challenge of using traditional sport to attain SDG 3 is the declining interest in traditional sports participation, SDG 3 measurement strategies need to look beyond the high visibility sports to consider grassroots and community activities. There needs to be more focus on measuring effective functional, critical links between sports policy and practice to include a broader focus between different forms of sport. While the traditional, mainstream mega-sporting events continue to thrive, smaller community sporting and PA-based activities struggle to keep up and require government, industry, philanthropic, or crowdsourced funding to keep afloat. Research has identified significant funding issues across both the health and sporting sectors that inhibit the development of synergistic salutogenic solutions.

The effectiveness of sport as a medium for encouraging health-enhancing choices that reduce the burden on health systems might require cultural shifts beyond those that some sporting organizations are ready to make (Sport Information and Resource Center, 2020). The shifts may have to include recognition that certain types of sports participation incur negative impacts on individual health and well-being (Malm et al., 2019). For these reasons, it is important to ensure that organizations providing sport and PA opportunities appreciate that PA is being undertaken and measure the impacts of the activities on specific well-being outcomes. While an increase in activity may be one of the primary drivers to improve health, the measurement of pathogenic and salutogenic outcomes, including positive and negative impacts of sports

participation, will require a more sophisticated approach than merely measuring percentages relating to activity details (e.g., rate, frequency, type) or basic demographics of participants (e.g., women, socioeconomic or disability status). Rather than attempting to set up methods to address the challenges of measuring pathogenic outcomes, the preferred strategic planning method, modifiable at this initial stage of SDG attainment time, would be to identify how to use the same methods to simultaneously measure pathogenic and salutogenic outcomes, thereby producing twice as much data for the same amount of effort and cost.

Many communities, sporting associations, and governments experience a range of challenges related to measuring sport participation, physical activity, collating data, and monitoring progress needed to ensure the ongoing sport development policy in relation to health determinants. Greater investment in data collection efforts, supported by digital health technologies, is necessary to increase individual reporting mechanisms aligned to the community, state, or national data collection agencies. As such, greater access to user-friendly technological methods of data capture is required. With the appropriate design, the same type of digital tool can be used for individual or group data collection and the distribution of health education information while including a data capturing feature for each health education aspect. The funding limitations to such technological data capturing methods are most easily overcome by combining social, corporate, and crowdfunding investment strategies. At the same time, the actual data entry is completed by individual reporting.

Forging the synergies between a broader definition of sport and the dynamic features of sport will increase sport participation's global appreciation. This will influence future sport development to include a range of preventive health and sustainability policies that will inform better practice in relation to attaining health objectives from participating in sport. Governments' initial investment and incentivizing resource-rich corporations, organizations, and philanthropic individuals will enable the creation of innovative funding initiatives and user-friendly data capturing technologies. Data collected this way will then direct research across a range of specific pathogenic and salutogenic health determinants. As governments struggle with implementing these ideas, one global corporate initiative is already providing a highly adaptable program complete with educational tools and data capture methods: the Virgin Pulse Global Corporate Challenge (GCC).

Created in Australia over a decade ago, the GCC is a corporate wellness initiative designed to enhance physical activity uptake (Scherrer et al., 2010). This initiative challenges teams of seven employees to walk a minimum of 10,000 steps each day as they engage in a 100-day virtual walk around the world. The GCC reflects the competitive nature and team structure of traditional sport, combined with individual participant's choices for increasing physical activity—either as an individual, or in a team, in a gym setting, in their home, or out in nature. Additional health education information designed to improve nutrition, sleep hygiene, mental health, and overall health literacy is promoted during the program. Participants monitor their activity levels, daily steps, calorie intake, and hours of sleep per night using a pedometer or personal fitness device synced to the GCC website. The GCC app also provides self-testing opportunities (pre, during, and post-event,) including visual measures and health interpretations of the captured data, making it easy for participants to understand their health deficits, motivations, and successes. Post competition participants can use GCC's online platform to access additional motivation and health education material. According to their website, the GCC has connected with nearly two million participants in 4,700 organizations across 185 countries. Every year, this particular program builds on the success of the previous year, evolving with participants' needs, reimagining the program to include relevant health information while continuing to create a more holistic and highly personalized well-being experience. This

program provides an example for governments trying to capture their populations' imagination and participation while simultaneously demonstrating how to use technology to capture health information and data.

Agenda 2030 for Sustainable Development, the Kazan Action Plan, and the WHO Global Action Plan, in conjunction with associated developments across the sports movement, provide new opportunities for revisiting, revisioning, and realigning the definitions, policy objectives, and practices across sport and health. The realization of the interconnected and holistic relationship between sport and health will result in innovative health policies, improvements in development economics, and demonstrable benefits for the natural world.

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10

Applying Sustainable Development Goal 3

Shane O'Reilly

O'Reilly's Rainforest Retreat is a 95-year-old family business specializing in remote area tourism focused mainly on the natural environment that surrounds it. World Heritage-listed Lamington National Park provides a wide array of opportunities to experience and learn about nature in a subtropical rainforest environment. Being located close to a growing population base of Brisbane and the Gold Coast, it is well-suited to attract families and other people who may otherwise not be encouraged or attracted to a nature-based attraction further afield. It is also an iconic destination for second- or third-time international tourists as well as domestic and international nature enthusiasts.

10.1 Relationship to SDG 3

The length of tenure and operation of our eco-resort speaks highly of our business focus on sustainable development. Many of the SDGs and their interconnectedness reflect what has been, and what still is, provided on a daily basis at O'Reilly's and is not something our organization has specifically targeted—more so it is "what we do and what we have always done." We have people experience and learn about nature and the natural environment around them and hence develop their understanding and enthusiasm for its preservation and conservation.

10.2 Brainstorming solutions and evaluation

As O'Reilly's Rainforest Retreat has been in existence for decades prior to the strategic conceptualization of the SDGs, the organization's strategies are less focused on meeting SDG targets and more centralized around the concept of "reason for being." For example, we require experiences and development that means something internally to visitors in the long term, that being, there is a connection with their values.

Our Bird Week, now in its 46th year, teaches people about the life of birds and includes a healthy level of competition around identification and sightings. There are educational and physical activity components, but most importantly, this activity brings about a sense of community. Many of the 100 participants have returned for 40 or more of the 46 Bird Weeks. They may still learn and occasionally experience something new, but they mainly return for the community of bird week. They will reconnect with friends they have not seen for 12 months

and with whom they share a common love of nature and support each other in furthering their quest for more. This is an SDG outcome—more than a goal itself.

10.3 Execution

The SDGs promote the five *P*s—People, Planet, Prosperity, Peace, and Partnership. O'Reilly's has always been focused on people, our guests, our staff, and our family. One of our core values is to "treat strangers as friends, friends as family and family as gold." When people come into a nature-based environment, they become part of a more extensive ecosystem, forcing them to reconnect with the concept that the planet is much bigger, more diverse, and requires more care than they are reminded of in their everyday limited experience of the world.

The range of activities at O'Reilly's gives people the opportunity to participate in different levels of nature-based adventure, from kids' investigative experiences to challenging walking experiences for the very fit to soft adventure options for the elderly. Our activities provide a range of holistic wellness experiences that encourage physical activity, social and emotional well-being, and nature-based learning opportunities across the lifespan. Every year we embrace both old and new ways of bringing people and the planet together. The way for people to understand the importance of eco-sustainability in their everyday lives is to understand what it means when they experience a pristine environment like Lamington National Park and O'Reilly's Plateau.

The challenge for any government or organization is that they need to focus more on longer-term outcomes. At O'Reilly's, many of the challenges lie in being able to balance the require-ments of maintaining a pristine ecosystem with the demand by visitors. Through nature-based research, we found that some of our business practices needed to be modified to ensure the sustainability of the experiences we are offering. For example, in our bird-feeding area, before the number of day visitors increased, it was less important for us to monitor what everyone was feeding the birds. As our day visitor patronage increased, it became essential to ensure that we were contributing to the health of the local bird population, not hindering it by them being overfed with the types of seeds that could, would, and did affect their health. Likewise, we learned that it was not sustainable to take large groups out into the rainforest. This meant that we had to determine new economies of scale to ensure the profitability of taking groups on guided walks. While we would make a greater profit only using one guide for 30 guests, it would in the long term affect the pristine nature of the rainforest, thereby also reducing the quality of the experience for our future guests. Similarly, the short-term benefits associated with quick profits are usually not sustainable in business or for the planet. These longer-term outcomes often require lower but more consistent profit margins, along with a constant review.

While some of the eco-tourism literature proposes that tourists have little interest in sus-tainability (Wheeler, 2005) and that O'Reilly's would be best served by marketing to only target environmentally "careful treaders" so as to manage the environment–visitor balance more easily (Perkins & Grace, 2007), at O'Reilly's the best outcome is that we are responsible for creating future eco-tourists who are interested in their health and global sustainability for their whole lives.

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Part IV

Sustainable Development Goal 4: quality education

An overview of Sustainable Development Goal 4

Katherine Raw and Emma Sherry

This chapter focuses upon sport and the United Nations' Sustainable Development Goal 4. As such, we examine a diverse range of initiatives that aim to use sport as a vehicle to promote education and lifelong learning among a variety of international communities. First, this chapter aims to define SDG 4 and examine its specific targets. Following this, we turn to explore the theoretical foundations and conceptual frameworks associated with this space. Finally, we describe how sport organizations can connect to SDG 4 and provide examples of how sport organizations have engaged with communities in promoting SDG 4.

Despite significant improvements in educational access and engagement over recent years, research indicates that the majority of children and youth struggle to meet minimum proficiency standards in reading and mathematics (UN Economic and Social Council, 2019). Further, in 2017 there were 262 million children and youth aged 6 to 17 years that were disengaged from school (UN Economic and Social Council, 2019). It is because of these challenges that the UN continues to target education as a core component of the SDGs agenda. Specifically, the UN defines SDG 4 as "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all" (General Assembly, 2015, p. 17). In establishing this call to action, the UN has developed several targets associated with SDG 4. We explore these targets in the following section.

11.1. Targets

In order to help achieve the SDGs, the UN developed a suite of targets associated with each goal. Specifically, with regard to SDG 4, the UN established 10 targets, as listed in Table 11.1.

With the above definition and targets in mind, we now turn to explore the theoretical and conceptual foundations of sport in association with SDG 4. Following this, we provide practical examples of how sport organizations can work toward educational outcomes, and thus SDG 4.

11.2. Theoretical foundations

To better understand the idea of SDG 4 in the context of this chapter, it is important to also consider the broader role of sport in education. In particular, there are a number of conceptual

Table 11.1 Targets of Sustainable Development Goal 4

4.1	By 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes
4.2	By 2030, ensure that all girls and boys have access to quality early childhood development, care and pre-primary education so that they are ready for primary education
4.3	By 2030, ensure equal access for all women and men to affordable and quality technical, vocational and tertiary education, including university
4.4	By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship
4.5	By 2030, eliminate gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples and children in vulnerable situations
4.6	By 2030, ensure that all youth and a substantial proportion of adults, both men and women, achieve literacy and numeracy
4.7	By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development
4.a	Build and upgrade education facilities that are child, disability and gender sensitive and provide safe, non-violent, inclusive and effective learning environments for all
4.b	By 2020, substantially expand globally the number of scholarships available to developing countries, in particular least developed countries, small island developing States and African countries, for enrolment in higher education, including vocational training and information and communications technology, technical, engineering and scientific programmes, in developed countries and other developing countries
4.c	By 2030, substantially increase the supply of qualified teachers, including through international cooperation for teacher training in developing countries, especially least developed countries and small island developing States

Source: General Assembly (2015).

and theoretical frameworks that can help to unpack the notion of sport and learning. For example, Brown's (2013) reexamination of Peter Arnold's foundational work helps to elucidate the multifaceted relationship between movement and education, and vice versa. Specifically, within this framework, there are thought to be three key dimensions, including:

1 education "about" movement, which typically involves learning about physical, social or philosophical elements of physical activity and or sport;
2 education "through" movement, which usually centers around leveraging sport or physical activity as a vehicle for educational outcomes; and
3 education "in" movement, whereby personal development occurs via engagement in sport or physical activity. (Brown, 2013)

These interdependent dimensions help to holistically conceptualize the practice of physical education, and as a result, have contributed to a wide range of physical activity frameworks and curricula (Brown, 2013). Interestingly, while the latter of the three above dimensions (education "in" movement) predominantly aligns with traditional forms of physical education, the

first two (education "about" and "through" movement) also align with the work of many sport for development (SFD) organizations (Svensson et al., 2016). As such, in this chapter we predominantly focus upon these two dimensions and SFD theory, as they help to elucidate the connection between sport and SDG 4. Scholars have offered a broad definition of SFD, describing it as:

> the use of sport to exert a positive influence on public health, the socialisation of children, youths and adults, the social inclusion of the disadvantaged, the economic development of regions and states, and on fostering intercultural exchange and conflict resolution. (Lyras & Welty Peachey, 2011, p. 311)

While there are a number of theoretical frameworks to SFD, Coalter's (2006) formative work outlines two dominant approaches, namely the *sport plus* and the *plus sport* approaches:

- *Sport plus*, in which sports are adjusted (e.g., removal of barriers, training of coaches, provision of opportunities) to achieve broader developmental goals.
- *Plus sport*, in which sport is used in a supplementary manner to developmental initiatives to attract youth to the program, with a minimal focus on systematic sport development.

The key difference between these two approaches is the notion that "sport plus" are sport-focused programs that may also provide other adjunct educational or social development opportunities (Bowers & Green, 2016). In contrast, "plus sport" programs typically leverage sport or physical activity as a "hook" to draw otherwise disconnected, marginalized people into a program (Hartmann & Kwauk, 2011). In using this approach, organizations would embed educational programming within sport-based programs, and as such, use sport as a means to foster learning around a broad variety of topics and social issues among disengaged communities.

Many SFD scholars have extended upon these frameworks when examining sports role in educational outcomes. For example, through the application of ecological system theory, Burnett (2015) examined the "uptake" of a school-based, incentive-driven SFD program in South Africa. Using this conceptual framework, the study explored the meso-, exo-, and micro-levels of programming and found a variety of models of implantation. While the model can vary between different research projects and contexts, its value lies in its ability to highlight nuances within individual, immediate, and environmental interactions within programming (Duerden & Witt, 2010). When applied to SFD educational programs, the micro-level of this model is thought to represent individual factors and impacts, such as a person's social, physical, psychological, and cognitive domains (Burnett, 2008, 2015). Building upon this, the meso-level denotes the institutional dimensions and factors, including, sports teams or facilities, schools, and educational access (Burnett, 2015; Kay & Spaaij, 2012). Situated beyond this is the exo-system, in which there are broader cultural systems, including extended relationships with families and community (Burnett, 2015; Kay & Spaaij, 2012). Figure 11.1 shown here provides an example of a rudimentary three-layered version of this model.

Underpinning these micro-, meso- and exo- domains is the notion that when the appropriate factors and context align via well designed SFD programming, social development can occur, and educational outcomes are more likely to be achieved. To that end, scholars have explained that if "…an SFD intervention [is] to achieve the desired outcomes, a theory of change is essential" (Hills et al., 2019, p. 416). Hence, Coalter's (2012, 2013) examinations of program logic theory have played an important role in clarifying the structures and effects
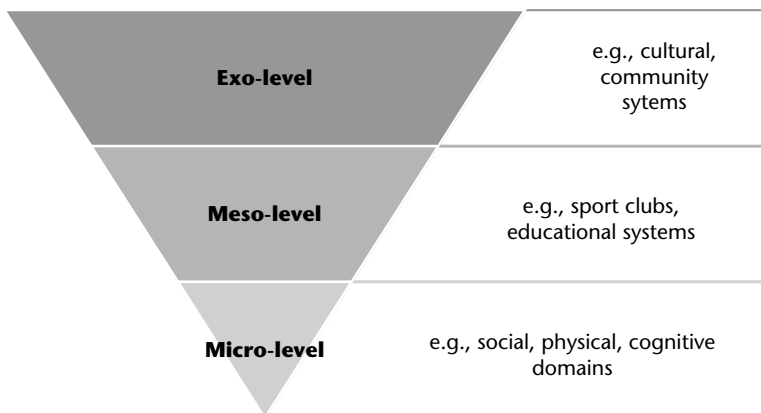
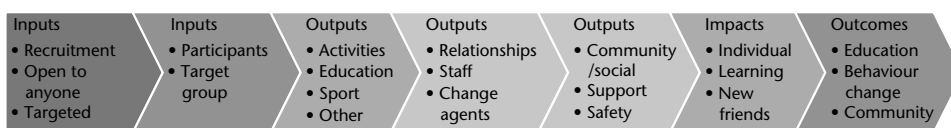*Figure 11.1*   Ecological system theory (adapted from Burnett, 2015)

Figure 11.2   Problem logic model (adapted from Coalter, 2013)

underpinning SFD interventions. Specifically, this model helps to demonstrate the presumed relationships between local social issues, program aims, target groups, resources, activities, processes, and structures, as well as intermediate impacts on participants (e.g., educational outcomes), and broader outcomes (e.g., individual behavior change, or social change within communities; Coalter, 2012). Figure 11.2 helps to demonstrate the interrelated elements of this model.

The development of such a model not only helps to serve as the preliminary basis for designing and identifying program structures and conditions, but also helps to demonstrate the links between programs and outcomes, and therefore also provides a frame of reference for measurement and evaluation (as discussed in Chapter 12). For example, Hills et al. (2019) applied this model when investigating an SFD initiative in London looking to engage participants in social-emotional education. In doing so, the authors were able to not only able examine program implementation, but they were also able to uncover fundamental program design issues, such as a failure to identify and address a local social problem (Hills et al., 2019).

In addition to program logic theory, teaching personal and social responsibility (TPSR) theory has also been applied when looking to leverage sport's capacity to contribute to educational outcomes via physical education (Mandigo et al., 2016; Wright et al., 2016), and SFD programming (Whitley et al., 2017; Wright et al., 2018). This particular model is an empowerment-based approach that was developed over 40 years of practice and looks to use sport as a vehicle to teach life skills that can be applied across multiple life and community settings (Hellison, 2011; Wright et al., 2018). For example, Wright et al. (2018) examined the implementation and outcomes of an SFD coach education program in Belize. The authors explained that TPSR model was a key feature of this program, as it helped to form an empowerment-based approach that looked to teach values and life skills. In this instance, TPSR

was oriented toward participants fostering personal (e.g., resilience, motivation, goal setting) and social (e.g., respect, leadership, peaceful conflict resolution) responsibility within SFD programming, and then looking to develop and apply these notions elsewhere in life (e.g., in school, local communities, or home). Similarly, Whitley et al. (2017) investigated a sport-based program that looked to empower youth in their strength-based development, with a particular focus on education and career exploration. Through targeted programming, the initiative guided youth through five progressive levels of the TPSR model, including respect, effort and cooperation, self-direction, leadership and helping others, and transferring into other aspects of life (e.g., educational and career paths).

In addition to TPSR, Ryan and Deci's (2000) theory of self-determination has also been applied as a conceptual framework to help leverage and examine sport's capacity to contribute to educational outcomes. This particular framework has been described as "an empirically derived theory of human motivation and personality in social contexts that differentiates motivation in terms of being autonomous and controlled" (Deci & Ryan, 2012, p. 416). In essence, the theory is underpinned by the notion that people are motivated to pursue developmental opportunities by fostering three fundamental psychological needs: autonomy, competence, and relatedness (Ryan & Deci, 2000). To explain these three dimensions, autonomy is thought to occur when an individual has a choice in their personal direction, competence is when a person feels effective in their pursuits, and relatedness occurs through connections with others. Consequently, when looking to use sport for educational outcomes, scholars have highlighted the importance of fostering autonomy with local community leaders who can help guide community members into programs (Pate et al., 2019). In line with this, community leaders should be able to foster their connections (e.g., relatedness) with other leaders who are also working to achieve similar community outcomes. Likewise, programs should be designed in a way that helps to foster autonomy and relatedness among participants of programs (Farello et al., 2019).

11.3. Connections to sport

There are a number of practical actions and strategies that can be implemented in order for organizations and initiatives to better connect sport with education and contribute to SDG 4. Research offers a number of examples across a variety of global contexts. Hence, in this section, we examine the management and delivery of sport for education programs across a range of countries and contexts.

Firstly, an important consideration when using sport to foster educational outcomes is the need to understand local communities and target groups. In doing so, programming can be designed in a manner that identifies and reduces barriers and encourages engagement. For instance, in a study of physical education programming for female refugee youth in the United States, researchers highlighted the importance of minimizing participation barriers, such as perceived sporting incompetence or lack of accessibility and choices (Farello et al., 2019). To do so, the authors suggested that programs should directly address these barriers by promoting a growth mindset, fostering peer support, and providing ample choices in activity (Farello et al., 2019). In addition, there was also thought to be value in facilitating appropriate peer and adult relationships, a sense of belonging, and autonomy among participants (Farello et al., 2019).

Likewise, research into an SFD initiative targeting youth engagement in Belgium demonstrated how programming can provide a space in which youth can be themselves, feel respected and at home, can learn to reflect and form opinions, and are able to escape daily challenges such as discrimination (Nols et al., 2019). Other studies have explained that program beneficiaries

can be an important source of information when looking to understand participation barriers (Rivard, 2013). For example, an examination of girls' experiences of sport and physical education in Rwanda used photovoice and semi-structured interview methods to better understand participation barriers. In doing so, the authors were able to bring forward the voices and perspectives of girls, better understand barriers (e.g., lack of access, cultural norms), and enable participants to suggest solutions to these (e.g., access, support, safety; Rivard, 2013).

In addition to understanding target groups and reducing participation barriers, researchers have explained that sport for education initiatives must foster an intentional program climate (Whitley et al., 2017). Specifically, programming needs to be designed in a manner that identifies and understands a local social problem within a community, then targets said problem through intentionally designing programs and activities (e.g., education and sport) around the needs of prospective participants (Hills et al., 2019). To that end, understanding the educative aims of programs, relative to these local issues, is an important consideration in program design. For example, an investigation into SFD programming in the United States demonstrated the broad range of educative aims that sport can potentially contribute to, such as: reengage youth in existing educational processes and systems, academic success, career development, and health and wellness (Svensson et al., 2016).

In addition to defining aims, programming structures must be designed and leveraged in a manner that directly addresses these goals. For instance, research by Seal and Sherry (2018) examined an SFD program delivered in Papua New Guinea which aimed to empower young women and educate participants around sociocultural issues related to gender inequality and domestic violence. In order to address these aims, a key consideration within program design was the employment of female staff and managers from local communities. Findings indicated that this particular element of program design was core to the cricket program's success, as this helped to build local leadership capacity, increase self-efficacy, and challenge traditional gendered expectations (Seal & Sherry, 2018). Likewise, investigations into a U.S.-based initiative targeting educational and career outcomes among youth noted that important aspects of program design included a youth-centered philosophy, task-oriented climate, and effective leadership and mentor strategies (Whitley et al., 2017). Without this type of targeted design and strategic process, initiatives will likely struggle to facilitate an appropriate program environment, and thereby reduce the likelihood of any significant positive effects (Hills et al., 2019).

Alongside targeted design, research has also highlighted the importance of appropriate pedagogical strategies in sport for education and social change initiatives. In particular, researchers have emphasized the importance of adapting curriculums to local contexts (Collison et al., 2016; Spaaij & Jeanes, 2013). For example, an investigation into an SFD program in Rwanda noted that the local historical and sociocultural landscape must be taken into account when designing programming (Collison et al., 2016). In this particular context, Rwanda's history of genocide was an important consideration, in that programs leveraged football with the aim to foster post-conflict social development and education. Through this implementation process, the curriculum was not considered static and instead was designed to evolve around program developments over three years. Consequently, it was hoped that program leaders and participants adapt the curriculum to better work with their own local socio-cultural and educational environments, and in doing so, create an impactful and appropriate curriculum (Collison et al., 2016).

Other research has offered insights into pedagogical approaches used in SFD initiatives located in Zambia and Brazil. Specifically, Spaaij and Jeanes (2013) highlighted the need for flexibility in curriculum development that is grounded within local contexts. That is, sport for education initiatives need to deal with local issues rather than standardize curriculum, as is often

prioritized in SFD. For example, programming in low-to-middle income contexts needs to identify cultural and political contexts, and design curriculum around this in a manner that helps to address local issues (e.g., HIV/AIDS and health education in Zambia). Finally, the authors explained that these initiatives need to improve upon their ability to provide a transformative educational experience for SFD participants. Similarly, other research has highlighted the need to examine the pedagogy and suggested that practitioners should be wary of the banking method in education, as the transference of factual information should not necessarily be prioritized over slower and more transformative educational experiences (Spaaij et al., 2016). To explain, practitioners should be cautious of didactic teaching strategies that rely upon "depositing information" (Spaaij & Jeanes, 2013). Rather, a greater emphasis should be placed upon transformative practices, whereby practitioners facilitate a learning process of "action–reflection–transformative action" (p. 446). In doing so, learners are encouraged to reflect upon their lives and asked questions to discover their meaning and value.

In addition to pedagogical considerations, researchers explained that partnerships, stakeholders, and organizational structures can also influence the ability of these initiatives to achieve their desired outcomes (Sherry & Schulenkorf, 2016; Svensson et al., 2016). This is particularly important in sport for education initiatives, as many of these organizations will look to bolster their academic capacity by partnering educational institutions and education–focused non-profits (Svensson et al., 2016). For instance, an SFD initiative in Papua New Guinea was formed as a three-way partnership between the local Department of Education, the Australian Government, and the Australian National Rugby League. Through working with local schools and teachers, the initiative aimed to improve student engagement and enhance communication of positive social messaging around respect and gender equality. Research indicated that while there were some preliminary challenges around clarity of roles and responsibilities, there were also successes with regard to the level of stakeholder engagement and a rigorous design process that prioritized program outcomes and long-term sustainability (Sherry & Schulenkorf, 2016). An investigation into an Israeli-based sport for education program offered similar insights. In particular, the study highlighted that while management processes gave the impression of agency among program participants, there were also miscommunications and discrepancies that weakened the dialogue between stakeholders. Consequently, clear communications between program partners and actors should be considered vital (Wahrman & Zach, 2018).

Similarly, Burnett (2015) examined a school-based SFD in impoverished communities within the Western Cape Province and Eastern Cape Province of South Africa. While results were dependent upon the various models of delivery which were specific to each program context, there were a number of recommendations that emerged from this study. Specifically, with regard to partnerships, the branding of schools provided "distinguishable markers of recognition. The labeling of otherness and associative competence within a relatively resource-poor environment attracted learners and mobilized parents to engage in school (sporting) events" (p. 832). In terms of outcomes, there were positive impacts with regard to value education and life skills, such as discipline, honesty, taking responsibility, goal setting, and perseverance. However, the transferability of these skills was limited to within the program context. In addition, limitations were also prevalent with regard to the exclusionary and performance-oriented approach to ownership (despite the local embeddedness of the funding partner). Hence, even with the involvement of transnational partners, initiatives must work to shift ownership and management powers toward local program leaders and organizations.

Furthermore, some scholars have argued that initiatives should make a more conscious effort to foster self-determination among participants, and in doing so, attempt to disrupt dominant relations of power (Hayhurst et al., 2016). For example, in a study of two SFD initiatives (one

in Canada and one in Australia), researchers explained that the initiatives' aims revolved around engaging Indigenous young women and girls in educational and employment programming. In doing so, the initiatives hoped to increase the chances of participants' employment, post-secondary education, and healthy active living. However, the researchers explained that these "forms of 'success' fall within neoliberal logic, where the focus is on the individual being able to provide for oneself" (p. 549). Consequently, it has been argued that SFD programming should do more to promote self-determination via local Indigenous leadership, and amplifying Indigenous voices, epistemologies, concerns, and standpoints (Hayhurst et al., 2016). Rynne's (2016) exploration of the pedagogical possibilities of Indigenous SFD in Australia demonstrated how this could be achieved through fostering learning with nature, and connections with Indigenous peers and Indigenous community members. In addition, it was suggested that learning can relate "to spiritual (re)connection with land and ocean, the (re)development of Indigenous and surf-specific cultural knowledge, and the (re)establishment of familial and community bonds" (p. 605).

11.4. Limitations

Despite the potential benefits of sport for education-focused initiatives, there are some limitations that should be considered within this field. In particular, scholars have noted that much of the preliminary literature focusing upon sport and physical education programming was largely uncritical of the use of physical activity and sport in achieving development goals (Njelesani, 2011). Consequently, more recent research efforts have questioned whether we as a society should continue to assume that the institutions of sport and education are naturally compatible, complementary, and mutually beneficial (Kwauk, 2016). In a study of social attitudes toward sport, education, and development in the Pacific island nation of Samoa, findings led researchers to question the dynamic between sport and education. Specifically, the authors noted that while viewing sport and SFD as an alternative to traditional forms of education can help to reengage underperforming youth, it can also serve to deskill youth and perpetuate their marginalized positions within society (Kwauk, 2016). Consequently, as noted earlier, many of these sport for education initiatives are at risk of reinforcing neoliberal ideologies (Burnett, 2015, 2016; Hayhurst et al., 2016; Seal & Sherry, 2018), and in doing so, would be promoting "sameness" (e.g., educational and vocational pursuits) as a form of success. Burnett (2015) explained that:

> as long as neoliberal ideas persuasively inform programmes, learning outcomes and sport practices, the emphasis will be on recognising and highlighting the positive aspects of an intervention. Such positive outcomes should not be taken at face value, but understood as fitting into complex social worlds where teachers might confirm programme claims, only to be contradicted by the very participants whose voices reflect a different reality. (p. 834)

To sense check these potential neoliberal ideals, practitioners and researchers should continue to engage with participants and encourage them to share their perspectives on program successes and limitations. One study has made an effort to do just this, and found that despite prevailing neoliberal logics, participants argued that their participation in programming helped to prepare them to challenge negative stereotypes, navigate Eurocentric institutions (e.g., employment, post-secondary education), and thereby assist them in contributing to social change (Hayhurst et al., 2016).

In addition to navigating neoliberal ideals, scholars have also pointed to the need to foster more transformative educational processes through sporting environments (Spaaij & Jeanes, 2013; Spaaij et al., 2016). While sport for education initiatives may foster new opportunities for participants, these changes do not necessarily equate to broader social changes (Spaaij et al., 2016). Instead, more transformative approaches should be founded upon dialogue and problem posing rather than maintaining the status quo or implementing standardized curriculum. As such, educators and SFD practitioners should not simply implement predetermined program steps with participants and assume this will automatically lead to transformative action. Rather, practitioners should aim to look beyond engaging participants in existing socio-economic and political systems, and foster critical consciousness and transformative action by educating learners around issues such as health, gender equality, and employability (Spaaij et al., 2016). Hence, there is an inherent value in supporting the relational, nuanced, and embodied processes occurring in day-to-day practices, as they can help foster transformative change in localized community settings (Seal & Sherry, 2018). While there are multiple limitations that practitioners need to consider within this field, overall, researchers argue that the benefits of using sport for educational and developmental outcomes outweigh any potential disadvantages (Nanayakkara, 2016).

11.5. Summary

In summary, there are a number of ways in which staff and stakeholders can improve connections between sport and education, and thereby increase the chances of positive outcomes for all involved. First, understanding local community contexts and target groups is thought to be critical. This is because initiatives must first understand their prospective participants' needs and barriers to engagement in sport or education. In line with this, programming must adopt a targeted design that specifically identifies local issues in the community, defines and understands aims and outcomes in association with this, and then provides appropriate programming in line with local issues and educational goals. Consequently, pedagogy within programming should not be static or standardized, and instead should be evolving and adaptive in response to the needs of participant groups and the surrounding sociocultural contexts.

In order to best support this pedagogical approach, managers of sport for education initiatives should seek to engage with external partnerships that will improve educational expertise and programmatic capacity. However, engaging with external partnerships should not be done in a manner that shifts power relations away from local staff and stakeholders. In fact, there should be a priority placed upon efforts to shift leadership, ownership, and capacity toward local communities, participants, and those most engaged on the ground within programs. Alongside this, local Indigenous input into program design, management, and governance should be sought out where possible and appropriate. Hence, taking the time to encourage local ownership and listen to participants will help navigate some of the neoliberal ideals that often tend to permeate these types of sport for education programs.

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12

Measuring Sustainable Development Goal 4

Emma Sherry

The focus of SDG 4 is to ensure inclusive and equitable quality education and promote lifelong learning opportunities for all, with indicators focused on ensuring equitable access to education for all from early childhood to tertiary education. Desired outcomes include achieving literacy and numeracy outcomes, gaining an understanding of sustainable development, and acquiring skills for future employment and entrepreneurship. These indicators will be enabled via appropriate facilities, scholarships to those in the least developed countries, and through teacher training.

As described in the 2020 United Nations Secretary-General's *Progress Towards the Sustainable Development Goals* report for Goal 4, progress was clearly impacted by the global pandemic of COVID-19, which has severely slowed progress toward achieving the SDGs across the globe. This report noted the following progress toward these goals and indicators:

- At the end of 2019, millions of children and young people were still out of school, and more than half of those in school were not meeting minimum proficiency standards in reading and numeracy. The closure of schools to slow the spread of COVID-19 is having an adverse impact on learning outcomes and the social and behavioral development of children and young people. It has affected more than 90% of the world's student population, 1.5 billion children and young people. Although remote learning is provided to many students, children and young people in vulnerable and disadvantaged communities, such as those living in remote areas, extreme poverty, fragile states, and refugee camps do not have the same access thereto. The digital divide will widen existing gaps in equality with regard to education.
- In 74 countries with comparable data for the 2011–2019 period, around 7 in 10 children three and four years of age were on track developmentally in at least three of the following domains: literacy-numeracy, physical development, social-emotional development, and learning.
- Participation in organized learning one year before the official primary age of entry grew steadily, from 62% in 2010 to 67% in 2018. However, variation among countries is still wide, with values ranging from 9 to nearly 100%.
- The primary school completion rate reached 84% in 2018, up from 70% in 2000. Under

current trends, the rate is expected to reach 89% globally by 2030. In 2018, 258 million children, adolescents and young people 6 to 17 years of age were still out of school, representing 17% of the global population of that age group. Parity between children or adolescents from the richest and poorest quintiles of the population was achieved in 25% of countries for primary education, 21% of countries for lower secondary education, and only 1% of countries for upper secondary education.

- In 2018, some 773 million adults, two-thirds of them women, remained illiterate in terms of reading and writing skills. The global adult literacy rate, for the population 15 years of age and older, was 86% in 2018, while the youth literacy rate, for the population 15 to 24 years of age, was 92%. Southern Asia is home to nearly half of the global illiterate population, and Sub-Saharan Africa is home to one quarter thereof.
- In 2019, less than one-half of primary and lower secondary schools in Sub-Saharan Africa had access to electricity, the Internet, computers and basic handwashing facilities, key basic services, and facilities necessary to ensure a safe and effective learning environment for all students.
- Overseas Development Aid for scholarships amounted to $1.6 billion in 2018, up from $1.3 billion in 2017.
- Based on data from 129 countries, the percentage of primary school teachers receiving the minimum pedagogical training according to national standards throughout the world has stagnated at 85% since 2015. The percentage is lowest in Sub-Saharan Africa (64%) and Southern Asia (72%; UNESCO, 2020).

These indicators of progress toward achieving SDG 4 clearly identify both the scale of the ongoing efforts to achieve the SDGs and also the impact of COVID-19 on the global progress toward sustainable development. As the world moves through the pandemic, a concurrent focus on recovery and progress will need to be maintained. Sport has been identified as a key driver in the development of global education outcomes, and this will be discussed in the following sections.

12.1 Measurement in sport

In the sport setting, the measurement of sport's contribution to SDG 4 has been largely in partnership with national governments and the physical education sector via the International Council of Sport Science and Physical Education (ICSSPE), and under the auspice of the Ministers and Senior Officials Responsible for Physical Education and Sport (MINEPS). The most recent International Conference of Ministers and Senior Officials Responsible for Physical Education and Sport (MINEPS VI) was held in Kazan, Russia, in 2017.

During this event, on the basis of the Declaration of Berlin (2013), the International Charter of Physical Education, Physical Activity and Sport (2015), and the United Nations Agenda 2030 as well as SDGs, MINEPS VI aimed to "form a basis for measurable action of governments and the sport movement."

One outcome of this conference identified a requirement to "(iii) strengthening the linkages between sport policy development and the sustainable development goals," noting that:

> physical education, physical activity, and sport are "fundamental rights for all," and as such constitute important components of equitable and quality education (SDG 4.1). Physical literacy provides the basis for lifelong participation in physical activity and the associated health benefits, making it essential for young people's development and an important learning outcome across educational settings.

> High-quality physical education, physical activity, and sport learning environments can also contribute to broader education outcomes. They can also provide experiential and empowering education that can promote the engagement of a diverse range of students, irrespective of their background, including those less suited to formal education settings (SDG 4.5 and 5.1). The inclusive and equitable delivery of physical education, physical activity and sport within general education will contribute to eliminating gender disparities (SDG 4.5). It can also promote holistic development and lifelong learning, providing a platform well-suited to developing the knowledge and leadership skills needed to promote sustainable development (SDG 4.7). (International Council of Sport Science and Physical Education, 2017).

As a result of the MINEPS VI conference, an intergovernmental Open-Ended Working Group chaired by the Commonwealth Secretariat and UNESCO was established to measure the contribution of sport to the SDGs. This work was designed to help countries and sporting bodies to assess if the positive contribution of sport to society is being realized and better target future strategy and investment. It also aimed to help future strategy and investment in sport to be evidence based and data-driven. This Open-Ended Working Group has developed a toolkit of sport and SDG indicators to measure progress against 9 of the 17 SDGs (Commonwealth Secretariat, 2020). According to the report, the sport and SDG indicators:

> provide a base set of measures to monitor and evaluate the contribution of sport, Physical Education (PE) and (organised) physical activity to the [SDGs]. These indicators provide a technical resource to support the development of national and institutional monitoring and evaluation systems and enhance common data on sport, physical education, physical activity and the SDGs" (Commonwealth Secretariat, 2020, p. 5).

We will now focus on the indicators that have been developed for SDG4. The indicators that have been identified through this intergovernmental and interagency working group that feed into the measurement of SDG 4 indicators are listed in Table 12.1.

As can be seen from the excerpts from the Toolkit 4.0 above (Commonwealth Secretariat, 2020), the Open-Ended Working Group of sector experts has identified areas of policy coherence and measurement to align the desired goals and indicators of SDG 4 with the sport setting. It is important to note in the context of SDG 4 that the role of sport in schools, and specifically physical education, is key to achieving and measuring the role that sport can play in contributing to inclusive and equitable quality education and promote lifelong learning opportunities for all.

These indicators have been selected to ensure that they are able to be collected and reported by all countries, regardless of the level of development, by piggybacking the data collected for the sport sector to measures already in place for the education or physical activity sectors where available. These indicators and the toolkit itself are currently being piloted by a sample of nations globally, including Canada, Japan, Columbia, Jamaica, and India. What is missing from these indicators, however, is a discussion of sport's role in higher and vocational education, teacher training, and inclusive access to education and safe sport facilities.

In addition to the intergovernmental efforts to measure the contribution of sport to SDG 4, there is also a body of research that has investigated how sport may contribute to education outcomes, as well as how desirable outcomes may be measured in the sport setting. Previous research has investigated sport for development (SFD) programming in schools (e.g., Burnett, 2015; Sherry & Schulenkorf, 2016), SFD initiatives aimed at improving education outcomes for

Table 12.1 Sustainable Development Goal 4 indicators

Category 1 indicator name	Source	Type	Unit of analysis	Notes	Linked SDG target and indicator
% of (i) primary and (ii) secondary schools reporting implementation of the minimum number of physical education (120 minutes per week in primary school; 180 minutes per week in secondary school) Coherent with: • _UNESCO QPE Indicator 2 • _WHO GAPPA Active People: Indicator 3.1.9	UNESCO World-wide Survey of Quality Physical Education; or Drawing on: Global school-based student health survey (GSHS): Core Question in Physical Activity Module	Domain: Active School and Education Environments-Level: Macro systems and population level changeType: Impact	Population level QPE Guideline and Outcome 1.3 Refers to the percentage of surveyed primary and secondary school students who report participating in class-time physical education for more than 120 minutes/ 180 minutes each week Disaggregated by primary and secondary schools. Disaggregated by gender, age and disability.	The indicator draws on the recognition in the Kazan Action Plan of the importance of physical education, physical activity and sport as a 'fundamental rights for all' and as such important components of equitable and quality education. This indicator measures the percentage of students reporting they go to two or more physical education classes each week. The regular participation of students in quality physical education is an important prerequisite to deliver two policy areas of the Kazan Action: • _II.1 Improve health and well-being of all at all ages. • _II.2 Provide quality education and promote lifelong learning for all.	SDG Indicator 4.1 By 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes. SDG 4.2 by 2030, ensure that all girls and boys have access to quality early childhood development, care and pre-primary education so that they are ready for primary education. Also note SDGs 4.7 and 4.a, 4.c
% of schools reporting PE specialist teachers in (i) primary and (ii) secondary schools [Teachers who have received at least the minimum organized teacher training (e.g.,	UNESCO World-wide Survey of School Physical Education; or national equivalentSee protocol sheet for question reference from	Domain:Active School and Education Environments-Level:Instituti-onal and organization level changeType:-InputOutcome	UNESCO School-level SurveyOrganization/ school (sample; aggregated to national level)Refers to the number of teachers who are qualified PE teachers and are employed as	The indicator draws on the 'continued commitment to quality physical education as the most important means to ensure inclusive, lifelong participation in sport and physical activity' outlined in the Kazan Action Plan.It measures the aggregate of schools reporting against the key criteria for QPE outlined in	4.7 By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global

(Continued)

Table 12.1 (Continued)

Category 1 indicator name	Source	Type	Unit of analysis	Notes	Linked SDG target and indicator
pedagogical training) pre-service or in-service required for teaching physical education at the relevant level in a given country]Coherent with: • _UNESCO QPE Indicator 5	UNESCO QPE Survey.		PE subject specialist teachers.	the Kazan Action Plan: frequent, inclusive, variable and challenging/meaningful.The regular participation of students in quality physical education is an important prerequisite to deliver two policy areas of the Kazan Action:	citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development
% of schools reporting full/ partial implementation of quality physical education as defined by UNESCO's QPE Policy Guidelines. Coherent with: • _UNESCO QPE Indicator 9	UNESCO World-wide Survey of School Physical Education; or national equivalentSee Protocol sheet for question reference from UNESCO QPE Survey.	Domain: Active School and Education Environments-Level:Instituti-onal and organization level changeType:I-nputOutcome	Organization/school (sample; aggregated to national level) Refers to the % of schools reporting full/ partial implementation of quality physical education that is frequent, inclusive, variable and challenging/ meaningful as defined by UNESCO QPE Standards and in the Kazan Action PlanScale for measurement is full; partial; limited; not at all	The indicator draws on the 'continued commitment to quality physical education as the most important means to ensure inclusive, lifelong participation in sport and physical activity' outlined in the Kazan Action Plan.It measures the aggregate of schools reporting against the key criteria for QPE outlined in the Kazan Action Plan: frequent, inclusive, variable and challenging/meaningful.The regular participation of students in quality physical education is an importantprerequisite to deliver two policy areas of the Kazan Action: II.1 *Improve health and well-being of all at all ages.* II.2 *Provide quality education and promote lifelong learning for all.*	4.7 By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable developmentIndicator 4.7.1 Extent to which (1) global citizenship education and (2) education for sustainable development, including gender equality and human rights, are mainstreamed at all levels in (a) national education policies, (b) curricula, (c) teacher education and (d) student assessment

participants (e.g., Kwauk, 2016; Svensson et al., 2016), and the pedagogy and curriculum within SFD initiatives (e.g., Nols et al., 2019; Spaaij et al., 2016). These projects have used a combination of research approaches, methods, and theoretical frameworks to evaluate or measure the intersection of sport and education. Approaches to measurement within the academic literature has predominantly been qualitative, with a focus on self-determination theory, critical pedagogy, and a number using post-colonial frameworks. There have been little-to-no attempts in the research literature to identify a causal impact of sport and education; rather, the focus of this work has been on specific SFD initiatives with targeted education development outcomes for specific communities.

12.2 Implementation challenges

The development of the indicators has been overseen by a global Steering Group comprised of UNESCO, UNDESA, the IOC, and IPC, leading member states, and sector experts. The development process has been spearheaded and coordinated by the Commonwealth Secretariat. In addition, an Open-Ended Working Group and an international learning coalition (Community of Practice) have been established to support the development process. Thus far, more than 150 stakeholder organizations, including ministries and public authorities responsible for sport, international sport federations, academics, and sector stakeholders have been engaged through these structures and have contributed to the development and refinement of the indicators (Commonwealth Secretariat, 2020).

An iterative approach has been utilized to implement the model indicators project that involved the phased development, testing, and revision of the model indicators and associated tools. The current measurement framework, model indicators, and accompanying toolkit are products of four cycles of this iterative development process.

The measurement framework and toolkit draw on, and recommend, a results-based management (RBM) approach. This can be defined as:

> a management strategy by which all actors, contributing directly or indirectly to achieving a set of results, ensure that their processes, products and services contribute to the achievement of desired results (outputs, outcomes and higher-level goals or impact). The actors in turn use the information and evidence on actual results to inform decision-making on design, resourcing and delivery, accountability and reporting" (UN-Habitat, 2017, para. 3).

Utilizing an RBM approach involves the development of a conceptual model along which a "results chain" is articulated that describes the inputs and investments, activities, outputs and deliverables, and finally, envisaged outcomes and eventual impacts. Accordingly, each SDG indicator is also described in relation to which results on this "chain" it measures:

- input (or investment),
- activity,
- output (the deliverable),
- outcome (a more significant change), or
- impact.

The RBM approach for this work was designed to allow all actors within a system—governments and government agencies, intergovernmental and non-governmental organizations, sport and SFD organizations—to understand their contribution, directly or indirectly, to achieving a set of

results. The advantage of an RBM approach is that it is possible to carry out an assessment of performance and progress by using measurable indicators to assess the results and progress achieved over time, in this case, in enhancing the contribution of sport, PE, and physical activity to the SDGs.

This collaborative and iterative approach is particularly important for the intersection between sport and SDG 4, as much of the implementation and delivery of sport and education sits within the formal education sectors under the auspices of the various ministries of education, rather than within the sport or SFD sectors. The challenges in both implementation and measurement are in establishing any causal relationship between the sport, physical education activities, and sustained education outcomes such as improved school attendance, student retention, or education performance outcomes. Sport—be it through formal school sport, physical education, or via organized sport and SFD activities—can arguable play a role in improved education outcomes and SDG 4. Still, the evidence base of the efficacy of sport, and its level of contribution to SDG 4, remains a work in progress.

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Applying Sustainable Development Goal 4

Mark Mom, Cathy Neap, and Michael Asensio

The National Rugby League's Papua New Guinea (NRL PNG) program is an Australian Government-funded, Department of Foreign Affairs and Trade (DFAT)-administered initiative. The Australian Rugby League Commission (ARLC) is the Australian partner organization and Program Manager. The third non-funding partner to the LBL program is PNG's National Department of Education (NDoE).

At the 2009 Pacific Islands Forum, former Australian Prime Minister Kevin Rudd announced the allocation of $4 million to help develop the sport of rugby league as a vehicle to achieving social development outcomes in PNG. In 2011, a bilateral task force was formed to examine the feasibility of developing rugby league in PNG at the grassroots level. In 2012, the PNG Department of Education endorsed the taskforce's proposal to work through the school system. The program was launched in 2013 by then-Prime Minister Julia Gillard. The ARLC/NRL conducted its first in-school sessions on September 19, 2013.

After its inception in late 2013, the NRL PNG program has become an important part of the Australian government's development cooperation program in PNG and is currently being implemented through DFAT's Sport for Development Program and guided by the Australian Sports Diplomacy Strategy.

13.1 Relationship to SDG 4

Before the renewal of its latest Grant Agreement (2020–2022) with DFAT, NRL PNG recognized its need to align to key organizations and their strategic plans. All strategies from these organizations identified (1) the need to contribute to achieving UN Sustainable Development Goals and (2) the role sport for development programs can play in achieving the SDGs.

The main aim of the strategic alignment was to increase its program sustainability, and not only its community and national relevance, but global relevance. By aligning its strategic goals to that of its partners, greater government bodies, and global organizations, NRL PNG can be viewed as a contributor to Global Purpose, which places its value as a program beyond sport itself.

13.2 Brainstorming solutions and evaluations

Since its inception, NRL PNG has evolved with the greater NRL Pacific Program Strategy to have the following goals encompass all its program activities.

The overarching goal of the NRL Pacific Outreach Program is to use the sport of rugby league to engage and develop Pacific communities to improve (1) health, (2) gender equality, with a particular focus on prevention of gender-based violence, (3) social cohesion, and (4) participation opportunities for people with a disability.

Specific program goals include:

1 Provide a quality education program to school-aged children focusing on physical activity, health, and well-being.
2 Provide quality professional development programs and education resources for primary school teachers focusing on physical activity, health, and well-being.
3 Reduce incidents of gender-based violence through community engagement and education programs.
4 Increase opportunities for empowerment of females of all ages.
5 Provide opportunities for participation for people with a disability.
6 Provide opportunities for increased social cohesion in Pacific communities through the delivery of important social messaging in all communities.
7 Improve organizational and management capacity of rugby league in the Pacific.

Overall, the NRL Pacific Program aligns itself with SDG 4, among others (including Goals 3, 5, 10, 11, and 16).

Specifically, in Papua New Guinea, NRL PNG attempts to contribute to achieving the above goals through the following programs:

• League Bilong Laif Program: Education, Health, and Wellbeing
• Voice Against Violence Program: Ending Domestic Violence
• Inspire Program
• Capacity Building of PNG Rugby Football League and other relevant organizations (e.g., PNG Sports Foundation)

13.3 Execution

13.3.1 Successes

Since its inception, NRL PNG has become the leading sport for development program in the country. By the end of 2022, it will have been successfully operating in PNG for nine years. Additionally, NRL PNG has had a full Papua New Guinean staff employed and delivering programs from the onset. This has created a sense of pride and confidence within the Papua New Guineans that work for the NRL. Overall, the programs summarized above have created many positive impact stories of changes through its program activity.

13.3.2 Challenges

There are many challenges in PNG and sport for development in the Pacific in general. These challenges pose major obstacles for achieving program outcomes—and therefore contributions

to attaining specific SDGs. Among the most significant challenges we have faced is the lack of capacity building of staff in sport for development. When the NRL PNG was launched, sport for development was relatively new in Papua New Guinea, and therefore, all staff had to start from scratch in terms of understanding and implementing programs. Next, the staff then had to slowly identify how sport for development interacted with development for sport itself. The staff's understanding of the difference and the language of development makes a significant difference in their ability to deliver successful programs and maximize impact. A second and related challenge stems from the uncertain and unstructured management of sports in Papua New Guinea. When sporting bodies are unstructured, there is very little strategic direction. As a result, there is a lack of understanding at all levels of the importance of sport for development

13.3.3 Failures

One of our shortcomings was our lack of true understanding of the Autonomous Region of Bougainville (AROB) as a whole. AROB has evolved into a complex society since the Bougainville conflict, and in hindsight, we feel we didn't achieve our goals because we didn't take the time to understand every aspect of life in Bougainville. In particular, we did not fully appreciate how its people viewed development and how they saw the way development should be delivered and where. We relied on a PNG blueprint rather than going in with a clean canvas. Instead, we should have brought into context more the AROB and PNG relationship in government and all tiers of society. This may have prepared us better for the challenges that lay ahead.

Part V

Sustainable Development Goal 5: gender equality

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14

An overview of Sustainable Development Goal 5

Carrie LeCrom

Sustainable Development Goal 5 is to "achieve gender equality and empower all women and girls" (General Assembly, 2015, p. 18). Gender equality has been a part of the United Nations' agenda for decades, adopting a Convention on the Elimination of all Forms of Discrimination Against Women in 1979 (de Soysa & Zipp, 2019), and including gender equity topics in Goals 4, 8, 11, and 16 of the 2030 agenda for sustainable development (Commonwealth Secretariat, 2017). In including gender as a specific SDG, with targets that reach a spectrum of global issues, it is brought to the forefront as a topic that needs particular attention if it is to be remedied.

Sport itself has a unique relationship with gender, making it an area ripe for connection and application to SDG 5, but also bringing with it challenges that require thoughtful consideration. As a broad example, sport was historically constructed by and for men, leaving women sidelined with lesser opportunities for participation, or even out of the arena completely (Coakley, 2009; Pfister, 2010). In the 1928 Olympic Games, after several women competitors fell to the ground in exhaustion following the 800-meter race, men doctors used this as proof that women were not fit to run long distances. Even though equally as many men collapsed after long races in the Olympic Games, women were banned from competing in distances longer than 200 meters for another 32 years (Beyer, 2003). The 1972 passage of Title IX in the United States brought with it more participatory opportunities for women in sport, yet discrepancies remain between men and women in terms of equity, access, leadership, and compensation, among others (Women's Sports Foundation, 2020). In many countries across the globe not only are there fewer opportunities for women to participate in sport, but there exists stigma, cultural, and religious beliefs that greatly restrict the collective impact sport can have to empower girls and women (e.g., Brady, 2005; Islam et al., 2019; Vybav et al., 2015).

While the above examples indicate the significant progress that is still before us in regard to sport and gender equity, these examples also demonstrate why sport may in fact be a strong platform for change and progress. Because sport has often lagged in offering equity of access and opportunity to women, programs that have stepped in to fill this gap are often being met with success (Laureus Sport for Good Foundation, n.d.). Across the globe, gender-focused sport for development programs are not only creating opportunities for participation, but moving far beyond this into addressing topics such as gender violence, child marriage, reproductive health, and women leadership, among others (e.g., Kaufman et al., 2010; Vybav et al., 2015). Not only

Table 14.1 Targets of Sustainable Development Goal 5

5.1	End all forms of discrimination against all women and girls everywhere
5.2	Eliminate all forms of violence against all women and girls in the public and private spheres, including trafficking and sexual and other types of exploitation
5.3	Eliminate all harmful practices, such as child, early and forced marriage and female genital mutilation
5.4	Recognize and value unpaid care and domestic work through the provision of public services, infrastructure and social protection policies and the promotion of shared responsibility within the household and the family as nationally appropriate
5.5	Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life
5.6	Ensure universal access to sexual and reproductive health and reproductive rights as agreed in accordance with the Programme of Action of the International Conference on Population and Development and the Beijing Platform for Action and the outcome documents of their review conferences
5.a	Undertake reforms to give women equal rights to economic resources, as well as access to ownership and control over land and other forms of property, financial services, inheritance and natural resources, in accordance with national laws
5.b	Enhance the use of enabling technology, in particular information and communications technology, to promote the empowerment of women
5.c	Adopt and strengthen sound policies and enforceable legislation for the promotion of gender equality and the empowerment of all women and girls at all levels

Source: General Assembly (2015).

are girls and women being impacted by these programs, but boys and men are engaged in the conversations in which they have such a large role to play as well (e.g., Brady, 2005; Hayhurst, 2011; Laureus Sport for Good Foundation, n.d.).

Clearly, the ability to "achieve gender equality and empower all women and girls" (General Assembly, 2015, p. 18) is an ambitious yet necessary goal of the United Nations. In many varying ways, sport can play a significant role in the achievement of this SDG. Phumzile Mlambo-Ngcuka, the United Nations' Under Secretary, notes that girls' participation in sport creates a multiplier effect, positively impacting health, education, leadership, and more (FIFA, 2019b). Throughout this chapter, many programs will be introduced that are attempting to address specific targets within the SDG, and discussion points will be addressed surrounding related topics and foci that have yet to be realized. In discussing the topic, an important starting point is the definition of targets that fall within SDG 5, which are listed in Table 14.1.

The targets within SDG 5 will be grouped into three categories for the purposes of this chapter: gender discrimination, women's rights, and women in leadership. Though many of these topics are overlapping, they collectively encompass all targets of SDG 5 and are primary focus areas of many sport for social change programming. Each of the following sections will include a general discussion of how the topic aligns with the delivery and business of sport, as well as sport for social change programs engaging in this important work. Finally, a broad discussion will follow on the challenges sport faces in addressing gender-based topics.

14.1 Gender discrimination

Gender discrimination exists across the globe, beginning at birth. Though forms of gender discrimination vary across cultures, ages, and races, no country is completely free of gender

disparities and inequities. Sport is similarly not free of gender bias, serving as a microcosm of society where the inequities girls and women experience in sport depict those in larger society (Commonwealth Secretariat, 2017; Hayhurst, 2014). For instance, the United States' women's national soccer team's fight for pay equal to that of the men's national team mirrors unequal pay that exists between men and women across the country (Gajanan, 2020). Meanwhile, in many Two-Thirds nations, women and girls are restricted from participating in organized sports, just as they are held back educationally as a result of household expectations (Brady, 2005; Collison et al., 2017).

Gender disparities related to sport begin in early childhood. The World Health Organization notes that globally, of the 81% of adolescents who are insufficiently physically active, 84% of those are girls while 78% are boys (WHO, 2018). Sporting opportunities themselves are often more limited for girls than they are for boys (Hancock et al., 2013); the National Federation of State High School Associations in the United States reported that in the 2018–19 academic year, boys got 1.13 million more sport opportunities than girls (Women's Sports Foundation, 2020). Despite these challenges, sport has a unique opportunity to play a leading role in addressing gender discrimination. Sport for social change programs that specifically address gender-related topics are finding success in various ways, including empowering young girls and women, building confidence and self-esteem, creating safe spaces for girls to play and participate, building social networks, altering gender roles and perceptions, and enlightening boys in a way that challenges traditional gendered views (e.g., Brady, 2005; Chawansky, 2011; Collison et al., 2017; Hancock et al., 2013).

The "Ishraq" all-girls program in Egypt and the Mathare Youth Sports Association's mixed-gender program in Kenya have created sport-based environments where girls and young women have "safe spaces" to participate, which brings with it a myriad of other benefits. Through these programs, the girls involved are building social networks and connections outside the home; simultaneously, the boys involved are seeing girls in more action-oriented roles that reshape their traditional views of gender-norms. Finally, public places (parks, sports fields) that have traditionally only been viewed as space for men and boys become places where girls and women "are treated with respect and dignity" (Brady, 2005, p. 41). Chawansky (2011) adds that within the Mathare Youth Sports Association, by offering mixed-gender programming, girls are empowered while boys are enlightened, resulting in dual-benefits in the area of gender discrimination. Of course, this takes thoughtful planning but demonstrates one way sport programs can approach issues of gender discrimination, and often see results beyond those originally intended.

A football-focused program in Rwanda that specifically lists gender equality as one of its priorities was finding challenges in attracting girls to participate in the program. While continuing efforts to increase the number of girls participating, the leaders creatively attempted to address issues of gender discrimination among the boys in the program:

> A favourite was the introduction of games focused around the skill set of former Nigerian female footballer Perpetua Nkwocha; the idea of replicating the skills of a female footballer was uncomfortable for some and during one discussion she was compared to "looking like and playing like a man." This in many ways was the reaction that the implementers were seeking as it offered the opportunity to challenge such views and draw a debate amongst the group. This kind of debate centered around female athletes and provided insights into the contextual gender norms experienced within the location, and would then facilitate further dialogue that could be challenged (Collison et al., 2017, p. 229).

In the United Arab Emirates, a local woman soccer coach noticed a huge sporting gender gap that she and her colleagues stepped up to fill. Lyne Ismail, a former player for the UAE national women's soccer team, recognized that opportunities for women to participate in sport in her home country decreased significantly once a woman graduated from school. Pairing her love of soccer with a recognition of the many benefits women could gain through continuing to be involved in sport as adults, she now oversees the SoccHER initiative under the umbrella of New York University Abu Dhabi (Duncan, 2019). The SoccHER program is open to all women in the community and attracts a combination of local Emirati women, expats, and university students studying locally. Ismail notes that participating leads not only to physical benefits, but also mental benefits as a result of building community, challenging local gender norms, and providing a safe environment for everyone to play. The success of SoccHER has resulted in expanded offerings to include HERhoops (basketball) and HERvolley (volleyball), providing opportunities to reach more women who would likely not stay physically active otherwise.

14.2 Women's rights

Moving beyond gender discrimination broadly, SDG 5 and several of its targets (5.2, 5.3, 5.4, 35.6) relate specifically to women's rights and include issues such as violence against women, reproductive health, sexual violence and human trafficking, and other forms of freedom and safety that specifically impact women. Utilizing sport to address these gender-specific issues directly can have profound impacts beyond women and girls. Hayhurst (2011) discusses this in what she refers to as the "girling of development" (p. 532), where girls are placed at the center of development efforts given the broader societal benefits that can result. For example, girls remain in school and delay child-bearing when child marriage is prevented, resulting in a more educated community that can lift families out of poverty (de Soysa & Zipp, 2019). Similarly, a director affiliated with an NGO in Uganda stated, "domestic violence causes poverty, and poverty causes domestic violence" (Hayhurst, 2014, p. 306), hence the importance placed on combatting these issues through a local martial arts program. In general, there is widespread evidence that educating girls results in more stable communities and families, which has a myriad of other social benefits: "Extensive research confirms that investing in girls' education delivers high returns not only for female educational attainment, but also for maternal and children's health, more sustainable families, women's empowerment, democracy, income growth, and productivity" (Herz & Sperling, 2004, p. 1).

Various sport for development programs are stepping up to make progress toward many of these issues. Sport specifically has the ability to create safe environments for girls to play, safeguard girls from violence through well-trained coaches, educate girls and boys on sexual health and gender-based violence, and mainstream gender issues through training (Commonwealth Secretariat, 2017; Pfister, 2010). As an example, Grassroot Soccer is a soccer–based curriculum aimed at eliminating the adolescent health gap. Operating in 45 countries worldwide, the health topics and life-skills addressed vary by location and prevalence. Initiated in Zimbabwe in 2003, the program's sole focus was on HIV/AIDS education but has expanded greatly over its lifetime to more holistically address health, which in many locations has come to include sexual violence (GrassrootSoccer, 2020). The specific focus on sexual health has re-sulted in young women and men who better understand and communicate issues surrounding HIV and other sexually transmitted diseases, show a reduced number of sexual partners compared to those who have not completed the program, and are less likely to engage in risky sexual behaviors (Kaufman et al., 2010, 2013; Mzingwane et al., 2020).

Specifically addressing the issue of child marriage, which although illegal in India, is still prevalent, Mastichak's girls football team is seeing a positive impact not only on the girls in the program but on others within the community as well. Partnering with a local hospital, the program requires parents to agree that they will not marry their daughter before she is 21 and that she can play on a football team, and in exchange the cost of her nursing education and training is covered (Nevatia, 2009; Sportanddev.org, 2012). This unique partnership and approach has caught the attention of community members. One student, seeing the women's football team in action, noted, "A year ago, nobody would have dreamt something like this could happen. Just look at the way they run. The mere sight of these girls playing football goes a long way in creating an atmosphere of progress" (Sportanddev.org, 2012, para. 4). While directly combating an illegal and outdated system of child marriage, the inclusion of women in sport has indirectly resulted in progress in other areas of society in India. Still, other programs focusing on issues of child marriage, human trafficking, violence toward women and girls, and women's rights have shown progress in challenging the norm of domestic duties, improving social networks and connections among girls and women, confronting gender norms, and overall advancing their place in societies at large (Hayhurst, 2011).

14.3 Women in leadership

Finally, in order to truly end all forms of discrimination against women and girls, it is critical that women hold equal leadership positions to men. Elements of the idea of leadership and equity in all aspects of life appear predominantly in targets 5.5, 5a, 5b, and 5c. Leadership is a broad term that can be widely defined, and for the purposes of this chapter is to remain broad—leadership in sport cuts across coaching, administrative positions, governing boards, even role models. In all of these areas, there is still much work to be done when it comes to gender equity. As an example, the executive board of the International Olympic Committee is comprised of only 26.7% women, and across the globe women make up 19.7% of sport board directors, 10.8% of sport board chairs, and 16.3% of sport chief executive positions (Adriaanse, 2016). In the United States, women representation on sport national governing bodies (NGBs) ranges from 10% to 75%, with a mean of 29.6%. Importantly, NGBs with higher gender diversity on their boards represented a strong correlation to meeting gender benchmarks in female membership overall (Gaston et al., 2020). The University of Central Florida's TIDES report on racial and gender equity in sport notes a need for improvement in female leadership among every men's professional sport in the United States (Lapchick, 2020).

While these numbers may speak for themselves, de Soysa and Zipp (2019) articulately explain the complexity of the issue:

> Despite the increased participation of women athletes in the Olympics, greater representation of women in the IOC and significant improvements in policy, leadership, advocacy and participation for women in sport outside of the Olympics, gains for sporting women have been uneven globally and still are not fully on par with the participation and leadership opportunities for men in sport. (p. 1789)

In short, this severe lack of diversity in leadership positions has a trickle-down effect. For instance, fewer women in leadership roles lead to a decreased stakeholder perspective and a smaller pool for talent in the future (Adriaanse, 2016). In addition, an imbalance of gendered leadership can lead to a lack of gender equity in policymaking, program participant recruitment, planning and delivery of sport programming, and monitoring and evaluation, among other

things (Commonwealth Secretariat, 2017). In short, fewer women leaders in sport perpetuates the men-heavy imbalance that has existed for centuries.

Recognizing the need to more clearly address gender inequity in leadership positions, FIFA launched the Women's Leadership Development Programme in 2015, accepting approximately 35 women in its inaugural class, and continuing to welcome a new cohort every year through 2018 (FIFA, n.d.). The program's overall goal was to place more women in senior decision-making positions in the sport of soccer, and it accomplished its goal through networking, mentoring, and in-person workshops annually. While its impact is still evolving, women who have been through the program seem to be making their way to top leadership positions in the sport, such as New Zealand's Helen Mallon, who was named chair of Capital Football in her home country, and Doris Aroko, the Vice President of Football Kenya Federation (FIFA, 2019a). While some question the motives and impact of the FIFA program (see Ahn & Cunningham, 2020), FIFA's executive committee has indicated progress, as six of its members in 2021 were female, compared to one in 2014 (Fagan, 2014; FIFA, 2021).

Similarly, the U.S. Department of State launched a Global Sport Mentoring Program in 2012, aimed at building women leaders in sport across the globe. Through a partnership with the Center for Sport, Peace, and Society at the University of Tennessee and espnW, the mentoring program recruits a cohort of 15–20 women sport professionals to travel to the US annually, participating in workshops and a shadowing/mentoring program aimed at increasing their professional capacity for success in the sport world (LeCrom & Ferry, 2017). To date, women have been represented in the program from over 75 countries worldwide (Global Sports, n.d.), and have found the program to have positively impacted them in terms of broadening their empowerment (Samie et al., 2015).

At more local levels, there still exists a lack of women representation within sport among coaches and program administrators, and this can lead to a shortage of women role models in sport. Collison et al. reported that men involved in sport for development programming acknowledge that powerful women can be seen in government and even their homes (e.g., mothers, aunts, sisters), yet these same strong women are absent or even "not interested" when it comes to sport (2017). This form of victim-blaming fails to acknowledge the barriers women face in the sport world, and specifically leadership in sport (LaVoi, 2016). Kane (2016) notes the underlying socio-cultural issues that contribute to a shortage of women in leadership: "This is because at their worst, gender-role stereotypes perpetuate the culturally embedded belief that what it means to be a female and what it means to be a leader is a contradiction in terms" (p. 40). The resulting shortage of women involved in sport, regardless of the reason, creates a vicious cycle where young girls chose not to participate because they don't see other girls and women participating or leading the teams and programs. The lack of role modeling by other women makes it difficult for girls to see themselves in those positions in the future (Diedrich, 2020; Zipp & Nauright, 2018).

Sport programs across the globe have recognized the need for more women role models and leaders, and have found unique ways to address these. For example, Boxgirls in Kenya pays their women coaches a small income so that they do not have to seek employment elsewhere; Slum Soccer in India creates pathways for female participants to later become coaches, building capacity from within; Active Communities Network in Ireland asks women participants themselves what type of activities they want included in programming and pays for women to become certified coaches; and Elevate in the US pulls from a pool of women coaches who were former college basketball players themselves (Laureus Sport for Good Foundation, n.d.). These examples demonstrate the creative ways sport programs are addressing gender inequities in leadership positions within programming. This is a first step in building positive role models for

the young women active in the programs. The need for this is so critical, as women coaches increases girls' overall engagement and connection in the program through role modeling and supportive relationships (Marttinen et al., 2020), and can sustain girls' participation in programming and positively alter gender roles and expectations (Meier & Saavedra, 2009). The authors note:

> The importance of role models for women in sports in undeniable. In fact, one could assert that it is a virtuous cycle. The more women take positive, leading roles as athletes, trainers, journalists and decision makers, the more women will see that gender inequalities can be overcome—not only in sports but in all professions. (Meier & Saavedra, 2009, p. 1158)

In addition, the investment in these young women empowers them directly, so that they are likely to become stronger "entrepreneurs of themselves" (Hayhurst, 2014, p. 299), and perhaps even cause champions of sport for development in the future (Cohen & Welty Peachey, 2015).

14.4 Challenges to achieving targets

While there are many examples of sport programs that are addressing gender discrimination both directly and indirectly, there are also inherent challenges that sport faces in making progress toward equity. Several of the above examples included mixed-gender programming, but this is not necessarily the norm. Many sport for change programs focused around gender-based issues are women–only programs. While a girls-only environment can lead to positive progress for the young women involved (e.g., increases in physical fitness, self-esteem, confidence, support systems; Hancock et al., 2013), it also places the responsibility for change fully on the shoulders of women. As Robin Diangelo (2018) points out in discussing the suffrage movement, women did not have the authority or capability to grant other women the right to vote; this required men to be a part of the conversation. In that same vein, sport-based programs that attack gender discrimination issues without boys and men involved are overlooking a very important piece of the puzzle. This model promotes a "fix the women" framework, where the responsibility lies on the shoulders of women to change, rather than men or even society at large to change (Shaw & Frisby, 2006). For gender equity to be realized, people of all genders must acknowledge their role in creating sustainable change. This is an area that needs further attention given that within sport for development, gender is typically only alluded to in programs for women and girls (Saavedra, 2012).

In addition, as sport was (and still is) socially constructed by and for men, there are still many issues around masculinity and heteronormativity. Many sport for development programs lean on traditional forms of sport as their basis, leading to programming that may appear more appealing to boys than girls (Collison et al., 2017; Forde & Frisby, 2015), and reinforcing gender stereotypes in sport. Noticing that soccer was not attracting young girls to their programs in Uganda, due to the belief that only boys play soccer, Sports Outreach Ministry added chess as an alternate option to try to attract all youth to an activity that they may not already view as gendered (Crothers, 2012). For those young women who do choose to participate in traditional or more male-dominated sports, they may constantly feel inferior to men as they are not able to perform or compete at the levels they are used to seeing from their male counterparts. Many, many sports in our society are still "gendered" activities (e.g., football = men; gymnastics = women), which can be counterproductive to both young women and young men (Pfister, 2010).

There also exists in sport for development a "heteronormative culture of sport, which positions heterosexuality, traditional gender roles and the sexual division of labor as the normal or natural way of being" (Zipp & Nauright, 2018, p. 39). This statement encompasses various challenges to the use of sport in promoting gender equality, chief among them the ways in which sport reinforces male strength and power, which can be seen as counterproductive to the gender discrimination discussion. This heteronormative culture can also be seen disadvantaging women when considering the lesbian stereotype associated with women in sport. Sport's establishment and grounding in masculinity makes it "non-feminine," which by extension has created the inaccurate portrayal of all female athletes as lesbians (Norman, 2016). Sartore and Cunningham (2009) sum up the negative repercussions of this stereotype as "the possibility of experiencing excessive burden, negative psychological, physical, and professional outcomes, and ultimately the reinforcement of sport's heteronormative norms and the marginalization of women" (p. 299).

Finally, within the gender discussion at large, and certainly within sport for development, gender is still widely categorized as binary, which fails to account for those who fall outside of the male–female sex classifications. These more nuanced topics related to gender in sport have been surfacing in recent years through media coverage including South African Olympic champion runner Caster Semenya's ban from competition due to naturally-occurring yet heightened testosterone levels (Ramsay & Martin, 2020), and changing regulations concerning transgender athletes in competition (Ziegler & Huntley, 2013). Despite the need for a reframed definition of gender that moves beyond a binary classification (Pfister, 2010), this conversation is still largely absent in the field of sport for development and is missing completely from the gender-focused SDG 5.

Given the complex issues surrounding gender discrimination at all levels of sport, several frameworks have been enlisted in thinking through programming that advances the aims of SDG 5. Theoretical frameworks are helpful in that they provide structure to how we address, implement, and measure change related to gender issues in sport. Clearly, there are a host of frameworks that can provide guidance and direction, a few of which are depicted in Table 14.2. Because much of the research in the area of sport for development is not gender-specific, there is still room for growth within the scholarly base, so the frameworks listed in the table should be thought of as a starting point rather than an exhaustive list.

14.5 Conclusion

In conclusion, sport is a joy; it is a place where women can explore their bodies' capabilities, gain physical and mental health benefits, create relationships and social networks, and challenge long-held gender norms. Yet it is also a place where masculinity is celebrated and perpetuated, where opportunities are limited or restricted for girls, and where heteronormative behaviors are preserved. One need not look much farther than the following headlines to recognize the progress that still needs to be made:

- Artificial turf controversy a constant in the backdrop of the Women's World Cup (Dubois, 2015)
- Federal judge dismisses U.S. women's soccer team's equal pay claim (Cater, 2020)
- Caster Semenya's Olympic hopes fade as runner loses testosterone rules appeal (Ingle, 2020)
- USA Gymnastics' culture of abuse runs far deeper than Larry Nassar (Stiernberg, 2020)

From issues of sexual abuse to equity in facilities and pay to hyperandrogenism, there remains a severe lack of protection and equity when it comes to being a woman in sport. While these

Table 14.2 Frameworks applied to gender in sports

Theory	Overview	Gender in SFD related articles
Constructivist Approach	Gender is understood as a social construction; gender differences are acquired and enacted, rather than naturally occurring.	Pfister (2010)
Critical Mass Theory	Explores thresholds of group size needed to influence and affect change, specifically related to gender dynamics.	Adriaanse (2016); Gaston et al. (2020)
Feminist Theory	Explores gender hierarchies—produced and constrained by structures of race, ethnicity, class and sexuality.	Brady (2005); Darnell and Hayhurst (2013); Forde and Frisby (2015)
Human Capabilities Approach	A focus on capabilities or possibilities, rather than outcomes.	Zipp and Nauright (2018)
International Relations	Concepts including wealth, borders and power are explored examined in regard to social relations tied to understandings of race, class, gender, sexuality, nation, and culture.	Hayhurst (2011)
Postcolonial Frameworks	Addresses the traditional production and circulation of global power, knowledge and resources.	Darnell and Hayhurst (2013); Hayhurst (2011)
Sport for Development Theory	Assesses three components – content, process, and outcomes – of sport for development programs.	Hancock et al. (2013)

thoughts can be overwhelming at times, they can also be viewed from a different standpoint, demonstrating the many, many opportunities for growth that exist. As sport for development organizations often do, thinking about grand-scale problems on a smaller level (How can I make change for just one girl?) can really lead to big change. Efforts like the Girl Effect or Nike's "Dream Crazier" or "One Day We Won't Need A Day" campaigns address the discrimination and lack of equity for women, while simultaneously celebrating and empowering women. It will be this double-edged sword, the belief that things are bad but better, that will sustain the efforts needed to achieve true gender equality. And sport has a strong role to play in this.

Sport in and of itself can lead to positive physical and mental transformation. These trans-formations may ultimately lead to the change needed in regard to gender equality. Martha Brady (2005) points out in her groundbreaking piece on gender in sport that "building girls' skills and agency will go only so far if girls find themselves living in the same restrictive environments" (p. 47). This is such an important concept with which to conclude in that it not only points to the need for more opportunities for girls to participate in sport, but the need for true, systemic change to occur in regard to gender equity issues in society. As the field of sport for development evolves, increased participation among girls and women is a start, but it is only that. To find true success in achieving SDG 5, these programs need to move far beyond participation to truly changed belief systems, communities, and definitions of gender and what that means. There are numerous examples of programs doing this successfully that we can all continue to learn from in making our world collectively a more peaceful, equitable, and stable society.

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Measuring Sustainable Development Goal 5

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Before discussing potential progress toward SDG 5, it is important to define gender equality. The World Health Organization (n.d.) defines gender equality as "equal chances or opportunities for groups of women and men to access and control social, economic and political resources, including protection under the law (such as health services, education and voting rights)." The following information discussed will relate to this definition.

Gender equality is central to achieving the SDGs. Paragraph 20 of the United Nations General Assembly resolution *Transforming Our World: The 2030 Agenda for Sustainable Development* stated the importance of gender equality and empowerment of women and girls in contributing to all the SDGs, targets, and indicators (United Nations, 2015). In addition to a specific goal on gender equality (i.e., SDG 5), women and girls are mentioned in indicators for more than half of the other SDGs, namely, SDG 1 (No Poverty), SDG 2 (Zero Hunger), SDG 3 (Good Health and Wellbeing), SDG 4 (Quality Education), SDG 6 (Clean Water and Sanitation), SDG 8 (Decent Work and Economic Growth), SDG 11 (Sustainable Cities and Communities), SDG 13 (Climate Action), and SDG 16 (Peace, Justice and Strong Institutions). It is important to note that sport may not (and should not be expected to) contribute to all SDGs, targets, and indicators (Dudfield, 2019). A multi-sectoral approach to all forms of development, particularly for issues that are as structurally entrenched as gender equality, is required. For example, sport can contribute toward target 5.3 (Eliminate forced marriages and genital mutilation) by using sport as an educative tool. However, sport cannot be used in isolation to do this, as other influencing factors, such as legislation (and enforcement of such legislation), are also needed. Keeping this in mind, of the 9 targets and 14 indicators for SDG 5, the targets that sport could potentially contribute to are 5.1, 5.2, 5.3, 5.5, 5.6, 5.a, and 5.c.

When considering SDG 5 generally, the United Nations Secretary-General's report on the progress toward the SDGs (United Nations, 2019) noted mixed progress, as reported below. Eighteen percent of ever-partnered women and girls experienced physical and/or sexual partner violence in the last 12 months of the survey. According to Fanslow and Robinson (2004), women were considered ever-partnered if they had been married, lived with a man, or had a regular man sexual partner. On a positive note, it is heartening that child marriages continued to decline around the world, especially in South Asia, but, although there has been a decline in female genital mutilation, there were at least 200 million girls and women who have been

subjected to it. Women also spent about three times more hours a day on unpaid care and domestic work compared to men. Although there has been an increase in the representation of women in national parliaments from 19% in 2010 to 24.2% in 2019, women were under-represented in national and local level political leadership. Another positive development is that there has been an increase in the percentage of women in managerial positions except in the least developed countries. On a disappointing note, only 57% of women make their own decisions about sexual relations, use of contraceptives, and health services (United Nations, 2019). In conclusion, although there has been progress in reforming laws on gender equality, gaps in legal protection still exist in many countries.

While sport is not specifically mentioned in the SDGs, targets, and indicators, the 2017 Kazan Action Plan was created to determine which Goals, targets, and indicators sport can contribute to, including SDG 5 (UNESCO, 2017). Examples of these are discussed below.

15.1 Measurement in sport

According to IOC President Thomas Bach, "Sport is one of the most powerful platforms for promoting gender equality and empowering women and girls" (UN Women, 2020). Sport has been increasingly used as a tool to promote gender equality and "empower" women and girls (Hancock et al., 2013; Hershow et al., 2015; Meyer & Roche, 2017; Weiss et al., 2019; Zipp, 2016). Programs within sport for development (SFD) for women can, for example, focus on women empowerment, girls' and women's rights, gender-based violence, and gendered health education (de Soysa & Zipp, 2019).

Organizations that run programs that contribute to SDG 5 tend to either focus only on women and girls or cater to various target populations including women and girls. Organizations that focus on women and girls include Boxgirls, Girls in the Game, Girls on the Run, Kicking Girls, and Moving the Goalposts. Organizations that do not focus solely on girls include ChildFund Pass it Back, Magic Bus, and Skateistan. All of these programs have contributed to Targets 5.3, 5.4, 5.6, and 5.a and will be discussed in further detail later in this section.

Some organizations that support and fund the SFD sector do specifically discuss the SDGs, with Beyond Sport (2019) explicitly stating that its foundation "supports and raises awareness and funding for organizations using sport to help make the UN [SDGs] a reality," while the Laureus Sport for Good Foundation (n.d.) assert that "to achieve real impact on the ground, we have focused our efforts and resource around those of the United Nations' [SDGs]."

15.1.1 Evaluation measures

Most programs use descriptive attendance statistics in their evaluation reports. Larger and more established programs often present additional information through surveys and interviews. A perusal of annual reports of organizations running SFD programs that include gender equality shows the impact of their respective programs are mainly presented in terms of statistics of the programs conducted, the number of participants, and the countries involved (i.e., Boxgirls, Girls in the Game, Moving the Goalposts, and Skateistan Annual Reports). Interestingly, as an aside, none of these organizations defined what they considered gender equality. Therefore, it could be argued to be problematic to measure something that is not clearly defined.

The annual reports revealed limited details of how and why results were obtained, but these types of data were likely collected due to the requirements of funding organizations (Mackintosh et al., 2014). The lack of details on the data collection methodology aligns with

Whitley et al.'s (2019) conclusions in their review of SFD interventions in six cities. Similarly, Hancock et al. (2013) found that few SFD programs for girls and women had systematic ways to measure the impact of their programs.

From this perusal of industry reports, it appears that some organizations evaluate beyond basic descriptive statistics. This includes organizations evaluating their programs using surveys and interviews, whereas others used external evaluators. Examples of these more in-depth evaluations are discussed in further detail below.

Women Win is a global leader in using sport to empower adolescent girls and young women. Their programs focus on addressing gender-based violence, access to sexual and reproductive health and rights, in addition to gaining economic empowerment (Women Win, n.d.-a), relating to Targets 5.2, 5.3, 5.6, 5.a, and 5.c. Women Win conducts surveys on how their sports and life skills program impact adolescent girls and women. Data from their annual reports detail the potential change experienced by participants after the programs, in terms of knowledge of HIV prevention, where to report violence or abuse, where to get money to start a business, and where to find help with personal problems. For example, the 2018 annual report noted that 73% (compared to 17% before) of participants knew how to prevent HIV, 77% (compared to 50% prior) knew where to report violence or abuse, 75% (compared to 29% before) knew where to get money to start a business, and 84% (compared to 52% prior) knew where to find help for personal problems (Women Win, n.d.-b). They also commissioned a research report on the potential impact of the Standard Chartered Goal Program. This research used both quantitative and qualitative methods to examine the changes in participants' lives and communities (Marcus & Stavropoulou, 2020). Surveys were used to determine participants' knowledge related to health, gender-based violence, financial issues, involvement in leadership, and attitudes toward gender equality. Interviews and focus group discussions were conducted with participants, their parents, teachers, and community leaders to gain a deeper insight into the impact of the Goal Program. Results suggested participants had increased their knowledge and other positive impacts were many including education and health. Women Win's Digital Storytelling was a more innovative method of measurement, as it used participants' stories to document the impact of sport on their lives.

Magic Bus is a nonprofit organization that aims to equip those aged between 12 and 18 years "with the skills and knowledge they need, to grow up and move out of poverty" (Magic Bus, 2020). According to their 2016–17 Annual Report, Magic Bus used an SFD model to understand outcomes and address gender issues (Magic Bus, n.d.). For their program in India, it was reported that less than 5% of girls who participated in Magic Bus programs dropped out of school by age 14, compared to 40% of girls in India generally, which contributes to Target 5.1. Also, there were no child marriages among Magic Bus participants, compared to 30% of child marriages throughout India, demonstrating progress toward Target 5.3. Magic Bus has also previously conducted external studies to provide evidence of their impact. In a study funded by Comic Relief and UK Sport on the program in India, surveys were used to examine the contribution of sport to the personal development and well-being of disadvantaged children and youth (Coalter & Taylor, 2010). The self-efficacy of female participants of the Magic Bus Voyagers program in India was reported to increase after participating in the program (15+ years).

ChildFund Pass It Back used rugby to equip children and young people in Asia to overcome challenges, inspire positive social change, and "pass it back" to their communities (Bates, 2017). Slightly more than half of their participants were girls. ChildFund Australia conducted an evaluation of the program, based on a review of literature and program documents, key informant interview, and focus group discussions, as well as observations (Bates, 2017). In addition to these evaluations, surveys were also conducted at baseline and after the program.

Improvements were found in indicators for resilience, leadership, community connection, gender inclusion, and safeguarding after the program. These outcomes demonstrate impact toward Targets 5.1, 5.2, and 5.5.

Moving the Goalposts used football to unlock the potential of disadvantaged girls and young women in Kenya. Woodcock et al. (2012) examined whether increased membership duration in the Moving the Goalposts program brought improved perceived benefit to members. Their survey results showed that increased membership duration did bring increased benefits in terms of life skills, social life, insights about HIV/AIDS, and female empowerment, which contributed toward four targets: 5.1, 5.5, 5.6, and 5.a.

Measurement of the contribution of sport to Targets 5.1 and 5.c is more straightforward than the other targets. The International Olympic Committee has established targets for participation of female athletes at the Olympic Games and representation of women in decision-making positions. The IOC's commitment to gender equality is stated in the Olympic Agenda 2020, the strategic roadmap for the Olympic Movement, and the 25 Recommendations of the Gender Equality Review Project. For example, the Gender Equality Review Project specifically mentioned that the recommendations would contribute to SDG 5 (International Olympic Committee, 2018b). Additionally, recommendation 11 of the Olympic Agenda 2020 called for 50% female athlete participation in the Olympic Games (International Olympic Committee, 2014).

In terms of achievement, the percentage of women participants at the Olympic Games has been on the increase, with the highest percentage of 45% at the Rio 2016 Games (International Olympic Committee, 2018a). With regard to board representation, the 2016 Women on Boards Gender Balance in Global Sport Report found that women made up 27% of the IOC Executive Board, 17% of National Olympic Committees, and 18% of International Sports Federations (Women on Boards, 2016). Since then, the Gender Equality Review Project (through Recommendations 19c and 19d) called for equal representation of women and men in IOC decision-making positions by 2024 (International Olympic Committee, 2018b). As of May 2020, women held 47.7% of positions across 30 IOC Commissions (International Olympic Committee, 2020).

There has also been progress in terms of gender equality in decision-making positions at the national level. For example, women make up 35% of national sport organizations in Canada (Canadian Women & Sport, 2020) and on average, 40% of board members in organizations funded by Sport England and UK Sport (Inclusive Boards, 2019). In the latter example, these actions were precipitated by Sport England and UK Sport mandating funded bodies to ensure at least 30% board representative of each gender, to receive future funding. Another example is that in Sweden, the objective of the Swedish Sports Confederation is to have at least 40% of women and men in all decision-making and advisory bodies, senior positions, as well as child and youth sports (Swedish Sports Confederation, n.d.).

15.1.2 Suggestions for measurement

While it can be argued that there is already considerable evidence on the outcomes of SFD programs (Coalter, 2013; Jeanes & Lindsey, 2014), there is a need for more in-depth and comprehensive research to better understand the intricacies of potential impacts of SFD programs (Zipp, 2016). In a systematic review of SFD interventions across six global cities, Whitley et al. (2019) found that most of the intervention studies they included in their review had a weak quality of methods and evidence, which limited interpretation of the studies and thus understanding of such nuances. Measuring impact though is challenging because of the numerous methods, indicators, and tools available, as will be discussed in the next section (Mook, 2019).

Finally, it is important to consider how and when data are collected. Data should not only be collected after the program, but over the long term, to evaluate if any impacts are long lasting and sustainable over time. Organizations should consider how their objectives align to SDG 5 and how to measure it. Organizations should also examine if the individual impact of their programs have a wider societal impact that can contribute to SDG 5, as there is little evidence to support claims of wider impact of SFD programs (Coalter, 2013).

15.2 Implementation challenges

The content in this section has so far provided examples of SFD programs that can contribute toward SDG 5 (and associated targets and indicators). Whilst some organizations can, and are, linking their outcomes to SDG 5, many implementation barriers can complicate how SFD organizations and programs can demonstrate impact toward SDG 5.

15.2.1 Monitoring and evaluation

As Zipp (2016) argues, the sector does need more in-depth and comprehensive research to fully understand the potential impacts of programs. This is especially pertinent for then trying to understand how they could contribute toward SDG 5. However, it is widely recognized that measuring the direct impact of sport on any SDG can be extremely challenging (Lindsey & Chapman, 2017). Therefore, many of the potential implementation challenges discussed in this section are likely to resonate across the sector and not only for gender equality programs.

The main challenge for measuring program outcomes against the SDGs is the sectoral issue around monitoring and evaluation (M&E), such as lack of specific funding and resources or capacity to conduct appropriate M&E (e.g., Harris & Adams, 2016; Kaufman et al., 2013). As detailed earlier in this section, most of the M&E undertaken on SFD programs that relate to gender are basic, descriptive statistics, such as attendance and numbers of people trained, which are often prioritized and required from program funders (e.g., Jeanes & Lindsey, 2014; Kay, 2012; Mackintosh et al., 2014). In the examples discussed in this chapter (e.g., ChildFund Pass it Back and Magic Bus), it appears that more in-depth and comprehensive data were collected when projects had specific M&E funding or the evaluation was undertaken by external parties. As such, asking organizations that do not have these resources (and potentially the expertise) to comprehensively evaluate their program and link the outcomes to the SDGs could be problematic for a number of organizations in this sector.

Another potential challenge could be potential power discords between what M&E funders may require and what is communicated to those working on the ground (Jeanes & Lindsey, 2014). More organizations are starting to recognize the importance of the SDGs and are starting to link their program outcomes to the relevant SDGs when conducting evaluations. However, the realities of implementation, as discussed, are often far more complex.

15.2.2 Measurement tools

Another topic for discussion are the types of tools used for measurements. As previously highlighted, many programs that focus on gender equality tend to use surveys and focus groups, which are very Global North-centric approaches. Many scholars have suggested that using Global North approaches (Skinner et al., 2015) and personnel (Kay, 2012) may not be appropriate in some Global South settings. It has been argued that using more indigenous research methods may be appropriate in some situations (Stewart-Withers et al., 2017), as they often

elicit more valuable and useful data. The use of Pacific methodologies, such as Talanoa, in the South Pacific region, are increasingly being used in academic sport research, by both Pacific and non-Pacific researchers (Stewart-Withers et al., 2017). However, to the authors' knowledge, this method has not yet been used for SFD programs focused on gender equality. While this would be recommended, this could be another implementation challenge, as it could also result in a dichotomy of what may be most suitable for the country or regional context where the program is located, versus what information is required by funders (who are generally from the Global North).

A compromise to mitigate these challenges could be to use, if appropriate, Global North approaches, but with the research conducted by those from the Global South. The "Go Sisters" program, run by the Edusport Foundation in Zambia, is a good example of this compromise. As an aside, the program has been praised for many components, such as their indigenous sub-Saharan "Ubuntu" approach to program design and delivery. When specifically focusing on evaluation measurement compromise, their local employees and program volunteers conduct the interviews and questionnaires for their M&E reports (Mwaanga, 2013).

15.2.3 Cross sectoral programs and partnerships

According to Schulenkorf et al. (2016), only 3% of the SFD programs in their literature review focused solely on gender, while 20% of the programs were cross-disciplinary. For example, a program may focus on using sport to improve gender equality in education. Similarly, many SFD programs that focus on gender also include cross sectoral partnerships, where organizations work together to realize mutual objectives (e.g., McSweeney et al., 2019; Raw et al., 2019). As discussed earlier in this section, women and girls are mentioned across numerous SDGs, highlighting the intersectionality between the Goals. Therefore, if there are different disciplines and partners for some programs that target gender equality, there may be some conflict on which SDG the programs should be measured against. How would the program prioritize which Goals to measure against? This could result in difficult decisions for programs to make. For example, the Laureus Sport for Good Foundation funds multi-sectoral programs. As such, it appears more appropriate for their programs to measure against the more generic SDGs, than particular targets and indicators. However, as it is argued that the sector needs to provide more specific evidence of contributing to particular targets and indicators, it demonstrates the challenges the SFD sector face.

15.2.4 SFD and structural societal changes

One of the major challenges many SFD programs encounter is that they often fail to enact structural change (e.g., Darnell, 2010; Hayhurst, 2009), as they are not usually designed for this (Dudfield, 2019; Lindsey & Chapman, 2017). Instead, they are often designed to target individual empowerment (Sanders, 2016). For gender-related issues, which can be structurally entrenched in some communities, it may therefore be very difficult to demonstrate progress. Thus, as Coalter (2010) would argue, is it fair to measure programs on such complex and multi-factorial issues?

Conversely, Sherry et al. (2017) argue that some SFD programs are capable of instigating structural change if they are appropriately designed, and all relevant parties are included, from the outset. As the SDGs emphasize the need to address structural inequalities (Dudfield, 2019), there is an opportunity for gender equality programs to help instigate or contribute toward, some structural change. To demonstrate such potential impact, organizations would need to

undertake longitudinal research. This may result in another implementation challenge. As shown in the evaluation examples discussed earlier in this section, most SFD research tends to be cross sectional, with little post program follow-up evaluation.

15.2.5 Final thoughts

We would like to share a few final thoughts on potential challenges for measuring SFD programs against SDG 5.

One key aspect to consider is that SFD programs do not always result in positive outcomes. This in and of itself could be an implementation challenge, as it may be difficult to show a contribution to the SDGs if it cannot be "proven" that a program has positively contributed toward them. Some organizations understand this and report all findings. Some organizations may decide to only focus on potential positive outcomes. Others may recognize areas to improve, but only report on this internally, likely for competition and prestige reasons. While this latter approach may be understandable, due to the funding and delivery structures of SFD, it does not enable the sector to learn and grow. Thus, as a whole, the sector needs to be better at recognizing and embracing potential failures, using them as a mechanism to improve and honestly assess their outcomes to contribute toward the SDGs.

Another important consideration is the use of single-gender programs to promote gender equality. As Donnelly et al. (2011) state, "Attempts to change the girls without also attempting to change the boys may be doomed" (p. 598), as structural issues cannot be challenged without engaging all members of society. Thus, some of the single-gender programs previously discussed may find it difficult to contribute toward the SDGs, as boys, men, and older women *must* be included in such programs to try to enact social change.

Despite the challenges and potential barriers highlighted in this section, the sector needs to work toward measuring the potential impact against SDG 5 and associated targets and indicators. More countries and funders are starting to recognize the potential value of demonstrating progress against the SDGs, thus organizations that work in the sporting sector need to engage in the process. It is recognized that many of the challenges identified in this sector may be difficult for some organizations to overcome. Therefore, it is important to find compromises between the ideals and practical reality of the SFD industry.

For this to potentially work in practice, there needs to be a joint approach to this process. For example, donors and funders need to understand the SDGs and request that programs start to measure against them and specific targets using appropriate methodologies. However, this must be accompanied by sufficient funding available for M&E (including training) and also educative opportunities for practitioners to develop a better understanding of the SDGs (and SDG 5 in particular). At the same time, practitioners need to recognize the importance of using the SDGs to measure potential impact and align their M&E outcomes where appropriate. However, organizations should avoid trying to contribute to multiple indicators. Their contributions should be specific (Kay & Dudfield, 2013), and utilize a joint approach to choose one or two indicators to focus on.

Finally, the sector needs to be careful not to widen the gap between larger and smaller SFD organizations. Undertaking rigorous and high-quality M&E, and also linking that to the SDGs, are likely to require resources from practitioners. This may be possible for larger SFD organizations who run multiple programs, but may be more difficult for some of the smaller, localized organizations, who may not have appropriate resources and associated expertise. The sector as a whole needs to ensure these smaller organizations are appropriately supported.

15.3 Conclusion

As stated at the start of this chapter, gender equality is central to attempting to achieve progress toward all of the SDGs. This section has highlighted examples of how organizations have measured progress toward SDG 5 and the implementation challenges of measurement. To conclude, most organizations have used surveys to provide basic statistics of the number of participants and programs, whereas more in-depth and comprehensive methods are needed to fully understand any potential impacts.

There are a number of implementation challenges to measuring the SDGs in programs that try to promote gender equality. Despite these challenges, there are several organizations that have started engaging with the SDGs generally. It is pleasing to see this linkage starting to happen. However, where this does happen, there is a tendency to discuss how programs contribute toward the general SDG 5, rather than measuring toward specific targets. Therefore, the sector (ranging from key stakeholders such as national governments and program funders, to practitioners on the ground) need to further recognize and engage with the SDG targets and indicators, and identify ways to measure their impact appropriately against them.

Whilst some of the targets may not seem attainable for individual programs, there are other indicators that may be suitable to measure against. However, to do this, the sector needs to ensure sufficient investment and education is provided to support high quality M&E to demonstrate any impacts of sport on SDG 5.

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Applying Sustainable Development Goal 5

Risa F. Isard, Thayer Lavielle, and Janelle E. Wells

Wasserman, a global sports and entertainment agency representing some of the world's best women athletes, watched as a seemingly global movement around women took hold in the mid-2010s. Momentum around women's issues was growing, but Wasserman's expertise in the industry was a disjointed offering.

When Wasserman (founded in 2002) executives assessed their past and present contributions in women's sport, they saw a lot of good work happening across the company. They also knew there was more they could do if they just worked together to do it. The opportunity was clear, leading Wasserman in 2019 to launch The Collective, a women's-focused division of the company. In its relative infancy, The Collective has already partnered with brands including AT&T, Snow Monkey, Orreco/FitrWoman, Google, CONCACAF, UEFA Women's Euro Championship, and the International Cricket Council.

The Collective brings under one roof Wasserman's two decades of expertise in marketing to and through women, creating landmark deals for their clients and simultaneously serving brands' needs. As articulated on the company blog, the goal is to "raise the visibility of women in sports, entertainment, and culture by delivering unique strategy, insights, and ideas for talent, brands, and properties focused on empowering and speaking to women."

The Collective directly addresses SDG 5 (gender equity) by producing research, driving the conversation, and finding solutions that can advance women in sport.

One way they do this? The Collective Think Tank, a global consortium of today's greatest academic minds and industry leaders, working together on insights that drive actions to create a world of parity. An agency-driven research collaboration had never been tried before, but the promise was clear. With more knowledge, more insights, and more cooperation, more change is possible. That's what The Collective Think Tank set out to do.

While the need for such an effort was more than obvious, exactly how to bring together something that had never been done before was less clear. What exactly does The Collective Think Tank do? How do like-minded leaders from differently oriented industries work together? What does everyone bring—and need? Confronting and overcoming the hurdles—learning each other's politics and gaining an appreciation for the time necessary for

rigorous and sound research—was an unexpected but necessary step for The Collective Think Tank.

Today, The Collective Think Tank brings together representatives from 20+ universities who share a passion for growing and advancing women's sport. The effort combines the assets of a global agency—industry partners, media relationships, and talent—with the strengths of academic institutions—data, researchers, and students.

Through The Collective Think Tank, Wasserman has created a community and a platform. Their ability to take research, put media expertise behind it, and tell a story is helping to keep going a constant conversation surrounding women in sport. In just their first year, they have produced:

- Ten research projects focused on facets of women's lived experiences and fandom
- Inaugural thought paper on "The New Power Players: How Gen Z and Millennial Women are Poised for Dominance"
- Two Op-Ed articles a month
- Five experiential-learning class projects

Looking ahead, The Collective is focused on building a research repository, supporting the growing number of women who work in sports, and understanding the fan. Who is She? What are her purchasing behaviors? Who comes to games? And what motivates Her to come—and come back?

Wasserman believes that investment in research, industry professionals, and understanding the fan can help answer an even bigger question: How do we change the systems of an industry like sports that have been set up to keep out others? And to keep others—especially women—from winning in the business of it all?

Answers to these big questions will take a lot of brains, which is why Wasserman wants to see as many industry and academic players collaboratively engaging to keep the conversations alive.

Change for women in sport is—and will be—a collective effort.

Part VI

Sustainable Development Goal 6: clean water and sanitation

An overview of Sustainable Development Goal 6

Austin Thompson and Kyle Bunds

Water resources, although needed equally across the globe, are unequally distributed (Bunds, 2017). Water covers a large portion of the earth, some 71%, but only 2.5% of that is freshwater ("How Much Water," n.d.). All other resources are either saltwater or remain frozen under the earth's surface. Water is neither created nor destroyed, only changing properties and, at times, certain processes can prolong the rate of return to use. For the purposes of drinking water, most water is derived from a mix of surface water and groundwater. In the United States, the former provides the majority of drinking water, but the latter is a critical part of drinking water provision in desert environments (USGS, n.d.).

Wars have been fought around water (Shiva, 2002), rights have been assigned in arid areas (Glennon, 2009); a public good, water is often loosely defined, hard to predict, and nearly impossible to own (Barlow, 2009). Take, for example, the "Waters of the United States" (WOTUS). While this definition is often argued as part of environmental law, dictating the waters that are protected by the Clean Water Act, WOTUS is an example of how dramatically water can change within the same area. The highly debated "significant nexus" phrase, which was excluded from the 2020 ruling, provided great room for interpretation, and potentially environmental protection (The Navigable Waters Protection Rule: Definition of "Waters of the United States," 2020). The 2020 ruling defines navigable waters as "(1) territorial seas and traditional navigable waters; (2) tributaries of such waters; (3) certain lakes, ponds, and impoundments of jurisdictional waters; and (4) wetlands adjacent to other jurisdictional waters" (Weaver & Drapalski, 2020). By excluding this phrase, the 2020 ruling provides less latitude for environmental protection by reducing the ambiguity.

In places where water rights have been formalized, those rights typically fall into two categories: riparian water rights or appropriative water rights. In the US, the former is much more common in the east, while the latter has caused much tension in the west. Riparian water rights, again, common in the "wetter" eastern part of the US, involve diverting water from streams or lakes and typically fall without problem as long as the use does not negatively affect the downstream user (Libecap, n.d.). Florida and Georgia, two very wet states, have spent years fighting over water. Georgia has it, but Florida says Georgia uses too much (Elliott, 2020).

Conversely, appropriative water rights are associated with the western US originated with miners in the 1850s and typically assign priority to water based on the earliest claimant

(Glennon, 2009). In many cases, there is a ladder of appropriation on a stream, based on that priority. In general, agricultural users tend to have the highest priority, and they use the most water (Libecap, n.d.). Water rights can be bought and sold, but that stands in opposition to a United Nations (UN) proclamation that water is a human right (UN, 2010). The fight for water exists across all nations, but clean water remains a challenge. The WHO and UNESCO (as cited in UN, n.d.) estimate that 2.2 billion people lack safely managed drinking water.

Additionally, much of the world remains without access to wastewater treatment, often degrading the quality of drinking water sources and further complicating clean water access challenges (Malik et al., 2015). Even in high income countries, a 2017 report from UNESCO found that, on average, only about 70% of wastewater is treated. As income falls, so does the share of wastewater that is treated. It is estimated that, on average, low-income countries only treat about 8% of the total wastewater produced (WWAP United Nations World Water Assessment Programme, 2017). According to the UN, approximately 4.2 billion people lack well-managed sanitation.

As it pertains to the availability and sustainable management of water and sanitation, sport can be a driver to educate, innovate, and serve as the backbone of infrastructure. Melovic et al. (2019) suggest that sport can serve as a space to support sustainable practices, given the dedicated nature of the fan base. Sports, like hockey, use a great deal of water. Similarly, hockey is likely the most vulnerable to climate change. As such, the NHL launched "NHL Green" in 2010 to address the sustainability of the sport (Benjamin, 2017). The league's 2018 sustainability report describes the innovations in the sport, including water recapture and reuse, and using reclaimed water (NHL, 2018). Outside of professional sports, even localized sport facilities provide a community fixture and the stability to act as a backbone of infrastructure. Decentralized options, like water kiosks, rely on community structures that allow equal access. In many cases, sport facilities provide that vector.

Given the role of sport on a community, national, and global level, it has the ability to connect with sustainability holistically. To date, the role of sport in sustainability has been somewhat limited, but with rampant growth in the last 10 years. The UN SDGs' clear recognition of the connection between sport and sustainable development, and in this case the sustainable management of water resources, indicates the opportunity for sport to fill a critical role in global development.

17.1 Targets

Goal 6, "ensure availability and sustainable management of water and sanitation for all," outlines eight targets for sustainable development and 11 indicators. The targets underscore the components of sustainable water and wastewater management as it relates to drinking water, sanitation, water quality, conservation of limited resources, shared resource management, and ecosystem restoration. Additionally, these targets include capacity building and community engagement to promote wide-spread and intergenerational sustainability.

The targets, as defined by Sustainable Development Goal 6 (General Assembly, 2015), are outlined in Table 17.1.

The targets and indicators outlined by SDG 6 focus on holistic management of water resources, addressing everything from access to clean water and sanitation, to the community level development and capacity building necessary to continue managing these resources into the future. As it stands, much of the world's water use is for agriculture and electricity, rather than for individual residential use. In the United States, the USGS reports that only about 12% of the water use is attributed to public supply (Dieter et al., 2018). The largest users are typically

Table 17.1 Targets of Sustainable Development Goal 6

6.1	By 2030, achieve universal and equitable access to safe and affordable drinking water for all
6.2	By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations
6.3	By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally
6.4	By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity
6.5	By 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate
6.6	By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes
6.a	By 2030, expand international cooperation and capacity-building support to developing countries in water- and sanitation-related activities and programmes, including water harvesting, desalination, water efficiency, wastewater treatment, recycling and reuse technologies
6.b	Support and strengthen the participation of local communities in improving water and sanitation management

Source: General Assembly (2015).

using the resource for economic gains, like for thermoelectric power or agriculture (Dieter et al., 2018). Water faces many of the traditional economic challenges. Like the "race to fish," in a world with an uncertain supply of water resources or a demand greater than the resource can support, water becomes a resource with individuals and groups racing to extract, often resulting in an unequal distribution and economic losses.

17.2 Scope of global water issues

The SDGs are classified into three categories, and Goal 6 falls under "environment," as it focuses on water resources. The Sustainable Development Goals Report 2018 has been monitoring the state of sustainable development since 2015, and holds that the greatest barrier is lack of funding, once again bringing the conversation back to the "who pays" divide. The same report found that official development assistance (ODA), or assistance from the most developed countries for development, calculated as a percentage of the donor countries' Gross National Income (GNI), was only 0.31%.

Neoliberalism holds that even the concept of sustainability would need to support capitalistic enterprises, that is, the continued free market system (Moure-Eraso, 2003). In short, there would need to be a market driving ODA, which there is not, likely limiting the level of commitment from any donor country. Indeed, while market-based instruments are beginning to surface as methods to quantify and negate negative externalities, they are typically national or regional and do little to promote ODA.

The Sustainable Development Goals Report 2019 found that the ODA to the water sector, specifically, has increased for several years. Water and sanitation ODA commitments rose from $7.6 billion to $9.1 billion from 2016 to 2017, indicating global support for sustainable water resources management (UN, 2019). The Sustainable Development Model, while still evolving

in practice, may be gaining traction within the water resources sector, and Goal 6. Indeed, payments for ecosystem services (PES) programs are also beginning to gain traction, some of which pay for clean water management and stormwater control in the developing world (Salzman et al., 2018). Examples like the Latin American Water Funds Partnership pool funds from diverse stakeholders to fund upstream conservation efforts (Salzman et al., 2018). Perhaps the best known example of PES is New York City's watershed protection in the Catskills, where the City funds land conservation efforts along the watershed to prevent contamination and costly additional treatment (Appleton, 2002).

ODA commitments are not growing across all SDGs, so why is the Sustainable Development Model more connected to Goal 6? Clean water access challenges exist globally, from the most developed countries to those in developing countries. These challenges range considerably, from drought, to lead pipes, to topography. The UN (2017) states that approximately two-thirds of the global population lives in areas that experience drought for one to two months per year. A 2016 report by Cornwell et al. (2016) estimates that some 15 to 22 million individuals in the US are served by lead service lines, roughly 7% of the population served by community water systems (CWS). A recent presentation by the Environmental Finance Center found that only 78.8% of households in Appalachia[1] are served by public water (EFC, 2020). This value lags behind the rest of the US, where 87.6% of households have access to public water service (Dieter et al., 2018).

Similar challenges exist in the realm of wastewater. The UN estimates that roughly 80% of wastewater goes untreated (UNAP, 2017). Given the interconnected nature of water systems, this puts a large portion of the population at risk for contaminated drinking water sources. The concept of "up-stream" and "downstream" and the understanding that water is fluid in nature extends exposure outside of a single community. The issues range considerably, and, in general, disproportionately affect lower-income nations and communities (Data-Driven Lab, 2020). Under SDG 11, Yale University created the Urban Environment and Social Inclusion Index, and the 2020 key findings address this directly. Of the 162 cities assessed using the index, 95 are putting a greater environmental burden on low-income populations (Data-Driven Lab, 2020). Further, there is a suggested association between poverty, race, and poor drinking water quality (Schaider et al., 2019). Smaller water utilities, such as those that serve low-income areas often lack the technical, managerial, and financial capacity to address water quality challenges that begin at the point of intake and end at the point of service (Schaider et al., 2019).

Water and wastewater services rely on economies of scale, that is, larger numbers of customers to spread the fixed (capital) costs between. In 2012, the U.S. EPA estimated that $271 billion will be needed to upgrade wastewater and stormwater infrastructure in the US over the next 25 years, and the UN EPA's (2018) survey reports an additional $472.6 billion will be needed for drinking water infrastructure over the next 20 years. This is met with a rampant decline in federal funding for infrastructure, and a shift from using grant dollars to support systems, to using loans and rate revenue.

In the Appalachian region of the United States, for example, the rugged terrain, karst soils, and lack of dense population creates a situation where neither on-site septic nor centralized wastewater treatment is feasible or effective (Cantor et al., 2017). Instead, a method known as "straight-piping," where untreated household waste is discharged into nearby streams and rivers, is often employed (Cantor et al., 2017). While it is challenging to estimate the number of households employing straight-piping, Glasmeier and Farrigan (2003, as cited in Krometis et al., 2019) estimated nearly 3,000 straight pipes in Letcher County, Kentucky, alone. This lack of centralized wastewater is matched by a lack of centralized drinking water (Krometis et al., 2019). A 2019 study by Krometis et al. found that samples from more than 80% of roadside

springs, a source of unregulated potable water in Central Appalachia, were positive for *E. coli*. Additionally, coal mining has increased the amount of heavy metals found in water resources, such as private wells (Wigginton et al., 2008). In many cases, this situation reflects a 2017 national analysis that found a significant correlation between race, poverty, and drinking water violations (Krometis et al., 2019).

In contrast to the rural problems experienced by residents of Appalachia, Detroit, Michigan, is a large city. At one time, Detroit was an industrial hub, bolstered by the car industry and economically thriving. As time passed and the global economy changed, Detroit suffered. In 2013, the city declared bankruptcy (Davey & Walsh, 2013). Now, Detroit faces an affordability problem with its water and wastewater customer base. As the low-income proportion of the population grew, fewer and fewer people paid their water bills. Detroit did not shut it off. Now, as the word spread and Detroit began to realize the revenue loss, the utility began turning off water and charging people large fees to get it turned back on, many of whom could not afford it (Klinefelter, 2014). While the cost of turning off and on service is not minuscule and should be passed to the consumer, it poses a serious access question: is there a human right to water?

According to the state of California, there is. In 2012, Governor Jerry Brown signed Assembly Bill 685. The bill states that "every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes." The bill is unlike any other in the United States and establishes an emphasis on affordability and access. While it does not address wastewater, stormwater, or the resource as a whole, it provides a novel basis for providing access. Even across the United States, a wealthy nation with a large proportion of the population served by public water, there are access challenges.

Recently, an emphasis on "one water" has been adopted by NGOs and nonprofits like the U.S. Water Alliance, hoping to spread the interconnected nature of water resources (U.S. Water Alliance, n.d.). Drinking water, stormwater, and wastewater are all the same resource, just with differing levels of treatment. The UN's sustainable development goals are driven by community-level management of water resources and sanitation that outline community champions for the goal, educational opportunities for community members, and management best practices.

17.3 Connections to sport

The previous section outlined the challenges to sustainable development and the universal needs for sustainable management of water resources. Historically, sport has been an inhibitor to environmental goals. The events are "peaks," drawing thousands to a single location. In turn, these peak events cause localized air pollution, a drain on water resources, and significant waste generation (Bunds et al., 2019). Recognizing this environmental drain, sport leagues and organizations have begun to act. The IOC, FIFA, and university-level sustainability offices are now making concerted efforts to address the role of sport in historic environmental degradation and future environmental protection (Bunds et al., 2019). Sport, while often a major user of water resources and, at times, competing for limited community funds, can also act as an avenue to connect communities and promote behaviors consistent with Goal 6.

17.3.1 Sport and education

Sport serves as an avenue to capitalize on the undivided attention of countless individuals across all age ranges, socioeconomic levels, and education levels. Sustainable development looks different based on the community in question, and thus the exposure of the community can

vary. Russo et al. (2014) compare Maslow's hierarchy of human needs to the hierarchy of water management needs, illustrating the considerable difference in water management for individuals trying to survive, compared to those who have satisfied levels 1–4 (i.e., survival, local development, regional water development, and national water development, respectively) and can focus solely on water resource sustainability. Indeed, they acknowledge that sustainable water management is needed regardless of development level, but that for developing countries, sustainable management must occur in tandem with addressing the lower level needs.

For example, air pollution testing at sporting events led to a better understanding of the problems associated with tailgating and instigated policy changes to reduce the amount of vehicle idling at tailgates, like that of the University of Maine ("Vehicle Idling Policy," n.d.).[2] In turn, this greatly reduced air pollution around football events at universities around the country. There has been considerable research on the public health impacts of air pollution, including excess risk to mortality (Wang & Mauzerall, 2006; Wong et al., 2008), cardiopulmonary morbidity, and, in the case of PM2.5, adverse birth outcomes (Kelly & Fussell, 2015). The policy on campus brings to light a problem with an easy solution: stop idling.

Shifting back to water, turf management has changed over time, with more recent guides including recommendations for optimal infiltration and frequency of watering based on the grass type (or landscape coefficient) and evapotranspiration rate (Carey et al., 2012). Using rainwater or reclaimed water to irrigate fields reduces the amount of treated water used for turf management, providing a level of reliability in arid regions or during dry seasons (Evanylo et al., 2010). Signage around sport facilities can help fans understand the water management practices on hand, and research suggests that this signage can be effective methods for changing behaviors, specifically those around environmental protection (Meis & Kashima, 2017). For example, at the University of North Carolina at Chapel Hill, concerns over droughts drove significant innovations within water use. The campus installed underground cisterns on campus, collecting up to 350,000 gallons. Rainwater is captured and used to irrigate Kenan Stadium. Through an agreement with Orange Water and Sewer Authority, the campus uses 10 million gallons of reclaimed water to irrigate fields at the baseball, softball, and soccer stadiums ("Stormwater and the Stadium," 2018).

17.3.2 Sport and behavior change

Sport and sporting events can also serve as avenues for behavior change. As it relates to pro-environmental behavior (PEB), knowledge alone is not sufficient to inspire behavior change (de Leeuw et al., 2015). PEB can be modeled using the theory of planned behavior, whereby the intention and associated PEB is shaped by beliefs, norms, and perceived behavioral control. While most PEB is assessed at the individual level, sustainable development, even as it relates to the environment, may be better addressed at a macro scale. Indeed, within the realm of sustainable development, change is sought at a collective, societal level, rather than an individual level. As a result, the study of social networks and interactions between these networks drives the theory of behavior change and sustainable development (Klaniecki et al., 2018).

Behavior change is no easy battle. Most people are resistant to change and grounded in existing schools of thought. This tendency breaks down when leaders or "idols" support a certain cause. These normative descriptive beliefs, as explained by the theory of planned behavior, shape attitudes and norms toward a certain intention and behavior (de Leeuw et al., 2015). Take equal pay among men and women U.S. Soccer players as an example. The U.S. Women's National Team engaged in years-long court cases, fighting for equal pay to their men counterparts (Das, 2020). Though the legal battle was lost (Cater, 2020), the high-profile fight

led to a new NWSL team in Los Angeles, Angel City FC (Baxter, 2021). The team, led by co-founders actress Natalie Portman, venture capitalist Kara Nortman, and media consultant Julie Uhrman, is built on a foundation of equal pay and social justice (Baxter, 2021; Brassil, 2020). The USWNT propelled their cause to national headlines, acting as change agents and establishing a societal subjective norm around their slogan, "equal play, equal pay" (Archer & Prange, 2019; Clarke, 2019). In the short period following the team's establishment, the ownership group has swelled from 33 members as of July 2020 (Brassil, 2020) to over 60 by January 2021 (Baxter, 2021). The team represents a shift within sport toward collective change, equity, and justice.

Similarly, in the world of professional cycling, few teams have ventured to promote sustainability. In 2020, a Belgian team, Deceuninck–Quick-Step, pledged to be carbon neutral, presumably purchasing offsets to cover the carbon footprint of the Union Cycliste Internationale team as it travels around the globe. The team committed to two specific projects: one providing clean water to the Kaliro District of Uganda and preventing deforestation for wells, and a second that will conserve and reforest Mont Ventoux, a fixture among cycling fans (CyclingNews, 2020). The team utilizes social media and branding to emphasize its carbon neutrality, effectively sharing that climate impacts are an important focal point of the team and, presumably, increasing awareness among fans.

17.3.3 Sport and infrastructure

Beyond behavioral change, sport has the opportunity to be more sustainable, even if it is not actively trying to change behavior or have a greater effect outside of the facility and event. The 2022 FIFA Men's World Cup has an extensive sustainability strategy, presumably to combat a history of unsustainable development surrounding a short-lived event. Qatar, the host in 2022, is also an extremely water scarce area, putting additional emphasis on the need to drive conservation through infrastructure development. Objective EN5 specifically outlines the anticipated mechanisms to conserve water both during construction and during the events. Qatar already utilizes water recycling, also known as reclaimed water, for agricultural and irrigation purposes and intends to extend these practices to the events (FIFA, 2020).

Depending on the level of development that exists in an area, sporting venues could serve as the primary access to clean water or wastewater practices. Arenas and stadiums are present year-round, regardless of whether the sport of interest is in season. They can act as place-based hubs, either as a distribution point for centralized provision (i.e., kiosks and selling clean water) or as a regular hub for events related to water access, sanitation, and hygiene (WASH) practices. Specifically, the IOC sustainability report (2020) states that the IOC designed the Olympic House to be a leader in water reuse, utilizing rainwater for toilet flushing, and irrigation, and utilizing available water resources for heat pumps. The Olympics sets goals based on the SDGs, recognizing that Olympic sports are contingent on a level of water quality in natural bodies of water.

As it relates to sport and fundraising for infrastructure, charities exist intending to build water infrastructure in developing nations (Bunds, 2017). These charities and their donors can generate millions in donations to build infrastructure. The challenge is ongoing maintenance. As Bunds illuminated, there are issues with the need for fundraising organizations in the Global North needing to be omnipresent in the water infrastructure decisions in the Global South. The solutions include long-term educational programming (Bunds, 2019) and focused training and fundraising activities that allow the individuals in need to sustain their water systems independently (Bunds, 2017).

17.3.4 Sport and innovation

In most cases, governments are unlikely to spend capital on something new and relatively "untested." As reported by Feiock et al. (2010), elected officials are risk-averse, motivated by reelection and public support. In the case of water reuse, Ormerod and Scott (2013) find that slow uptake of drinking recycled water is fueled by a lack of public trust. For example, in 2008, Orange County, California, began operating a water-reuse facility, providing recycled wastewater at drinking water quality to customers in the county (Walton, 2014). As of 2010, despite similar proposals, San Diego and Los Angeles had not taken the leap (Ormerod & Scott, 2013). As time passed, things began to shift. Orange County recently announced a planned expansion to the existing facility (Gorn, 2016), and as of 2017, San Diego approved a phased approach toward indirect potable reuse, known as Pure Water San Diego, which aims to serve one-third of San Diego by 2035 (Smith, 2017).

Further, local units, specifically within the water sector, are heavily regulated and often have limited budgets and great capital needs. In the United States, water systems are natural monopolies, and unless regulation drives innovation, there is little incentive to think outside of the box (Spiller et al., 2015). Investing in innovation means taking money from something else, or, in some cases, innovative investments may not be supported by grant funding programs. This is further complicated by areas with limited capacity, whether it be financial, managerial, or technical, as limited capacity is linked to increased water insecurity (Basu et al., 2016) and thus a greater need to be addressed than innovation. Similarly, the government is rarely known for innovating and changing. Sport, on the other hand, can be innovative.

Technologies for distributional clean drinking water exist, such as water kiosks (Arcipowski et al., 2017) and "hydropanels" (Zero Mass Water, n.d.), but these technologies require a reliable site with clean source water (Arcipowski et al., 2017).[3] Sport, and the associated facilities, are typically place-based and a large part of a local community. This sense of community, trust, and ability to innovate allow sport to serve as an innovation hub. Water kiosks, although not particularly innovative, do require regular staff and community support to thrive (Arcipowski et al., 2017). Similarly, hydropanels, or panels that take water from the air and sunlight and add ions, create a small supply of clean drinking water. Like traditional solar panels, hydropanels require a significant amount of available space, capital, and a community connection to work ("How Do Hydropanels Work?," 2018).

17.3.5 Sport and greenspace

While Goal 6 focuses heavily on the importance of drinking water, wastewater, and WASH practices, the holistic approach to water, often marketed as "one water" includes the management of water resources of all kinds, including stormwater and water quality in lakes, rivers, and streams. Additionally, greenspace can act as a community buffer, providing safe areas to flood without harming the water supply or individuals within the community. On practice fields or areas otherwise not reserved for high-level play, utilizing natural grasses and trees with longer roots allows for the ground to act as an even stronger sponge, protecting communities from flashy floods and potential property damage or safety issues. Even in cases where artificial turf is utilized for sport facilities, it can serve as a stormwater control measure (SCM) that reduces the amount of runoff and allows water to settle out. UNC–Chapel Hill has implemented cisterns under Hooker Field, an artificial turf field, to reduce water quality challenges in the local reservoir, Jordan Lake ("Innovative Stormwater Technologies," n.d.).

In highly urbanized areas, access to greenspace may be limited (Maas et al., 2006). Further, in rural areas, it has been found that while much more of the land is green and "open," residents have to drive much further to access public greenspace, like parks. In some cases, it is an environmental justice issue, whereby minorities and those of lower socioeconomic status may have, on average, reduced access to greenspace (Rigolon et al., 2018; Wen et al., 2013). This access challenge exists both between cities, and within cities, as Rigolon et al. (2018) found that cities with higher median household incomes and a lower percentage of Latino and non-Hispanic Black populations tend to have lower quality parks, as determined by Park Scores (an index by The Trust for Public Land). Intentional decision making can push equitable access forward, reducing this greenspace gap. Sport can play a role.

Addressing water is a growing concern for areas across the globe. Rainstorms are often flashy, resulting in a significant amount of rainfall at one time and can lead to significant non-point source pollution and unequal distribution of water resources across time and space. Sport spaces, such as open spaces, synthetic turf, or parks, can be utilized as green infrastructure (The Trust for Public Land, 2016). This reduces the amount of nonpoint source pollution reaching waterways (Chen et al., 2019), slows the water down and prevents sediment erosion in streams (Liao et al., 2017), and in some cases, serves as water retention for future use ("Innovative Stormwater Technologies," n.d.).

17.4 Conclusion

There are many natural connections between sport and sustainable development. "Green sports," or the environmental emphasis of sporting endeavors, is gaining traction, both as a way to adapt with the fanbase and by recognizing the relationship between sport and the environment (McCullough et al., 2020). As it relates to sustainable development, sport still has significant work to do. Much like the ODA of donor countries, the progress is contingent on adopting a sustainable development model instead of a free market focused neoliberal model. The emphasis is on extending past the short term, to think about the impacts of actions on both the current and future generations.

While the ODA *commitments* for water and sanitation have risen since the 2000s, there is still considerable work to be done (UN, 2019). Billions of people across the globe still lack access to clean, safe water, and even more lack sustainable wastewater management. Without a holistic approach to water management, the state of global water resources will continue to degrade both in quality and quantity. As is the approach with watershed protection, or the protection of land around drinking water sources, it is nearly always cheaper to prevent a water body from becoming polluted than it is to clean it up.

Within the sustainable management of water resources, there are many avenues for sport to have a role, extending to all three components of the "one water" approach. Sport can act as an education mechanism, exposing participants to new information; it can act as an infrastructure hub, using major events to build the framework for water resources after the event has passed; it can serve as an innovator, providing access to riskier innovative technology at a higher cost, but potentially with a larger reward; and it can serve as greenspace, providing natural stormwater control measures that protect downstream water quality.

2030 is less than 10 years away, and there is still considerable financial, technical, and managerial need. The annual UN SDGs report, while written with an optimistic lens, is not intended to mislead or "sugarcoat" the reader. Instead, it provides a clear understanding of where sustainable development is, where it has been, and where it is going. Sport is just one part of that development.

Indeed, the role of sport in sustainable development and SDG 6 is not limited to the theoretical and practical connections entailed here. Rather, sport should continue to drive the ever-evolving sustainable development model, bridging the economic, social, and environmental goals set forth by the UN.

Notes

1 Appalachia is defined by the Appalachian Regional Commission. It includes 420 counties across 13 U.S. states.
2 The University of Maine has a policy that prohibits idling unless the temperature is below 32 °F. If the temperature dips below 32 °F, the policy allows a maximum of five minutes of idling time.
3 Water kiosks and hydropanels are examples of *decentralized* solutions. In both cases, people must travel to a location where water is provided to attain clean drinking water. Water kiosks can have water provided by a public source, but hydropanels pull water from the atmosphere and only produce a small amount of water. Examples of water kiosks are found in developing countries and stateside, with the most common U.S. example in Beverly, Kentucky. Hydropanels are a product of Zero Mass Water, Inc.

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Measuring Sustainable Development Goal 6

Pamm Phillips and Kim Encel

In the Secretary-General's 2019 Report on the progress toward SDG 6, it was noted that billions of people still lacked access to safe water, sanitation, and handwashing facilities (UN, 2019). The lack of progress in the efficient use and management of water also means that other areas such as demand, flooding, water security, and droughts cannot be appropriately addressed. The Secretary-General noted that the state of water management around the globe demon-strated inadequate progress in this regard. The report went on to show that the current rate of progress in SDG 6 would need to be doubled in order to achieve universal access to basic sanitation by 2030 (UN, 2019). While progress has not been fast enough, there have still been improvements in a number of key areas globally. For example:

- Safely managed drinking water services increased from 61% to 71% between 2000 and 2015 but remained unchanged in 2017. Also, while 19% of the global population had access to basic drinking water, 785 million still lacked access.
- Safely managed sanitation increased from 28% of the global population in 2000 to 45% in 2017 and the proportion of those lacking basic sanitation services decreased from 44% to 27%; however, 701 million people still practiced open defecation in 2017.

While these data provide important information regarding progress, the following examples highlight further progress is required:

- Note that 60% of people globally had basic handwashing amenities at home which means that three billion people lacked basic handwashing amenities at home in 2017.
- In primary schools, one-third of students lacked access to basic sanitation, drinking water, and hygiene.
- About one-third of countries are water stressed which indicates serious difficulties in the supply of freshwater.

From the information provided the Secretary-General's 2019 Report on the progress toward SDG 6 it is clear that significant change is required to meet the 2030 deadline—but the issue of

measurement and management is complex—as noted by the multiplicity of goals that are associated with SDG 6 (as noted in the previous chapter).

18.1 Overview of SDG 6 management and measurement in sport

Sport has been considered a meaningful and important institution in many societies around the globe. Sport can drive individual health and well-being, social and mental health, culture, economics, and many other facets of modern life (Hardman & Stensel, 2009; Kohl et al., 2012; Rowe & Siefken, 2016; Schulenkorf et al., 2016). Specifically, the sport sector has an interesting relationship with water, and its subsequent management, and measurement of its use in the sector. Kellett and Turner (2011) devised a framework to understand how sports (at least those conducted at the community level) consume water across the sector. They noted that sport organizations use water for a number of different purposes. The framework that Kellett and Turner (2011) devised depicted three main types of ways in which water can be used in sport settings where the primary purpose could be for irrigation of turf playing fields; or off-field activities such as consumer amenities; or for maintenance and cleaning. They noted that although some sports used water primarily for one purpose, there are other sports that use water for multiple purposes (across the three types noted above). Further, they noted that sports use different amounts of water to sustain their businesses and activities depending upon a range of factors including numbers of participants, geographic location and climate, size of playing fields, and types of turf used.

At the professional level of sport, where organizations are part of a large event sector and are delivered through stadiums, a range of initiatives for the efficient management and use of water in sport stadiums has developed. For example, Levi's Stadium (Santa Clara, California) was designed to serve as an example of sustainable sport stadiums globally and has saved 100 million gallons of drinking water from 2014 to 2018 (Mercurio & Lucas, 2018). Just minutes from Levi's Stadium, Earthquakes Stadium (formerly Avaya Stadium), uses recycled water for all landscaping and "bioswells" around the stadium to store rainwater for later use (MLS, 2021). Other examples of sports taking water management seriously are Real Madrid Football Club who use recycled turf which requires no watering (Balch, 2014), and the San Francisco's Olympic Golf Club and the All-England Club, which recycle 97% and 95% of their water, respectively (Climate Action, 2017; edie newsroom, 2015). Further, there is research specific to the event sector that investigates the impact of better managing water in event lead-up for sport events such as the Olympic and Paralympic Games (Mead & Brajer, 2008).

In reality, sport is an activity that participants and spectators in many nations take for granted. In some instances, there has been little attention paid to the use of water for sport—until crises occur—such as was the case in the geographic region studied by Kellett and Turner (2011), detailed later in this section, that was hit with prolonged and severe drought. Until that time, sport organization managers and city officials had paid little attention to water use in sport. Given the lack of consideration about water use in the sector, it might be argued that sport is yet to find a comprehensive and global strategy for the use of water in sport, but organizations are individually (and some more collectively) making important steps to do so. Some examples are considered in the proceeding discussion.

Even at the highest level of sport governance (international federations), there is little cohesiveness, or attention, to water management. For example, the International Olympic and Paralympic Committee has led the sustainability agenda in elite sport recently, which is outlined in the IOC (2017) Sustainability Strategy. Interestingly, the strategy mentions the IOPC's commitment to the SDGs, and in particular, to SDGs 3, 4, 5, 8, 11, 12, 13, 14, 15, 16, and 17 (IOC, 2017). There is no mention however of SDG 6 despite discussion throughout the

strategy of the importance of clean water and water management (IOC, 2017). Further, there is not a comprehensive framework that provides a way to measure progress toward any of the SDGs, which is curious given the IOPC's leadership role in international elite sport.

Despite the IOPC not discussing the measurement toward SDG 6 or any of its targets, the Beijing 2022 Olympic and Paralympic Winter Olympic Games Sustainability Plan does. The sustainability of the Beijing 2022 Games had three key themes (Beijng 2022, 2020). The first theme is "Positive Environmental Impact: and has 4 key actions, 17 tasks, and 62 measures (Beijng 2022, 2020). In regards to SDG 6, there are a number of measures that aim to ensure the efficient management and availability of water; however, these are vague. For example, one measure is:

> Implement the water supply plan for snow-making and the snow management plan. Continue to refine the amount of artificial snow and water demand, cap water consumption, strengthen water recycling, improve water efficiency and promote the use of high-efficiency water-saving equipment. Apply water-saving equipment as well as precipitation collection and recycling system to new venues. (Beijing 2022, 2020, p. 21)

While the above and other measures provided in the Sustainability Plan for Beijing 2022 provide a way forward in measuring progress toward SDG 6 in water for mega sport events at the very least, there is still not a measurable standard for ongoing progress provided. Other international sport organizations such as FIFA have similar issues. For example, for the Qatar 2022 Men's World Cup Sustainability Strategy, there is a discussion of the alignment toward 11 SDGs of which SDG 6 is included (FIFA, 2022, 2020FIFA 2022 2020). Qatar 2022 aims to align with SDG 6:

> By minimising water use during construction and operation of FIFA World Cup sites, including through wastewater recycling and reuse, and promoting water conservation in related sectors such as accommodation and food and beverage, we will contribute to increasing water-use efficiency and wastewater recycling and reuse in Qatar, and ensuring a sustainable supply of freshwater to address water scarcity. (p. 90)

Both the Qatar and Beijing 2022 sustainability reports discuss their alignment with the SDGs and SDG 6 in particular. This alignment with the SDGs is a significant advance on previous mega-events that mention sustainability, but do not discuss their alignment with the SDGs such as the Tokyo 2020 Olympic and Paralympic Games (Tokyo 2020, 2018) and the 2018 FIFA Men's World Cup in Russia (Russia, 2022, 2017). In other words, the SDGs have become a useful platform for sport organizations and events to define their sustainability practices; however, there is still little understanding of sport's progress toward SDG 6. Further, and perhaps more importantly, there is little understanding of how sport is contributing to targets that are not related to the management of water, and instead, access to clean water and sanitation. The sport sector needs to be strategic in how it measures progress toward SDG 6.

Before the reader can consider strategic ways forward for the sport sector, it is first necessary to consider, in a focused manner, current initiatives that are underway in the sector, and to collate information in a way that provides a guide to examining the challenges that are unique to the sector, and the organizations in it. This section proceeds to outline those.

18.2 Overview of progress toward SDG 6 in sport

The key aim of this section is to understand how sport is progressing toward SDG 6. Building on previous sections that outline the targets for SDG 6, the authors suggest it might be useful to
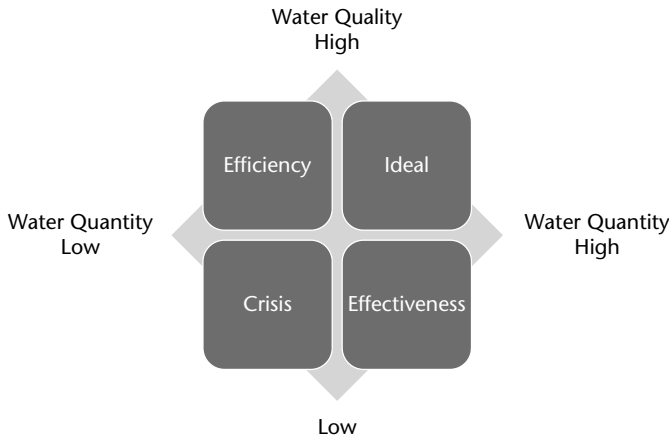
Figure 18.1   Measuring water management in sport

adopt a simple model to guide an exploration of activities in the sport sector that relate to SDG 6. Two important aspects are at the essence of measuring progress toward SDG 6:

1   Water quality (either high or low) and
2   Water quantity (either high or low).

Of course, hygiene is also part of SDG 6 and can be discussed as part of either of these aspects and part of any quadrant of the matrix model as noted below. However, hygiene has rarely been examined in the sport sector. It will be further discussed later in this section of the chapter.

The authors suggest that a simple matrix model (Figure 18.1) can provide a framework to allow readers and researchers to understand the types of actions and measurements that might be required when each of these aspects of water management are experienced. The discussion that proceeds in this section is based on this framework.

Each of the four quadrants noted in the matrix above could represent the managerial focus and measurement of activities in different geographic regions or sectors of the sport industry. Further, a region or sector might transition from one quadrant to another depending on climate change or water-related disasters. What is most important for the discussion in the current chapter is to focus our attention on the managerial activities and measurement strategies that might be considered to assist movement from one quadrant to a more desired quadrant (and for those who have desirable water conditions to be able to collaborate and cooperate to assist others in less desirable water condition quadrants). The following section will briefly describe the simple water typology framework and provide examples accordingly.

The first quadrant, titled "Efficiency," is where there are low levels of water, but the available water is of good quality. In these instances, it is pertinent for all stakeholders involved in water management to focus on the efficient use of water. In New Zealand, for example, a nation with excellent freshwater resources, the Ministry for the Environment is acting to ensure efficiencies in the management of freshwater supplies throughout the country, and enlisting the cooperation of a range of stakeholders to do so (Ministry for the Environment, 2020).

The second quadrant from Figure 18.1 above depicts conditions where there are high levels of good quality water—ideal conditions. This, for many parts of the Global North, is an expectation of daily life. It is these countries that have much to offer in terms of collaboration and

cooperation in facilitating and assisting those in other quadrants of the water matrix. However, perhaps underlying the Secretary-General's report is that many countries who experience these fortunate water conditions are either not doing enough to maintain these conditions (Jepson & Vandewalle, 2016) or to assist others in different less fortunate water circumstances (Ranganathan & Balazs, 2015).

In the third quadrant, entitled "Crisis," there are low levels of poor-quality water. Indeed, the Secretary-General has already noted that many parts of the world and vast proportions of the Global South experience these conditions. It is these conditions that require intensive managerial strategies encompassing efficiency and effectiveness as well as global collaboration and cooperation.

The fourth quadrant is entitled "Effectiveness," where conditions include reasonable quantities of water, yet it is of low quality. This is where managerial activities and advances in water management effectiveness are most important—including the need for desalination plants, pollution removal, and hygiene-related activities and programs such as water harvesting, recycling, and reuse technologies.

This section will detail some of the case study examples of the work that is being done that draws upon the discussed framework. This framework will provide a basis to illustrate insights into the actions that sport organizations are taking for progress toward SDG 6.

18.2.1 Considering sport in Quadrant 1: efficiency

Sport organizations or contexts where water is of high quality, but in short supply have existed, and some scholars have explored this concept. Kellett and Turner (2011) investigated the impact of drought on water management in sport in the City of Greater Geelong (in Victoria, Australia). Prior to 2011, that region had been in Quadrant 2 (Ideal), and sport consumed over one-third of its potable water without much scrutiny or interest. It was not until drought impacted the region that the city council (who owned and maintained the city's sport facilities) turned to water efficiency management strategies for sport facilities. Sport teams and clubs, and their management, had little power to impact any decisions made by council.

In the first instance, all fields in the municipality were under restricted water use and the field surfaces became increasingly hard—which were a catalyst for participant injuries. This, coupled with prolonged drought, led to later closing most facilities in the city so that a limited number of sports (those deemed by the council and water management company to have the most positive impact on the community) had access to a limited number of facilities (which were provided with restricted amounts of water) for a limited number of activities (Kellett & Turner, 2011).

This had an interesting impact on sport. Some sports, which did not have access to facilities with water, ceased to exist. Parks and gardens in the city and local beaches became training locations for sport teams—and this led to their destruction. Further, some sport teams purchased water from local farms, but it was of such poor quality, and it led to skin infections for participants who played on the fields irrigated with the poor-quality water (Kellett & Turner, 2011).

From Kellett and Turner (2011) it became clear that water management—relevant to SDG targets 6.3, 6.4, 6.5, 6.a, and 6.b—needed to improve to ensure that participation opportunities continued to be available. However, in the case examined, the management of water in the sport industry was highly reliant on social and political processes (Kellett & Turner, 2011). Water companies and local governments—not sport organizations—led decisions about water management. Thus, to appropriately measure progress toward SDG 6, there first needs to be

unified reporting structures and common understandings that could provide consolidated usage information at a foundation level.

18.2.2 Considering sport in Quadrant 2: ideal

In western countries, in regions where water is largely of high quality and perceived to be of an appropriate quantity, very few have questioned the need to use potable water to maintain fields of play—particularly for a country's favorite organized sports competitions. Even sport organizations themselves have not questioned their right to use potable water on their turf playing fields, or to fill their pools—until a crisis has hit, as was seen in the example provided above where drought was the catalyst for efficiency strategies. This unquestioning reliance upon water means some sports are ignoring and perhaps harming any broader efforts to reach targets 6.1, 6.2, 6.3, and 6.6, which are focused on safe access to drinking water, sanitation, hygiene, and restoration of water-related ecosystems.

For those sport organizations or contexts that sit in ideal water conditions (water of high quality and quantity), from a sport development perspective, there should be an impetus to collaborate and cooperate in water management. As was made clear in the previous example, if sports do not take care of appropriate water management, sports that are reliant on water and facilities may cease to exist.

Although there is limited research on water management in sport (Kellett & Turner, 2011), there are areas where proactive approaches to some key areas of water management have occurred in a select number of sports. This includes an exploration of the impact of climate change on water management in baseball, cross-country skiing, and ice hockey (Fairley et al., 2015; Johnson & Ali, 2018; Orr, 2020); best practices for water management in water-intensive golf courses (Hudson & Bird, 2009; Perea-Moreno et al., 2016); and the impact of climate change on water use in facilities (Dingle & Stewart, 2018; McDonald et al., 2014).

Importantly, when considering these examples, of the eight SDG 6 targets, four are crucial for the ongoing operations of sports, which require large amounts of water to maintain their facilities. Targets 6.4, 6.5, 6.a, and 6.b focus on the withdrawal, availability, treatment, and efficient management of water, and they are particularly relevant to sports that rely on water for their facilities. Interestingly, of the sport and water research manuscripts that are cited here, the activities they outline clearly relate to SDG targets 6.4, 6.5, 6.a, and 6.b; however, the SDGs are not included in this body of work.

There are some interesting examples of leagues and teams that have made concerted efforts to decrease water use. One of those actions has been to replace natural turf fields with artificial turf—and this has occurred in a range of different sports—with soccer and American football as examples. Although these actions are to be applauded and seem to make sense, some unique outcomes have been detrimental for each of the sports. For example, the use of artificial turf in soccer has been linked to a cancer cluster because of the rubber materials used to provide the ability for athletes to slide on the artificial turf (Shalat, 2017). Further, in the NFL, although they are linked to lower water use than natural turf, artificial turf has been linked to staphy-lococcal infections. Water usage is reduced because it does not need irrigation like natural turf—but if the playing surface is not sterilized, bacteria develop (Woelfel, 2013).

Although sports in locations with ideal water conditions (as defined in this section) have not necessarily been at the forefront of advancing water management and measurement strategies, there are other sports under the same ideal conditions that have not been provided with water to provide appropriate amenities for sanitation. Kellett and Russell (2009) describe the sport of skateboard in Australia—a non-traditional sport in that country. Despite facilities for the sport

being built rapidly across the nation (e.g., skateparks), no amenities were provided around the skate parks. Local governments that funded skateparks in their municipalities considered that despite being recreational outlets for youth, congregating around them was to be avoided due to the perception that this would facilitate less desirable behavior in young people (like illicit drug use and drunken behavior). Thus, local governments were loath to provide amenities such as drinking water or toilets. As a consequence, many residents in areas that surrounded skateparks reported incidents of youth skatepark visitors urinating in streets and yards of residents, as well as frequenting yards of resident houses to access drinking water from outdoor taps. Thus, even in ideal water conditions, there are political and sociological processes at play that provide inequality in access to water and basic sanitation services.

However, this inequality is not limited to certain sports. There is also increasing evidence that even in locations with ideal water conditions, gender is also a point of difference in access to water and basic sanitation needs. The increase in sport participation for women has highlighted two important issues. First, anecdotal evidence suggests that, at least in the Australian context, women have not been prioritized for access to well-maintained fields of play (Toffoletti & Palmer, 2019). Women's competitions are often relegated to lower quality fields that may not have had appropriate irrigation. That is, any water allocation is often used to maintain a "main" field of play which is more often reserved for men's competition. Second, many sport fields and associated amenities were never designed to cater to women. It is acknowledged that women's participation is dependent upon the quality of facilities, and it has not been until more recently that sport organizations and governments have invested in building and redeveloping more appropriate inclusive facilities (Football Federation Australia, 2019; Sport and Recreation Victoria, 2017; State of NSW, 2018).

18.2.3 Considering sport in Quadrant 3: crisis

As noted in previous sections, there are countries around the world that have low amounts of water, and what little water is available is of low quality. With little water to support basic needs, the notion of using water to fuel sport activities seems wasteful. If sport is seen as a desirable part of these societies, it is up to those who are in other quadrants, and in particular in ideal water quality and quantity settings that need to cooperate and collaborate to facilitate basic water management activities—not for sport in the first instance—but for basic survival needs.

In the state of New South Wales (NSW) in Australia, the Office for Sport (state government department) provides a program called "Drought Break." It is designed as a five-day holiday camp for children from intensely affected drought communities (of which there are some in the large state of NSW) the opportunity to travel to a center of their choice and participate in sport activities. The program is free of charge for drought-affected families. It is this kind of collaboration and cooperation that uses sport as a tool for social and mental health that is important in times of crisis—such as a crisis of lack of water. Sport has also been depicted as an important part of a society's recovery from natural disaster—for example, in Australia, the Queensland State Government introduced the Sport and Recreation Disaster Recovery Program after the flooding events of 2010–11 as sport was seen as so important to the recovery of the communities impacted by flood (too much water!).

18.2.4 Considering sport in Quadrant 4: effectiveness

Sport organizations or contexts that have adequate quantities of water—but in poor quality—are beset with different challenges. This is where innovation and effectiveness is key to

success. As has been noted earlier in this section, low-quality water was used to irrigate drought-impacted playing fields, but this led to physical consequences for participants such as skin infections. Thus, sport organizations need to think about effective strategies to manage poor quality water and its use.

Sydney Olympic Park (SOP) is an excellent example of a site with abundant water, but much of it low-quality due to it being built on a landfill site. SOP, where the 2000 Olympic and Paralympic Games were held, has been transformed into a suburb that spans 420 hectares of parklands. The sport precinct includes 7 sport venues—ranging from ANZ Stadium (where professional sport is played) to sports halls where community sport competitions are held. There are numerous parklands and public open spaces for community recreation (Sydney Olympic Park, 2018). SOP is described as a world-class and environmentally sustainable business, education, residential, recreation, and events district where over 14 million people visit each year, and it is home to over 230 businesses and has a population of 21,600.

SOP was built on landfill areas, and these have been transformed into open space and parklands. However, there are two interdependent issues with the site that require water. First, the sites need water to break down the landfill contamination. Second, when water is filtered through the sites (which is necessary for its continued health), it produces contaminated water (that under normal circumstances would need to be disposed of elsewhere). SOP and the state government have designed treatment systems such that contaminated water is managed onsite at SOP through three treatment systems that have been developed. Since 2000, the original treatment system has been working to capture the polluted water and treating it for release into the adjoining river. In 2013, an innovative system that breaks down ammonia was introduced so to increase the amount of water that could be reclaimed. Then, in 2015, a new system to further enhance the sustainability of the site was introduced so that the water can be irrigated over the footprint of the landfill to ecologically and economically provide a treatment system without chemicals of additives. It provides a new source for irrigation of the landfill sites and saves higher quality water for effective use elsewhere within the SOP precinct (Sydney Olympic Park, 2018).

18.3 Concluding comments

The discussion in this section has highlighted three interdependent issues that the sport sector needs to grapple with in order to achieve progress toward targets in SDG 6. First, there is a lack of cohesion in the sector in terms of understanding the responsibilities of sport organizations in and beyond advancing practice toward SDG 6 targets. There is even less understanding in the sector of how to measure progress toward SDG 6. The lack of understanding is perhaps not surprising given the number of government departments and stakeholders involved in the management of water in the sport sector with little coordination (Kellett & Turner, 2011; UN Water, 2016).

There are, of course, some industry sectors that are more sophisticated in their approach to measuring progress toward SDG 6 than the sport sector. Thus, it is perhaps useful to consider how those "benchmark" sectors approach water management and measurement in ways that allow sport managers to adapt practices specifically to the sport sector. In some geographic regions, the agriculture and farming industries are advanced in their strategic actions for water management (Molden, 2013; Patle et al., 2019; van Noordwijk et al., 2018).

Second, and intricately related to the first point, a framework or typology as presented in the preceding discussion could be the first way of moving the sport sector toward progress in SDG 6. There has been a lack of understanding of water use, management, and

measurement—and a simple typology such as the one presented can inform organizations of the challenges that they face, as well as the strategic actions that should be considered. Thus, the typology or framework is perhaps the first step in building cohesion within and across the sector. It is only when all stakeholders have a common frame of reference that they can begin to work collectively and collaboratively toward a common goal.

More importantly, however, a typology such as the one presented in the preceding discussion allows for the complexities of water management and measurement to be more strategic. Managing water is multidimensional and complex—and the typology presented here allows for a number of factors to be considered simultaneously or in parallel. It also provides a framework from which sport organization managers and associated stakeholders can form a roadmap to potentially pave a path out of one quadrant and into a more desirable quadrant.

Third, sport can and does have much to offer in progress toward SDG 6 targets. However, one of the main challenges to improve the sport sector's progress toward SDG 6 is to consider hygiene. Many sport organizations (at least those that are popular sports as noted in the discussion above) have been fortunate to have amenities with toilets, showers, kitchens, and irrigation systems that are for the use of the facility members only—that is, they have "club rooms." However, those facilities are often locked up and unused unless the sport grounds are in use by their members. Thus, in many cases in communities in developed countries, there are more than adequate facilities for appropriate sanitation—but they are limited in their use and for members only. As noted at the beginning of this section, billions of people do not have access to basic sanitation. Sport can change this.

A more recent push in sport facility development includes building hubs where multiple sports are co-located and clustered around shared amenities such as bathrooms, showers, and catering facilities (van Noordwijk et al., 2018). Professional planning consultants are already paving the way for this to happen, based on sustainability initiatives (Otium Planning Group, 2017), and there are examples of governments around the globe who are facilitating and investing in sport hubs (City of Casey, 2020; Mount Barker District Council, 2019; The Royal Parks, 2020). In this way, multiple sports and all of their members can access the facilities in arguably a more efficient and sustainable environment. However, if sport were to consider a shared access model beyond their sport communities and to a larger community in which they reside, this would assist in achieving progress toward universal access to basic sanitation as noted in SDG 6. Thus, sport has the opportunity to make great progress toward SDG 6 in this regard. The real question is how and if such facilities can be shared more broadly and not limited merely to sport club members—and this is of particular concern for those in the Global South where there is a specific lack of access to basic sanitation facilities—and sport may provide a place for such access.

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Applying Sustainable Development Goal 6

Omar Mitchell

The National Hockey League, founded in 1917, is the second-oldest major professional team sports league in North America and represents the highest level of ice hockey in the world. It is committed to promoting sustainable business practices amongst its 32 Member Clubs, players, fans, employees, partners, and the broader hockey ecosystem by raising awareness of climate concerns and taking action to reduce environmental impact where possible.

The League set out on this journey by launching NHL Green at the 2010 Winter Classic—one of the best-known ice hockey events that is played outdoors and mirrors the elemental roots of the sport. In the *2014 NHL Sustainability Report*, Commissioner Gary Bettman acknowledged the rationale for the program:

> We believe that this effort is not only the right thing to do for the environment, but is also a core strategy for the long-term success of our League. We have a vested interest in this cause. As a business, we rely on freshwater to make our ice, on energy to fuel our operations and on healthy communities for our athletes, employees and fans to live, work and play. Moreover, to continue to stage world class outdoor hockey events like the NHL Winter Classic, NHL Heritage Classic or NHL Stadium Series, we need winter weather. (para. 4)

Over the past 10 years, NHL Green has become one of the most comprehensive, forward-thinking, and globally-recognized environmental sustainability programs in North American professional sports. The League has led the industry in activities ranging from food recovery to water restoration to tree reforestation efforts. The NHL has measured and counterbalanced its entire carbon emissions, produced two sustainability reports, and continues to engage the hockey community and fans around environmental awareness through education and advocacy. These efforts are part of the League's overall commitment to create vibrant, healthy, and equitable communities through the sport by increasing youth participation and engagement; fostering positive family experiences; promoting inclusion, positive culture and leadership; and supporting sustainable community impact.

NHL Green goes beyond just about convincing people to join an environmental stewardship effort. It is about amplifying and coordinating the considerable work that is already

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being done by Clubs and Players and ensuring that this work continues to move forward. League personnel and partners—from the ice crews to the concessionaires—help define and achieve the NHL's environmental-sustainability goals. They share in the responsibility to develop new ideas and initiatives that drive sustainability and lessen environmental impact League-wide.

19.1 Relationship to SDG 6

19.1.1 Water in the DNA of the NHL

Before many professional hockey players ever took their first stride on NHL ice, they honed their skills on the frozen lakes and ponds of North America and Europe. Our sport can trace its roots to frozen freshwater ponds, to cold climates. Major environmental challenges, such as climate change and freshwater scarcity, affect opportunities for hockey players of all ages to learn and play the game outdoors. These challenges extend beyond the roots of the game and into the *places and spaces* where hockey is played, from the pro arenas to community rinks, which typically are very resource intensive and require usage of both water to make ice sheets and energy to keep the ice cold.

Unique to the NHL, the ice-making and resurfacing process is one of the most water-intensive operations in professional sports. On average, it takes 12,000 to 15,000 gallons of water to create an NHL regulation ice sheet, which typically is kept frozen for an entire season. Once created, ice resurfacers scrape or shave the ice sheet and re-build it with a thin layer of usually hot water that freezes to create a smooth surface free of defects for the highest level of competitive play. This process may be repeated five to six times during the day on game days. Removal of ice at the end of each season also represents an important concern, particularly to ensure its removal is achieved according to local health authority and environmental code and the melted effluent is properly treated and disposed of appropriately.

An analysis undertaken by the National Hockey League (2014) shows that primary water uses at NHL arenas include:

1   Ice Making
2   Cooling Towers for HVAC-R systems
3   Food Services
4   Indoor Plumbing fixtures in arena
5   Exterior Landscaping

Together, these uses account for the estimated 321 million gallons of water—equivalent to about 500 Olympic-sized swimming pools—that are used across the League during a season.

While not part of the NHL's material scope, the approximately 4,500 community rinks across North America also share similar water consumption patterns, particularly focused on ice making and HVAC-R cooling tower-type systems. These facilities typically do not employ the sophisticated water filtration systems found at the pro rinks, and due to their design and construction, as well as expertise of operations teams at those facilities, may use more water in their operations.

The importance of water at all levels of the game reinforces why the League continues to explore ways to reduce usage and consumption, advance innovations that will help to reduce impact across the broader hockey community and ultimately educate around these concerns to all hockey stakeholders.

19.2 Water efficient operations in arenas: internal impacts

The first step toward improving water efficiency was tracking and analyzing current water use. To understand consumption patterns, the League initially developed and implemented NHL Metrics, an online tool designed for all teams' venues to track and analyze data specific to energy usage and water consumption and waste output. NHL Metrics was implemented to encourage a behavioral change—per the old dictum: you can't impact what you don't measure—by increasing awareness of the resources used and the financial costs incurred.

19.2.1 Indoor operations

Arenas that use water efficiently can increase overall utility efficiency and reduce costs through lower fees, less sewage volume, and reductions in energy and chemical use.

To achieve this, venue operators have adopted best practices like doing water audits in their venue or installing additional metering on water systems, thereby providing the ability to monitor and digest data at a more granular level, and offering managers insights that inform water-reduction strategies and projects.

Reducing indoor potable-water consumption is a main priority for water-conservation efforts. Building upgrades, such as water-efficient fixtures, flow restrictors on existing fixtures, and electronic sensors all contribute to decreasing water use. Nearly every building has water efficient technologies to reduce water usage; more than 80% of arenas use touchless water faucet fixtures in restrooms, 65% use touchless urinals, and 55% use touchless toilets. Nearly one-half of NHL arenas use state-of-the-art systems to purify the water used to create ice sheets, and about one-third of our arenas use advanced technologies to maintain their ice sheets efficiently. Some facilities have advanced their efforts by installing waterless urinals, which reduces not only a substantial amount of water used but also water-discharge and maintenance costs. The feasibility of these types of installations is typically dependent on the ease of the retrofit and the age of existing plumbing infrastructure. Concessionaires and operations staffs do their part to mitigate water use at all NHL arenas by promoting operational cleaning processes that use less water and procuring water-saving equipment and appliances.

Because ice creation and maintenance is unique to hockey rinks, some NHL arenas now use more water conserving technologies and systems to purify the water used in ice creation. Reverse osmosis (RO) systems are more commonly used throughout the League nowadays rather than older generation deionized (DI) water systems, which used more water during the purification process.

19.2.2 Outdoor operations

Cooling towers as part of HVAC systems are typically responsible for significant water consumption in NHL arenas, especially when considering the colder in-arena temperatures the League stipulates for game-play conditions. Nearly three-quarters of NHL arenas that have cooling towers have developed and implemented a water management plan that addresses all aspects of proper maintenance and identifies potential opportunities for reducing uncontrolled water losses. Facilities can additionally achieve water savings outside through drought-resistant landscaping practices. Plus, a few NHL arenas are contemplating recycled wastewater and rainwater harvesting systems as part of their overall water-conservation strategies. One such example is deployed at the newest arena in the League—Climate Pledge Arena, home of the Seattle Kraken. Among other considerations, facility managers weigh both the required initial capital investment and the total savings in annual water bills when making decisions on these types of retrofits.

19.3 Education and awareness: external fan engaging impacts

While a major focus of the NHL's water efforts focused on venue operations and innovations, key aspect of initiating the Water Restoration initiative was the necessity to track water consumption in NHL arenas. This tracking was considered "foundational" to the effort in that it provided credibility to this work, and a complement to the more fan facing efforts of the program. As part of its commitment to maintaining healthy ecosystems that foster recreation and youth participation in sport, NHL Green introduced the *NHL Water Restoration Initiative* in 2011, an effort focused on raising awareness of the material impact of water in the sport of hockey (National Hockey League, 2011). It was one of the first environmental stewardship programs undertaken by the League that showcased water's material impact on the game. A key component of that effort was *Gallons for Goals*, a season-long commitment addressing the issue of freshwater scarcity by pledging to restore 1,000 gallons of water to a critically dewatered river for every goal scored during the 2011–12 regular season.

With the help of Bonneville Environmental Foundation's (BEF) Water Restoration Certificate (WRC) Program, the NHL helped to restore streamflow to Oregon's Deschutes River. BEF created the WRCs in 2009 to provide an economic incentive for water rights holders to contribute to restoration efforts. BEF's WRC program was the first national-level, market-based solution that restores flow to critically dewatered rivers and deteriorating fresh-water resources in the United States to ensure such streams become healthy and flowing again.

From the 2014–15 season, the NHL supported BEF's *Change the Course* campaign, which was designed to motivate people to pledge to conserve water while promising that every pledge made returned 1,000 gallons of water to the Colorado River Basin (Bonneville Environmental Foundation, 2011).

The most important aspect of the Gallons for Goals initiative was to raise consciousness about water scarcity issues and to encourage water conservation among its enormous fan base, employees, players, and its teams across North America. Fans could track the initiative's progress on NHL.com/green; they could sign up via a text-to-message platform to receive alerts on activities to reduce water consumption in their daily own lives. In future seasons, the League leveraged its social media platforms to educate around water conservation to its fans and followers.

The NHL continued to expand awareness around its water stewardship work by focusing on counterbalancing water consumption at important games and events during the season. The entire water footprint of the 2011 Stanley Cup Final series was counterbalanced by tracking consumption at Vancouver's Rogers Arena and Boston's TD Garden throughout the seven-game series. The 2012 Bridgestone NHL Winter Classic in Philadelphia marked the first-ever water-balanced Winter Classic in League history. To mark the 2012 Stanley Cup playoffs, the NHL and NBC (the League's US broadcast rights partner) partnered with the City of New York to erect a giant Stanley Cup that dispensed New York City tap water in Times Square in an effort to promote water consumption and cleanliness to millions of New York City dwellers.

Subsequent NHL Green Month-themed games across the League in the mid 2010s had their water footprint counterbalanced as part of the effort as well. NHL Clubs also advanced their own programs to raise awareness in their local markets and amongst their fans. Two such examples included the Anaheim Ducks and the Minnesota Wild, which partnered with BEF to counter their water footprint for Club events and games through the entire season.

As a League, we are uniquely positioned to promote the environmental message. One of our great assets is our visibility. Millions visit NHL.com, NHL Network, and the many other high profile digital and social platforms each year throughout the League. In conjunction with our

players and Clubs, who have enormous and passionate followings of their own, we can impress upon millions of fans just how important these environmental issues are.

19.4 Future steps

The NHL is currently in the midst of building out an environmental justice strategy that focuses on the connection between environmental and social sustainability, with a focus on frontline or underserved communities. Climate and environmental concerns disproportionately impact these under-indexed and marginalized groups, particularly those representing low-income and BIPOC (Black and Indigenous people of color), who have historically been discriminated against and suffered from segregation and inequity policies. These groups:

- are more likely to be exposed to polluted air, soil, and water and elevated temperatures;
- are more impacted by environmental challenges like extreme weather, more prone to destruction due to climate change, and are at greater risk of the impacts of these events like displacement;
- have poor access to critical health, social services, proper nutrition, and physical literacy needs and are more vulnerable to disease and illness; and
- are at greater risk from energy and food price shocks.

As Gina McCarthy, the US Environmental Protection Agency (EPA) Administrator from 2013 to 2017 once opined in an editorial on NHL.com:

> When we conserve water, fight climate change, and build a sustainable future—we're not just protecting our families; we're also boosting economic growth. When cities invest in updating old water systems to include "green" infrastructure, our water is cleaner, our communities are more resilient to climate impacts, and people and businesses save energy and money—it's a win–win–win.

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Part VII

Sustainable Development Goal 7: affordable and clean energy

An overview of Sustainable Development Goal 7

Sheila N. Nguyen and Greg Dingle

Within the framework of *Transforming Our World: The 2030 Agenda for Sustainable Development*, SDG 7 is to "ensure access to affordable, reliable, sustainable and modern energy for all" (General Assembly, 2015, p. 19). As is noted by the United Nations, access to "affordable, reliable and sustainable energy is crucial to achieving many of the Sustainable Development Goals—from poverty eradication via advancements in health, education, water supply, and industrialization to mitigating climate change" (United Nations Statistics Division, 2020). However, people's access to energy varies widely across nations, and current progress falls short of what is needed to achieve SDG 7. Furthermore, some key features of human access to energy underpin the rationale for SDG 7. First, an increasing proportion of the global population has gained access to electricity, yet 1.1 billion people still live without it. Second, over 40% of the world's population still rely on polluting and unhealthy fuels for cooking. Third, renewable energy use grew modestly between 2000 and 2012, yet renewables' share of energy grew at an annual rate of 4% between 2010 and 2012. Fourth, global economic growth is decoupling from energy use, but not quickly enough (United Nations Statistics Division, 2020). Together, these indicators reflect a broad-based rationale for SDG 7, and the urgency of achieving sustainable, reliable, and affordable energy for all people.

It is also worth noting that SDG 7 is linked to other SDGs in several ways (Nurunnabi et al., 2020). These include eradicating poverty (SDG 1), promoting clean industry (SDG 9), and reducing GHG emissions (SDG 14). Nurunnabi et al. (2020) note the significance attached to energy access, citing former UN Secretary-General Ban Ki-moon, who argued that "energy is the golden thread" that links economic growth, social equity, and environmental sustainability (Ki-moon & United Nations, 2012; United Nations, 2012).

20.1 Targets

Consistent with the "goals–oriented approach to sustainability" of the SDGs (Rosenberg, 2017, p. 56), a range of targets and accompanying compliance indicators have been developed for SDG 7. These targets are listed in Table 20.1.

Table 20.1 Targets of Sustainable Development Goal 7

7.1	By 2030, ensure universal access to affordable, reliable and modern energy services
7.2	By 2030, increase substantially the share of renewable energy in the global energy mix
7.3	By 2030, double the global rate of improvement in energy efficiency
7.a	By 2030, enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology, and promote investment in energy infrastructure and clean energy technology
7.b	By 2030, expand infrastructure and upgrade technology for supplying modern and sustainable energy services for all in developing countries, in particular least developed countries, small island developing States and landlocked developing countries, in accordance with their respective programmes of support

Source: General Assembly (2015).

20.2 Theoretical foundations

Although in recent years the related field of Sport for Development (SfD) has led to an "influx of theoretical and empirical studies across numerous disciplines of sport" (Schulenkorf et al., 2016, p. 22), at this point, there is little evidence that the same is yet true for research pertaining to the SDGs more generally, or SDG 7 specifically. A search of the SPORTDiscus research database, which as Schulenkorf et al. (2016) notes, provides a "sport-specific representation of published material" (p. 24), revealed only one peer-reviewed journal article specifically focused on the SDGs and sport (i.e., Lindsey & Darby, 2019), and barely a handful of articles contemplating the SDGs and sport as part of wider research focus. Furthermore, none focused on SDG 7. Of these papers, no theoretical perspectives were applied. When the literature search was expanded to include the SCOPUS research database, which "covers a broad range of social sciences literature" (Schulenkorf et al., 2016, p. 24), three additional articles were revealed (i.e., Dai & Menhas, 2020; Ličen & Jedlicka, 2020; Sapkota & Neupane, 2021), although again, theoretical perspectives were absent, and none focused on SDG 7.

Consequently, the existing research literature does not currently offer guidance on how theory has or might be used to illuminate the challenges or opportunities associated with SDG 7 and sport. However, clues to how theoretical perspectives might be applied in the future by scholars examining SDG 7 and sport may be evident in the SfD research literature. For example, as Schulenkorf et al. (2016) noted, critical development perspective, human capital development, neo-liberalism, and multilevel analysis are examples of theoretical perspectives relevant to SfD research, and so depending on the research problem, they may offer some analytical value to scholars. Furthermore, if research literature focused on SDG 7, but not related to sport, is considered, then Nurunnabi et al.'s (2020) "energy efficiency" framework may be relevant, while the "theory of distributive justice" (Munro et al., 2017) may also offer some analytical value.

20.3 Sport as a change agent for our clean energy future

SDG 7 is focused on the need for cleaner, more efficient, and accessible energy through advancements in technology and infrastructure that will allow the flow of development and connection to be distributed more widely and equitably. With the innovations in energy models (Burger & Luke, 2017), the distribution of clean energy is ever more possible, and sport can play a valuable role in the generation and distribution of energy.

Sport has an incredible opportunity to actively advance progress on SDG 7 as it has the means, the infrastructural advantages, and the position in systems where levers are engaged across its vast stakeholder network of suppliers, partners, cities, and other relevant energy change agents. As pointed out, collaboration on efforts in energy management "requires participation from the operations and other departments; sponsors; vendors and concessionaires; federal, state and local government; utilities; allied organizations; leagues and conferences; management companies; designers; athletes; and fans" (National Institute of Building Sciences & Green Sports Alliance, 2017). Beyond the sport network, changes of such magnitude require the contributions of communities, government, and industry; sport can advance the progress of such a challenge on a grand scale, as evidenced other areas of systematic social change (e.g., gender and racial equity, accessibility; Ekholm, 2016; Field & Kidd, 2013; Green, 2008; Kaufman & Wolff, 2010; Spajj, 2019).

Due to the interconnectedness of the essential change agents and the nature of the SDG 7 targets, frameworks that allow the researcher and industry to understand the behaviors of the totality are required to actively devise strategies for optimal outcomes (i.e., the SDG targets; Ossimitz, 2000; Richmond, 1994).

Currently, a majority of the relevant research is focused on specific issues such as methods for energy efficiencies (Artuso & Santiangeli, 2008; Schmidt et al., 2015; Trianti-Stourna et al., 1998), use of renewable energy sources (Park & Kwon, 2018), communication of use of renewable energy (e.g., Chard & Mallen, 2013; Mallen et al., 2013), and modeling energy costs within sport stadia (e.g., Beusker et al., 2012; Boussabaine, 2001; Boussabaine et al., 1999). Park and Kwon (2018) explored a "renewable electricity power generation system" that would efficiently electrify the venue. These research studies mainly focused on singular issues or situations in isolation without due consideration of how this has structural and systemic flow on effects. In other words, energy in sport research is concerned about levels of use, efficiency, or effectiveness at a particular site versus how energy can be used as a means to create larger energy opportunities for the site and its communities to address issues such as energy inequality, access issues, and renewable energy market acceleration. Much of the aforementioned researchers have explored the topic of energy in sport as case studies and content analyses of particular teams, scenarios, and organizations. These approaches commonly share a singular unit of analysis of approach, which leaves a gap of research where relationships, moderating and mediating variables, directionality, and system interests (e.g., predictors and outcomes) could be explored.

The existing research has neglected to explore energy to reflect the sport network's complexity; it is complex in several ways including the possible ownership models, the way operations is approached, and the relationships that "[lead] to multiple opportunities to develop champions, capture value, and strengthen relationships around a common mission" (National Institute of Building Sciences & Green Sports Alliance, 2017). To achieve the SDG 7 targets, collaboration across design, construction, and operations (as well as beyond the site) must occur, and this is why a *systems approach* may be necessary to understand key relationships, motivators, flow, and impact in the sport industry's system.

20.4 A systems approach makes for light work

Historically, the sport industry has leaned on partners from "government, manufacturing, vendors, academia, and others, further develop existing technology, identify new technology, and widely deploy existing technology" (National Institute of Building Sciences & Green Sports Alliance, 2017, p. 2), which have led to the development of innovation and practices that have improved the way we manage energy and the sources and use of energy (e.g., lighting,

refrigeration, plumbing, field maintenance, measurement, verification tools). In the same way, natural resource management requires a systemic and multi-stakeholder engagement that will allow researchers to understand the totality of the impact of generation, distribution, and consumption relationships to address SDG 7.

For sport to play its most impactful role, sport researchers must explore both *the forest* and *the trees* (Richmond, 1994). It is proposed that the following definition of systems thinking is best used to frame the sport and SDG 7 relationship:

> Systems thinking is a set of synergistic analytic skills used to improve the capability of identifying and understanding systems, predicting their behaviors, and devising modifications to them in order to produce desired effects. These skills work together as a system. (Arnold & Wade, 2015, p. 675)

Arnold and Wade (2015) unpacked the existing ways that systems thinking has been defined and compared what elements made up the overlapping understanding. Through testing it against the "systems test," which evaluates the definition on its inclusion of elements, interconnections, and a goal or function (Meadows, 2008); their aim is that the definition will be used in a myriad of disciplines that "require the use of critical systems understanding and intuition" (Arnold & Wade, 2015, p. 678).

Beyond qualifying the use of systems approach in evaluating sport in its engagement with clean energy, SDG 7 targets are focused on three phases of a system: sourcing and generation, use and uptake, and distribution of clean energy. The need to evaluate three moving phases in a process requires the systems view of nodes of influence, change making relationships, flow, and distribution challenges and opportunities (General Assembly, 2015). The systems view will provide an aerial overview of the system in action, clarify where and what are the most influential moderators and mediators, what might create energy flow challenges, and where opportunities to maximize possible distribution are located.

Using a systems thinking approach, Table 20.2 outlines key research areas to explore as they related to the SDG 7 targets.

20.5 Connection to sport

As with other systemic social challenges, sport can actively accelerate the respective conversations and actions through leveraging its mass appealing, wide reaching, and culturally important position to promote and enhance awareness of the challenges the SDGs address. Beyond awareness raising, sport can engage in systems approach change. Sport can effectively contribute to the achievement of SDG 7 through its ability to be a nexus for community benefit. What is unique to sport is the access to infrastructure, indoor and outdoor space, and in certain circumstances, its treatment as a versatile public good (e.g., as major disaster relief centers).

In the same way, sport can actively engage the clean energy issue as a *gensumer*, an energy generator and an energy consumer (Wilson et al., 2020). Sport stadia have viable and often abundant real estate such as their rooftops, surrounding land, carpark covers, and other space that can be used for solar and wind power infrastructure. Further, sport facilities have access to good connections to the electricity grid, three-phase power (i.e., better for power quality and stability in the electricity network), and room for batteries, if required. There are now numerous examples of the gensumer concept, especially from a range of professional sports venues in North America that have installed renewable energy infrastructure. These include MLB teams such as the Boston Red Sox, Arizona Diamondbacks, and St. Louis Cardinals installing

Table 20.2 Key research areas to explore as they relate to the Sustainable Development Goal 7 targets

7.1	Identify the key connections between parts of a system and what role can sport play in facilitating those key connections.
	Understand the feedback loops that challenge the advancement of accessibility to affordable, reliable, and modern energy services and explore ways that sport can act as a circuit breaker.
	What is the system structure that will generate the most optimal environment for universal access and where can sport participate?
7.2	What is the current energy mix and the system in which sport consumes and generates energy?
	What are the motivators, levers, moderators for systems change of actors to take up more renewable energy?
	Who are the key influencers in the systems structure in behavior change?
7.3	What technological blocks are slowing the advancement of energy technology and innovation?
	What are the technological accelerators which progress the development of energy efficient methods, technology and innovation?
	What sport technologies can act as testing grounds for energy innovation?
7.a	Which sport system nodes and mechanisms are most influential to encourage international cooperation in energy advancements?
	Which sport system nodes and mechanisms are least influential to encourage international cooperation in energy advancements?
	What are the antecedents, outcomes, moderators, and mediators of effective international cooperative relationships?
7.b	Which energy models can sport engage to generate and distribute technology equitably?
	What sport policy tools and development mechanisms will expedite the clean energy distribution for developing countries?
	Which sport partnerships and models will engage supply chain, government, and community actors in a systematic deployment of clean energy to community sport and energy in developing countries?

solar power arrays at their stadiums as early as 2008 (Casey, 2020a, 2020bCasey 2020). In addition, in 2010, the Pocono Raceway in Pennsylvania, part of the NASCAR circuit, installed 40,000 solar panels in its parking lot.

Furthermore, professional NFL teams have installed a range of renewable energy-generating infrastructure. These include the Washington Football Team installing solar panels in 2011, the Philadelphia Eagles installing solar arrays and wind power systems in 2010, and the Buffalo Bills installing micro wind turbines around their stadium in 2011 (Casey, 2020a, 2020bCasey 2020). Since 2015, almost a third of NFL teams have "played or trained at facilities with on-site solar assets, totaling 8,000 solar PV panels, generating more than 10 million kilowatt-hours (kWh) per year" (National Institute of Building Sciences & Green Sports Alliance, 2017).

The sport sector's contribution to the achievement of SDG 7 is also reflected in other examples. For instance, the Staples Center in Los Angeles, a multipurpose venue that is home to four professional sport teams (the NBA's Lakers and Clippers, the NHL's Kings, and the WNBA's Sparks), has installed over 1,700 rooftop solar panels and banks of zero-emission fuel cells (Casey, 2020a, 2020b). In addition to onsite renewable energy generation strategies, in 2014, the NHL partnered with an energy company to reduce energy consumption at its venues, and purchase renewable energy and carbon offsets for residual energy–related emissions (Meehan, 2020). Although not explicitly linked by these sport organizations to achieving either SDG 7, or the preceding Millennium Development Goals, these examples nevertheless illustrate sport's capacity to contribute to SDG 7.

In regards to generation and consumption at a systems level, sport is leading by example. For instance, the electric car racing series, Formula E (Formula E Group, 2020), the electric SUV racing series, Extreme E (extreme-e.com, 2020a), and the electric boating series, E1 series (e1series.com, 2020), all are making inroads to advance the rate of improved energy efficiency across mobility options. Their strategies include encouraging research and development (SDG 7.3), enhancing international cooperation to facilitate access to clean energy research and technology through discovery sharing, hosting a research laboratory composed of leading scientists of their globally linked network (SDG 7.a; extreme-e.com, 2020b), and expanding infrastructure and upgrading technology through physical infrastructure investments (e.g., installation of electric car charging stations; SDG 7.b).

20.6 Sport as a clean energy champion

The key characteristics of sport in energy systems, listed above, are great for the "distributed energy supply" that are part of models developed with the continued emergence of smart technology and virtual platforms for power-sharing (Nosratabadi et al., 2017). These sporting facilities, either at the community or professional level, typically present with all the critical ingredients for being prime actors for community power models like virtual power plants (VPPs; Dabbagh & Sheikh-El-Eslami, 2015). Newly formed virtual energy networks (VENs) and reputable firms are willing to fund and operate all of these assets, and sport sits in position to be one of the most active and best placed sectors to participate, play, and power the cost-effective clean energy space.

These models are equitable in that distribution can be shared wide and far, with even community clubs as an active node in the system. Community clubs have extended periods of low power use where energy can be supplied to other "virtual consumers" (e.g., local businesses, residential, other municipal buildings) through innovating power trading models that don't rely on dwindling feed-in tariffs. And, lastly, sport can directly benefit from cost savings through clean energy forward thinking models.

How can sport address the SDG 7 targets beyond purely promoting the need to take up clean energy to protect our future (General Assembly, 2015)? Table 20.3 provides an overview of responses to each target, as reflected in the aforementioned commentary.

Table 20.3 Responses to Sustainable Development Goal 7 targets

7.1	With the help of sport acting as a generator in new renewable energy models, sport can act as a facilitator for affordable, reliable and modern energy services. The development of sport facilities should require minimum clean energy inclusion.
7.2	Using the expansive real estate of sport grounds, facilities, and spaces, the renewable energy mix can expand its list of possible generators to help increase the global share of clean energy.
7.3	The uptake of energy efficiency decisions across sport is becoming standard. Pushing the boundaries, sport is acting as a laboratory to test and improve energy efficient and energy forward innovations.
7.a	Sport innovation laboratories are connecting representatives of international community, government, and industry actors who are investing, exploring, and developing clean energy research and technology at accelerating rates.
7.b	The "distributed energy" models require the contribution of particular types of stakeholders, and the sport industry has the right mix as well as has long-standing relationships with developing countries, through their sport development efforts, to effectively address this target.

20.7 Conclusion

As was reported this year through the United Nations Secretary-General, Antonio Guterres, the world is making good progress on SDG 7, with access to electricity rising and energy efficiencies improving (United Nations Economic and Social Council, 2020). The key deficit is still in connecting the world more equitably and distributing technological advancements more widely. Sport can contribute to the areas of need by leveraging and advancing their already widely connected and geographically far reaching networks to accelerate the value and benefits of sport as a gensumer. To best understand the vast challenges and opportunities of sport's role in addressing SDG 7, the authors propose that a systems approach is the most optimal lens for reflecting the complexity of the sport system as well as to capitalize on the opportunities where they exist. The authors identified possible SDG 7 research questions (Table 20.1) that could be addressed within sport and how the sport community could respond to the SDG 7 targets (Table 20.2). In conclusion, SDG 7 is focused on the need for cleaner, more efficient, and accessible energy through advancements in technology and infrastructure that will allow the flow of development and connection to be distributed more widely and equitably, and the authors have demonstrated that sport can play a valuable role in progressing its targets.

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Measuring Sustainable Development Goal 7

Cheryl Mallen and Bob Mallen

This chapter examines the progress made by sport facilities around the world regarding the United Nations Sustainable Development Goal 7. This goal involves generating affordable, reliable, and sustainable energy options for all, as well as reporting on and evaluating renewable energy options (United Nations Economic and Social Council, 2019). The chapter outlines: (i) renewable energy options; (ii) advances in renewable energy at sport facilities; (iii) community access to energy generated by sport facilities; (iv) measuring, reporting, and evaluating advances in renewable energy at sport facilities, including discussions concerning the academic literature; and (v) a vision of the potential future.

21.1 Renewable energy options

There are multiple options for the use of renewable energy that can be utilized to meet SDG 7. Such options are considered effective in minimizing nuclear energy and fossil fuel use (Park & Pobil, 2018). Examples presented include photovoltaic (PV) or solar energy, wind energy, hydroelectric energy, geothermal energy, and biomass energy, along with renewable energy certificates. To begin, solar PV systems absorb the sun's radiation via solar PV panels and convert it into electricity. This energy is generated by allowing photons, or particles of light, to "knock" electrons loose from atoms, creating electricity (Climate Reality Project, 2017). Next, wind energy involves the use of turbines as foundational structures to support a rotor blade system, and as the wind turns that blades around a rotor, it spins a generator and creates electricity (Konstantinidis & Botsaris, 2016; Office of Energy Efficiency & Renewable Energy, n.d.). Hydroelectric energy uses water sources, such as waterfalls or tides, to generate electricity. Similar to wind energy generation, the water "rotates blades of a turbine which then spins a generator that converts the mechanical energy of the spinning turbine into electrical energy" (USGS, n.d., para. 1). Meanwhile, underground geological formations that contain extremely hot water can be used to generate geothermal power. In this instance, steam from underground hot water can "drive generators and produce electricity" (NREL, n.d., para. 3). And finally, biomass energy involves the use of organic matter as fuel, such as algae, that is fermented, heated, or burned to generate electrical fuel (Natural Resources Canada, n.d.).

Interestingly, a renewable energy certificate (REC), or offset, allows individuals, groups, or organizations to counterbalance their fossil fuel energy use by funding the development of renewable energy (Kelly, 2015). Certificates provided are calculated based on the cost of every "one megawatt-hour (MWh) of electricity [that] is generated and delivered to the electricity grid from a renewable energy resource" (USEPA, n.d., para. 1). So, you can determine your fossil fuel energy use and offset such use by buying RECs that fund energy guaranteed to have been produced from a renewable source that is then sent to the power grid (Kelly, 2015).

For over a decade, the list of sport facilities that have been involved with a variety of renewable energy strategies to modernize and meet their power requirements with sustainable power options has been growing.

21.2 Renewable energy at sport facilities

Our examples of sport facilities utilizing renewables begin with solar power at Progressive Field (Cleveland, USA) with 42 rooftop solar panels making an 8.4-kW system that powers 400 televisions at the venue with plans to advance the system soon (Meehan, 2019). Next, Estádio do Maracanã (Rio de Janeiro, Brazil) has 2,500 square meters of solar panels on the roof for a 400-kW PV system that generates approximately 3% of the sport facility's power (Tsagas, 2014). Townsville RSL Stadium (Townsville, Australia) has approximately 1,800 solar panels positioned on the roof for a 348-KWp system that generates power for "up to half the load of the stadium" (Townsville Queensland Solar City, n.d., para. 3). Brabourne Stadium (Mumbai, India) has the first solar powered cricket stadium, with an 820-kW system that includes 2280 PV solar panels (Ashar, 2018). Kaohsiung National Stadium (Kaohsiung, Taiwan) has 8,844 solar panels in a 14,155 square meter system on the roof for 1.14 GWh per year to fully power the facility (Pham, 2014). Also, Golden 1 Center (Sacramento, USA) meets 100% of its energy requirements through a solar energy grid (Golden1center.com, n.d.).

There is also a growing trend of geothermal energy use, such as at Challenge Stadium (Perth, Australia) that has a geothermal heat exchange system (Oldmeadow & Marinova, 2011). This system involves hot water resourced from 700 to 1,000 meters below ground level that is used to heat the swimming pool water (Medien, 2010). In Iceland, geothermal wells have been positioned underneath football (soccer) pitches to provide heat (Richter, 2016). In the USA, a geothermal heat system has been placed under several fields at the University of Notre Dame (Indiana, USA; Fosmoe, 2017). Additionally, a geothermal heat exchange system aids in the development and maintenance of ice for the curling rink at the Grant Harvey Sports Centre (New Brunswick, Canada; McNeil, 2012; Watson, 2014).

Hybrid renewable energy systems have also been utilized at sport facilities. For instance, Allianz Riviera (Nice, France) combines a geothermal cooling system with a solar PV power plant for a 1342-kWp system (Vinci Construction, n.d.). Amsterdam ArenA (Amsterdam, Netherlands) has 4,200 solar panels combined with one wind turbine for "930,000 kWh of electricity, about 10% of current consumption" (Panstadia & Arena Management, 2014, para. 1). Also, a combination of solar and wind renewable energy will power the 2022 Olympic facilities in Beijing, China (China.org.on, 2019).

Other renewable energy strategies have been used to meet electrical demands at sport facilities. Examples include Rexall Place (Edmonton, Canada), which employs heat released from ammonia in the cooling compressors that is recovered to heat water for the Zamboni ice machine (Chard & Mallen, 2013). AVIVA Stadium (Dublin, Ireland) has a heat recovery system whereby the "pipe work from the cooling circuit on the generators 'absorbs' the heat produced

by the generator for use in heating the water supply for bathrooms, kitchens [and the] under-pitch heating system" (Benfield, 2010, para. 7). Sport facilities, and their associated professional teams, have purchased renewable energy certificates. For instance, Citizens Bank Park (Philadelphia, USA) has purchased certified wind and solar renewable energy certificates annually "matching 100% of their electricity usage" (Major League Baseball, 2012). Captivatingly, passive solar energy is utilized at Stadio Franco (Rome, Italy) with a roof consisting of "an outer zinc-titanium membrane shell featuring one layer covered by solar PV panels. A second translucent layer …allow[s] 80% of light to pass through it while preventing water from hitting stadium patrons" (Designcurial.com, 2009, para. 3). Additionally, the 2022 FIFA Men's World Cup in Qatar is testing the use of plastic solar panels positioned on the street and sidewalk to provide electrical requirements for the sport facility and cooling sidewalks and roads in the area surrounding the facility (Todd, 2018).

The examples above illustrate a trend toward advancing the use of renewable energy at sport facilities. Efforts have also expanded to increase cooperation to share electricity within communities. Examples of such efforts will now be outlined.

21.2.1 Community access to energy generated by sport facilities

The UN has reported that approximately 840 million people worldwide do not have access to a secure supply of electricity (United Nations Economic and Social Council, 2019). SDG 7 promotes the provision of energy access to communities worldwide and sport facilities have illustrated a movement to support such community energy demands. Such facilities are key to modernizing the energy infrastructure, as sport facilities have been built around the world and their energy demands can be sporadic based on a mix of high energy demands on sport event days and low energy demands on non-event days. This fluctuation of energy demand offers an opportunity to feed community energy grids, or to create such a grid for community energy use during low energy demand periods.

Examples of sport facility and community energy cooperation include that National Stadium (Kaohsiung, Taiwan) has 8,844 rooftop solar panels providing 1.14 GWh of electricity per year and offers approximately 80% of the energy requirements for the local area (the number of households in the local area could not be found; Jordana, 2013). Stade de Suisse (Bern, Switzerland) has over 7,000 rooftop solar panels that generate 1350 kWp to service both the sport facility and 325 households per year, saving 567 tons of CO_2 per year since 2007 (Tritec, n.d.). The Indianapolis Motor Speedway (Indiana, USA) that has over 39,000 solar panels/modules in a 25-acre solar farm and the 9.6 MW system, along with their partnership with the Indianapolis Power & Light Company, powers the speedway and 2,700 local homes (Inside Indiana Business, 2015). Golden 1 Center's (Sacramento, USA) solar grid supports the facility's energy requirements and also feeds approximately 600-homes worth of energy to the regional power demands (Golden1Center.com, n.d.). And finally, Amsterdam ArenA (Amsterdam, Netherlands) utilizes 4,200 rooftop solar panels and an innovative battery program to store the energy for stadium and community use (Edie Newsroom, 2018).

The examples above illustrate that sport facilities have an awareness of renewable energy options and that a trend in utilizing such options has begun, and sport facilities are starting to cooperate to aid community access to reliable energy resources. Next, we examine academic literature and the diffusion of knowledge concerning measuring, reporting, and evaluating the advances.

21.2.2 Measuring, reporting, and evaluating advances in renewable energy at sport facilities

There is a growing level of peer-reviewed academic literature on sport facilities and sustainability; however, limited literature provides insights specifically on sport facilities and renewable energy. Four key manuscripts were found but none specifically examined how sport is meeting SDG 7. To begin, Artuso and Santangeli (2008) characterized sport facility energy needs as unique and proposed "a tool to provide a preliminary estimation of the power and energy required" (p. 3182) for a sport facility. Their work utilized the sport center case of Studio Brusa Pasquè (Dubai) and offered an assessment that consisted of an energy needs assessment, an overview of the local energy options available, and a discussion on balancing energy for the sport center. Mallen and Chard (2012) provided a vision of the future whereby Canadian sport facility sustainability was at an advanced level of success. Also, Chard and Mallen (2013) provided an audit of website communication with stakeholders on renewable energy at major Canadian sport facilities. Conclusions indicated that a trend to transition to renewable energy was underway at the primary stage of development—that communications highlighted several small renewable initiatives and noted that comparability was difficult due to a lack of disclosure. And finally, Park and Kwon (2018) utilized simulation software to propose "possible solutions of renewable electrical power generation systems for a large stadium" (p. 171).

No academic literature was found to examine barriers that may exist related to adapting to renewable energy strategies. Such barriers include the local and structural capacity of a sport facility to integrate renewable energy strategies. The local capacity (or local grid capacity) is the upper limit of what the local electrical grid can support, meaning if a facility wanted to install a renewable energy system but the grid could not handle the extra energy it would be considered "constrained" until the grid was improved to allow for the added energy. If this is not properly managed, it could result in serious infrastructure damage. Structural capacity is limited by the age of the facility. An additional consideration is the orientation of available space for a renewable energy strategy. For instance, solar PV panels should face the sun as directly as possible, and facing north in the northern hemisphere would greatly reduce potential energy generation. Next, the structure must be engineered to support the additional load. Otherwise, the structure could collapse. In the summer of 2019, AFAS Stadion in Alkmaar, Netherlands, sustained a partial stadium roof collapse from the weight of 1,700 PV solar panels that were installed in 2015; it was subsequently discovered the install was not properly inspected (Fraser, 2019). Much learning is needed to move toward a vision of sport facilities meeting SDG 7.

Overall, there is a noted lack of academic literature examining sport facilities and renewable energy, including the consistency of measurement, along with evaluation and reporting strategies. Such consistency is necessary to express knowledge as well as for the purpose of comparability. Currently, sport facility data on renewable energy systems at sport facilities are generally published when the facility is commissioned or about to be converted to renewables. This type of communication usually entails the expected size of the system (such as the number of solar PV panels or the square footage of panels), energy to be produced (such as daily energy or annual energy output), and the CO_2 to be offset (without including how this has been calculated or predicted). Few sport facilities report their renewable energy generation with regular updates that offer proven evaluation records with consistent reporting processes conducive to comparability. Some website reports indicate the state of renewable energy. For instance, Lincoln Financial Field (Philadelphia, USA) recently removed their wind turbines after eight years of service. They were removed for both repairs and to "rethink whether to reinstall them" (McCrone, 2019, para. 4). The facility parking lots currently have approximately

11,000 PV solar panels providing power, and the professional team that plays out of the facility buys RECs to offset their impacts (McCrone, 2019). This type of incident indicates more needs to be understood about the correct mix of renewable systems for a particular sport facility.

A paucity of literature hinders learning with respect to measuring, evaluating, and reporting on areas such as converting sport facilities to renewable energy, as well as indicators of success, barriers, and best practices. Sport facilities must seek to advance their communication concerning measurement, evaluations, and reports as part of the solution to advance renewable energy and meeting the SDG 7.

In this context, practitioners and researchers are needed to advance three key measuring, reporting, and evaluation indicators that, when used simultaneously, can aid comparability between sport facilities and understandings concerning the success of renewable energy systems. The first involves stating a percentage value of facility energy being utilized. For example, sport facilities can state: 15% facility power comes from solar PV, 10% from wind, with a 20% energy reduction in total energy needs from a geothermal ground loop, and 55% from the grid as normal. The second involves facilities stating their energy usage (in kWh per month and per year) before and after renewable energy upgrades, as well as the total input power from all connected power sources (including the grid). The third involves stating the savings. This involves both the cost savings from a renewable power system, as well as the energy savings. The combination of these three indicators allows for easy and straightforward comparisons between various types of renewable energy projects—regardless of their size. And in particular, comparable data can illustrate how large and small renewable energy systems work under real world conditions over time. Further, a centralized database of these indicators would be an invaluable tool for learning between sport facilities as well as energy designers worldwide. Comparable data are needed to improve the balancing act between renewable and conventional energy sources and can be expanded to include understandings of policy, responsibility, roles, and responses. Both practitioners and researchers are needed to advance the indicators and learning from such data, particularly to overcome potential barriers.

21.2.3 A vision of the future on how sport facilities can meet SDG 7

A vision of the future concerning sport facilities and renewable energy involves advancing the current trend of two primary elements. First, a vision of sport facilities having 50% of its energy demands worldwide utilizing renewable energy is proposed. This places sport in a leadership position with respect to facilities adapting to utilize renewable energy and can be instrumental in showing society how other buildings can be adapted. Second, every sport facility worldwide can develop a strategy to contribute energy for community use—particularly on non-event dates. This integrates the sport facility into the community, which can assist society to grow and develop in a sustainable manner.

21.3 Conclusions

Sport facilities around the world are making strides with respect to SDG 7 and are moving to affordable, reliable, and sustainable energy options. Examples of sport facilities integrating solar, wind, geothermal, hybrid systems, or other options were outlined. More PV solar energy examples were found, making it the most utilized renewable energy option being utilized to date. Geothermal energy systems tended to be deployed at smaller sport centers, rather than major venues, though there is no reason these could not be used in larger facilities once success is demonstrated on a smaller scale. The power provided by the renewable power systems at

sport facilities range from low to high levels of power, or from the primary to the advanced stages.

A vision of this trend advancing to 50% of sport facilities worldwide utilizing renewable energy to meet their demands was presented. Much work is needed to meet this vision. Further, SDG 7 promotes ensuring sustainable energy sources for all. There are early indications of a trend that sport facility power generation is being utilized to aid local communities with their electrical requirements. This means the stage has been set for sport facilities to contribute to solving the international energy challenge of reliable power generation for the benefit of all. A vision of this trend advancing is presented. A call is made for practitioners and academics to advance practical understandings and academic literature examinations of sport facilities and renewable energy options, advances, and potential barriers in an effort to develop best practices.

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Applying Sustainable Development Goal 7

Anthony Bonagura and Norman Vossschulte

The Philadelphia Eagles believe the path to sustainability is a journey, not a destination. What started with blue recycling bins under each employee's desk in 2003 with the opening of Lincoln Financial Field has turned into a company-wide sustainability program that works year-round to reduce the team's environmental footprint in a financially responsible manner.

As a member of the National Football League, the Eagles leverage their star power as a professional sports team to serve as proud environmental stewards. With the help of fans and corporate partners, the team's award-winning Go Green program has contributed to the Eagles running a zero-waste operation fueled by 100% clean energy. The program has received both national and international recognition for its efforts in contributing to a more sustainable ecosystem.

From earning LEED Gold certification by the U.S. Green Building Council to becoming the first professional sports team to achieve ISO 20121 certification to most recently achieving GBAC (Global Biorisk Advisory Council) STAR accreditation for implementing stringent protocols for cleaning, disinfection, and infectious disease prevention, the Eagles have been very intentional and strategic with their eco-friendly measures.

With a focus on green energy production and purchasing, recycling, composting, energy efficiency, reforestation, and water conservation, among other efforts, the Eagles have successfully made the shift from *operational sustainability* to *sustainability as a way of operating*.

The team's commitment to sustainability starts with Eagles Chairman and CEO Jeffrey Lurie, whose progressive leadership and vision have fostered a forward-thinking approach at all levels of the organization.

Critical to the United Nations' Sustainable Development Goals, clean energy is one of the most reliable and proven ways to preserve our planet's natural resources. Renewable energy sources promote a more ecological way of generating energy without relying on traditional, imported fuels that lead to higher energy bills, pollution, and most alarmingly, climate change.

As a professional football team that hosts upwards of 70,000 fans on game day, the team is typically faced with many new and unique challenges. One of those challenges relates to the amount of energy consumed and generated throughout the year, but most particularly on game days.

When the Eagles first moved into Lincoln Financial Field in 2003, leadership looked at the first power bill and were blown away by the amount of energy consumed. The executive

leadership team, led by Lurie, immediately went to work and conducted a thorough analysis of the team's energy usage and how it was being generated at the team's new facility. Throughout the review process, Lurie and the Eagles examined every area of the team's operation to figure out if there were things they could be doing better, but more importantly, if there were opportunities to become an environmental leader for others to follow.

That evaluation ultimately led to an innovative sustainable energy partnership with NRG, a global industry provider that is transforming how communities think about, prioritize, and generate clean energy. It made the Eagles' vision of clean power at Lincoln Financial Field a reality.

What evolved from this partnership in March 2012 was an expansive solar energy project that positioned Lincoln Financial Field to be among the world's greenest major sports facilities. NRG installed and still currently maintains the entire project, which features 10,456 solar panels in and around Lincoln Financial Field:

- 8,096 in the North parking lot
- 1,380 on the solar wing facing Interstate 95
- 800 on the roof of Lincoln Financial Field
- 180 stretching across the 11th Street pavilion

The stadium's solar panels are powerful visual reminders that renewable energy makes sense from an economic, aesthetic, and environmental standpoint.

The project produces around four megawatts of clean energy a year, roughly 33% of Lincoln Financial Field's annual energy usage, and is six times the amount needed to power all 10 home games each season. It is equal to powering approximately 600 homes for a year.

Through the purchase of renewable energy credits, 100% of the team's operations are powered by the sun and wind. On non-game days, the project generates so much power that energy is put back into the grid. One of the main benefits of this power purchasing agreement is that it regulates electricity costs in a constantly fluctuating market.

For the Eagles, the solar project serves as an example of their comprehensive approach to running a sustainable business. Adding clean energy sources to their existing recycling and energy conservation efforts was a big step toward that goal. However, it did not happen overnight. It has been a process that has taken shape over time and will keep evolving as the Eagles continue their pursuit to stay ahead of the curve in our ever-changing climate.

By identifying and partnering with like-minded organizations whose values align on sustainability, the subject of clean energy can become a more global priority, which may lead to increased access to affordable, reliable, and modern energy for everyone.

Part VIII

Sustainable Development Goal 8: decent work and economic growth

An overview of Sustainable Development Goal 8

Kathryn L. Heinze and Sara Soderstrom

Sustainable Development Goal 8 is to "promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all" (General Assembly, 2015, p. 14). There are 10 main targets associated with SDG 8, and two additional targets (a) and (b). These targets are outlined in Table 23.1.

23.1 Theoretical foundations: stakeholder perspective

In considering how sport organizations can work toward SDG 8, a relevant perspective is stakeholder theory. This perspective suggests that an organization's success in addressing SDG 8 is directly linked to the needs, goals, and motivations of the parties with whom the organization interacts (Freeman et al., 2010). According to stakeholder theory, the key objective of business is to create value for all stakeholders, that is, "those groups and individuals who can affect or be affected" by the organization (Freeman, 1984, p. 25; Freeman et al., 2010). This perspective emerged as an alternative to a narrower lens focusing on shareholders, owners, and profits. Stakeholder theory is anchored in the notion that organizations "have an obligation to constituent groups in society … indicating that a stake may go beyond mere ownership" (Jones, 1980, pp. 59–60).

Stakeholders can include a wide range of individuals and groups who are internal and external to the organization, such as owners, employees, customers, management, government, unions, communities, and suppliers (Daft, 2021). Stakeholders that are more specific or unique to the sport context include sport governing bodies, athletes, corporate sponsors, and fans. For example, Lu and Heinze (2021) identified broad coalitions of stakeholders—including advocates, athletes and their families, professional sport organizations, and concussion specialists—involved in creating and passing youth sport concussion legislation in the US. As another example of the array of relevant stakeholders for sport organizations, in intercollegiate athletics in the US, athletic programs need to work with the National Collegiate Athletic Association (NCAA), the federal government, the athletic conference, coaches, non–student athletes, university faculty and administrators, alumni, fans, the local community, and athletic department boosters (Covell, 2002; Putler & Wolfe, 1999). The COVID–19 pandemic has amplified the role of certain stakeholders, such as the Centers for Disease Control and

Table 23.1 Targets of Sustainable Development Goal 8

8.1	Increase economic productivity through "high-value added and labor-intensive sectors"
8.2	Achieve higher levels of economic productivity through diversification, technological upgrading and innovation, including through a focus on high-value added and undefined labour-intensive sectors
8.3	Promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation, and encourage the formalization and growth of micro-, small- and medium-sized enterprises, including through access to financial services
8.4	Improve progressively, through 2030, global resource efficiency in consumption and production and endeavour to decouple economic growth from environmental degradation, in accordance with the 10-Year Framework of Programmes on Sustainable Consumption and Production, with developed countries taking the lead
8.5	By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value
8.6	By 2020, substantially reduce the proportion of youth not in employment, education or training
8.7	Take immediate and effective measures to eradicate forced labor, end modern slavery and human trafficking and secure the prohibition and elimination of the worst forms of child labor, including recruitment and use of child soldiers, and by 2025 end child labor in all its forms
8.8	Protect labor rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants, and those in precarious employment
8.9	By 2030, devise and implement policies to promote sustainable tourism that creates jobs and promotes local culture and products
8.10	Strengthen the capacity of domestic financial institutions to encourage and expand access to banking, insurance and financial services for all
8.a	Increase Aid for Trade support for developing countries, in particular least developed countries, including through the Enhanced Integrated Framework for Trade-related Technical Assistance to Least Developed Countries
8.b	By 2020, develop and operationalize a global strategy for youth employment and implement the Global Jobs Pact of the International Labour Organization

Source: General Assembly (2015).

Prevention and state and local health departments. Importantly, for sport organizations addressing SDG 8, stakeholders also include those from vulnerable populations, including youth, women, migrant workers, and employees who may be disabled.

Stakeholder theory prompts consideration of who the organization does and should attend to. In addressing questions of stakeholder identification and who should be served, organizations and leaders may consider which interests are important, how interests can be balanced, and how resources should be allocated to serve these interests (Jones, 1980). One distinction in terms of priority or salience is between primary and secondary stakeholders. Primary stakeholders are those who engage in economic exchanges with an organization or business (Daft, 2021). In addressing SDG 8, examples of these stakeholders include particular employees, such as younger employees, interns, factory workers, and disabled employees. Secondary stakeholders are those who affect or are affected by the actions and practices of the business or organization (Daft, 2021). For SDG 8, these stakeholders include, but are not limited to,

communities affected by sport event tourism, as well as potential victims of human trafficking and modern slavery.

Power, legitimacy, and urgency are three attributes that can make stakeholder interests more salient (Mitchell et al., 1997). The power of a stakeholder is "the extent it has or can gain access to coercive, utilitarian, or normative means, to impose its will in the relationship" (Mitchell et al., 1997, p. 865). Many of the relevant stakeholders for SDG 8 do not have power, such as youth and migrant farm and factory workers. Legitimacy is "a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions" (Suchman, 1995, p. 574). This attribute is critical for defining the relevance of a stakeholder for SDG 8. Notably, a stakeholder could have "a legitimate standing in society or legitimate claim on the organization, without having power to enforce its will in the relationship" (Mitchell et al., 1997, p. 866). As society increasingly values sustainability, including as it relates to decent work and economic growth, this makes the interests of vulnerable workers and communities more legitimate. Finally, urgency is characterized by a relationship or claim that is both of a time-sensitive nature and important or critical to the stakeholder (Mitchell et al., 1997). The conditions for stakeholders around SDG 8 are increasingly urgent due to the COVID-19 pandemic and climate change, both of which are affecting employment and health and safety. With these overlapping attributes, the stakeholder perspective directs attention to individuals and groups with legitimate and urgent claims, beyond those that directly affect the financial performance of the organization in the short-term.

In moving from stakeholder identification and prioritization to organizational action around SDG 8, we can look to approaches for thoughtful and strategic stakeholder engagement (Porter & Kramer, 2006). A strategic approach that focuses on the organization having a stronger positive impact on stakeholders and the community, looks to match internal organizational resources with external needs (Babiak & Wolfe, 2009; Porter & Kramer, 2006). Internal resources are the unique and valuable resources that sports organizations can leverage for social good; external needs are community-specific. In addressing SDG 8, key internal resources include physical capital, such as stadia and arenas; human capital, such as personnel dedicated to community relations and human relations; and financial capital, including around philanthropy and educational programs. External needs around SDG 8 include decent jobs and employment, training, safe working conditions, community development, and start-up funding.

This strategic process starts with conducting a bottom-up needs assessment in the community or local context (Heinze et al., 2014; Porter & Kramer, 2006). By connecting with, and learning from, local experts who are working on the issues related to SDG 8 targets, such as economic development, sport organizations can gain a better understanding of community needs. Then, the organization can narrow and deepen its focus to the most appropriate matches between external needs and organizational resources and goals (Porter & Kramer, 2006). In grounding strategic approaches in more genuine and committed community engagement, the development of meaningful, long-term partnerships is crucial (Heinze et al., 2014). Sport organizations should strive to be fully engaged as collaborative partners in problem-solving in order to address the "grand challenge" of sustainable development at a local level.

An example of this process of strategic stakeholder engagement in working toward SDG 8 in sport is described in our case study of the Detroit Lions (Heinze et al., 2014). We found that the professional football team promoted inclusive and sustainable economic growth in Detroit, through their *Living for the City* initiative. To develop this philanthropic initiative and decide which areas to focus on, the organization went through a concerted, bottom-up process of identifying needs in the city. First, rather than assuming they knew the city's needs, the Lions

employees went into the community to listen and learn from key stakeholders involved in city revitalization efforts. We argued that by connecting with individuals and groups working on relevant social issues, such as economic development and revitalization, sport organizations like the Lions can "gain a better and truer understanding of the needs" (Heinze et al., 2014, p. 683). Second, the team then identified how their strengths and resources aligned with needs in Detroit, thus narrowing the areas of focus to those that were the best fit. For the Lions, these areas were community development and health and wellness. Finally, the team built strategic partnerships with select community organizations working in these areas. In so doing, the Lions deepened the focus of their resources, efforts, and expected impact. More specifically, the Lions played a brokerage role—connecting and strengthening collaborative interactions between various leaders and activists. These collaborations led to joint programs and resource sharing, helping various organizations capture synergies in their efforts. Thus, this study demonstrates how teams, and perhaps other sport organizations, can play a leadership role in developing an infrastructure to support community and economic development. Through creating social structures and processes, such as formalized cross-sector partnerships with different stakeholders, sport organizations have the potential to improve the sustainability of programs around SDG 8.

23.2 Connections to sport

As a multi-billion dollar global industry, sport can be a powerful engine for economic growth and development, and thus for contributing to SDG 8. Realizing this potential requires prioritizing sustainability and sustained economic growth. There are a number of aspects of sport that align with the goals of decent work and economic growth, including sport event tourism, sport and urban development, and labor rights and issues. For each of these areas, in order to work toward the SDG 8 targets, sport organizations need to attend to and collaborate with an array of stakeholders, beyond those with contractual relationships with the organization. These individuals and groups often span sectors and include those who are less powerful and from vulnerable populations.

Major sport events can have significant economic benefits, but these are often overstated, or distributed unequally within countries and across sections of the population (Cornelissen, 2009; Gratton et al., 2012). Governments of cities, regions, and nations continue to pursue mega sporting events hoping to secure economic benefits associated with tourism and development. However, many cities and countries experience cost overruns, deficits, and the legacy of oversized and unused facilities (Leopkey & Parent, 2012). The Olympic Games is a classic example: the Los Angeles Games of 1984 turned a profit, but Montreal experienced massive debt from the 1979 games. With public outcry around these issues, new stakeholder interests, including those of the community and vulnerable populations, have gained legitimacy and urgency, and thus salience. For example, Toronto's 1996 Olympic bid motivation focused on sharing the social and physical legacy with the people of the city. The Toronto Legacy Commitment called for "the Olympic Village to become a new neighborhood of affordable housing after the Games; the Olympic venues to be available in the future for wide community use; and the facilities themselves to be designed and built in harmony with their environment" (Leopkey & Parent, 2012, p. 928). This legacy approach was then institutionalized by 2003 with a question in the bid book around impact and the legacy of hosting the Games. Bid documents now include legacy elements aligned with the targets of SDG 8, such as jobs, tourism, and impact on the general population and special populations.

While sport events can contribute to SDG 8 targets around economic growth, job creation, and tourism, events can also exacerbate targets, including 8.7 and the goal of eliminating human

trafficking. Big events are major avenues of potential human trafficking threats because they attract large audiences from a wide geography. For example, the Super Bowl is believed to be one of the largest sex-trafficking events in the world (Lapchick, 2019). Of the 750 arrests related to human trafficking activity around the 2017 Super Bowl, more than 100 arrests were made in Houston, the host city. In addressing this human trafficking issue around sport events, various stakeholders from different sectors need to work together. During the time of the 2018 Super Bowl, law enforcement, businesses (e.g., hotels, Uber and Lyft, airlines), non-profits (e.g., National Center on Sexual Exploitation) and citizens (e.g., students, religious leaders) collaborated to increase awareness of, and try to mitigate, human trafficking during the event through a number of different initiatives. Further, before the 2019 Super Bowl in Atlanta, Delta Air Lines partnered with city officials, non-profit leaders, and victims of human trafficking to develop an employee education program to teach employees the impact of human trafficking on aviation as well as how to identify possible victims.

The COVID-19 pandemic of 2020 presented significant challenges for sport mega-events and is forcing sport organizations and communities to develop different types of events and viewing experiences. Hosting smaller and more local sport events can be more feasible (Agha & Taks, 2015), especially with social distancing requirements. Further, non-mega sport events may be a better policy approach for achieving optimal economic impact (Gibson et al., 2012) and working toward SDG 8. Small-scale event sport tourism includes "minor events where competitors may outnumber the spectators, they are often held annually, with little national media interest and limited economic activity" (Gibson et al., 2012, p. 162). Higham (1999) suggested that small-scale sport tourism may align with the principles of sustainable tourism more so than mega sport events, through generating a reliable flow of visitors, using existing infrastructure, and requiring less public funding. In the US, sports commissions at the state, county, or city levels have played a key role in establishing small-scale sport tourism as a viable sector. Gibson et al. (2012) examined six, small-scale sport tourism events—a marathon/half marathon, Senior Games, archery, youth soccer, youth softball, and youth swimming—and the work of the Gainesville Sports Commission (GSC). The GSC, a not-for-profit, strives to "enhance the area's quality of life" through partnerships with stakeholders across sectors, including local government, business (e.g., hotels), the visitor and convention bureau, and the University of Florida. The authors found that small-scale sport tourism provides positive economic benefits for the community in terms of hotel room nights and expenditures on other goods and services when there are fewer other tourists in the community (Gibson et al., 2012). To be economically sustainable, scholars suggest communities should develop an events portfolio, ensuring a consistent flow of tourists and expenditures (O'Brien & Chalip, 2007).

The actions of sport organizations also align with the targets of SDG 8 in the area of facility planning and urban development. For many decades, economists and policy analysts have examined the value of sports teams and facilities to local and regional economies. Although the research is mixed around the economic impact, case studies suggest that approaches that involve different stakeholder partnerships may address SDG 8 targets (Rosentraub, 2006). In particular, through his analysis of Cleveland, Rosentraub argues that cross-sector partnerships were critical for a sport strategy of city redevelopment: "the downtown area [would have] continued to deteriorate if there had been neither a commitment to rebuilding nor public-private partnerships between the city, county, and local businesses" (Rosentraub, 2006, p. 288). Rosentraub also notes, however, that these are "difficult economic development decisions…communities can appreciate their own risks and benefits" (Rosentraub, 2006, p. 290). This process requires engaging with an array of stakeholders to better understand how to design and plan for sustained economic development.

The literature on sport and economic development identifies stakeholder relationships between professional sport, local government, healthcare organizations, cultural organizations, local retail and business, real estate, and universities, among others (Rosentraub, 2014). The involvement of these different stakeholder groups can allow sport facility plans to better connect to the community and local context, offering synergy with other entertainment and business activities (Nelson, 2001). This approach is evident in the design of Petco Park in San Diego. The stadium includes the adaptive reuse of a historical landmark that was rehabilitated and integrated into the design, concourses that open to the ballpark and the city, and a park near the outfield that is open to the public when games are not being played. Partnerships between city planners, architectural firms, franchises, and other local businesses can also prompt more innovative and sustainable architectural plans. For example, the Staples Center in Los Angeles, a successful and profitable arena, includes a number of design elements to improve resource efficiencies, such as approaches to lighting, water, and electricity. Stakeholder involvement also holds sports more accountable to funding plans that ensure that the revenue streams received by the public sector are sufficient to repay the investments made with tax dollars. For the Staples Center development deal, the public sector's investment was repaid from revenue generated by the arena and the crowds attracted to events (Rosentraub, 2014). Partnerships with the private sector can connect the building of new sports facilities with large-scale private sector investments. In Columbus, Ohio, Nationwide Insurance paid 90% of the cost of building the new arena and the local newspaper agreed to finance the balance (Rosentraub, 2014). The City of Columbus paid for infrastructure improvements and environmental remediation.

While sport has the potential to drive economic growth, organizations in this space also need to contend with the other component to SDG 8: decent work. A key target is to protect labor rights and promote safe and secure working environments, particularly for more vulnerable populations (e.g., women, migrant workers, disabled workers, younger workers). Many major sport brands, including Nike, Reebok, adidas, and Puma, outsource manufacturing to Asia. An Oxfam report on labor rights and sportswear production in Asia notes the women and men who produce the goods often "struggle to meet their families' basic needs and many are unable to form or join unions to form or join unions without discrimination, dismissal or violence" (Connor & Dent, 2006, p. 2). The report examined a dozen international sports brands and their approaches to ensuring suppliers in Asia allow workers to organize unions and bargain collectively for better wages and conditions. Although the authors conclude that all companies need to do more to protect workers' rights, the report identifies several initiatives that contributed to improved conditions in sportswear factories. These approaches include attention to, and collaboration with, secondary stakeholders, beyond contractual relationships, including groups that have less power, but legitimate and urgent claims, such as labor rights groups and trade unions. For example, in Asia, Reebok cooperated with labor rights groups to "explore the possibility of democratic representation in countries that legally restrict trade union rights" (Connor & Dent, 2006, p. 4). In Indonesia, Puma solicited the advice of trade unions and labor rights groups in selecting new suppliers. And Nike cooperated with the Fair Labor Association (FLA) to support workers' union rights and adopted supplier transparency and disclosure (Doorey, 2011). Mizuno addressed these issues a little differently with internal stakeholders: the organization employed and trained staff to conduct internal monitoring of labor rights in the company's supply chain (Connor & Dent, 2006).

Another key demographic in addressing SDG 8 and decent work is youth. A lot of young professionals, out of college or university, are interested in working in the sport and entertainment space. Prior to the COVID-19 pandemic, employment of sports and entertainment occupations was projected to grow 7% from 2019 to 2029, faster than the average for all

occupations (Bureau of Labor Statistics, 2020). Employment was expected to increase by about 60,600. However, U.S. sports leagues began suspending and altering their seasons in early March 2020. Mandatory social distancing significantly affected the sports industry, especially live sports. With reductions in revenues associated with media, sponsorships, ticket sales, and in-venue sales, staff are taking pay cuts or being laid off. The pandemic could have particularly drastic effects on entry-level, often younger, workers just starting their careers, as well as students looking for professional opportunities and learning experiences. With reduced resources, sport organizations may rely more heavily on unpaid internships and volunteer work, potentially exploiting the desire, particularly among young people, to work in the industry. These trends could exacerbate existing inequalities and the lack of diversity in the sport industry, as only those students and prospective workers or volunteers with independent financial resources can take advantage of these unpaid (or lower paying) opportunities. Addressing these challenges will require creative partnerships and programs between relevant stakeholders, including sport businesses (e.g., teams, leagues, brands, marking agencies), collegiate sport/athletic departments, local sport leagues, and universities and colleges. Collaborations between these entities could lead to the development of experiences and opportunities that offer unique solutions to equitable student education and professional development.

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Measuring Sustainable Development Goal 8

Sara Soderstrom and Kathryn L. Heinze

To assess progress toward SDG 8, the indicators used by the United Nations include those related to economic growth and decent work. Even before COVID-19, progress toward SDG 8 was limited. According to the International Labour Organization (2019):

> Despite isolated pockets of achievement, progress towards SDG 8 is slowing down in many areas of the world. An urgent acceleration of efforts is required to bring about transformative change in support of SDG 8 in its three dimensions of sustained, inclusive and sustainable growth. (p. ix)

In terms of indicators aligned with economic growth, the UN uses annual growth rate of real GDP per capita and per employed person, material footprint and domestic material consumption, tourism direct GDP, and the number of commercial bank branches and proportion of adults with an account (United Nations, 2019). Before the COVID-19 pandemic, labor productivity had increased globally. However, the global economy was growing at a slower rate (United Nations, 2019). Between 2000 and 2019, growth in both GDP and labor productivity was higher in middle-income countries than in low- and high-income countries. Further, the least developed countries did not meet the SDG 8 target of sustaining annual GDP growth of at least 7% (International Labour Organization, 2019).

In terms of indicators of progress toward decent work, the UN assesses average hourly earnings, unemployment rates, proportion of youth not in education or employment and number in child labor, increases in compliance of labor rights, and number of jobs in tourism industries (United Nations, 2019). Prior to the COVID-19 pandemic, progress toward reducing informal work was limited, with 60% of workers worldwide engaged in informal work (International Labour Organization, 2019). There were particularly large differences among countries in the middle-income groups. Unemployment was high in many countries, and there were persistent gender wage gaps. In addition to the experiences of women, young people and persons with disabilities faced significant challenges in finding employment and enjoying equal access to decent work and equal pay for work of equal value. The share of young people not in employment, education, or training (NEET) was similar among both low- and middle-income countries (International Labour Organization, 2019).

A report by the Commonwealth Secretariat (2019) offers model indicators specific to sport. These adapted indicators are more relevant to the national level. In the next section, we discuss organizational-level aspects to consider in measuring progress toward SDG 8 in sport. National-level indicators in sport include those related to economic growth and productivity, such as (1) the annual growth rate of sport sector and (2) major sport event rights–holders and national sporting bodies that have policies that support innovation and entrepreneurship in sport, and encourage the formalization and growth of micro-, small-, and medium-sized enterprises, including through access to financial services (Commonwealth Secretariat, 2019). The sport-specific indicators that relate to decent work include: percentage of youth in education, employment, or training in sport; number of sport rights–holders and national sporting bodies non-compliant with labor rights (based on ILO textual sources and national legislation); number of organizations receiving public funding and total amount allocated to deliver youth employment outcomes through sport programs; number of national sporting codes that have a representative union for athletes; and number of sports rights–holders and national sporting bodies that have policies that support decent job creation (Commonwealth Secretariat, 2019).

Although the COVID-19 pandemic had a negative impact on most of the sustainable development goals, the UN Report of the Secretary-General notes that for SDG 8, in particular, the pandemic's effect has been highly negative (United Nations, 2020). In virtually all parts of the world, the COVID-19 pandemic led to economic crises: disrupted trade, mass unemployment, business closures and bankruptcies, sharp declines in tourism activities, including around sport, and massive public deficit. News of vaccine effectiveness, however, in late 2020, brought hope for economic recovery.

24.1 Measurement in sport

Sport organizations, leaders, communities, and researchers have used a variety of approaches to assess the impact of sport on economic development and decent work. These methods often reflect the experiences and expertise of various internal and external stakeholders. Notably, there are significant challenges associated with measuring progress toward SDG 8, as we discuss in the following section. In this section, we consider approaches to the measurement for each of the aspects of sport aligned with SDG 8 that were discussed previously in Chapter 23: sport event tourism, sport and urban development, and labor rights and issues.

24.1.1 Sport events and tourism

It is difficult to measure the economic impact of mega sport events. This assessment often starts with considering the costs and benefits to communities and regions in hosting events. Costs include, but are not limited to, building or renovating infrastructure, administration, and advertising. There are also opportunity costs associated with spending in these areas, rather than in others, such as education. The main economic benefit for a region in hosting a mega sport event is tourism dollars, or, more broadly, the consumption by visitors and residents during the event and in the period afterward. After defining these costs and benefits, relevant stakeholders can assess economic impact through approaches such as cost-benefit analysis and input–output models. In work on the Olympics, Preuss (2004) proposed an approach that combines these two methods, focusing on regional impact. This approach includes: an analysis of time space (i.e., when costs and benefits occur), analysis of "regional efficiency" (i.e., share of regional costs and benefits), and distribution of costs and benefits into sectors (i.e., regional sectors affected).

The progress toward SDG 8 within the context of small–scale sport events can also be measured through economic indicators. In particular, sports commissions and other stakeholders may examine the economic value to the community of hosting small-scale sport tourism events through assessing hotel use, and restaurant and retail expenditures. Gibson et al. (2012) use the following indicators: (1) On average, how many days and nights did participants and spectators stay?, (2) How many hotel room nights did each event generate?, (3) What were the expenditure patterns for the day and overnight participants and spectators for each event?, and (4) What was the overall direct spending impact associated with each event? Sports commissions and other sport organizing bodies can develop questionnaires aligned with these indicators. The questionnaires, administered to participants and spectators, may address the following categories: purpose of trip, residency, length of stay, accommodation type, primary motives, other activities during the visit, prior visits to the community, event evaluation, and demographics (Gibson et al., 2012). Collecting these data over time can allow organizations to track progress toward economic growth aspects of SDG 8.

To assess progress toward reducing human trafficking around big sport events, organizations can look to several metrics. One indicator is the number of arrests associated with trafficking in the community surrounding the event. The interpretation of this indicator, however, is murky. If the number of arrests around a regular or recurring event increases over time, that could indicate greater attention to, and better identification of and ability to catch perpetrators. An increase in the number of arrests could also mean that human trafficking activity is rising. Another factor to include is the number and reach of informational campaigns to increase awareness of trafficking around major sport events. A better-informed public could lead to thwarting more trafficking attempts. A related indicator is the level of involvement of different stakeholders in the community in addressing human trafficking around events. This level could be assessed by looking at the number of organizations, the sectors represented, and the amount of resources dedicated to the cause, including time, personnel, and money.

24.1.2 Sport and urban development

To assess the value of sports teams and facilities to local and regional economies, stakeholders and researchers of urban planning consider a number of costs and benefits, as well as financing approaches. The biggest costs, of course, are those associated with constructing or renovating arenas, stadia, and ballparks. Other costs are parking structures, technology, transportation infrastructure, and environmentally-friendly improvements. In the US, these projects are often financed through a combination of private–ownership investment and public sector investment. Investments are often repaid through revenue streams created or enhanced by the construction or renovations, including admission to events, spending on food, beverage, and other items, and advertising in the facility (Rosentraub, 2006a).

While there are often benefits of new and renovated facilities for owners (i.e., value of team), players (i.e., wages), and fans (i.e., better experience), assessing progress toward SDG 8 requires consideration of a broader set of community stakeholders. It is difficult to measure community benefits, but analyses try to discern whether teams and facilities attract businesses bringing new and better paying jobs to an area (higher levels of regional income; Rosentraub, 2006a). This relates to several SDG 8 targets, including around decent job creation, full and productive employment, and promoting entrepreneurship. Another factor in these analyses, related to economic growth, is property values. More businesses and people in a region increase demand for land and lead to higher property values. Rising property and income levels produce higher tax revenues for the public sector. Assessments should consider whether these returns

offset tax increases to support the building or maintenance of a facility (Rosentraub, 2006a). Finally, organizations may attempt to measure progress toward the SDG 8 targets of promoting sustainable tourism and supporting local culture, through assessing the extent to which sport-related development leads to more private development and fewer deteriorated or abandoned properties. In reference to the Staples Center, Rosentraub (2006b) argues:

> the new image it helped create for downtown Los Angeles, the unique architectural projects that were part of the redevelopment plan, and the creation of a renewed commercial and residential neighborhood in an area that was previously deteriorating and regarded as unsafe. (p. 33)

24.1.3 Labor rights and issues

Sportswear companies, particularly those that outsource manufacturing to Asia, can measure progress toward decent work through a number of indicators. One factor assessments should include is the number of labor rights violations, with the aim of reducing these over time. Similarly, organizations can evaluate how favorable their policies are toward trade union rights. Organizations should also track wages and working hours. Oxfam International defines a living wage as "one which for a full-time working week (without overtime) would be enough for a family to meet its basic needs and allow a small amount for discretionary spending" (Connor & Dent, 2006, p. 11). While many sports brand owners are not yet committed to this definition of a living wage, according to the Oxfam report, they have made more progress around specifying maximum working hours (Connor & Dent, 2006). Promoting safe and secure working environments is also central to SDG 8 and may be assessed, in part, through an inventory of factory conditions. Finally, sportswear companies should collect data on demographics and evaluate the factors above—hiring practices, wages, working hours, and conditions—for special populations, including women and persons with disabilities.

To measure progress toward the SDG 8 targets around youth, sport organizations and universities can track job and internship data, as well as information on other educational opportunities. One factor to consider in assessing contributions to youth employment is the number of internships (or proportion relative to full-time employment) an organization offers college students and recent graduates, particularly paid internships, as these promote social equity. Sport organizations can also examine the extent of their investment in training programs for new or potential employees, and involvement in outreach activities at educational institutions. Universities might assess the quantity and quality of activities and opportunities for students over time. For example, organizers of the Michigan Sport Business Conference, held yearly at the University of Michigan, track the number of internship and job offers that follow from students meeting with industry professionals during the conference. As with the sportswear context above, sport organizations, more broadly, should track hiring, pay, and promotions by demographics to assess equity.

24.1.4 Overarching considerations

There are other considerations in measuring progress toward SDG 8 that are relevant across different targets. In particular, these assessments should include both quantitative and qualitative measures. The latter are often neglected, yet provide important information and context underlying "the numbers," including around the "why" and "how" of different relationships.

There is power in the intangibles. For example, sport organizations can capture data on people's experiences, thoughts, and perspectives around employment through focus groups, interviews, and observations. These qualitative data reveal more nuance and intricacies and can serve as compelling stories in working toward SDG 8 and decent work. Additionally, organizations should evaluate progress throughout their efforts to address the targets, rather than waiting until the end of a project or initiative. Ongoing evaluation allows organizations to better track the effect of different actions and reduce the potential for recall bias.

24.2 Implementation challenges

As we have alluded to throughout this chapter, there are significant challenges associated with both implementing and measuring SDG 8 in the sport context. And these challenges were exacerbated by the COVID-19 pandemic in 2020. While sport events have the potential to be a source of economic growth for a community or region, the costs may outweigh the benefits, or the latter may flow disproportionately to higher-status groups. For mega sport events, it is difficult to determine whether a legacy is positive or negative, because sometimes it is both, depending on the stakeholders under consideration (Preuss, 2004). The measurement of legacy over time is also challenging. Legacy cannot be identified in isolation from the general development of the city. The COVID-19 pandemic made implementing SDG 8 through sport events much more difficult. Many large sport events were canceled or postponed in 2020, including the Olympic and Paralympic Games. Other, smaller sporting events were held without spectators in attendance. Sports commissions, associations, and leagues, and surrounding communities lost significant revenue. It remains unclear when these events can be held safely again, and whether tourism and attendance will return to pre-pandemic levels.

The challenges of implementing and measuring SDG 8 through a sport strategy of urban development are similar to those of sport events. It can be difficult to define and measure the costs and benefits (tangible and intangible) and take into account all relevant stakeholders. Yet, a favorable outcome of these analyses is critical in convincing local government and taxpayers to support public investments in new or renovated facilities. Often, this is a "hard sell" and public support is challenging to secure. In light of the COVID-19 pandemic, these barriers are likely to increase, with concerns around in-person attendance, uncertainty around future demand for tickets, and a growing community need in other areas. Public funds may be better spent elsewhere in working toward SDG 8 targets.

We come back to the idea from Chapter 23 that working toward SDG 8 requires attention to, and the involvement of, relevant stakeholders internal and external to the organization, including those in lower power positions. To effectively deliver sport events that address SDG 8 targets around economic growth and decent jobs, it is critical to include other local organizations across different sectors in the evaluation and decision-making process. Projects around sport and urban development center on public-private partnerships and should also include the perspectives of residents and other local businesses and community organizations. Addressing labor issues in sport requires the engagement of employees, labor unions, and educational institutions.

Organizations, such as sports teams, leagues, associations, federations, and companies, may struggle, however, with building sustainable partnerships with relevant stakeholders in these areas. Our research suggests that sustainable partnerships between organizations across sectors should include the following elements: respect and humility, enabler role, authenticity, mutually beneficial, and brokerage (Heinze et al., 2014). Engaging with respect and humility involves listening to different perspectives, defer to the expertise of various partners, and

respecting the knowledge and experience of other organizations. More powerful or resource-rich organizations can also assume an enabler role: instead of operating in a self-serving or imposing manner, these organizations can be facilitators—providing help and support. In identifying partners, organizations should look for authenticity, a genuine commitment to the broader ideals of the project or cause, rather than a purely transactional relationship. To avoid mismatched partnerships, organizations need to develop partnerships with stakeholders that are mutually beneficial over time. Finally, organizations can strengthen partnership relationships by looking for opportunities to broker across different organizations and sectors committed to working toward SDG 8. Fostering and maintaining these connections adds value to the social networks of the various stakeholders and builds capacity in addressing the grand challenges of sustainable development.

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Applying Sustainable Development Goal 8

David Richards

ROSSETTI's story unfolds over a 50-year, multidisciplinary practice focused on architectural design, urban planning, interiors, and graphics. Our design philosophy is centered on amplifying experiences and generating value for every project. This is accomplished by creating unique ways for people to connect while strategically addressing our clients' vision and business goals.

Experiential design heightens the human senses and imprints positive memories on the subconscious mind. Memory making is the root of developing a relationship with an organization, which enriches its culture.

Designing experiences also stimulate financial growth, especially with today's "digital generations." Unique and positive experiences are the value proposition that increases spending and investment.

25.1 ROSSETTI, SDG 8, and sport: Green Bay Titletown District Master Plan

Far too often, a major sports stadium sits alone and unused during much of the year, surrounded by a sea of parking paving—an island of economic inactivity. The Titletown development, adjacent to the Green Bay Packers' Lambeau Field, sought to bring community activity and commerce to the City of Ashwaubenon throughout the year. The Green Bay Packers partnered with ROSSETTI to bring their vision alive for a new mixed-use development and plaza. ROSSETTI developed the Titletown Master Plan to create a destination area for the community and promote flexible programming throughout each season and time of day. The design strategy focuses on the vibrancy of the public realm with low-rise commercial buildings lining the Plaza to the north and townhomes along the southern edge. The master plan was designed to enhance the Packers brand, stimulate economic activity, promote a homegrown and authentic community, and focus on family entertainment programming.

The master plan concept allowed the development team to secure anchor tenants, including Hinterland Brewery, Lodge Kohler, and Bellin Health Care. Microsoft has also recently joined the development as well as Ariens Hill, an innovative pavilion and sledding hill with a skating river below.

Ariens Hill is the hub of activity and central placemaking element within the Titletown District. It is designed to draw people throughout the entire year. During the winter months,

the 30% slope becomes a sledding hill that passes over a skating pond winding beneath the structure. In warmer months, the hill becomes an inclined lawn used for concerts and recreation, while the skating area below becomes a public plaza. Throughout the year, a café on the ground level and the event space on the second floor are open to the public.

The Hill's multi-use, multi-seasonal nature has been well received by the community. In its first year, 60,000 skaters and tubers enjoyed Ariens Hill and skating rink with an additional 20% growth projected each year.

As one of the critical anchors to the development, ROSSETTI designed Hinterland Restaurant and Brewery to be a connected and vibrant destination with indoor and outdoor service. The design highlights authentic local materials, such as steel, wood, and stone, to relate to the handcrafted products that are made within the building.

According to the owner, the business has grown exponentially and much of the success is due to the open, light-filled, and efficient design of the building. Restaurant sales have quadrupled since the restaurant opened and wholesale product through the brewery is up 20%. More space has allowed the owner to quadruple brewing capacity and he is selling it in more locations. With the additional space, he also added a lab to ensure the highest quality of beer products. Employee satisfaction has also risen, attracting top brewing talent from around the country.

ROSSETTI, the Packers, and Titletown met with community groups in the area to learn of their vision for the future of this development. Based on community input, features that are not directly related to a Packers football event were enhanced with amenities to improve the experience, encourage use, and establish Titletown as a regional destination. As a year-round regional destination, jobs are created by all of the adjacent tenants. The anchor tenants have generated an estimated 140–200 meaningful jobs.

Ed Policy, Vice President and General Counsel of the Packers, has credited ROSSETTI for its positive contribution to the community: "ROSSETTI has had a profound impact on Green Bay. This project has been so important to us and as a result, we have gained so much notoriety. Titletown has truly changed the community."

Titletown has successfully bridged the incredible intensity of use on game day with the day-to-day use that is driven by a mix of commercial, residential, and attraction development to become a year-round destination. The symbiotic relationship between the attractions and the hospitality and retail uses has generated a sustainable economic engine that supports quality employment and economic opportunity throughout the year. As a premier mixed-use entertainment district, Titletown initially drew over 1 million guests annually with 40% coming for reasons other than the Packers. Upon completion, Titletown is projected to exceed 3 million visitors annually that are anticipated to spend about $60 million by 2023.

ROSSETTI's unique approach of blending users' experiences with generating value has resulted in high-quality developments that are catalysts for sustainable economic development. The tie to a major sports team helps give the development a certain panache that draws people to the area. Providing connective experiences that are enhanced by unique features and thoughtful design attracts users year-round. Those users support the retail, restaurant, and other commercial developments driving the economic viability of the development. During non-event times, development is a destination that supports the hotel and restaurant. Providing those that attend at non-event times with a genuine and unique experience has provided the economic basis for the ongoing success of the development along with sensational economic flow on gameday.

Part IX

Sustainable Development Goal 9: industry, innovation, and infrastructure

An overview of Sustainable Development Goal 9

Rob Millington, Simon C. Darnell, Adam Ehsan Ali, and Tavis Smith

In recent years, international governing bodies have positioned sport as a contributor to sustainable development objectives. The inauguration of the United Nations' Sustainable Development Goals (SDGs) in 2015 offers perhaps the most explicit articulation of sport's potential in this regard. In Article 37 of the resolution entitled *Transforming Our World: 2030 Agenda for Sustainable Development*, the UN noted that:

> Sport is also an important enabler of sustainable development. We recognize the growing contribution of sport to the realization of development and peace in its promotion of tolerance and respect and the contributions it makes to the empowerment of women and of young people, individuals and communities as well as to health, education and social inclusion objectives. (General Assembly, 2015, p. 11)

Since at least the 1980s, sport has been mobilized by a range of development actors in pursuit of broad-based development objectives (e.g., gender equality, poverty alleviation, educational outcomes, and health promotion) through what has come to be known as Sport for Development and Peace (SDP); In many ways, however, the SDGs represent a culminating moment for the sector in that they directly articulate sport's contribution not only to development *writ large* but also to *sustainable* development in particular. In this regard, sport's connection to the SDGs is significant in that the 2030 Agenda effectively broadened conventional understandings of sport's potential contribution to development into the realm of environmentalism and sustainability. In other words, through the 2030 Agenda, the UN has made the case that, in addition to more conventional objectives, sport can also contribute to the achievement of all 17 SDGs including, for example, affordable and clean energy, climate action, and sustainable infrastructure and industrialization (see UN, n.d.).

The latter of these objectives, "Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation" (Goal 9), forms this chapter's focus. In the preamble to the resolution, the UN notes that Agenda 2030 is "a plan of action for people, planet and prosperity," and that the 17 SDGs "are integrated and indivisible and balance the three dimensions of sustainable development: the economic, social and environmental" (General Assembly, 2015, p. 3). The UN notes that "rising inequalities within and among

countries" has contributed to "enormous disparities of opportunity, wealth, and power" (p. 6). In a context of ongoing "natural resource depletion and adverse impacts of environmental degradation" (p. 6), resilient infrastructure, sustainable industrialization, and innovation are undoubtedly crucial to building more sustainable and just futures. This chapter's central aim is thus to consider what role sport can play in building resilient infrastructure, promoting inclusive and sustainable industrialization, fostering innovation, and evaluating how sports and sporting activities can be increasingly sustainable and innovative.

Such concerns are particularly relevant given that sport's existing environmental record is less than stellar, especially regarding infrastructural developments and industrialization. Indeed, numerous reports have highlighted the environmental impacts of the sport industry and sport events including, but not limited to: land and ecosystem deterioration, pollution, noise, and use of water (Dingle & Stewart, 2018); the carbon footprint and environmental harms spurred by (mega) sporting events (Gaffney, 2013; Karamichas, 2013; McLeod et al., 2018); the use of water and pesticides for golf course construction and maintenance (Millington & Wilson, 2015, 2016); and the "greenwashing" efforts of the sport industry (Miller, 2016). In short, the history of sport suggests that contributions to genuinely *sustainable* development will require a strategic approach and a more innovative mindset.

This history is an essential reminder of the fundamental shifts required in sport and the sporting industry to align with and advance Agenda 2030. Such a reminder is relevant to SDG 9, particularly regarding the need to "strengthen the productive capacities of least developed countries… including through structural transformation" (General Assembly, 2015, p. 9) and to improve "developing countries' scientific, technological and innovative capacities to move toward more sustainable patterns of consumption and production" (p. 10). Ultimately, such assertions set the context for the eight targets and goals attached to SDG 9 and the potential role that sport can play therein. In the next section, we outline these targets before moving to a discussion of the theoretical foundations that help frame sport's potential contribution to SDG 9. We advance the argument that "the environment" and "sustainability" should not be understood as external influences on sport and that the agency of non-human actors is relevant in consideration of sustainable infrastructural development in sport. The chapter concludes by offering some connections to—and critiques of—sport and the sporting industry.

26.1 Targets

The UN General Assembly resolution 70/1, *Transforming Our World: the 2030 Agenda for Sustainable Development,* outlines eight targets for SDG 9, as listed in Table 26.1.

The targets detailed here relate to a range of infrastructural, industrial, and innovative elements. They include the need to develop and maintain upgraded, resilient, and retrofitted infrastructures; promote employment opportunities and access to financial services and markets; and improve technological capabilities and access to information systems. Despite the broad range of these targets, much of the contemporary research on sport's potential contribution to sustainable development (as it relates to SDG 9) is limited to infrastructural development (e.g., the modernist vision of the construction of sporting facilities for sport mega-events) and potential employment outcomes (e.g., through social capacity building). While we discuss these trends in greater detail in section 4, it is worth noting here that the UN itself confirms the limited role for sport within SDG 9. The UN report, *Sport and the Sustainable Development Goals* (UN, n.d.), offers a case in point here. The report notes that sport can contribute to SDG 9 through such things as promoting economic growth and employment opportunities, entrepreneurialism, community engagement, and sustainability legacies through capacity building,

Table 26.1 Targets of Sustainable Development Goal 9

9.1	Develop quality, reliable, sustainable and resilient infrastructure, including regional and transborder infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all
9.2	Promote inclusive and sustainable industrialization and, by 2030, significantly raise industry's share of employment and gross domestic product, in line with national circumstances, and double its share in least developed countries
9.3	Increase the access of small-scale industrial and other enterprises, in particular in developing countries, to financial services, including affordable credit, and their integration into value chains and markets
9.4	By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities
9.5	Enhance scientific research, upgrade the technological capabilities of industrial sectors in all countries, in particular developing countries, including, by 2030, encouraging innovation and substantially increasing the number of research and development workers per 1 million people and public and private research and development spending
9.a	Facilitate sustainable and resilient infrastructure development in developing countries through enhanced financial, technological and technical support to African countries, least developed countries, landlocked developing countries and small island developing States
9.b	Support domestic technology development, research and innovation in developing countries, including by ensuring a conducive policy environment for, inter alia, industrial diversification and value addition to commodities
9.c	Significantly increase access to information and communications technology and strive to provide universal and affordable access to the Internet in least developed countries by 2020

Source: General Assembly (2015).

tourism, and environmentally sustainable development in general; however, it does so without elaboration. This surface-level ascription to the notion of sport for development aligns with broader trends in the SDP sector, where the *assumed* (sustainable) development benefits of sport remain influential even as they are challenging to demonstrate.

26.2 Theoretical foundations

The idea that sport can contribute to sustainable infrastructure speaks to broader and longer standing notions of industrialization as a measure and marker of development and modernity. Overall, the relationship between sport, sustainability, and development can be understood through various theoretical foundations. To that end, this section outlines three interrelated theoretical approaches that help to make sense of SDG 9 and the role of sport therein: development as modernization, ecological modernization, and modernity in a "New Climatic Regime." Within and from these various schools of thought, past, present, and future visions of sport and sustainable development have developed.

26.2.1 Development as modernization

As noted above, sport has been connected to a range of "development" objectives at the individual, community, and national levels for some time now. Indeed, mobilizing sport in pursuit of "social good" has a long and rich history dating as far back as the late 19th century,

whereby sport is understood to have an innate and universal ability to contribute to enhancing and expanding the social capacities of individuals and communities within a global political economic system. These include, but are not limited to, interpersonal health, educational outcomes, and gender equity (Coalter, 2010; Kidd, 2008). While SDP programming has traditionally focused on pro-social outcomes (e.g., gender equity, HIV/AIDS education, good health), the notion that sport can contribute to structural change, including economic and infrastructural growth, is also longstanding. Indeed, many have pointed to U.S. President Harry Truman's 1949 inauguration speech as the so-called "dawn" of the development era, whereby formerly colonized nations were discursively transformed into "underdeveloped areas." Truman pledged to "[make] the benefits of our scientific advances and industrial progress available for the improvement and growth of underdeveloped areas" to address the fact that "more than half the people of the world are living in conditions approaching misery," and whose economic lives were "primitive and stagnant" (quoted in Esteva, 1992, p. 6). Steeped in Cold War politics, Truman's speech reflected the hold of modernization theory over development thinking at the time. He presented a teleological vision whereby nation-states would progress along a path from premodern to modern via industrialization and liberal democracy.

While the hold of modernization theory has loosened, such visions of "development-as-modernization" continue to underpin much of the contemporary development discourse, including in the SDP sector. Perhaps the most precise articulations in this regard have been efforts to connect sport mega-events to domestic development strategies for host nations in the global South, including the 1968 Olympics in Mexico, the 2010 FIFA Men's World Cup in South Africa, and the 2014 FIFA Men's World Cup and 2016 Olympics in Brazil (see Bolsmann & Brewster, 2009; Death, 2011).

Given this context, it is perhaps unsurprising that sport has been connected to a broadened range of development objectives as codified within the SDGs, including building resilient infrastructure, promoting inclusive and sustainable industrialization, and fostering innovation (General Assembly, 2015). It is also important to reiterate that sport mega-events' environmental record to date is less than sterling, particularly concerning the reconfiguration of landscapes for infrastructural development that the Games require. Indeed, the harmful environmental impacts of sport mega-events have been a topic of study for some time now, with scholars like Cantelon and Letters (2000), Hayes and Horne (2011), Karamichas (2013), Lenskyj (1998, 2008), and Gaffney (2013) detailing the adverse environmental effects of hosting sports mega-events, including increases in waste production, massive carbon footprints from spectator travel, and the reconfiguration of natural landscapes for event construction. In particular, Karamichas (2013) has argued that there is little evidence to suggest that hosting sport mega-events can contribute to environmental sustainability in any meaningful way and that the Games may, in fact, compound environmental degradation. This continues to be the case even though notions of environmental "remediation" or "development" have specifically informed bids to host sport mega-events in Mexico (Bolsmann & Brewster, 2009), South Africa (Cornelissen et al., 2011), China (Zhang & Silk, 2006), and now Brazil (Boykoff & Mascarenhas, 2016a, 2016b; Gaffney, 2013; Millington et al., 2018). Further, Gaffney (2013) has argued that discourses of "sustainability" attached to sport and sport mega-events obscure the impacts of the events on local ecosystems and fail to foreground the environment in sustainable development matters.

26.2.2 Ecological modernization

In response to the realities of climate change, many civil society organizations have sought to mobilize an approach to sustainable development that offers environmentally and economically

friendly technocratic solutions to environmental issues. This process, known as ecological modernization (EM), posits that a super-industrial society's innovations will allow for existing production and consumption patterns to continue without impeding economic growth with burdensome regulation, albeit in a more environmentally friendly manner. In other words, the EM vision proposes that environmental protection *and* capitalist expansion can be pursued in tandem (Hannigan, 2006; Millington & Wilson, 2015).

As Wilson (2012) argues, the dominant approach to EM is one that aligns with market-driven responses to environmental issues in a manner that ostensibly showcases innovative technological solutions to address environmental problems. For critics, EM tends to prioritize economic concerns over environmental ones while advancing corporatized approaches to climate change that align with neoliberal logics of privatization and deregulation (see Hannigan, 2006; McCarthy & Prudham, 2004). In this regard, Wilson (2012) argues,

> the commodification of both "nature" and environmental impacts (e.g., in the development of carbon credits that can count against carbon emissions at sport events) is a central feature of neoliberal discourse, and something that ecological modernization discourse is either ambivalent to or implicitly supportive of in its commitment to the linking of economic growth and progress on environmental issues. (p. 11)

These debates are essential to keep in mind when considering the implications of SDG 9 and sport's role therein. Indeed, the EM approach is already prevalent in sport, including in sport leagues such as the NHL (johnson & Ali, 2018) and sport mega-events. Such events include the 2016 Summer Olympics in Rio de Janeiro (Millington et al., 2018; Prouse, 2019) and the 2018 Winter Olympics in Pyeongchang, Korea (Kim, 2019), which advanced an approach to sustainable development that separated environmental issues from economic ones while offering technology as the (only) way to overcome the environmental challenges of hosting the Olympics, as noted in further detail below.

26.2.3 Modernity in a "new climatic regime"

The inclusion of sport within the broad strokes of Agenda 2030 and the SDGs highlights the need to consider how sport and sport events can promote sustainable development, *as well as* the need to understand sport and sport events as environmental agents (with potentially deleterious effects) in and of themselves. Indeed, the environmental impact of sport—particularly sport mega-events—is of primary concern to SDG 9's objective of developing sustainable and resilient infrastructure, supporting economic development, and promoting inclusive and sustainable industrialization. This relationship is particularly important because, as we noted above, mega-events and discourses of sustainable infrastructure development have often gone hand-in-hand (Millington et al., 2018).

Here, it is important to note the contested nature of the term "sustainability." While it is ubiquitous in contemporary discussions of environmentalism and development, "sustainability" has long operated as a "strategically deployable shifter," mobilized by a variety of actors to meet equally diverse ends, ranging from the longevity of an organization or structure, to economic growth, to environmental protection and remediation (see Kirsch, 2010). In other words, the lack of coherent meaning and contextuality of the term allows it to stand in for everything and nothing at all (see Millington et al., 2020). Indeed, because of the ambiguity surrounding notions of "sustainable" development, various approaches may privilege economic expansion over environmental protection. Thus, potential (sustainable) development actors may be free to

continue operating under the same degenerative principles that necessitated the SDGs in the first place (see Raworth, 2017). These approaches are of grave concern to those pursuing substantive improvements in well-being and environmental protection under the umbrella of SDG 9. Such concerns are underpinned by notions of development-as modernization, as scholars such as Rist (2002) have defined development as:

> a set of practices, sometimes appearing to conflict with one another, which require—for the reproduction of society—the general transformation and destruction of the natural environment and of social relations. Its aim is to increase the production of commodities (goods and services) geared, by way of exchange, to effective demand. (p. 13)

These insights thus illustrate the tensions between development, modernization, and sustainability, particularly concerning the environment. Such tensions are explored to some degree by Bruno Latour in his recent work on the environment and modernity. Latour argues that human and non-human ecologies are "radically made and unmade according to the logics of capitalism"—logics tied to the infrastructural development within sport mega-events, for example—and that this new reality calls for the study of capitalism within ecological critiques (Latour, Stengers et al., 2018, p. 587). In this way, Latour argues for a "New Climatic Regime" that reconceptualizes the divide between human and non-human and challenges the idea of nature as exterior to politics (Latour, Milstein et al., 2018). In envisioning a New Climatic Regime, Latour calls into question epistemic divides between pre-modern and modern, from "stagnant, archaic and stifling past" (Latour, 2015, p. 211) away from nature and toward modern industrialized future, and advocates for a future in which:

> humans and non-human actants will interact on equal ground, ultimately leading to the evolution of a new body politic inclusive of non-humans, with Gaia – the ultimate assemblage of life on Earth – recognized as sovereign. In this context, neither politics nor society, but rather a new geosocial dynamic will be comprised from new ways of living and struggling on a damaged planet. (Latour, et al., 2018, p. 354)

In other words, "nature," the "environment," and "sustainability" are not to be understood as external or to be interacted upon, but rather as central parts of the conditions of humanity. As such, sustainable development approaches, with specific reference to sustainable infrastructure and industrialization, should be informed through a framework that includes non-humans and the environment *writ large* as equal stakeholders. It is in this view that sport's place within the environment (in general) and its potential contributions to infrastructure development and SDG 9 (in particular) might be imagined. For Raworth (2017), the kinds of transformational change required by genuinely sustainable development should push sport to consider not just how efficiently it can consume, but how effectively it can contribute to the regeneration of the (eco) systems in which it is embedded. In this way, sport's contribution to the SDGs would not be viewed as an agent external to the environment. Sport must instead be understood as profoundly implicated in climate change itself, in a manner that "emphasizes the agency of life-forms through collective actions between the scientific community, citizens, activists, politicians and non-humans," (Millington et al., 2020, p. 40) and which offers the most effective framework for fostering global sustainability, and for supporting sustainable development through sport (see also Lenton & Latour, 2020, p. 1). The agency of non-human actors is relevant in consideration of sustainable infrastructural development in sport and beyond.

In light of these three schools of thought, we move now to consider several connections between sport, the SDGs, and SDG 9 in particular. By interrogating these connections through *development as modernization*, *ecological modernization*, and the *New Climatic Regime*, we hope to make greater sense of the (potential) role for sport in "build[ing] resilient infrastructure, promot[ing] inclusive and sustainable industrialization and foster[ing] innovation" (General Assembly, 2015, p. 14).

26.3 Connections to sport

As noted above, the SDP sector has seen tremendous growth since the 1980s. Many non-governmental, corporate, and governmental organizations now employ sport to pursue a diverse range of development aims and objectives. However, interrogating sport's ability to contribute to *sustainable* development is a more recent trend in the field (see Millington et al., 2020). Despite this novelty, several international governing bodies—most notably the UN, the Commonwealth Secretariat, and the International Olympic Committee—have led the sport and sustainability charge. These three organizations form the focus of the discussion at hand pertinent to sport and sustainable development and SDG 9.

Neither the United Nations nor the Commonwealth directly discuss SDG 9 in their utilization of sport to achieve the SDGs. Moreover, it remains relatively unclear how both organizations perceive sport as contributing to SDGs that specifically focus on the physical environment. Their current action on the SDGs, rather, focuses on goals that are arguably peripheral to environmental health (Goals 1–5, 8, 11, and 16). And while there is less of a direct focus on SDG 9 itself, infrastructure, industrialization, and innovation are at the fore of strategies within the UN, IOC, and Commonwealth's sustainable development policies. Such strategies are folded into broad development objectives that presently champion continued pro-growth logic and promote economic investment and technological advancement within sport-related movements to achieve the SDGs.

However, it is clear that public-private partnerships (PPP) have been forwarded as a significant driver of sustainable development, industrialization, and innovation through sport. In the UN Toolkit for achieving the SDGs through sport, for example, the UN identifies the "inclusion of a powerful global player that was critical to achieving the (SDGs): the private sector" (Sustainable Development Goals Fund, 2018, p. 48). The Toolkit also notes the "changing role" of corporations from "donors" to "actors" within the 2030 Agenda, who were invited to deliberate with development agencies at the 2012 Rio+ 20 Conference. Additionally, the Toolkit notes growing reliance on the business sector for its experience and resources from development organizations and the innovation potential amongst private entities to create sustainable products and services that align with the achievement of the SDGs.

Rio+ Conference executive coordinator and former UN Secretary-General Elizabeth Thompson states that through sport, multiple SDGs could be achieved through collaborations across sectors that collectively work on sustainable targets (Sustainable Development Goals Fund, 2018). Referred to as the *nexus approach*, Thompson explains that such a strategy can identify and mobilize the connections between the SDGs to formalize strategies that address multiple goals at once. This is perceived as a sustainable approach to fulfilling the SDGs and as a natural fit with sport's versatile character to address development objectives. According to the UN, such an approach will also alleviate risk in programming due to shared responsibility and expertise between the development and private spheres. Indeed, one of the Toolkit's primary recommendations is to encourage such partnerships to "incentivize and fast-track" sustainable development through sport.

Within the Commonwealth Secretariat, SDP is perceived as contributing to the SDGs through a similar strategy through its Commonwealth Strategic Plan – Transformation 2022, which prioritizes public, private, and social partnerships (Dudfield & Dingwall-Smith, 2015). In their publication on the 2030 Agenda for Sustainable Development, the Commonwealth does not explicitly address SDG 9 but does promote ways to build infrastructure in resilient and sustainable practices through industrial innovation. In a discussion of SDG 8 (Decent Work and Economic Growth), for example, the importance of PPPs for financing and supporting the SDGs through sport is emphasized (Dudfield & Dingwall-Smith, 2015). Utilizing such partnerships for mitigating risk and incentivizing investments in SDP enterprises are also held up as ways to use sport-based interventions for sustainability goals. Multi-stakeholder partnerships have been further emphasized amongst committees within the Commonwealth in contributing to sustainable development through sport. At the 2017 Commonwealth Advisory Board on Sport (CABOS) meeting, the Chair's statement focused on the importance of these partnerships for long-term strategic planning and harmonizing evaluation mechanisms within national sport frameworks.

The 2019 Commonwealth Toolkit for measuring the contribution of sport, physical education, and physical activity to the SDGs aims to fold PPPs into its broader strategies and utilize "innovative" forms of evaluation criteria. The Toolkit aims to align sport policies among its members with the SDGs through collaborative, multi-sector work and by drawing "on multiple innovative data sources and bridging levels and types of data" (Hatton et al., 2019, p. 17). The Toolkit promotes what it calls a tiered approach to measurement by classifying indicators into three categories: broad, universal indicators (percentage of the population that is physically active) to specific project-level interventions that capture both the depth and type of impact. Notably, the Toolkit concludes by stating that better data collection and tracking will guide effective ways for governments, sport bodies, and corporate partners to invest in development initiatives on sustainability.

In contrast to the UN and Commonwealth, the IOC positions itself as an organization able to directly contribute to 12 of the 17 SDGs, including the ninth goal on infrastructure, industrialization, and innovation. The IOC's Sustainability Strategy, which was developed in consideration of the SDGs, consists of three spheres of responsibility: the IOC as an organization, the IOC as the owner of the Olympic and Paralympic Games, and the IOC as leader of the Olympic Movement. Its five focus areas are also intertwined with SDG 9, though mainly the IOC's focus on infrastructure and natural sites, sourcing and resource management, and workforce (IOC, 2017).

The IOC has 18 specific objectives within these spheres, many of which directly apply to infrastructure and innovation. The first eight objectives focus on making the IOC physical and social work environments more sustainable. Olympic House—the IOC's main headquarters—was constructed according to global sustainability standards (IOC, 2017). The organization also aims to reduce its company waste, sustainably procure goods and services for its organization, promote staff commuting and healthy lifestyles, and achieve carbon neutrality by reducing or compensating (offsetting) GHG emissions. In objectives 11 to 13, the IOC aims to assist host cities in constructing, maintaining, and evaluating innovative and sustainable infrastructure for the Games' staging and legacy planning. Finally, in objectives 14 and 15, the IOC focuses on information sharing of best practices amongst key stakeholders and organizations to further develop "innovative" solutions for sustainability (IOC, 2017).

It is important to note, within the IOC's various sustainability initiatives, that while their documents are not as explicit as the UN and the Commonwealth in their promotion of partnerships, the private sector remains an essential element within their organization. As part of the organization's noted achievements from 2015 to 2017, the IOC consulted with the business

sector and the UN and NGOs in creating its four-year action plan to support the implementation of the sustainability objectives noted above (IOC, 2019). Moreover, the Sustainability and Legacy Commission, which was created in support of the Olympic Agenda 2020 as an advisory group to IOC governing bodies, includes "TOP" partners (the highest level Olympic corporate sponsors; IOC, 2019). Perhaps even more indicative of the organization's orientation, the Sustainability Unit lies within the Corporate Development, Brand and Sustainability Department (IOC, 2018).

It is also worth noting how the IOC's sustainability initiatives are mobilized in practice in pursuit of sustainable infrastructural development. The 2016 Olympic and Paralympic Games in Rio de Janeiro, Brazil, offer a telling example. In many ways, the 2016 Games illustrate the strategically deployable nature of "sustainability" and EM approaches underpinning sustainable infrastructure development in sport. Indeed, much of the discourse advanced by the IOC and the Olympic stakeholders in Brazil promoted the sustainable development potential of the Games and promoted the notion that hosting the Games cannot only be done in an environmentally friendly manner but can *improve* the environment, and the capacity for sustainable development, in host cities and nations (Millington et al., 2018). For example, the IOC and other stakeholders framed the construction of a new golf course on environmentally protected land as an opportunity not only to render the previously "idle" land economically productive but would also to advance environmental protection and remediation strategies for the local wildlife and waterways. While the Games ultimately failed to deliver on many sustainable development promises, the case illustrates how technological advancement through course design and management was imagined to contribute to sustainability while opening new avenues of profitability and overcoming burdensome environmental regulation.

26.4 Critiques/Conclusion

Recent critiques of approaches to sport and sustainable development have contextualized such strategies within an ecological modernist framework that advances a connection between industry and environmentally sustainable futures (Kim, 2019; Millington et al., 2018; Wilson, 2012). In this chapter, we demonstrate similar tendencies within the IOC, Commonwealth, and UN. Furthermore, SDG 9 also assumes a pro-growth logic that advocates for "sustainable" and "innovative" industrialization. Based on this logic, it is unsurprising that responses to the SDGs by the UN, Commonwealth, and IOC forward sustainable development strategies that rely on ostensibly innovative solutions, technological advancements, and, perhaps most importantly, continued consumption of the Earth's resources. Commonly highlighted within these guiding documents is the need for sophisticated evaluation mechanisms for measuring the change in ecological harm following the prescribed interventions. While this is indeed an important undertaking, it is essential to question how long such powerful organizations will be allowed to point to this need without ever addressing it in a meaningful way.

Certain aspects of these policies seem to be leaning toward more progressive thinking on how to limit growth. The IOC, for example, would consider already existing infrastructure as an asset for bid cities that may not need to "start from scratch" in making their city ready for a Games. Such examples, however, tend to be exceptions within a broader approach focused on responsible forms of growth that mitigate and measure environmental impact, rather than actively contribute to environmental health and well-being. It is crucial to point out that within policies structured this way, there is little room for debate around whether growth can indeed support (genuinely) sustainable development and even less room for creative thinking around the role of sport in such conversations.

The choices that powerful sport organizations make concerning partnerships in sustainability ventures will significantly shape the SDGs' parameters. This makes the growing reliance on the private sector through PPPs more critical in understanding how terms like "resilient infrastructure" and "sustainable industrialization" are defined and what the consequences of those definitions are for our most vulnerable populations.

In returning to Latour, it is also difficult to envision how the current approaches to sustainability adopted by the IOC, UN, and Commonwealth align within with ideals of the New Climatic Regime. The continued reliance on reducing or offsetting the environmental costs of growth and operations within the present sporting infrastructure leaves little room for a deeper exploration of the pro-growth logic that shapes that infrastructure. Moreover, it is worth exploring whether the SDG 9 goal of building infrastructure that is "resilient" represents a forecasting of the ways in which societies will soon have to adapt to the disastrous effects of climate change. Rather than mobilizing sporting infrastructures as possible "regenerative agents" of the environment, it seems that such infrastructures could also be developed to withstand the effects of its deterioration. Such movements, we argue, would align within current sport delivery frameworks that maintain a (discursive) separation between themselves and nature/environment, rather than those underlined by codependence and regeneration. This does not mean that SDG 9 cannot be reframed within these latter goals. Rather, innovation, often uncritically associated with technological advancement and growth, can be deployed and informed by climate science and sport and recreation approaches, but to do so requires foregrounding the mutual dependence between human and non-human actors and communities.

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Measuring Sustainable Development Goal 9

Joanna Wall Tweedie

SDG 9 pertains to improving living standards through industrial development, sustainable infrastructure, and innovation. This chapter will include a discussion about the progress made toward SDG 9, as reported in the Secretary-General's *Progress Towards the Sustainable Goals* report (UNESC, 2019). Commentary is included in regard to the effects of COVID-19 on SDG 9. Secondly, the potential for measurement of the SDG 9 indicators related to sport will be addressed. There has been limited consideration of SDG 9 in the sporting world, in contrast to some of the other sustainability goals, and thus, a discussion will include suggested opportunities for making these connections. The final section will be focused upon the challenges of implementing and measuring SDG-9 within the sporting context.

27.1 Indicators of progress

There has been limited progress toward SDG 9, owing to the prevailing global economic environment (UNESC, 2019). However, according to the Secretary-General's *Progress Towards the Sustainable Goals* report (UNESC, 2019), significant progress has been made by way of mobile connectivity (target 9.c), and there has been an impressive increase in financing for economic infrastructure in developing countries (9.a). Conversely, it was noted in the recent progress report that the least developed countries face major challenges if manufacturing industries' share is to be doubled by 2030 (per target 9.2). Investment in research and innovation remains below the global average in these developed countries (SDG 9.5). The proceeding section includes a more detailed explanation of progress toward the SDG 9 targets, particularly as reported in the Secretary-General's 2019 report (UNESC, 2019), with reference also to the previous progress reports.

Target 9.1 emphasizes efficient, reliable, and sustainable transportation as key drivers of economic development. Freight and passenger volumes per mode of transport are one proposed indicator of progress for this target (indicator 9.1.2). Maritime transport has been identified as a particularly critical enabler of trade and globalization, with over 80% of world merchandise trade by volume being transported by sea (UNESC, 2019). The 2019 progress report highlighted that there has been an increase in maritime freight internationally by an estimated 3.7% and projected growth will "test the capacity of existing maritime transport infrastructure to

support increased freight volumes" (p. 15). Previous progress reports emphasized continued inequities between developed and developing countries in air passenger travel and air freight volumes—landlocked countries and small island developing States comprises especially low proportions (UNESC, 2017). Additionally, the COVID-19 pandemic has had devastating effects of the aviation industry. The International Civic Aviation Organization estimated losses of between \$302 billion and \$400 billion in gross operating revenues in 2020 compared to business-as-usual operations (UNESC, 2020). The recovery of the aviation industry will require a coordinated global effort, which would also accelerate recovery in other sectors, such as tourism and trade.

Progress toward inclusive and sustainable industrialization (target 9.2) has been constrained particularly in the least developed countries. The United Nations Economic and Social Council highlighted that these developing countries face significant barriers if target indicators are to be reached by 2030 (UNESC, 2019). Trade and tariff barriers have constrained investment and future growth resulting in slowed global manufacturing in 2018 for both developing and developed countries. The global share of GDP in terms of manufacturing value-added increased annually from 15.9% in 2008 to 16.5% in 2015 but remained stagnant at this level in 2018 (indicator 9.2.1). The second indicator for target 9.2 describes the relative importance of manufacturing employment to total employment, and there has been a simultaneous decline in the share of manufacturing employment to total employment from 15.3% in 2000 to 14.2% in 2018. As explained in the 2019 progress report, "countries gradually reallocated production factors from agriculture and low-value added manufacturing towards high-value added manufacturing and services" (p. 15). The already slow manufacturing growth entered a global slump as a result of the pandemic with serious impacts on the global economy (UNESC, 2020).

Target 9.3 pertains to the access of small-scale industries to financial services and their integration into value chains and markets. The 2019 progress report does not include commentary on progress aligned with these indicators. However, in the 2016 progress report it was noted that in developing countries in 2015, small-scale industries equate 15–20% of value-added, and 25–30% of total industrial employment. However, there remains problematic access to financial services in these countries, and 45–55% of small and medium enterprises in emerging markets are unserved or underserved by financial services (UNESC, 2019). Small-scale industrial enterprises are a major source of employment in developing and emerging economies and will pay a crucial role in the resuscitation of the global economy post-COVID-19 (UNESC, 2020). However, these enterprises are inherently vulnerable to unexpected shocks like the pandemic, and will require better access to financial services to recover.

Target 9.4 promotes upgrades in infrastructure and industries that improve resource conservation and environmental sustainability. Since the inception of the Sustainable Development Goals, many countries have progressed toward less energy-intensive industries resulting in their general decline in emissions of CO_2 per unit of manufacturing value-added (UNESC, 2017). The 2019 progress report specifies a 20% decline in CO_2 emissions from manufacturing from 2000 to 2016, to 0.30 kg CO_2 per U.S. dollar—a positive indicator for the decoupling of CO_2 emissions and economic growth.

There has been mixed progress toward enhanced scientific research and technological capacities (target 9.5). Globally, there has been an increased proportion of GDP invested in research and development from 1.52% in 2000 to 1.68% in 2016 (UNESC, 2019). The COVID-19 pandemic has certainly highlighted the necessity of increased investment in research and development. However, the most developing regions are falling short of the global average, and in contrast, Europe and North America boast 2.21% of GDP invested in research and development. There has been an increase in the number of researchers per million

inhabitants from 804 in 2000 to 1,163 in 2016. The United Nations Economic and Social Council caution that the number of researchers per million inhabitants in sub-Saharan Africa is only 91 (UNESC, 2019).

There has been significant improvement in financing for infrastructure in developing countries (target 9.a). It was highlighted in the progress report that total official flows for economic infrastructure in developing countries reached $59 billion in 2017, an increase of 32.5% in real terms since 2010. Within this total, the main sectors assisted were transport ($21.6 billion) and banking and financial services ($13.4 billion; UNESC, 2019).

Target 9.b reflects the need to support developing countries in their domestic technological development to ensure industrial diversification and value addition commodities consistent with global manufacturing trends. There has been an increasing shift toward manufacturing that is focused upon more technologically complex products (UNESC, 2017). In 2016, medium-high and high-tech sectors accounted for 44.7% of the global manufacturing value-added. Medium-high and high-tech products dominate manufacturing in Northern America and Europe, equating to 47.4% in 2016; however, this remains in stark contrast to 10.4% in the least developed countries (UNESC, 2019).

One area of impressive progress has been mobile connectivity targets (target 9.c). Target 9.c is of clear importance in the context of the COVID-19 global pandemic and associated restrictions. The 2019 UNESC progress report highlights that most of the global population are now living within range of a mobile cellular network, in contrast to 69% globally in 2015. Further, 90% of people now live within range of a 3G-quality or higher network. A significant caveat in interpreting this progress is that mobile network evolution is occurring more rapidly than the percentage of the population using the Internet, due to affordability barriers for these services.

The breakdown of progress across the indicators offers a picture of global progress toward SDG 9, but the overarching view is that there has been limited progress. The subsequent section provides details on how sport organizations can contribute to SDG 9 and potential measurement within the sport context.

27.2 Sport examples

In contrast to some of the other SDGs, Goal 9 lacks obvious avenues for the contribution of sport. For example, Commonwealth stakeholders underwent extensive consultation to identify six SDGs that sport is positioned to make effective and cost-efficient contributions toward—SDG 9 was not one of these (Lindsey & Chapman, 2017). The document published by the Commonwealth Secretariat titled *Enhancing the Contribution of Sport to the Sustainable Development Goals* (Lindsey & Chapman, 2017), did not include any discussion of SDG 9. The Sustainable Development Goals Fund (2018) provides recommendations for the contribution that sport can make toward the SDGs and did not include SDG 9 among the eight identified as areas for sport playing a critical role.

The United Nations Office on Sport Development and Peace (UNOSDP) provide ideas for the way in which sport can contribute to each of the Sustainability Goals (UNOSDP, 2011). In regard to SDG 9, some of these ideas included are very broad and difficult to envision practically or to align specifically with the existent indicators. For example, in regard to SDG 9, UNOSDP states, "Sport-based employment and entrepreneurships can contribute to create decent jobs for all by complying with labor standards throughout their value chain and in line with businesses and policies" (p.10); positive sentiment notwithstanding, this statement does not readily translate to any of the specified SDG 9 indicators. Overall, the UNOSDP recognized

that the growth of the sport industry could translate to economic growth and provide employment opportunities. Sporting events may also provide particular opportunities for promoting new infrastructure and fostering innovation. However, measurement within the sport context in relation to SDG 9 proves elusive. Below, sporting examples will be discussed in relation to SDG 9, focusing upon an event, the 2010 FIFA Men's World Cup in South Africa, and two stadiums, Johan Cruijff Arena in Amsterdam and the Gahanga Cricket Stadium in Rwanda.

27.2.1 2010 FIFA Men's World Cup

The 2010 FIFA Men's World Cup in South Africa provides an example of a sporting event addressing and promoting initiatives consistent with SDG 9. In particular, it catalyzed more sustainable infrastructure via public transport, renewable energy, and energy efficiency in the country. Substantial planning efforts were directed toward improved sustainable transport in South Africa; a 94-km Bus Rapid Transport network was constructed in Johannesburg with similar networks, cycle paths, Park and Ride systems, and walkways built in the other host cities (UNEP, 2012). An improved transport system was recognized as the main legacy project of the event in South Africa with the recognition that subsequent efforts were needed to expand the network, ensure roadworthy vehicles, and improve the image of public transport (UNEP, 2012). Thus, the World Cup facilitated sustainable and resilient infrastructure development in South Africa, broadly consistent with target 9.a. However, these initiatives would not be captured in the SDG 9.a indicator, which is focused upon the level of support received and utilizes total official international support (official development assistance plus other official flows) as measurement.

South Africa's advancement in transport also equates to upgrading industries to make them more sustainable and adopting clean and environmentally sound technologies—consistent with target 9.4. The United Nations Environment Programme (UNEP) provided an extensive review of the 2010 World Cup's green performance and identified energy efficiency and renewable energy to be substantive achievements that could be carried forward to ensure lasting improvements for South Africa (UNEP, 2012). The renewable energy projects were tied to a national energy policy and therefore, they could be deemed a catalyst steering South Africa away from its dependency on coal. UNEP found the South Africa World Cup's carbon footprint to be much lower than expected (UNEP, 2012), and it is reasonable to expect that the initiatives carried forward would translate to improvements in CO_2 emissions per unit of value added (indicator 9.4.1). Additionally, host city Durban introduced carbon sequestration, substantive tree planting, and planned hydropower and biogas schemes to completely offset the city's carbon footprint of 307,000 tons of CO_2 equivalent (UNEP, 2012).

The World Cup in South Africa points to the shortcomings of sustainability goals that are focused solely on emission reduction or that utilize measures that only entail CO_2 emissions. More fruitful sustainability efforts can be aimed at positive transformation. Sporting events, such as the World Cup, provide the host city opportunities for lasting emission reductions and progress toward decoupling of CO_2 emissions and economic advancement. South Africa's areas of sustainability achievements tied to the World Cup underscore that ambitious sustainable transformation can only occur if addressed in the event planning stage—particularly, for infrastructure progress consistent with SDG 9.

The UNEP review did not link South Africa's green performance to SDG 9 and instead linked the achievements in energy efficiency, renewable energy, and public transport to other SDG targets, including those related to green energy (SDG 7) or sustainable communities (SDG

11). UNEP's classification of these initiatives does not negate the fact that these achievements are consistent with SDG 9 but rather highlights the interconnectedness of the different sustainable development goals. It is necessary to stipulate that mega events such as the World Cup are unlikely to be a panacea to sustainable infrastructure and innovation. However, when sustainability is placed as a priority from the initial event planning, coupled with measurement, there is an opportunity for these events to promote lasting infrastructure upgrades.

27.2.2 Amsterdam Innovation Stadium

Amsterdam Innovation Stadium is part of Johan Cruijff Arena (stylized as ArenA) and home of AFC Ajax. The stadium has been dubbed one of the most sustainable sports venues in the world (Price, 2019). However, the contribution extends beyond carbon footprint and waste minimization, with an emphasis on sustainable innovation. The Johan Cruijff Arena depicts an extension of the role of the sport stadium beyond hosting events, to that of an incubator and driver of innovation sustainability and digitization for the city—consistent with the themes of SDG 9. The arena has been considered by the Amsterdam government as a high-profile icon to inspire other businesses to adopt sustainability practices (Johan Cruijff Arena, 2019). A public-private initiative, the arena is an integral part of Amsterdam's smart city initiative. Collaborations between the arena, local municipality, universities, and private partners reflect research and development expenditures that encourage innovation and upgrading technological capabilities, which would likely impact the number of research and development workers (indicators 9.5 and 9.b). Thus, it would be straightforward to measure the contribution of the arena to these specific indicators.

Johan Cruijff Arena and the neighboring area of Amsterdam South East function as a hotspot for testing innovations that have subsequently been adopted in other stadiums or smart cities. An example of technologies developed for Johan Cruijff Arena includes an energy storage system using second-life and new electric vehicle batteries that allow for more reliable and efficient energy supply and usage for the arena, neighbors, and the Dutch energy grid (Price, 2019). These innovations demonstrate increased resource-use efficiency and would be reflected in the measurement of CO_2 emissions per unit of value-added (indicator 9.4.1). Johan Cruijff Arena demonstrates a stadium–city synergy with technologies and practices that can be replicated by other smart cities. In 2019, the Johan Cruijff Arena was commissioned by the Indian Ministry of Electronics and Information Technology to establish a Living Lab in Hyderbad as part of India's Smart Cities Mission (Johan Cruijff Arena, 2019). Hence, the sustainability and technological innovation showcased in the highly-visible sport stadium can transcend national boundaries and encourage and assist similar investments in the developing world. The contribution of these initiatives to support domestic technology development can be measured as a proportion of medium and high-tech value-added, which can then be compared to the overall proportion of medium and high-tech industry value added in total value added (indicator 9.b.1).

27.2.3 Gahanga Cricket Stadium

Rwanda's Gahanga Cricket Stadium, also known as Kicukiro Oval, provides an additional example of a sport stadium serving as a hub for sustainable development (Price, 2019). *Rwanda Vision 2020* is the government's development program aimed at transforming the African country into a knowledge-based, middle-income country. *Rwanda Vision 2020* outlines the objective for Rwanda to shift from an agricultural to an industrial economy. Rwanda Vision

2020 included sport-related infrastructure projects, notably, the building of the Gahanga Cricket Stadium. The project was funded by a British charity, Cricket Builds Hope, which asserts that cricket can be a unifying force in the country (*The Economist*, 2019). The stadium is located 30 minutes from Kigali and was built with sustainable construction methods utilizing local materials and training local communities with new skills that can be readily translated to other projects (Price, 2019).

Additionally, the labor for the Gahanga Cricket Stadium was sourced via the Vision 2020 Unurenge Programme, a government-led social protection program aimed at the two poorest categories of the population. The stadium also houses programs for health, education, and female empowerment. The venue and Rwanda's growing participation in cricket can assist in raising awareness of the country and its problems, enticing tourism, and investment (Price, 2019). The Gahanga Cricket Stadium project and its embeddedness in Rwanda Vision 2020 align with the targets of SDG 9 and signify further opportunities for sport's role in sustainable infrastructure in the developing world. It would be useful to have an objective follow-up of the local communities involved in the project to quantify subsequent employment and new skill utility, via measures that can be viewed in light of Rwanda's target 9.2 indicators.

The three examples illustrate that there may be opportunities for the contribution of sport to SDG 9, but those such efforts may not be captured within the SDG indicators. Certainly, initiatives consistent with SDG 9 particularly require cross-sector planning and ongoing monitoring. The following section highlights some of the challenges to the implementation and measurement of the SDG in a sporting context.

27.3 Implementation and measurement challenges

SDG 9 does not comprise low hanging fruit for sports entities' sustainability progress. A key challenge for implementing SDG 9 in or through sport is that it is not readily identified as one of the SDGs that sport can contribute toward. The Commonwealth Secretariat argued against positioning sport across all the SDGs, and SDG 9 was omitted from the prioritized SDG targets for sport to contribute toward (Commonwealth Secretariat, 2018; UNOSDP, 2011). Sport organizations are therefore likely to prioritize other SDGs. However, it can be contended that there remains some opportunity for sport to contribute to SDG 9, with the additional advantage that SDG 9 necessitates a focus upon enduring impacts rather than transactional contributions. The examples discussed in the previous section demonstrate how sport could contribute to the existent SDG 9 indicators, such as the reduced carbon emissions per unit value added (indicator 9.4.1). However, sport's contribution is likely to align with the goals and targets, but in a manner not captured by the formal indicators.

Additionally, not all investment in sport is intended to or capable of contributing to non-sport sustainable development outcomes. There is an inherent challenge to effectively measuring and evaluating the contribution of sport to non-sport development outcomes. It is certainly difficult to demonstrate sport's contribution when parallel initiatives are addressing the same objectives. Per the aforementioned sport event and stadium examples, if sport is to benefit SDG 9 targets, related objectives and cross-stakeholder collaborations must be established from the initial planning stages. There is a particular need for extensive cross-sector collaborations to deliver meaningful sustainable infrastructure and innovation achievements.

A key problem for measuring the impact of sport toward SDG 9 is the lack of environmental data. There is a need for improving SDG data overall, and in relation to sport and sustainability (Commonwealth Secretariat, 2018). In its analysis of the Men's World Cup in South Africa, UNEP also noted the lack of environmental data collected as a barrier for measuring the impact

of the event on sustainability objectives (UNEP, 2012). Furthermore, the generation of environmental data allows for benchmarking performance and can be used to inform planning efforts for future events. As stated previously, sport-related efforts toward SDG 9 require early planning and cross-sector collaboration, and measurement must be central to these efforts. Sport-related data collection has been one-off and instead, there needs to be more emphasis on time-series data to track trends changes (European Commission, 2013).

It is only with effective measurement that there can be accountability. Existent lack of accountability for the sustainability objectives set by sporting organization impairs the actualization of sustainability achievements. In regard to the 2010 FIFA Men's World Cup, UNEP was critical of vague language within Host City Agreements that ensured any sustainability commitments were non-binding (UNEP, 2012). UNEP contends that there needs to be clear and legally-binding environmental guidelines for host city and sponsor contracts. Strengthening the accountability associated with hosting sport events would promote the comprehensive planning and cross-sector partnerships required to target sustainable infrastructure and innovation. Added pressure on sport organizations to deliver measurable and enduring sustainability objectives may in turn increase the likelihood that sport contributes toward SDG 9.

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Applying Sustainable Development Goal 9

E. Nicole Melton and Karina Herold

The Los Angeles Sports and Entertainment Commission (LASEC) is a nonprofit organization—officially designated by Los Angeles Tourism—to attract, secure, and support high-profile events for the Los Angeles region. The area is home to 10 professional sports teams (Dodgers, Lakers, Clippers, Kings, Rams, Chargers, Sparks, LAFC, Galaxy, and the new Angel City FC) that play in both iconic venues (i.e., Los Angeles Memorial Coliseum, STAPLES Center) as well as new, state-of-the art facilities (i.e., SoFi Stadium, Banc of California Stadium). Since 1995, LASEC has focused exclusively on hosting events in these venues that produce lasting and positive economic, cultural, and social impacts for Los Angeles County (Los Angeles Sports & Entertainment Commission, n.d.-c).

Toward this goal, LASEC has built a specialized supportive ecosystem of public, for-profit, and nonprofit organizations to ensure their events have the proper infrastructure, fulfill the event's financial obligations to the city, and enhance the lives of residents—particularly min-oritized populations and those from underserved communities. Their strategy has made Los Angeles one of the most desired host cities in the world and allowed LASEC to hold several premier events in the coming years. Such events include the 2021 Major League Soccer All-Star Game, 2022 Super Bowl LVI, 2022 Major League Baseball All-Star Game, 2023 College Football National Championship, 123rd U.S. Open Championship, and the 2028 Summer Olympic and Paralympic Games.

28.1 Relationship to SDG 9: narrowing the income inequality gap through innovation

The County of Los Angeles is one of the largest and most diverse regions of the world. With more than 10 million residents living in 88 incorporated cities and 76 unincorporated areas, the county is more populous than 41 individual U.S. states. In terms of diversity, the five largest racial and ethnic groups are white (non-Hispanic; 25.9%), white (Hispanic; 25.4%), Other (Hispanic; 20.2%), Asian (non-Hispanic; 14.6%), and Black (non-Hispanic; 7.8%). In over half of the households in LA County (56.9%), English is not the primary language used at home, and 34.2% of the population was not born in the United States (Data USA, 2019).

Los Angeles Country also boasts the third-largest metropolitan economy in the world. However, some groups are realizing more gains from the growing economy than others. Sixteen percent of residents live under the poverty line, and LA County has greater income inequality than the national average (Fred Economic Data, 2019). A key reason for such disparity is the changing economic structure in LA. Specially, the area has seen a sharp decline in middle-wage jobs such as trade, construction, and manufacturing, while low-wage jobs and high-wage jobs have increased (Ali, 2017). This shift has particularly impacted racial minorities, as nearly 25% of Black and Hispanic residents live below the poverty line, compared to only 10.6% of white residents. Furthermore, working-aged women are far more likely to be considered living in poverty than men.

To help meet the needs of the people living within LA County, LASEC has a vested interest in pursuing SDG 9, which is to "build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation." Specifically, by creating events that bring job opportunities and training for skilled occupations, LASEC can help narrow income inequity in LA and the surrounding communities.

28.2 Solutions through ChampionLA

In 2019, LASEC created ChampionLA, a private-sector initiative with the specific goal of attracting the highest-profile sports and entertainment events in the world. The ChampionLA committee states that:

> Our mission is to help build a brighter, more vibrant city through the proven economic engine of hosting successful high-profile events. We work hard to ensure that Los Angeles is selected to host events that deliver significant and equitable economic benefits, huge community engagement opportunities, and extraordinary visibility… Done right, these events can create a legacy that goes well beyond the main stage, creating valuable opportunities across communities to build a stronger Los Angeles that will last for generations. (Los Angeles Sports & Entertainment Commission, n.d.–a)

ChampionLA's work with Super Bowl LVI illustrates a variety of ways LASEC is supporting SDG 9. Consider the Super Bowl LVI Business Connect program, a partnership between ChampionLA and the NFL. The program identified LA-based companies that were (a) owned by a racial minority, woman, LGBTQ+ individual, or veteran and (b) could compete for contracting opportunities related to Super Bowl LVI. For the 250 businesses that were selected, Business Connect created networking opportunities and facilitated workshops to prepare suppliers to compete for contracts and focused on new business strategies that helped member companies develop and grow their customer bases and revenue streams. Lentini Design & Marketing, Inc. is one example of a business selected through the Business Connect program. It is a small, woman- and minority-owned branding and marketing firm hired to design the website for Super Bowl LVI. This opportunity allowed the firm to showcase its creative talent and technical abilities to a larger audience, which enabled them to attract new clients and expand its workforce.

ChampionLA partnered with the LA84 Foundation and the NFL to create the Super Bowl LVI Legacy Program, titled *Champions Live Here*. The committee selected and provided grant funding to 56 local community organizations that were inclusive, collaborative, resourceful, innovative, and focused on driving impact in youth development, jobs and economic opportunity, and social justice (Los Angeles Sports & Entertainment Commission, n.d.–b). One

organization supported through this program is *URBAN TXT: Teens Exploring Technology*. URBAN TXT inspires young Black and Brown boys from low-income communities to become technology entrepreneurs in a supportive environment. LA Legacy Teen Tech Center is another organization supported by *Champions Live Here*, a tech education program committed to improving tech equity within disinvested communities. By working with Best Buy, they provide students access to cutting-edge technology, resources, and training to spur innovation. Both organizations are helping students build the confidence and skillsets they need to pursue careers in technology.

28.3 Collaboration is key to sustainable change

LASEC events are more than a moment in time. They provide a significant return on investment by putting capital into the Los Angeles economy and creating lasting benefits for communities. In fact, LASEC suggest the 2015 Special Olympic World games produced $415 million in ROI for the community, and the 2018 NBA All-Star Game generated $116 million. Through the efforts of ChampionLA, the 2022 Super Bowl is projected to create a $572 million ROI for LA County. The success of LASEC rests largely on tapping into the unique skills and resources their ecosystem of for-profit, nonprofit, and public entities provide. When large companies invest in the events, small businesses are given opportunities to grow, and experienced nonprofits make a measurable impact on the communities they serve, the LA area flourishes. LASEC is a testament to what can be accomplished when community members work together to create sustainable change.

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Part X

Sustainable Development Goal 10: reduced inequalities

An overview of Sustainable Development Goal 10

Mary A. Hums, Eli A. Wolff, and Catherine Carty

The definition of SDG 10 is to "reduce inequality within and among countries" (General Assembly, 2015, p. 13), and its targets are listed in Table 29.1.

29.1 Theoretical foundations

As we begin this chapter, it is important to note the importance of diversity and inclusion in our modern world:

> We live in a simultaneously expanding and contracting world of people, places, technology, policy, travel, and communication. These all lead to culturally rich environments replete with diverse points of view. Once thought of as the way of the future, to be more accurate, diversity and multiculturalism are the realities of the current international business environment. To opt out of this reality is to choose to be left behind. (Hums, 2020, p. 205)

While it is essential that we value diversity and inclusion, we must also admit that working toward diversity and inclusion implies that inequalities, often taking the form of structural discrimination, exist. Once we come to recognize that, we can then attempt to mitigate these inequalities as best we can in their appropriate cultural context. These inequalities cannot be overcome, however, without first truly identifying their root causes. For example, while the Black Lives Matter movement has gained great momentum as we turn into the 2020s, merely acknowledging the movement by carrying signs is insufficient to combat racism. Rather, one must dig deeper to unearth the underlying reasons why we need to have a Black Lives Matter movement at all—inherent systemic racism that manifests itself in the forms of imbalances in poverty levels and health care, as well as voter suppression and police brutality—which disproportionately impact marginalized and minoritized brown and Black people. To put this chapter in perspective then, we continue with this quote:

> It is worth noting that "leave no one behind"—the mantra of the SDGs—cannot be realized for the vast majority of goals without ending structural discriminations in society. Indeed, the right to access sport is grounded in the broader right to equal and

Table 29.1 Targets of Sustainable Development Goal 10

10.1	By 2030, progressively achieve and sustain income growth of the bottom 40% of the population at a rate higher than the national average
10.2	By 2030, empower and promote the social, economic and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status
10.3	Ensure equal opportunity and reduce inequalities of outcome, including by eliminating discriminatory laws, policies and practices and promoting appropriate legislation, policies, and action in this regard
10.4	Adopt policies, especially fiscal, wage and social protection policies, and progressively achieve greater equality
10.5	Improve the regulation and monitoring of global financial markets and institutions and strengthen the implementation of such regulations
10.6	Ensure enhanced representation and voice for developing countries in decision-making in global international economic and financial institutions in order to deliver more effective, credible, accountable, and legitimate institutions
10.7	Facilitate orderly, safe, regular and responsible migration and mobility of people, including through the implementation of planned and well-managed migration policies
10.a	Implement the principle of special and differential treatment for developing countries, in particular least developed countries, in accordance with World Trade Organization agreements
10.b	Encourage official development assistance and financial flows, including foreign direct investment, to States where the need is greatest, in particular least developed countries, African countries, small island developing States and landlocked developing countries, in accordance with their national plans and programmes
10.c	By 2030, reduce to less than 3% the transaction costs of migrant remittances and eliminate remittance corridors with costs higher than 5%

Source: General Assembly (2015).

> non-discriminatory access to take part in cultural life set out in Article 15 of the International Covenant on Economic, Social, and Cultural Rights. This is supported by specific provisions in other UN Conventions addressing the right to access sport for potentially vulnerable groups or those that may suffer from structural discrimination, including women, children, and persons with disabilities. This grounding is evident in the increasingly explicit expectations of states and UN entities that sports bodies will integrate respect for human rights into their operations. (Ra'ad al Hussein & Davis, 2020, pp. 16–17)

It is important to note that the inequalities addressed in SDG 10 exist both within countries and between countries. Within countries, both technological innovation and financial globalization favor people with certain skill sets and income levels, resulting in inequalities within those countries. Given the interdependence and interconnectedness of the global environment today, issues such as poverty, climate change, and migration are bound to spill over across artificially and sometimes arbitrarily drawn borders resulting in inequalities between countries (Statistics Explained, 2020).

The United Nations utilizes the power of sport in many of its undertakings. UNESCO, the World Health Organization, and the International Labour Organization have all focused on the value of sport. The following list briefly explains how:

- UNESCO has affirmed the right of persons with disabilities to participate in physical education and sport.

- WHO has engaged with the sporting world to promote a healthy lifestyle and the benefits of regular physical activity for decades.
- The ILO, as part of its activities to ensure decent working conditions, uses sport as a central element for promoting social and economic development. (United Nations, n.d., para. 6)

In 2015, the United Nations further amplified the role of sport in development agendas in paragraph 37 of Agenda 2030:

> Sport is also an important enabler of sustainable development. We recognize the growing contribution of sport to the realization of development and peace in its promotion of tolerance and respect and the contributions it makes to the empowerment of women and of young people, individuals and communities as well as to health, education and social inclusion objectives. (United Nations, 2015, p. 13)

This recognition has stimulated action across and beyond UN agencies to leverage sport to address inequality.

> The unique ability of sports to transcend linguistic, cultural and social barriers makes it an excellent platform for strategies of inclusion and adaptation. Furthermore, the universal popularity of sport and its physical, social and economic development benefits make it an ideal tool for fostering the inclusion and well-being of persons with disabilities. (United Nations, 2018, para. 1)

The SDGs were established to profoundly improve both the lives of all people and the world in general. Everyone has responsibility in the joint effort to realize the goals, with paragraph 52 calling on "we the people" to join in the journey. Success will be determined by the extent to which this buy-in is achieved (General Assembly, 2015). This passed the baton onto the sports sector to play its part.

As an overarching driving and unifying instrument, the 2030 Agenda has provided a focal point for the sport sector globally to unify and advance its alignment with sustainable development and human rights. International policies relating to sport that emerged subsequent to Agenda 2030 called for action and accountability and positioning the reduction of inequalities as a "basic component of any national or international sport policy" as stated in the Kazan Action Plan (UNESCO, 2017; United Nations, 2018; WHO, 2018). The implementation of these policies has stimulated momentum across the global sports community.

29.2 Connections to sport

The Kazan Action Plan implementation has advanced mechanisms for measuring the contribution of sport to the SDGs underpinned by a human rights approach. Specific indicators for SDGs and aligned human rights have been developed as have resources to enable governments and the sports sector to take actions (UNESCO, 2020). Sport does not always hold high status as an area of government. Showing how sport can contribute to key global challenges such as inequality can help elevate its status and stimulate further investment to address the challenge. Countries who have piloted the SDG and human rights approach are confident about its efficacy for advancing key agendas including reducing inequality.

Progress has been made in recognizing sport as a human rights matter with resources developed and emerging from the UNESCO Chair Tralee (Ireland) for governments, national

human rights institutions, and sports sector stakeholders (Sport and Human Rights, 2021). Goal 10 aligns with Article 2 on non-discrimination of the Convention on the Rights of the Child (CRC) and the International Covenant on Economic, Social and Cultural Rights (ICESCR); Article 5 on equality and non-discrimination of Convention on the Rights of Persons with Disabilities (CRPD), and Articles 5 on rural women and article 14 on equality and non-discrimination of the Convention on the Elimination of all forms of Discrimination against Women (CEDAW). A template for socializing sport and human right aligned with SDGs at country or federal levels is under development, as is an online program "The Rights Understanding in Sport Toolkit" (TRUST; Council of Europe, 2020).

In the field, applying SDG 10 to the sporting context will take numerous forms from grassroots levels up to mega-multi-sport organizations. On one hand, suggestions have been proposed to the IOC concerning how to incorporate human rights into their agenda (Ra'ad al Hussein & Davis, 2020). Three of these include (1) moving from a model based on legal liability and control to one based on responsibility and leverage, (2) modes of connection to human rights harms and what can reasonably be expected of the IOC, and (3) making it manageable by adopting human rights due diligence and grievance processes. On the other hand, small, locally based sport for development programs that serve a single community will focus on addressing a social ill of importance to the locality such as helping people HIV/AIDS or ensuring safe water supplies.

Next, let's walk through some of SDG 10's targets to see what their implementation looks like.

29.2.1 Target 10.1

Sporting events large and small require a good number personnel to be successful. A typical NFL game or EPL match needs literally hundreds of stadium workers on any given game day (NFL, 2020). Their tasks include everything from serving food and drinks, parking cars, working security, moving equipment, and cleaning up after the spectators leave. The vast majority of these individuals are part-time minimum wage workers who often work several part-time jobs just to make ends meet.

In the current COVID-19 climate, a vast number of events and games have been postponed, canceled, or played with limited numbers of spectators allowed. This means these part-time employees do not need to report in for work, causing loss of the limited incomes many of them struggle with daily. When the world moves into a post-COVID-19 world, it will be incumbent upon sport organizations to bring back many these part-time workers as soon as possible. The workers will likely need to be retrained as their jobs will look different, just as stadium security looked different since the September 11 attacks.

29.2.2 Target 10.2

Athletes all over the world are becoming more aware of the impact of their voices when it comes to speaking up on social issues that are often related to diversity, equity, and inclusion. While not all sport organizations are on board with the movement of athletes speaking out and in what type of venue their statements should be allowed (e.g., medal stands, press conferences), some major organizations have expressed full support. For example, to quote David Grevemberg, chief executive of the Commonwealth Games Federation, "The movement is challenging all institutions to really look introspectively at what we can do to be more fair, more free, have better equality. Sport is no different," (Reuters, 2020a, para. 4). It is critical that

sport governing bodies publicly indicate their support of athletes speaking out for social change (Hums et al., 2020). This will help promote inclusion both inside and outside of the sport marketplace.

An example of a sport governing body stepping up to promote inclusion is the National Collegiate Athletic Association (NCAA). The primary national governing body for inter-collegiate athletics in the United States, the NCAA put forth the following statement (NCAA, 2014):

> As a core value, the NCAA believes in and is committed to diversity, inclusion and gender equity among its student-athletes, coaches, and administrators. We seek to establish and maintain an inclusive culture that fosters equitable participations for student-athletes and career opportunities for coaches and administrators from diverse backgrounds. Diversity and inclusion improve the learning environment for all student-athletes and enhance the excellence within the Association. (p. 1)

The NCAA recently announced athletic department and conference offices would have a designee serving as a point person for issues related to diversity, equity, and inclusion (Dent, 2020). Now all university athletic departments and conferences need to appoint a point person known as an athletics diversity and inclusion designee (ADID). That individual will "will serve as a gatekeeper of information who will engage with various audiences such as national office staff, student-athletes, athletics department and conference administrators, and campus officials who are involved with athletics or university inclusion" (Dent, 2020, para. 2).

In 2019, the United States Olympic Committee (USOC) officially changed its name to the United States Olympic and Paralympic Committee (USOPC). This move to place disability in the organization's formal name was a clear indication of movement toward inclusion and was welcomed by athletes and administrators alike (Allentuck, 2019).

It is not just large sport organizations that work for inclusion, however. Much of the work also takes place on the local grassroots level. In terms of disability inclusion, the sportanddev.org online platform invited sport for development and peace organizations that work with people with disabilities to contribute short descriptions of their programming to share online. Over 90 organizations submitted information, with entries coming in from all over the world. Program examples included soccer in Uganda, wheelchair hurling in Ireland, wheelchair tennis in India, kayaking in France, and surfing in Brazil. To sum up the work that is happening to include people with disabilities across the spectrum in sport, Wolff and Hums (2020, para. 8) wrote:

> The work we have read about in their voices provides hope for a better, more inclusive society. While some people may say "Hope is not a strategy", hope powered by the hard work of everyday people is the equation to create a more inclusive world. Persons with disabilities have much to offer and sport provides a vehicle to make their powerful presence known. (para. 8)

29.2.3 Target 10.3

There is no question that in the past, various practices have been put in place to restrict people's abilities to take part in the political process by voting. One way sport organizations responded to this was seen in the 2020 U.S. Presidential election, which saw the defeat of Donald Trump by Joe Biden. Sporting arenas around the country were used for voting places, which allowed

many people access to vote where they could not before (Blackstone, 2020; Peter et al., 2020). This was a direct action taken to eliminate the discriminatory factor of voter suppression.

29.2.4 Target 10.4

FIFA took a step toward gender inclusion when it hosted its inaugural Women's Convention. As a result of the meeting, FIFA announced a partnership with UN Women to promote gender equity around the globe (PBS, 2019).The memorandum of agreement the organizations signed will:

> provide a strong framework for strengthening and further developing synergies between FIFA and UN Women. Both organisations will work closely with public authorities, international organisations, the private sector, and media and sports organisations to make football more accessible to women and girls and to disseminate diverse sports content to promote gender equality. (FIFA, 2019, para. 3)

In a move aimed at establishing better gender equity in soccer, England's men and women's teams will receive equal pay in terms of match fees and match bonuses (Reuters, 2020b). Other countries have joined in the chorus for gender equity in soccer as well. Recently, the Brazilian Football Confederation (CBF) joined Australia, Norway, and New Zealand in agreeing to pay their men's and women's teams the same amount for earning a cap (Reuters, 2020b).

As another example, World Rugby opened an initiative titled "Try and Stop Us," which aims to increase commitment and engagement by players, spectators, and investors in the women's game ("World Rugby," 2019). This global initiative was undertaken by World Rugby in conjunction with numerous of its national level unions.

While progress in being made, there are still issues which need addressed. Among these include the following highlighted topics from the Women's Sport Foundation (Staurowsky et al., 2020):

- Access for Girls is on the Rise
- Gender Gap in Participation Persists
- More Resources Are Needed for Girls of Color and Other Marginalized Communities
- Gender Role Beliefs Endure
- Headlines Call Out Abusive Behavior
- Unique Health Needs and Injuries Can Sideline Girls and Women
- Confronting Workplace Bias and Wage Gaps
- Fair Media Coverage Remains Illusive

These topics remind us of the work that remains to be done in order for gender equity to be achieved.

29.2.5 Target 10.5

In November 2020, a new sport for development coalition was launched at the Finance in Common Summit. Its work is based on the SDGs and is driven by financial institutions and supported by the sport movement. Investment agencies include French Development Agency (AFD), West African Development Bank (BOAD), Japan International Cooperation Agency (JICA), Association of National Development Finance Institutions (DFIs), Member Countries

of the Islamic Development Bank (ADFIMI), Latin American Association of Development Financing Institutions (ALIDE), and Germany's KfW. Other stakeholders include the: International Olympic Committee, International Paralympic Committee, Organization Committee for the Paris 2024 Olympic and Paralympic Games, UNESCO, and Germany's Corporation for International Cooperation (GIZ).

Research conducted by UNESCO Chair MTU (Ireland) found that sport is not currently a strategic area of investment from developing banks although investments have taken place. Development banks and finance institutions can be key drivers of change in sport and sustainable development. In line with the Addis Ababa Action Agenda, the financial sector is responding to the SDGs. A whitepaper on sport and finance for development elaborates how this may operate in the sports sector (United Nations, 2015). The finance sector is changing its operating values to incorporate responsible and meaningful impact not merely financial returns. Achieving Goal 10 has been recognized an one of the main domains of intervention for sports related investment (Furrer & Elmer, 2020)

29.2.6 Target 10.6

Competing in sports can become an expensive proposition. The cost of equipment, coaching, and game travel (tangible costs) adds up, as does the amount of time families may take away from work or home responsibilities (intangible costs) in order to support athletic pursuits. These could include anything from simple youth sport equipment to the cost of traveling to a distant city to compete in an ultra-marathon event. Both these tangible and intangible costs disproportionately affect people from developing countries.

Some efforts have been to try and reduce the impact of the costs associated with sport participation:

> The Paralympic Games have seen rapid growth over the last few years but there is a risk that large gaps emerge between established and developing nations. If the Games are to remain a global event then understanding why these gaps exist and addressing them is crucial for the future of the Paralympic movement. (Loughborough University, 2020, para. 23)

In response, the IPC and its Agitos Foundation initiated its Grants Support Program (GSP) and:

> Over the years the GSP has evolved and focus areas for each edition were introduced, ensuring that funding is concentrated into areas within Para sport that are in greatest need of development and support…
>
> The first edition in 2013 supported 29 projects in countries such as Colombia, Ethiopia, Iran, Mongolia, Serbia, Rwanda. It has proven to be a revolution in the way the IPC delivers Para sport development. (IPC, n.d.-a, paras. 4, 6).

The IPC also works to establish pathways to success ranging from grassroots events to elite Paralympic competition. They attempt to do this through "expanding the capacity of National Paralympic Committees, especially in developing nations, through our Organizational Capacity Programme, Direct Financial Support Grant and Games Capacity Programme" (IPC, n.d.-b, para. 2).

One company that had the vision to want to create more affordable equipment is Motivation. The company's founders saw a need for access to wheelchairs in developing

countries, particularly in areas of crisis and their chairs have now helped people in 120 countries. Motivation entered into the sporting area as well. At the request of the IPC, Motivation set out to fabricate "a new low-cost racing wheelchair to launch at the London 2012 Paralympic Games. This 'Flying Start' wheelchair, along with their other sports products, has helped to open up the world of sport to thousands of people around the world" (Cyclone Mobility, 2018, para. 6).

29.2.7 Target 10.7

Sport has entered into the conversation which swirls around refugees and their ability to be welcomed within their new communities. According to the UNHCR (2020), "Sport can also be a positive catalyst for empowering refugee communities, helping to strengthen social cohesion and forge closer ties with host communities" (para. 2).

On an international level, both the IOC and IPC will once again welcome teams of refugee athletes onto the stage of the upcoming Olympic and Paralympic Games, respectively (IOC, 2020; IPC, 2020). On more local levels, sports clubs and recreation centers in various countries have taken action to help refugees with their transitions. The Bundesliga's Bayern Munich have donated upwards of $1 million to assist with refugee projects in Germany (Whitney, 2015). UEFA published a collection of good practices related to refugees and sport (UEFA, n.d.). Voluntary sports clubs have also taken actions to assist with integration of refugees (Nowy et al., 2020). The UNCHR actively works with its sport partners (2020) "through organized sports activities to promote participation of adolescent girls and young women and bring different refugees, IDP, and host communities together, both as participants and supporters, to share a common experience and break down barriers and stereotypes" (para. 10).

29.3 Conclusion

While progress is being made slowly but surely, we must still continue to harness the momentum generated across the sports sector to advance SDG 10. This chapter has provided some general background into SDG 10 as well as some examples of tactics sport organizations are taking to help this goal reach fruition. Sport managers working in organizations large and small are taking steps to make this happen. Sharing this information will help provide blueprints for others to continue to expand the reach of SDG 10 and all the opportunities it can provide.

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Measuring Sustainable Development Goal 10

Sarah Oxford and Alexander Cárdenas

The recent progress report from the Secretary-General of the United Nations (2019) demonstrated that advancing SDG 10 is challenging and rife with complications (United Nations Economic and Social Council, 2019). While the goal is to address disparities of opportunity, income, and power among and between nations, which is aspirational and vague, the report selects only to address economic issues. The omission of the other disparities demonstrates the neoliberal lens the SDGs were established through, which has resulted in a tension within the goal itself.

The progress report examples included: (10.1) the improvement of economic growth among the bottom 40% of the population, but the share of overall wealth continuing to be astronomically disproportionate; (10.5) high loan asset impairment in connection to the need to improve financial systems such as banks and securities, regulatory and supervisory authorities, and processes and mechanisms that prevent corruption and maintain stability (IMF, 2019); (10.6) the need to improve the representation of Global South nations, which are estimated to have 40% of the voting rights with the IMF and World Bank but make up 75% of World Bank membership (UN, 2019); and, (10.A) that duty-free access was recorded to be improving across developing nations and regions, primarily in the industrial and agricultural sector.

The SDG 10 target update provided by the Secretary-General addressed monetary concerns only; this is confusing because SDG 10 includes other key indicators that focus on equal access and opportunity, such as the empowerment and promotion of social, economic, and political inclusion of all (10.2), elimination of discriminatory laws (10.3), and the responsible migration of peoples (10.7). As updates on these targets were not provided, we are left asking, where is the balance of economic, social, and environmental as promised in the *Transforming Our World: The 2030 Agenda for Sustainable Development* preamble (General Assembly, 2015)?

What is evident through the progress report is the discrepancy of power among and between nations—particularly the wealth and thus power held by the top 1% of earners in the world—that continues to be a significant concern and challenge to resolving SDG 10. These structural disparities are a legacy and reproduction of systemic injustices established during colonialism that have continued to reproduce inequality in insidious and explicit ways through neoliberal globalization, preventing select governments from having the autonomy to protect and project their financial interests, trade, and knowledge (Deacon, 2016). Structural inequality

is the underpinning issue of SDG 10, which distinguishes it from the other more action-able SDGs.

The targets that fall under SDG 10 are disjointed and incoherent; the Third World Network reported discussion of actors wanting inequality to be a standalone SDG by many Global South countries, which was not adopted (Deacon, 2016). The broadness of scope is also problematic when considering the application and evaluation of SDG 10 to sport. Macro-economic decisions may have implications for professional, international, and national sporting competitions and bodies, such as the international football trade demonstrated by Lindsey and Darby (2019). However, the social, political, and economic inclusion of girls and people with disabilities may be better addressed in more detail by targeting national and community policy focused on culture (and perhaps better placed in SDG 5 and SDG 8).

To date, academic research on SDG 10 and sport is limited (to our knowledge) to two examples. As addressed above, Lindsey and Darby (2019) touch on SDG 10 when addressing athlete migration, human rights, and FIFA. Crabb (2018) applies SDG 10 to analyze the success of a forestry-based carbon-offsetting project in Mato Grosso, Brazil, created to offset the emissions from the construction of the new football stadium built for the 2014 FIFA Men's World Cup.

International governing bodies have interpreted SDG 10 differently. The Commonwealth recognized the transformative economic value of sport but also the inequities of opportunity across the diversity of Commonwealth countries and the need for international sport policy frameworks that promote inclusive economic development and social justice (The Commonwealth, 2018). In contrast, in a physical activity promotion, the World Health Organization suggested policymakers conduct national and community-based campaigns to enhance awareness and understanding of the benefits of physical activity, mainly walking, cycling, and other wheel-based sports, noting SDG 10 as one indictor (WHO, 2018). Again, the discussion was framed through monetary terms, noting that inactivity is estimated to cost the healthcare system $54 billion per year.

As demonstrated above, the potential interpretation of SDG 10 in its connection to sport is extensive. While redistribution of wealth and restructuring of power relations underpins SDG 10, it is unlikely for this to happen among the international sporting bodies. It is more plausible for SDG 10 in connection to sport to be interpreted as a call for a reduction in inequalities—in other words, to work toward altering factors and processes that prevent people and states from having a fair shot at the achievement of prosperity and development (Oestreich, 2018).

For purposes of this chapter, we will explore SDG 10 through two Sport for Development and Peace (SDP) organizations, A Ganar and Magic Bus. SDP organizations use sport as a means to congregate socially vulnerable youth and address social inequities. Ideally, these organizations provide participants with the capabilities to advance their opportunities in society, while also challenging political and societal factors of discrimination and repression, issues that so often prevent participants from achieving their potential, and yet require their participation in SDP programming in the first place.

30.1 Measurement in sport

30.1.1 A Ganar

The program "A Ganar"[1] was established to tackle youth unemployment in Latin America and the Caribbean using team sports, particularly football. The program had its origins in 2000 when a meeting on sport and economic development in the Americas was celebrated at the

Inter-American Development Bank (IDB). At the meeting, former Minister for Sport of Brazil and football legend, Pelé, encouraged the audience, and particularly the IDB, to further explore the potential of sport as a way to reduce inequalities and promote economic development in the region (Inter-American Development Bank, 2000).

A Ganar program beneficiaries are at-risk youth ages 16 to 24 who acquire market-driven and life-long skills through a series of field and classroom sport-based activities. The idea behind the program is to help youth apply lessons learned through sport such as teamwork, communication, discipline, respect, focus on results, and continuous self-improvement, which can help them find jobs and advance their careers. A Ganar's significant donors include the Inter-American Development Bank (IDB) and the United States Agency for International Development (USAID; A Ganar Alliance — Partners of the Americas, n.d.).

The program lasts nine months and operates in three phases. The first combines 50 hours of field learning and 50 hours of classroom activities. The second phase comprises 250 hours of vocational-technical training, the content of which varies from country to country according to jobs and skills that may be in demand. The third phase is an internship that provides young people with practical experience. Because the objectives of A Ganar are shaped around the belief that sport provides a platform where participants can learn marketable skills and find jobs, the success of the program is reflected by the ability of its graduates to obtain employment or create jobs. The program is evaluated based on how many participants complete the training and the skills they gain as part of the process. Three measurements are captured: how many beneficiaries start the program, how many graduate the program, and how many obtain employment. The last indicator also includes how many participants start their businesses or go back to school (P. Teeple, personal communication, June 4, 2013). To date, A Ganar has operated in 19 countries and benefited more than 14,000 youths through 95 youth organizations and 160 business partnerships; 67% of graduates are employed or back in school within one year (Partners of the Americas, n.d.).

30.1.2 Magic Bus

Magic Bus is a celebrated Sport for Development NGO founded in India in 1999. Since its inception, the organization has served more than 1 million children and young people across 22 Indian states and several international locations, including Bangladesh, Nepal, and Myanmar. It has a staff of about 1,000 and works with approximately 8,000 community youth leaders, who reach an estimated 300,000 young people weekly (Nayar, 2015).

The program works in marginalized communities where program beneficiaries, children, and youth ages 12 to 18 receive training and skills to help them move out of poverty. Magic Bus uses a measurement tool called the Degrees of Empowerment, which measures and tags how a child develops in relation to their environment with the help of the organization. At the core of the program, the NGO uses sports and games designed to represent real-life situations faced by children. Participants take ownership of those challenges and are encouraged to create solutions that require the participation of their communities. Magic Bus takes this information and creates supplemental activities to address challenges and to promote an environment that is conducive to behavioral change (Magic Bus India Foundation, n.d.).

The program components include Life Skills Education, including problem-solving and teamwork; Education Enhancement, which focuses on improving basic literacy and numeracy skills; Employability Skills Education, which includes financial literacy, digital literacy, spoken English, and career awareness; Livelihood Connect, involving sector-specific training in retail, internet and technology, banking, financial services, insurance and e-commerce, and job

placement and post-placement support; and Community Connect, which engages with parents and the community to build a support network. An impact and outreach data report compiled in three years (2016 to 2019) measured indicators such as school attendance, school partici- pation, child marriage, and livelihoods access, among others. The report concluded the following:

- School attendance: a 37% increase in school in the three years. Ninety-eight percent of participants reported school attendance, five days a week, at the end line, compared to 63% at baseline.
- School participation: Less than 5% of girls dropped out of school by grade 8 (with a national average of 40%).
- Ninety-five percent of female program participants do not get married before the age of 18 (national average of 70 percent).
- Seventy percent of people trained in the Magic Bus livelihood program were placed in salaried work (Magic Bus, 2020).

The numerical outputs explored above are easy to digest; they concisely demonstrate how SDP organizations have contributed toward SDG 10 by providing opportunities and pathways to vulnerable youth to improve their livelihoods, which in turn may reduce inequalities. It is important to note, however, that reducing inequalities is not one-sided and the onus cannot be placed solely on SDP organizations; it also requires a context in which opportunities such as education and jobs exist for these participants (see Spaaij, 2009).

In their programming, A Ganar and Magic Bus demonstrate that the underlying processes that engender social change and lead to numerical outputs require extensive consultation with local communities and meaningful consideration for local values. Furthermore, many SDP organizations are creating important contributions to society and SDG 10 in ways not linked to economics, such as creating socially equitable environments and opportunities for marginalized youth that previously did not exist. These areas of growth deserve recognition, but they are not easy to capture or to sell in numerically focused snapshots that align with the data distributed thus far in SDG reporting.

30.2 Implementation challenges

While the impact data explored above is significant for the organizations, when considering the macro nature of SDG 10, it is nominal. The hopeful nature of SDG 10, coupled with sport's limited capacity to shape structural change, results in a tension between rhetoric and what SDP organizations, in particular, can accomplish in reducing inequalities. This tension is particularly relevant in terms of altering macroeconomic management and upending structural inequality among and between nations, as SDP organizations typically target micro and meso social re- lations (Giulianotti et al., 2018).

The majority of available information on evaluating SDG 10 uses quantitative approaches (e.g., Kazan Action Plan), which align well with the neoliberal lens demonstrated in the progress report. We recognize that some aspects of social change can take place in and through sport and should be evaluated. Still, we argue that attempting to measure these changes through descriptive numbers alone is insufficient and may be misinterpreted. For example, the snapshot of quantitative measurements from A Ganar and Magic Bus align well with the neoliberal framing of SDG 10, but this information omits the essential processes that led to these outputs that are best captured through more inductive methods.

To evaluate sport within the context of SDG 10, considerations about power relations and social inclusion need to be at the fore—and economics as only one indicator among many. Furthermore, while mapping and analyzing governments' sport policies to the SDGs (among other high-level initiatives) is a decent starting point (see The Commonwealth, 2018), we argue that understanding the implications of these policies on the ground through people's experiences is of critical importance. Listening to people's experiences and contextualizing these findings within their historical, political, and social context will encourage a real understanding of social need but also reveal the enablers and barriers to social change.

Data at this scale, meaning data collected and compared at micro, meso, and macro levels among and between nations, are challenging to capture but not an impossibility. Logistically, it would require investing in and embedding evaluation within long-term programming. It would also require managing expectations of change when change is non-linear and giving great attention and regard to the values of the respective community being evaluated.

Strategies that could address geographical, cultural, and economic differences among and between people, organizations, and places could include outcome mapping and participatory approaches, to name a few. Through these approaches, local knowledge could drive the evaluation, and local context could inform the analysis. We recommend that the goals and intentions of policy be evaluated in addition to processes and backgrounds and judgments. These approaches would allow for contextual differences to be captured and analyzed for comparison.

Note

1 Spanish for "*to win*".

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31

Applying Sustainable Development Goal 10

Maia Tua-Davidson

Welcoming Clubs is Welcoming Australia's overarching initiative for programs and activities that embrace the power of sport and recreation as a vehicle for inclusion, opportunity, and belonging for all members of the community—including recently arrived migrants, refugees, and people seeking asylum.

31.1 Project goal

The goal of Welcoming Clubs is to address inequalities that exclude people from participation in sport and recreation at all levels, from the grassroots to the boardroom. Welcoming Clubs works to ensure that children and young people can access sport and recreation as a tool for achieving a sense of belonging, building social capital, and improving health and well-being. The initiative also works with sporting clubs, helping to improve accessibility, increase volunteer and organizational capacity, and create spaces that contribute to social and community cohesion and inclusion. This objective aligns with multiple SDGs, including 5 (e.g., targets 5.1, 5.2, 5.5) and 10 (e.g., target 10.2).

As an organization committed to advancing communities where people of all backgrounds have equal opportunity to belong, contribute, and thrive, Welcoming Australia has a defined interest in pursuing the advancement of the SDGs. Embracing sports inclusion, as an approach to addressing inequality and exclusion, is driven by an understanding of the significant contribution that sport and recreation make to social capital.

Sport is a powerful enabler of the SDGs, recognized across the world for its reach, value, and significant capacity to influence change. Welcoming Clubs intentionally embeds practices that emphasize the inherent values of community sport to align with advancing gender equality and reducing inequalities.

Since 2016, Welcoming Australia's approach to sports inclusion has involved two key programs that aim to link both ends of the sporting continuum:

- *Welcome to the Game* provides support for young people and families from diverse backgrounds and abilities to access sport and recreation opportunities and connect with their local community.

- *Welcoming Clubs* supports clubs, codes, community organizations, and local government to establish, progress, and benchmark inclusive practices and engage new members.

These programs aim to advance SDGs 5 and 10 at the community level through participation programs, and at the administrative level through advocacy and informing policy and decision making.

Through Welcome to the Game, Welcoming Australia has conducted a series of monthly community sports tournaments aligned with significant community or cultural events such as Ramadan or Harmony Day. Purposeful and intentional community sporting events provide a platform to share and disseminate key messages and information for community wellbeing such as mental health awareness and drug and alcohol education. Organized in partnership with key services such as the Queensland Program of Assistance to Survivors of Torture and Trauma (QPASTT) and the Queensland Mental Health Commission, these events raise awareness of, and create dialogue around generational social issues that contribute to persisting inequalities including gender inequality.

Event policy promotes equal opportunity for men and women by encouraging male teams to enter an equivalent female team with the long-term goal that this is a formal participation requirement. Many participants come from backgrounds where women and girls are not treated or regarded equally. The right of women and girls to participate in sport as athletes or as spectators challenges the culturally discriminative norms of many groups with whom we work and provides an opportunity to encourage female participation and gender equality. Men and boys, who are the traditional participants in many sports, can then be engaged and participate in activities that promote gender equality and positive gender relations. The program also leverages its connection to leaders in the football community to influence the attitudes of community and cultural leaders and young men who often perpetuate restrictive gender roles.

Additionally, providing specialized programs in familiar and safe environments for women and girls and focusing on social connection and wellbeing helps to build their self-esteem and confidence. This enabled them to develop personal advocacy tools and leadership skills to extend their goals and aspirations outside restrictive cultural expectations and to challenge imposed norms.

Established relationships and connections with disadvantaged and excluded young people who exist outside traditional or formal sporting environments allow Welcoming Australia to inform clubs, governing bodies, and representative organizations about the experiences of the excluded and marginalized and the role that they can play in addressing inequalities to access wider social issues affecting their communities.

While Welcome to the Game influences grassroots inequalities, Welcoming Clubs (see welcoming.org.au/clubs/) works at an institutional level to address marginalization and exclusion from sporting systems and codes. The program provides sports and recreation clubs with the knowledge, a framework, and resources to better cultivate a culture of welcome and embrace diversity and inclusion practices that include more than they exclude. Welcoming Clubs benchmarks policies and practices against clearly defined standards that encourage and support ongoing learning, development, and success.

Kick Start Inala is an example of embedding values within community outreach programs. Based on one of Australia's lowest socioeconomic suburbs, Inala has a strong Indigenous (Aboriginal and Torres Strait Islander) community and rich history of cultural diversity and migrant settlement. Kick Start Inala was a school-based program aimed at giving children who could not afford to join sports clubs the opportunity to participate in ongoing activities, a cumulative tournament, and a celebration at the local premiership club. Rather than awards for

winning, recognition was awarded based on the Inala PRIDE Values (i.e., Perseverance, Respect, Integrity, Discipline, and Enjoyment). Sport enabled these young people to conceptualize the values and translate them into their everyday lives, working to diminish many of the attitudes and behaviors that perpetuate inequalities in the community.

SEQ Football is a Community Football Australia initiative formed through and supported by Welcoming Clubs. The initiative provides a platform for community football teams who sit outside formally associated football to participate in organized structured competition. Generally, these teams have significant barriers to participation in organized structured football competitions. The competition provides:

1 a governance structure for teams that are not part of Clubs;
2 training and playing venues and competitions for community teams;
3 comprehensive insurance coverage not previously available;
4 targeted donations of secondhand playing and training equipment for teams from associated clubs;
5 registration of all teams for donations through the Australian Sports Foundation;
6 the introduction of a mobile app (Footsy) to register players, organize competitions, and minimize administrative processes for players and officials; and lastly, but most importantly,
7 a "pay what you can afford" system with individual teams based on their ability to contribute.

This competition addresses the inequalities that exclude significant numbers of football players from traditional clubs. Teams can develop their governance capacity, play regularly, and unburden themselves from the exclusionary costs of the associated competitions. The competition also acts as talent identification and a pathway opportunity for players to be seen and engaged by formal clubs.

The values of fairness, respect, teamwork, cooperation, and equality—or, to use a sporting term, a "level playing field"—are embedded in the planning and delivery of Welcoming Australia's community-based participation programs. The social and life skills, and values learned through sport can translate to employment outcomes, the building of social capital, and opportunities for social mobility.

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Part XI

Sustainable Development Goal 11: sustainable cities and communities

An overview of Sustainable Development Goal 11

Timothy Kellison

Sport cannot be abstracted from the physical and material space in which it takes place. It is shaped by the natural and built environment around it. Just as the surrounding environment can sculpt sport's boundaries and rules and structures, the reverse is also true. Sport can profoundly affect the neighborhoods, communities, and cities in which it is embedded, and this influence can be constructive or destructive (or both). The likelihood of a lasting, positive relationship is largely dependent upon foresight and planning, a notion embodied in SDG 11.

SDG 11 focuses on the sustainability of cities and communities. Specifically, the goal aims to "make cities and human settlements inclusive, safe, resilient and sustainable" (General Assembly, 2015, p. 21). Today, urban areas account for about half of the world's population, a number that is expected to increase to over two-thirds by 2050 (United Nations, 2019). Given this growing concentration of humanity, the continued urbanization of human settlements necessitates a careful approach to planning, as contended by the UN:

> Well-managed urbanization (among other factors), informed by an understanding of population trends over the long run, can help to maximize the benefits of agglomeration while minimizing environmental degradation and other potential adverse impacts of a growing number of city dwellers, especially in low-income and lower-middle-income countries where the most rapid urbanization is expected between now and 2050. Unplanned or inadequately managed urban expansion, in combination with unsustainable production and consumption patterns and a lack of capacity of public institutions to manage urbanization, can impair sustainability due to urban sprawl, pollution and environmental degradation. (United Nations, 2019, p. iii)

In other words, the thoughtful management of urban areas is critical to combat many of the problems to which the SDGs are designed to respond.

For anyone who has participated in sport, its potential contribution to SDG 11 is straightforward. At all levels, sport can be used to promote each of the goal's desired outcomes. As described in other sections of this book, inclusive or targeted sports programming may promote the health, wellness, and safety of those in particularly vulnerable populations such as older persons, persons with disabilities, women and children, and migrants and refugees (e.g.,

chapters 7, 13, 19). Additionally, as I discuss further in this chapter, sustainably designed venues can not only reduce local demand on a city's energy and water resources, but they may provide communities with infrastructural enhancements that temper the effects of local crises and disasters. Sport can also be used to promote environmental sustainability through fan- and participant-engagement strategies, public transportation campaigns, and other initiatives designed specifically to stimulate climate action. By the same token, sport can impede this progress, either deliberately by nefarious design or inadvertently through a lack of planning. These issues are discussed further below, where I summarize the UN's targets for SDG 11, outline several theories that underlie the concept of sustainable cities and communities and discuss how SDG 11's various components can be applied to sport.

32.1 Targets

The broad endeavor to build cities and human settlements that are inclusive, safe, resilient, and sustainable is narrowed by 10 targets identified by the UN, as listed in Table 32.1 and summarized further in this section.

   Target 11.1 centers on housing and the accessibility of essential services. The target aims to ensure all individuals may live in adequate, safe, and affordable housing and with access to basic services. Moreover, the target is centered on improving living conditions in informal settlements (commonly referred to as "slums"). Broadly defined, the target seeks to address

Table 32.1 Targets of Sustainable Development Goal 11

11.1	By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums
11.2	By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons
11.3	By 2030, enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management in all countries
11.4	Strengthen efforts to protect and safeguard the world's cultural and natural heritage
11.5	By 2030, significantly reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses relative to global gross domestic product caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations
11.6	By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management
11.7	By 2030, provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities
11.a	Support positive economic, social and environmental links between urban, peri-urban and rural areas by strengthening national and regional development planning
11.b	By 2020, substantially increase the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change, resilience to disasters, and develop and implement, in line with the Sendai Framework for Disaster Risk Reduction 2015–2030, holistic disaster risk management at all levels
11.c	Support least developed countries, including through financial and technical assistance, in building sustainable and resilient buildings utilizing local materials

Source: General Assembly (2015).

issues of homelessness and ensure cities provide their inhabitants with safe shelter and reliable basic services. As the UN reported, the COVID-19 pandemic exacerbated existing issues in cities and urban areas. More than 90% of all coronavirus cases were reported in urban areas, and the pandemic hit "the most vulnerable the hardest, including the 1 billion residents of the world's densely populated informal settlements" (United Nations, 2020, p. 46).

Target 11.2 underscores the contribution of sustainable and accessible transportation systems to economic and social equity. Transportation systems are especially important for linking citizens across a large region and enabling connections to economic and cultural hubs and between urban and rural areas (Acuti et al., 2020). Furthermore, as the target explicitly describes, a public transportation system must be accessible to all citizens, including women, children, persons with disabilities, and older populations. While much focus on rural-urban interdependence tends to emphasize the necessity of city access to those living in rural communities because of the concentration of employment opportunities and cultural activities in urban centers, it is important to stress "rural areas are absolutely necessary for urban areas to function," as "urban areas rely on rural areas to meet their demands for food, water, wood, [and] raw materials" (Gebre & Gebremedhin, 2019, p. 1). Using a venue like a FIFA World Cup stadium as an example, robust and accessible transport systems are essential not only for transferring spectators to a stadium for a match but also for moving workers and materials necessary to construct the facility in the first place (Kellison & Cintron, 2017).

Two seemingly distinct concepts—land consumption and democratic participation in the urban planning and management processes—are interwoven in Target 11.3. That is, if all individuals who stand to be impacted by urban development policy are actively engaged and participate in the planning process, outcomes that are exclusionary and unjust are less likely to emerge (Kellison et al., 2020). An inclusive planning process that maximizes stakeholder representativeness can also increase the likelihood that other SDG targets are addressed.

In Target 11.4, the need to preserve, protect, and conserve cultural and natural heritage is highlighted. The safeguarding of cultural symbols and the natural environment is a fundamental responsibility of all societies (UNESCO, 1972). Cultural heritage—like monuments, groups of buildings, and human-made sites—strengthens a society's collective identity, reinforces value systems, and preserves a people's language, customs, and traditions. Natural heritage—such as natural features, geological and physiographical formations, and natural sites—must be protected to sustain the earth's flora and fauna and preserve the planet for future generations of humankind. One example of this target's application to sport is in the work of Pfleegor et al. (2013), who argued "sport and recreation venues have a distinct place in the historical fabric of communities across the world, as they can be the foundation of heritage preservation and contribute to the development of synecdochical images" (p. 386). Indeed, sports and recreation venues—some of which are historically significant themselves—may also be used to promote the preservation of a city or region's cultural heritage (Salvati & Zitti, 2017). On the other hand, the construction of major sports venues and subsequent events they attract can have adverse effects on the natural environment (Kellison & Casper, 2017).

Climate change and the increasing incidence of severe weather hazards have necessitated global cities to identify proactive solutions for protecting their inhabitants. The goal of Target 11.5 is to reduce the number of people killed and otherwise affected by disasters and to curb economic losses tied to those disasters. A robust climate-action approach that reduces the likelihood of extreme weather is the clearest and most direct way to respond to Target 11.5, but given the lack of serious, global progress in reducing GHG (greenhouse gas) emissions (Watson et al., 2019), climate adaptation will be required. Sports venues offer one way to address a city's climate vulnerability, as the construction of resilient facilities may afford citizens a place of

refuge during a catastrophic storm and shelter in the subsequent days and weeks of recovery (Kellison & Orr, 2021; Orr & Kellison, 2020).

Target 11.6 relates to the environmental impact of cities, particularly when it comes to air quality and waste management. As McCullough et al. (2020) argue, "The relationship between sport and the natural environment is bidirectional; that is, sport impacts the natural environment and is impacted by the natural environment" (p. 509). The environmental impact *of* sport and *on* sport are important considerations in the design and operating of sports facilities and the delivery of the events that occur within them. For instance, as fans travel to stadiums and tailgate before matches, they can produce unhealthy spikes in particulate matter emissions (Casper & Bunds, 2018). Meanwhile, the threat of poor air quality may lead sports teams to adopt adaptive measures such as adding roofed structures to their stadium construction (or renovation) plans (Watanabe et al., 2019). Additionally, major sporting events like the Olympic and Paralympic Games may provide an impetus for local governments to activate citywide sustainability strategies, even if only for a short time (McLeod et al., 2018). Public partnerships between facility operators and municipal service providers have also led to the creation of zero-waste programs designed to divert materials away from landfills via recycling and composting in several collegiate and professional sports stadiums (Kellison, 2019).

As reflected by Target 11.7, high-density urban communities benefit from the presence of greenspace and other leisure-based infrastructure like public parks, nature preserves, trails and greenways, and gardens. Not only do parks and greenspace provide positive health benefits and health promotion to members of urban communities, but they also provide infrastructural benefits like reducing air pollution and mitigating extreme weather events (Parsons et al., 2015; Schottland, 2019). These public spaces are also important to promote healthy play and sport, and the erosion of public greenspaces in urban communities has contributed to the generational loss of participants in certain sports. This decline has led some leagues and sport governing bodies to establish youth academies and sponsor revitalizations of urban basketball courts, baseball fields, and soccer pitches (The Aspen Institute, 2015).

In addition to the seven outcome-based targets summarized above, SDG 11 includes three "means of implementation" (or MoI) targets. Target 11.a is intended to enhance linkages between the urban, rural, and transition zones in between in a manner that focuses on economic, social, and environmental benefits. Target 11.b, the only SDG 11 target that matured in 2020, focused on the adoption and implementation of disaster risk strategies at all levels and the alignment of disaster risk reduction strategies with national ones. Lastly, Target 11.c was designed to provide financial and technical assistance to less developed countries to source local materials to build sustainable and resilient buildings. Due to challenges with measurement, Target 11.c was proposed to be deleted in 2020 (Inter-Agency and Expert Group on Sustainable Development Goal Indicators, 2019).

As the targets mentioned above indicate, the grand aspiration of inclusive, safe, resilient, and sustainable cities necessitates a planning approach encompassing housing, transport, cultural preservation, the natural environment, and democratic participation. These aspects of SDG 11 are connected by their collective contribution to the city. In the next section, I turn to several theoretical bases that underpin these markers of sustainable cities and communities.

32.2 Theoretical foundations

In his influential essay, "What is a City?," Mumford (1937) posited that cities were not only centers of economic agglomeration, but also—and perhaps more importantly—profoundly social spaces:

> The city in its complete sense…is a geographic plexus, an economic organization, an institutional process, a theater of social action, and an esthetic symbol of collective unity. The city fosters art and *is* art; the city creates the theater and *is* the theater. It is in the city, the city as theater, that [humans'] more purposive activities are focused, and work out, through conflicting and cooperating personalities, events, groups, into more significant culminations. (p. 59)

Any endeavor to chart a city's future, then, should focus on both its physical form and the processes undertaken to shape it. This idea is captured in two basic categories of planning theory: substantive and procedural (Faludi, 1973). The former focuses on technical and material aspects of planning, such as the layout of a city's streets (i.e., the plan itself), while the latter is concerned with the processes of designing, implementing, and evaluating a plan (i.e., planning itself). More recent efforts to categorize planning theory have expanded upon the substantive–procedural typology. For instance, Allmendinger (2002) proposed five broad categories of theory designed with a post-positivist orientation, including framing theory, exogenous theory, social theory, social scientific philosophy, and indigenous planning theory (see also Pallagst, 2007). Below, I outline three overarching theoretical directions that may be followed when thinking about the sustainability of cities and communities. Given the vastly multidisciplinary nature of SDG 11, this discussion will omit more than it will summarize, so instead of striving for comprehensiveness, my goal in this section is to offer a glimpse of the various theoretical frameworks germane to urban sustainability.

32.2.1 Planning theory

A fundamental assumption related to planning is that it is deliberate. As Fainstein and DeFilippis (2016) explained, "Planning is an intervention with an intention to alter the existing course of events" (p. 8), but it remains an open question of when (if ever) it is appropriate to engage in such intervention. Despite even the best intentions, planning can lead to counterproductive outcomes when a city's structural, economic, and social components are studied in isolation. As Bettencourt and West (2010) noted, treating these components independently "results in ineffective policy and often leads to unfortunate and sometimes disastrous unintended consequences" (p. 912). As they explained further, the fact that a city's size, and not its history, geography, or design, is the "major determinant of most characteristics of a city" necessitates a "'grand unified theory of sustainability' with cities and urbanization at its core" (p. 912).

The idea of a unified theory of sustainability is also reflected by Corbett and Mellouli (2017), who argued the many challenges faced by cities, including "economic constraints, demographic changes, [and] limited access to data and metrics for measuring progress" (p. 428), require a streamlined, integrated approach. This approach can be facilitated by information and communications technology systems, the hallmark of so-called "smart cities." Smart cities afford many advantages, but they may sometimes be at odds with efforts to promote sustainable city initiatives. Bibri and Krogstie (2017) cited several reasons for this conflict, including a misunderstanding between parallel goals in smart and sustainable cities, and that "smart city assessment frameworks and concepts need to be redeveloped and redefined, respectively, in ways that incorporate the environmental indicators and theoretical constructs of sustainable cities" (p. 202).

The targets associated with SDG 11, and the SDGs more broadly, underscore the importance of inclusion of historically underrepresented and systemically marginalized groups, not only in the outcomes associated with sustainable development but also in the creation of strategies intended to achieve those outcomes. In an urban community, inclusive sustainable development is vital to

the health and well-being of all its members; after all, a city is defined not just by its size and density but also by its heterogeneity (Wirth, 1938). The richly diverse and polyethnic characteristics of cities can also test planners, as sometimes-conflicting preferences can emerge when it comes to issues like transport, housing, and the environment (Sandercock, 2000). Inclusive dialogues are particularly important for those who consider the city itself as a "commons," in which citizens have the right to access various types of urban goods (e.g., city parks, public squares, roadways; Foster & Iaione, 2016). The *right to the city* means not only the right to access urban goods but also the right to form and reform cities (Harvey, 2008; Lefebvre, 1968), underlining the value of having a variety of voices and perspectives at the planning table.

32.2.2 Political ecology

A second theoretical framework that can be applied to study urban sustainability, and one closely linked to the planning literature, is political ecology. The presence of inequity in a city can be traced back to the planning process, as Bunds et al. (2020) discussed in their application of urban political ecology to an urban sports stadium development: "In urban environments, particularly, posturing for improving the 'environment' means seeing in a more integrated way how natural, built, secure, and safe social processes and spatial environmental forms occur unequally" (p. 127). They argue that shifts toward the profit-driven privatization of property have privileged some groups over others. In the US, this issue has become especially pronounced as major sporting infrastructure like arenas, ballparks, and stadiums are constructed on downtown sites: "Local political leaders, civic elites, and downtown land holders (elements of the 'growth machine') have successfully pushed this redevelopment agenda and been successful in relocating many teams to central city locations" (Chapin, 1999, p. 377).

In North America, most professional sports stadiums are funded, at least in part, by the public (Hutchinson et al., 2018). Efforts to secure public financing for a major professional sports stadium project may privilege a city's business elite, and they can more easily organize behind a stadium-subsidy proposal than can ordinary citizens who may oppose public funding (Kellison & Mondello, 2014; Molotch, 1976). Similarly, elected officials may promote growth-oriented policies despite the lack of approval from their electorate because they adhere to the political philosophy of civic paternalism, the notion they know what is best for a city and its inhabitants (Kellison, 2016). In these cases, policymakers may even risk reelection to promote particularly contentious projects (Kellison & Mills, 2021). Among other reasons, these projects may spark controversy among community members because they are perceived to lack sufficient public input or come with high environmental costs (Kellison & Mondello, 2012).

32.2.3 Sustainable cities

A third theoretical approach responds to the question of what it means to be a sustainable city in the first place. Various tensions are at play when it comes to sustainable cities. However, as Campbell (1996) argued, conflicts between property, resources, and development may be eased, allowing communities to realize "the elusive ideal of sustainable development," something that is "green, profitable and fair" (p. 298). Multiple paths can lead to this outcome, including those based on procedure (i.e., conflict negotiation; bridging linguistic gaps in economics, environmentalism, and social justice; political pluralism; linking economic and environmental priorities) or substance (i.e., land use and design, bioregionalism, technological improvement).

To achieve the targets of SDG 11, decisions made to promote sustainability in cities should not be confined to local governments, as they should align with strategies and plans at the

regional or national levels. For local planners and designers, however, finding such alignment can be taxing when governments institute retrograde policies that seemingly contravene environmental strategies (Kellison & Cianfrone, 2020). The decisions being made about cities are not necessarily confined to the cities themselves, nor are they limited to political actors. As Bulkeley and Betsill (2005) found, "The interpretation and implementation of policy goals for sustainability [can be] shaped by forms of governance which stretch across geographical scales and beyond the boundary of the urban" (p. 56). That is, the creation of sustainable cities is not done in isolation, and it requires the cooperation of many individuals, organizations, and institutions. In the following section, I provide a sample of the roles sport may play in this effort.

32.3 Connections to sport

A wide range of stakeholders contributes (positively or counterproductively) to the goal of more inclusive, safe, resilient, and sustainable urban spaces. These stakeholders may include various leaders in sports-related enterprises. They can range from individual athletes to entire sport clubs, from youth associations to national sporting leagues, from local events to global competitions, from local gymnasiums to mega stadiums, and from grassroots organizations to international governing bodies.

Sport's contribution to the targets of SDG 11 may be best understood from one of two perspectives (Shamir & Ruskin, 1984). First, *participation* in sport and physical activity provides citizens with health and psychosocial benefits, and it may occur throughout a city, including in public parks and greenspaces or private facilities. Second, *spectatorship* of sport is often infrastructure-based because it typically requires large-scale venues for hosting events and spectators. While there are apparent differences between these two modes of leisure behavior, there is also some overlap. Both perspectives are present in recent calls to use sport as a sustainable development tool in cities and communities, as summarized further below.

32.3.1 Highlighting the role of sport in cities

In a 2015 Commonwealth report examining sport's potential impact on sustainable development, it identified SDG 11 as one (of six) where "sport-based approaches [could] make the most effective and cost-efficient contributions" (Dudfield & Dingwall-Smith, 2015, p. 16). Much of the report's attention centered on creating and sustaining accessible greenspace and places of play, but other recommendations included "embedding space for sport in urban planning" and using major sporting events to "promote economic development, improved physical activity levels, cultural activities, urban regeneration and enhanced civic pride" (pp. 65–66). The Commonwealth report also acknowledged some of the challenges of applying sport to all targets of SDG 11. For instance, efforts to prioritize sport, recreation, and physical activity in plans for green and public spaces could face resistance from those who questioned its contribution "to social and economic development in the face of increasing urbanisation and changes in human settlement patterns" (p. 66).

Of course, for those who have dedicated their careers to sport, its potential impact is unmistakable. For example, reflecting on his experience as Special Adviser to the UN Secretary-General on Sport for Development and Peace, Wilfried Lemke recounted attending the launch of "Table Tennis for NepALL," a Para table tennis project designed to promote disability inclusion. In addition to using sport to "foster social development by changing perceptions about people with disabilities and providing such people with an opportunity to participate in sport," he observed that "after the devastating 2015 earthquake in Nepal, sport created a sense

of normalcy and self-efficacy for the survivors" (Lemke, 2016, p. 9). This idea is further supported in a toolkit developed by the Sustainable Development Goals Fund (2018), in which they declared "sports can…be effectively used for the inclusion of all demographics irrespective of age, sex, race, ethnicity, origin, sexual orientation, gender identity, religion or economic or other status" (p. 41). The report approached SDG 11 from multiple perspectives, including big-time, spectator sport (e.g., "Sports stadia can become platforms for human rights-based inclusiveness and respect for diversity"; p. 41), and local, participatory sport (e.g., "Creating spaces and facilities that are appropriate for sports requires well-considered planning and management from the national to the community level"; p. 41).

Following the UN's unambiguous recognition of sport as an "important enabler of sustainable development" in 2015 (General Assembly, 2015, p. 10), the International Olympic Committee explained the potential of sport in achieving several SDGs. Specifically, referring to SDG 11 and recognizing the potential benefits of both sport participation and sport spectatorship, they observed:

> Cities that invest in public sport, play areas, and related sport activities and programmes can reap numerous benefits in the field of health care and in fighting delinquency and violence, and promoting social cohesion and community identity. Sport events can also act as accelerators for the development of sustainable cities, including improved road networks and public transportation, thereby contributing to road safety. (International Olympic Committee, 2017, p. 1)

Indeed, as discussed in Chapter 38, the IOC has been strongly connected to the UN. In 2016, it became one of the founding signatories of the Sports for Climate Action framework (United Nations Framework Convention on Climate Change, 2018).

The value of sport in sustainable development was further emphasized in the Kazan Action Plan, a policy framework adopted by UNESCO in 2017. The report included a declaration that sporting infrastructure and other public spaces of play "in urban and rural planning can help support, develop and maintain activity and healthy lifestyles for their citizens and build inclusive and sustainable communities" (UNESCO, 2017, p. 9). The Kazan Action Plan further recommended the allocation of at least 15% of urban space for "open and green spaces and public facilities" and that these spaces integrate "opportunities for sport, physical education and physical activity" (p. 9). Additionally, these spaces should be "neutral and public and their design, implementation and management take into account the needs and safety of all citizens, including those with disabilities, as well as other vulnerable groups such as children and women" (p. 9). Taken together, these high-profile endorsements of sport as a mechanism for sustainable development underscore its potential to contribute to the wellness of citizens through healthy living and physical activity. A second contribution may come in the design of sports venues, which, much like the cities in which they are located, will need to adapt to climate-related threats.

32.3.2 Climate and sustainable design

As discussed in the introduction, sport exists at the interface of the natural and built environments. Any sports space, from the impromptu stickball alley to the master-planned concrete-and-steel ballpark, is fabricated around the land on which it sits. The congruous relationship between what is natural and what is built, however, is threatened by extreme weather events associated with climate change, and it has forced urban planners and public policymakers to develop robust

systems of climate adaptation (Dhar & Khirfan, 2017; Intergovernmental Panel on Climate Change, 2014). Not only a casualty of climate change, cities must also address their contributions to this crisis: according to the United Nations Human Settlements Programme (2019), cities account for 60–80% of energy consumption and 70% of GHG emissions.

In large cities, major professional sports venues may indicate civic leaders' commitment to climate action (Kellison & Hong, 2015). For example, after the naming rights to Seattle's KeyArena were purchased by Amazon in 2020, CEO Jeff Bezos announced the venue would be renamed Climate Pledge Arena and emphasized the public message being communicated through the moniker: "Instead of naming it after Amazon, we're calling it Climate Pledge Arena as a regular reminder of the importance of fighting climate change. We look forward to working together with…NHL Seattle to inspire global climate action" (Baker, 2020, para. 10). In addition to implementing zero-waste operations and reclaiming water for its ice system, the arena is expected to be the first net zero carbon certified arena in the world. After undergoing a $930-million renovation, the arena began serving as the home to Seattle's NHL and WNBA teams in 2021.

Climate Pledge Arena is among the latest sports venues that have made sustainable design central to their operations. Since 2008, more than 70 major sports facilities worldwide have earned LEED (Leadership in Energy and Environmental Design) certification from the U.S. Green Building Council, an organization that promotes sustainable building practices (Center for Sport and Urban Policy, 2020). The LEED rating system is the recognized standard for sustainably designed sports facilities in North America; other popular international variants include BREEAM and Neubau Sportstätten (Campelli, 2018). The fair number of LEED-certified sports venues suggests environmentally friendly stadiums are somewhat common among new constructions in professional sports, but in truth, far more major sports facilities have opened in the past decade without documented pro-environmental designs (Kellison & McCullough, 2018). Various reasons explain why sustainable design in sport has not been more widespread, including a lack of technical expertise or awareness of environmental issues among decision makers (e.g., Trendafilova et al., 2014).

Given the high environmental cost of building new venues (Preservation Green Lab, 2011), it is essential that the materials used to construct a facility are selected carefully. As Omer and Noguchi (2020) argued, "Buildings are the foundations of cities and communities, therefore building materials are key to their long-term sustainability" (p. 8). Thus, using locally available and responsibly sourced building materials will help limit the negative environmental impact that comes with extracting, transporting, erecting, maintaining, and ultimately—as the stadium-replacement loop endures—demolishing the materials. As Mercedes-Benz Stadium was being constructed to replace the Georgia Dome in Atlanta in the mid-2010s, officials cataloged all items inside the Dome, most of which were eventually sold, donated, or reused (Kellison, 2019). Additionally, debris from the imploded Dome was used as infill for a 13-acre greenspace that featured biking paths, a playground, and a sports field. Sustainably designed sports venues undoubtedly deserve praise, but it is equally important to recognize the legacy of the land, neighborhoods, and communities on which a stadium is built. As discussed next, in some cases, sports facilities may be constructed in ways that disadvantage the very groups SDG 11 is intended to protect (Figure 32.1).

32.3.3 Environmental justice

In cities throughout the United States, communities of color face environmental harms at a disproportionately higher rate than white (non-Hispanic) populations. Problems like poor air quality, urban flooding, and scarce greenspace contribute to poor health outcomes and

Figure 32.1 Mercedes-Benz Stadium in Atlanta, Georgia. (Credit: Timothy Kellison, republished with permission)

economic inequality (Cutter, 1995). These disparities are the legacy of environmental racism, because of which "minority and low-income communities [have faced] disproportionate environmental harms and limited environmental benefits" (Taylor, 2014, p. 2). In response to these problems, both public and private actors have implemented environmental justice reforms intended to expand recognition of, distribution to, and participation from communities affected most by environmental degradation (Schlosberg, 2007).

For their part, professional sports teams and stadium developers have promoted the idea that their venues contribute positively to the communities in which they are located, particularly when making a case for a publicly funded project sited near city centers and urban neighborhoods. These claims inevitably extend beyond economic impact and focus on arguments that stadiums enhance a city's social capital and improve the livability and desirability of urban neighborhoods (Sze, 2009). Past cases, however, demonstrate that stadiums can have deleterious effects on their communities, especially in predominantly Black and Hispanic neighborhoods. For instance, land cleared for Atlanta's interstate highway system and Atlanta–Fulton County Stadium resulted in significant economic instability for the historically Black neighborhoods along Georgia Avenue (Davis, 2019), while the construction of Dodger Stadium led to the direct displacement of those living in Chavez Ravine, a mostly Mexican American community in Los Angeles (Nusbaum, 2020). Negative environmental impacts followed both of these projects. As history has shown (as have authors in other chapters of this text), sport can be used just as effectively to encourage developments that threaten or harm communities of color. Like

Figure 32.2   Dodger Stadium in Los Angeles, California. (Credit: David Mark from Pixabay)

many of the problems in cities, many of the problems within sport are not new, they did not emerge unpredictably, and they were not unintended (Figure 32.2).

Moving forward, scholars must examine the connections between stadium place, sustainable design, and environmental justice. As noted in his review of the role of equity in planning, Reece (2018) predicted the problems of the past would persist:

> The challenges urban planners face in the 21st century are at least as daunting as those encountered in the nineteenth and twentieth centuries. Social and economic inequalities are growing, cities are changing in character and complexion, and the nation is in the midst of another significant demographic transition. (p. 307)

Thus, given the sometimes-inharmonious relationships between stadiums and urban communities, it is vital to understand how stadiums contribute (positively or negatively) to citizens' quality of life, particularly those living in communities that have historically been subjected to unjust and inequitable environmental policy.

32.4 Concluding remarks

The near-total shutdown of major sports leagues amid the pandemic of 2020 gave managers, the media, and the academy time to introspectively assess the future of sport, and to consider what the world would look like without it. While some saw the shutdown as an opportunity for "recovering better" (United Nations Department of Economic and Social Affairs, 2020) or "building back better" (Sustainable Sport Research Collective, 2020; UN Women, 2020),

others portended 2020 "was a starter pistol [in] a race to catastrophe" (Moore, 2020, as cited in Vogt et al., 2020). Regardless of perspective, the inevitability and irreversibility of climate change will force the sports industry to adapt or collapse (Wallace-Wells, 2019).

This chapter illustrates the wide and far reach of the eleventh SDG. The challenge of making cities and communities inclusive, safe, resilient, and sustainable requires implementing strategies and approaches from many different directions, as demonstrated by the 10 targets highlighted previously. Scholarly perspectives are similarly many-sided, and academic work on SDG 11 may be grounded in planning theory, political ecology, or environmental science, among many others. At the center of this discussion, of course, is the city, and while it is only explicitly identified in SDG 11, the city can contribute to other aspects of sustainable development enumerated in the other SDGs, including those addressing poverty (1); good health and well-being (3); quality education (4); gender equality (5); decent work (8); climate action (13); life on land (15); peace, justice, and strong institutions (16); and partnerships for the goals (17; Macmillan et al., 2020). Placing the city at the center of an SDG also underscores the importance of collective action, collaboration, and system integration.

Sport can play a critical role in achieving the targets of SDG 11, as evidenced by high-level statements made by the Commonwealth, UN, and IOC that emphasize the value of sport to cities. Both participant- and spectator-based sporting infrastructure can be designed to support sustainable development. Therefore, leaders and policymakers within sport must be deliberate if sport is to contribute positively to the goal of inclusive, safe, resilient, and sustainable cities and communities. Sport is often celebrated for its unboundedness—for its potential to transcend social, geopolitical, and economic barriers. In that way, it may be an ideal tool for building sustainable cities and human settlements.

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Measuring Sustainable Development Goal 11

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Sustainable Development Goal 11 is focused on developing sustainable cities and communities. Since the UN adopted SDGs in 2015, progress has been made toward improved infrastructure, transportation, and access to public spaces, among other improvements. In their 2019 report, the UN Economic and Social Council reported the progress of each target and SDG indicator, highlighting the remaining challenges and the work needed to meet their 2030 objectives (UN, 2019).

From 1990 to 2016, the UN (2019) reported the global population residing in "slums" (p. 17) had decreased from 46% to 23%. Despite this progress, over one billion individuals remained living in slums or informal settlements in 2016 (most in Southeast, South, and Central Asia), and nine out of ten people living in urban areas were still breathing air that did not meet the World Health Organization air quality guidelines. As of 2018, 53% of urban residents had convenient access to public transportation (defined by living within 500 m of a bus stop and 1000 m of a railway or ferry terminal). Globally, two billion people did not have access to waste collection services and three billion lacked access to a controlled waste disposal facility. Finally, as of the start of 2019, while 150 countries had developed national urban policies, only half of these countries were implementing them. The report's findings suggest the rapid urbanization countries face caused implementation challenges, as cities grew 1.28 times faster than their populations between 2000 and 2014, indicating the need for better management of urban growth for sustainable urbanization (UN, 2019).

33.1 (Non)Mega-sport events and sustainable development: indicators of progress

33.1.1 SDG 11 and sport events

One strategy that can assist in creating and managing sustainable outcomes linked to a community's urban growth is hosting sport events. Sport events have the opportunity to catalyze the development of public transportation, improve access to park space, initiate environmental discussions and policies, and more (Taks et al., 2014). However, "events and the opportunity they present are merely the seed capital; what host [communities] do with that capital is the key

to realizing sustainable" outcomes (O'Brien, 2006, p. 258). To this end, the extent to which event-related developments are sustainable, or in the best interest of host communities, is contested, as evidence of sustainable economic and social outcomes is lacking (Preuss, 2019).

The UN posits that for an event to be sustainable, it must address social, economic, and environmental factors (Holmes et al., 2015). However, sport management studies have often focused on economic or social outcomes (e.g., Chalip & McGuirty, 2004; Leopkey & Parent, 2012). Therefore, while all three issues are important, for the purpose of this chapter section, we will focus on economic and social sustainability in relation to sport events (for environmental sustainability, see Geeraert & Gauthier, 2018; Mallen et al., 2010; Samuel & Stubbs, 2013). In the following sections, we examine how sport events of various sizes may contribute differently to such objectives, and demonstrate that smaller, non-mega sport events (NMSEs), opposed to mega-sport events (MSEs; e.g., the Olympic and Paralympic Games), may have greater potential to produce sustainable social and economic outcomes for host communities (Taks, 2013). We then highlight the potential for future NMSE research and suggest that, while sport events can contribute to the achievement of SDG 11, they are but one aspect of a complex social system.

33.2 Measurement in sport

Given MSEs' global reach, hosting such events has become a strategy implemented by stakeholders to address broader development goals (e.g., social, economic, or environmental). Sport management researchers have investigated various perceived benefits stakeholders anticipate from hosting MSEs (e.g., economic impact; Crompton, 1995). These perceived benefits have led to the development of national sport policies with the key objective to host MSEs, which develop positive, sustainable outcomes (Gratton et al., 2005). However, researchers have found that the cost of hosting outweighs the economic gains derived from publicly funded MSEs (e.g., Agha & Taks, 2015). Therefore, stakeholders have suggested that MSEs can create intangible (social) outcomes for their host communities to justify their public funding (Green, 2009; Grix & Carmichael, 2012). Hence, researchers have started to focus on intangible social outcomes from MSEs as a line of inquiry.

For instance, researchers have examined various outcomes linked to hosting MSEs, including improved low-income housing (e.g., Watt, 2013), enhanced public transportation (e.g., Wood, 2019), and increased social capital (e.g., Oja et al., 2018). While researchers have largely focused on positive MSE outcomes, it is imperative to acknowledge that when hosting any event, there are "winners" and "losers" (Késenne, 2012). Although many individuals can benefit from hosting, adverse outcomes are inherent. Such negative consequences include, for example, unemployment (e.g., Tien et al., 2011), disruption and displacement (e.g., Bull & Lovell, 2007), negative environmental impacts (e.g., Jin et al., 2011), and economic loss from hosting (e.g., Agha & Taks, 2015; Maharaj, 2015).

Since policymakers justify using public funds to host MSEs because hosting can create sustainable intangible outcomes, there is a need to monetize intangible outcomes (e.g., community displacement, social capital; Attwell et al., 2019). To that effect, researchers have thus attempted to develop monetary valuation methods measuring intangible outcomes (e.g., contingent valuation method; Johnson & Whitehead, 2000). However, MSE mechanisms and outcomes are complex, and these monetization methods have been critiqued for their applicability and efficacy (Orlowski & Wicker, 2019). For instance, when examining previous Olympic events, it is challenging to measure the complexities which have occurred as an (in) direct result of affordable housing, upgrading slums, white elephants, displacement effects, or community embarrassment from event failures.

Although MSEs have been used in attempts to regenerate host communities (Watt, 2013), history has demonstrated that regeneration can create both positive (e.g., East London development; Stevenson, 2016) and negative (e.g., gentrification; Kennelly & Watt, 2012) intangible outcomes that are challenging to conceptualize and measure. A particular challenge of MSEs is the size of the event, which can create issues in achieving sustainable outcomes for the host community. This often includes a lack of consultation with host communities to understand community members' values and experiences (Taks et al., 2018). While the size and resources necessary for hosting MSEs pose this challenge, the potential of NMSEs to induce positive outcomes (or at least mitigate negative outcomes) for communities have emerged as a sustainable avenue forward within the world of sport events (Taks, 2016).

33.2.1 Non-mega sport events: an avenue forward

Given present challenges identified with MSEs (e.g., Müller, 2015), several sport management scholars have advocated for the hosting of NMSEs over MSEs, as NMSEs may generate greater sustainable outcomes for host communities (Chalip et al., 2017; Kaplanidou et al., 2013). To demonstrate how NMSEs may be better suited to serve UN SDG 11, we present Smith's (2012) ten principles of sustainable event regeneration (see Table 33.1) and link them to current NMSE research. These principles encompass a community-focused approach to events, with the goal of using events to meet community needs in a sustainable manner. While developed concerning events and urban regeneration specifically, we demonstrate here the applicability of each principle for sustainable event hosting in general. In working toward these ten principles, sport event managers, host communities, and governments may better position events to contribute to UN SDG 11 targets.

First, NMSEs are thought to be more embedded within the community than MSEs (Derom & Ramshaw, 2016), generate greater long-term stakeholder relationships (Taks et al., 2014), and, due to their frequency, impact more communities (Agha & Taks, 2015; Derom et al., 2017). These characteristics indicate that NMSEs may be better suited to fit pre-existing plans and programmes within communities (principle 1), therefore helping to deliver initiatives parallel to the event itself (principle 2). In addition, research has indicated that an event portfolio, which uses a variety of smaller events, may be better suited to fulfill the needs of a

Table 33.1 Ten principles of sustainable event generation

1	Embed event projects within wider urban regeneration programs
2	Use a major event as an opportunity to deliver parallel initiatives
3	Ensure that regeneration considerations are incorporated into the initial stages of planning for an event
4	Promote shared ownership amongst the stakeholders of event regeneration programs
5	Balance event regeneration and event management priorities
6	Allocate resources throughout the lifetime of projects to achieve sustained effects
7	Allow the disadvantaged places and people to benefit
8	Ensure community involvement from outset
9	Where new venues are required, ensure they are integrated with existing populations not only physically, but also socially and economically
10	Ensure regeneration promises are not compromised when there is pressure to balance event budgets

Adapted from Smith (2012).

community, further addressing principles 1 and 2 (see Ziakas & Costa, 2015). Second, scholars have indicated that NMSEs may allow for better engagement with local communities and event region residents than their MSE counterparts (Taks, 2013, 2016), holding event organizers and supporters more accountable to region residents (Smith, 2009). Heightened accountability may further allow for shared event ownership among stakeholders, including community members (principle 4) and better community involvement from the beginning planning stages (principles 3 and 8). Strategic community involvement and improved accountability may further allow for a more equitable distribution of benefits from the event (principle 7), as opposed to predominantly serving the elite (as is often the case with MSEs; e.g., Andranovich et al., 2001).

Third, NMSEs' potential for being more embedded within the community may allow for more strategic, and therefore, sustainable infrastructure development (principle 9), which can benefit the community as opposed to only serving the event (Maharaj, 2015). Further, scholars have highlighted that NMSEs require fewer resources to host (Agha & Taks, 2015), which likely makes them a more sustainable option than their MSE counterparts. Lower resource demand, in addition to community involvement, is related to infrastructure development, again allowing for the pursuit of more strategic projects (principle 9). Because NMSEs require fewer resources, they place less strain on a host region, allowing for more focus on parallel initiatives (principle 2), as well as the ability to maintain focus on both non–sport goals as well as the needs of the event (principles 5 and 10). While research indicates that in the context of MSEs, the needs of the event are often prioritized over other objectives (Chalip, 2014), there lacks research investigating whether this may be the case in the context of NMSEs.

Finally, matching event resource demand appropriately with the capacity of the host region is more likely in the case of NMSEs than MSEs (Agha & Taks, 2015). Theoretically, this could leave more resources for long-term projects and, therefore, more sustainable outcomes as opposed to directing all resources toward the event itself and potential cost overruns (Preuss et al., 2019), as has been the case in the MSE context (principle 6).

We have suggested above that NMSEs may be better suited to contribute to SDG 11 by drawing upon Smith's (2012) principles for sustainable event regeneration. However, there remain implementation challenges when considering the role that sport events may play in achieving broader development goals and SDG 11 specifically.

33.3 Implementation challenges

NMSEs have the potential for communities, as they are more manageable to host in size and cost, develop long-term stakeholder relationships, and target specific long-term goals. Despite this positive potential, we present three key barriers that challenge the implementation of NMSEs to address SDG 11: (1) lack of empirical research, (2) lack of adequate post-event data analysis, and (3) limitations of sport events.

First, there is a lack of research that has investigated NMSEs' ability to produce sustainable outcomes for the host community. To date, most NMSE research has focused on social outcomes (e.g., sport participation; Potwarka et al., 2019; Taks et al., 2018). The concept of sport event leveraging focuses on how an event can be integrated into a community's marketing and management strategy to maximize its long-term benefits (O'Brien & Chalip, 2007)—which can include urban regeneration goals linked to social and economic objectives. Although initial research regarding leveraging is promising, further research regarding NMSEs, their potential, and how to harness that potential is necessary to ensure sustainable use of sport events moving forward.

Second, not specific to NMSEs, but critical of sport event research in general, scholars rarely investigate long-term outcomes; average primary data collection of MSE outcome assessments

occur four months post-event (Koenigstorfer et al., 2019). Short-term evaluation is problematic, as outcomes, specifically sustainable outcomes, can take longer to form (Scheu et al., 2019). The value of sport event outcomes, particularly concerning SDGs, is meaningless if they are not sustainable. Although studies addressing immediate post–event outcomes have helped methodological and theoretical processes, there is now a need to measure outcomes far after the staging of sport events (Preuss, 2019). Therefore, to provide an appropriate evaluation of NMSEs' sustainable outcomes, researchers must address a timeframe that allows for the measurement of outcomes to occur far after the staging of the event (Scheu et al., 2019).

Finally, scholars, practitioners, and public officials must acknowledge that sport events are but one aspect of a complex social system that may contribute to greater issues and solutions. Caution must be exercised when discussing sport's role in "fixing" social, economic, and environmental challenges. Sport events and their roles in society can carry different meanings for different people, cultures, communities, and global regions. These complexities present challenges when discussing sport events and their potential role in working toward achieving and measuring specific sustainable development goals (Hayhurst et al., 2017). When discussing sustainable event hosting and outcomes, sport events can be a catalyst when implemented effectively. However, events are finite, and while sport events themselves are not sustainable, they may play a role in creating sustainable outcomes. Therefore, moving forward, great care must be taken to ensure that residents are involved in decision-making and planning processes surrounding sport events and their implementation within the community's greater development plan.

33.4 Conclusion

Sport events can play a role in developing communities and addressing social matters. Despite challenges, sport events have the potential to be implemented strategically to reach desired sustainable economic, social, and environmental goals within communities. Although researchers have begun to advocate for the benefits of NMSEs over MSEs, most research has concentrated on MSEs. While these studies were a good first step toward understanding possible sustainable outcomes of sport events (or lack thereof), findings have revealed MSEs to create more costs than benefits, and more "losers" than "winners" within host communities (Késenne, 2012).

When considering SDG 11, NMSEs may have more potential to address community needs in a sustainable manner, compared to their MSE counterparts. We have highlighted Smith's (2012) 10 principles of sustainable event regeneration and linked these principles to NMSE literature to demonstrate their applicability toward SDG 11 (e.g., Andranovich et al., 2001; Derom & Ramshaw, 2016). Despite this potential, there remain challenges when understanding the role that sport events can play in achieving SDG 11. These include a lack of research regarding NMSEs, and a need to temper expectations regarding sport events' capacity to "solve" broader development issues. Moving forward, scholars, practitioners, and public officials must ensure each community is central to event planning and implementation. This approach should aim to foster mutually beneficial relationships that position the sport event to better serve the host community's needs and help attain sustainability goals.

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34

Applying Sustainable Development Goal 11

Shireen Hamdan and Charles Cooke

Populous is, at its heart, a specialist in designing places where people love to be together. Over the course of the last four decades we have diversified globally, using our sports architecture expertise to also design venues and spaces including entertainment venues, airports, convention centers, and major sporting events.

The first full stadium scheme undertaken by the practice in the UK was John Smith's Stadium in Huddersfield in 1992, then known as the Alfred McAlpine Stadium. The project had great significance not only in the UK but also in Europe, as the first new–build stadium completed after the Hillsborough disaster of 1989. We were awarded the contract on the strength of a theoretical project developed for the UK Sports Council called "Stadium for the Nineties," which established new best practices in design for ensuring spectator safety at large-capacity venues.

Since then, our portfolio has grown to include more than 3,000 projects across six continents—from the new Wembley and Yankees Stadiums in the UK and the US, respectively; to the main stadiums for the Olympics and Paralympics in Sydney, London, and Sochi; South Africa's Soccer City stadium, built for the 2010 FIFA Men's World Cup; the Estadio BBVA Bancomer in Mexico; and India's Narendra Modi Stadium, which, with a capacity of 110,000, is the largest cricket ground in the world.

It is impossible to know exactly how many fans have visited our venues over the years, but a conservative estimate puts the number in the tens of millions. We are in the business of drawing huge crowds of people together inside some of the largest buildings in cities and urban centers around the world, and inherent within this work is a responsibility to create developments that enhance the communities they serve—developments that are inclusive, safe, resilient, and sustainable.

34.1 Relationship to SDG 11

The practice's connection to SDG 11–Sustainable Cities and Communities is defined not only by this sense of personal responsibility felt by each one of us as individuals and designers, but also the responsibility and commitment of our clients to communities, and the need to deliver commercially successful projects.

In the context of sports infrastructure, this means creating mixed-use developments that can operate beyond their primary use in hosting major sporting events. A 60,000-capacity Premier League football stadium may host 20–30 matches per season, yet the cost for a new-build project of this type can stretch into the hundreds of millions of pounds. To be financially sustainable, these developments should, therefore, serve a wider purpose as destinations in their own right—providing new visitor attractions and community facilities such as bars, restaurants, and retail that drive footfall, with improved access to public transport and open spaces where visitors and locals can congregate throughout the year. In this sense, commercialization and community engagement are inextricably linked—and herein lies the potential of sports infra-structure projects to serve as catalysts for urban development. Furthermore, the markers of a commercially successful project are in direct alignment with SDG 11 targets 11.2, 11.3, and 11.7.

34.2 Brainstorming solutions and evaluations

For Populous, these targets are engrained in strategy development from the earliest stages of a project. There are plenty of examples of sports venues that have become white elephants—stadium developments that fall silent on non-event days and do nothing to enhance the urban fabric of an area. Good design, therefore, begins at the master planning stage and seeks to benefit communities, visitors, and clients by creating the widest possible spectrum of uses for a venue.

This also involves a comprehensive assessment of existing transport connections. Where these are deemed to be inadequate to support a proposed new development, it is the job of the architect to work with consultants and the local planning authorities to develop an enhanced scheme. Of course, the new transport links created in these instances serve not only visitors to the venue but the community at large, particularly parents with children, persons with dis-abilities and older persons for who new transport infrastructure, designed to best practice most benefits—forming a key part of the strategy for meeting SDG 11 in sports infrastructure projects.

Inclusivity, too, is tackled most effectively when considered at the concept design stage. This requires a holistic approach, with the scope of works including modified design inside of venues for accessibility and extending to the creation of new landscaped public spaces, flexible acti-vation areas for hosting a varied range of pop-up events, and enhanced food and beverage offerings that attract new and more diversified audiences to sports events.

One of the biggest environmental impact of a stadium is its embodied carbon. That is all the carbon dioxide created by all of the processes associated with the extraction, processing, manufacturing, transport, and construction associated with the delivery of the building. The most important factor in reducing embodied carbon is to select low carbon construction ma-terials, design efficient lightweight structures, and optimize the buildings form and size so that it is efficient. However, due to their size, all stadiums will have a significant carbon footprint, and therefore it is important when designing resilient and sustainable buildings to ensure that they are not subsequently affected by the impacts of climate change requiring further construction material use. Furthermore, justification of the material use and carbon cost must be found by ensuring long-life and frequency of use. The worst outcome possible is a material, carbon and energy intensive structure that is only used for a single sporting event before being replaced. Efficient structural design that minimizes the use of carbon intensive materials, such as cement, and prioritizing the reduction of construction waste are two further ways in which the em-bodied carbon of a building can be significantly reduced. The carbon footprint of a stadium can

be further reduced by making best use of the materials found on the site of the stadium. If any existing structures need to be demolished the demolition material should be re-used in the new stadium. One method employed by Populous is the reuse of aggregate excavated from the foundations of a building to produce concrete, which, when mixed in situ. and combined with replacement cement products results in super low carbon concrete.

Another environmental impact of a stadium is its operational water and energy use. Stadiums typically have a reasonably low background water and energy usage which spikes significantly when the venue is at full capacity in event mode. There are a number of effective technologies that can be incorporated into the design of venues to improve operational efficiency, reduce the peak energy, and water load requirements and, in turn, enhance the sustainability credentials of the development. These range from waterless urinals and self-flushing toilets that reduce water usage, to renewable energy technologies, such as photovoltaic systems for harvesting solar energy, solar thermal for creating hot water and ground source and air source heating. The cost of renewable energy technologies has reduced significantly in the last decade so that it is now a viable option for projects of all scales.

34.3 Execution

One of the most successful examples of a sports infrastructure project that responds to SDG 11 is the Queen Elizabeth Olympic Park in London. Created to host events at the London 2012 Olympic and Paralympic Games, the huge program of works began in 2005 and saw the transformation of more than 200 hectares of brownfield land in East London. Nine temporary and five permanent venues were created, including the Populous-designed main stadium. Crucially for the legacy of the Games, the local community transport infrastructure benefitted from huge enhancements. Twenty-six new bridges were built, with 20 km of new roads and 13 km of tunnels added to the site, crisscrossing the former wasteland. Eighty hectares of new public parkland were also developed, incorporating new playgrounds, cafes, and landscaped gardens for people to enjoy, with street lighting and CCTV systems installed to ensure these areas are safe for all visitors.

The result of all this is that in the years following the Games, the Park has been a catalyst for urban development across East London and is recognized by EIT Climate-KIC as a European Smart, Sustainable District. All five permanent venues in the Park were originally designed and then transformed after the Games to ensure that they met the needs of both the local community and world-class athletes. The temporary seating wings at the Aquatics Centre were removed, reducing the venue's capacity down from 17,500 to 2,800—a sustainable capacity for community events—and government subsidies ensure that membership prices remain affordable. New BMX, road, and mountain bike tracks created at the velodrome have been enjoyed by over 3.4 million visitors to date, while an additional two million have visited the multi-purpose Copper Box Arena. All venues on the Olympic Park have been designed with exceptional levels of accessibility, using specially-written design standards that surpass regulatory requirements and achieve a new best-practice benchmark.

Populous was further commissioned to reconfigure the main stadium to create a new home for Premier League football in the capital. Crucially, this work saw a reduction in the capacity of the venue from 80,000 to 66,000, ensuring that the stadium would be sold out on match days and remain a sustainable home for the resident club, West Ham United. As part of the new scheme and in response to the safety requirements of the Premier League, we created a "halo" structure of spectator facilities, containing 96 new turnstiles that had previously been positioned away from the stadium, preventing public access to the landscaped island immediately

surrounding the venue. This adaptation makes it possible to open the island to the public throughout the year, vastly improving the quality of the public realm within Queen Elizabeth Olympic Park. The transformation design also incorporated a retractable seating system, allowing the stadium to retain its running track around the football pitch and continue to host major international athletics events.

There has also been an enormous boost to the availability of housing and jobs in the area as a result of the development. The former Athletes' Village has been transformed into residential accommodation and is now fully occupied, with a total of 24,000 new homes planned on and around the Park by 2031. The creation of a new business district and innovation hub, Here East, designed to nurture start-up and creative businesses, will see a total of 40,000 jobs created in the Park by 2025.

The placemaking principles put into play so successfully at the Queen Elizabeth Olympic Park have had a major bearing on how Populous approaches its sports infrastructure projects. In designing the new Tottenham Hotspur Stadium, our approach centered on creating not just a world-class venue for Premier League football, but also a new sports and leisure destination. The stadium is made truly multifunctional through the inclusion of a retractable pitch that slides away to reveal an artificial playing surface for American football and concerts, with designated facilities for NFL players and staff incorporated alongside those for football teams. This has seen the stadium secure a 10-year partnership with the NFL to host a minimum of two league matches per year, drawing tens of thousands of visitors to North London from all over Europe and further afield.

Representing a significant private sector investment from the Club, the stadium has been a catalyst for the sports-led regeneration of the area, attracting unprecedented investment including around £100 million for public transport infrastructure that has seen significant enhancements to local rail links, alongside the creation of new public spaces, parks, shops, and restaurants.

The full development scheme includes a new gym, supermarket, sixth form school, and visitors' centers, with the addition of an on-site hotel building planned for the next phase of development. Open to the public all year-round, these facilities, together with the stadium itself, will bring an estimated two million visitors to the area per year, supporting the creation of 1,700 new jobs and injecting circa £293 million into the local economy.

We are now taking the lessons learned from these projects and are applying them to our designs for integrated sports master plans in global emerging markets, particularly in the Middle East. It is immensely satisfying to see a concerted drive underway in this region to invest in these projects, in recognition of their enormous health and social well-being benefits to communities.

Part XII

Sustainable Development Goal 12: responsible consumption and production

An overview of Sustainable Development Goal 12

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Sustainable Development Goal 12 is to "ensure sustainable consumption and production patterns." It includes eight specific targets (12.1–12.8), plus three related to implementation (12.a–12.c). This SDG addresses several issues that can be broken down into: production efficiency, especially in relation to natural resource extraction and use (12.2); food production systems and pre-consumer food waste (12.3); management of hazardous waste materials (12.4); sustainable corporate practices and reporting (12.6); and public procurement (12.7; Gasper et al., 2019).

Production and consumption are the driving forces of the global economy, and include the activities of whole supply chains: how we cultivate, manufacture, distribute, and consume products, but also how we dispose of—or reuse—materials (Govindan & Hasanagic, 2018). In sport, this includes the production of sporting goods and intangible sport experiences (both participatory and consumptive or spectator sport; Mallen & Chard, 2011; McCullough et al., 2020), and the consumption of these goods and experiences. This includes a football shirt purchased online from China but made from fabrics sourced in India and manufactured in Vietnam, and the beer one enjoys at a hockey game in Canada that was made from ingredients sourced globally and produced in a German brewing facility. In the case of sporting events and experiences, the materials to build the facility may be sourced regionally, assembled on-site, and the product (which includes athletes and human labor) will be similarly global in scope and resource-intensive in sourcing. To consume events, attendees may travel long distances to be in person, or may choose to participate via the intermediary of television or cellphone; both the in-person and television product are known for conspicuous supply chains that represent hopscotch across the table of elements and the continents. Production and consumption are complex.

In unpacking the centrality of these economic activities to the sport sector and identifying points of weakness and opportunities for improvement, it is critical to assert that production and consumption rely on the use of the natural environment and resources in a way that continues to have destructive impacts on the planet (McCullough et al., 2020), and that are manufactured and produced in ways that can be unjust and inequitable for people (McCullough et al., 2020; General Assembly, 2015). The basic premise of SDG 12, therefore, is that humans must make changes to production and consumption processes, such that resources are used sustainably, including labor.

The theoretical development of responsible consumption and production (RCP) finds its roots in concerns over carrying capacity, and limits of acceptable change (Purvis et al., 2019).

Ultimately, this is an SDG concerned with preventing the tragedy of the commons by assuming shared responsibility for the precious few resources available and using them responsibly. However, and as we discuss in a later section, there is no shortage of criticism that has been levied against this SDG for its considerable shortcomings (Gasper et al., 2019).

This chapter begins with a review of the historical and academic developments that led to RCP's inclusion in the SDGs. Then, the central concepts embedded in SDG 12 are presented, with a discussion of their applications in sport, followed by a target-by-target analysis of the applications of SDG 12 in sport. We conclude this chapter with a review of the criticism that has been levied against SDG 12, with a view of rendering clear the limits of RCP and identifying opportunities for more holistic sustainable approaches to production and consumption.

35.1 A short history of RCP

The earliest formal discussions of RCP and its potential positive impacts on the environment and human wellbeing were held at the 1972 UN Conference on the Human Environment in Stockholm. Also in 1972, a renowned network of scientists and industrialists called the Club of Rome released a report called *Limits to Growth* (Carpenter and Bennett, 2011). Using computer simulations, the report cautioned against continuing the growth-based economic trajectories at the time by demonstrating the tension between "static stocks of resources and arithmetic growth in some means of production versus geometric growth in population and consumption" (Gasper et al., 2019, p. 83). In short, the *Limits to Growth* report, similar to several subsequent government reports and academic studies, emphasized that we ought to be concerned with both the limits to resources and the limits to the planet's ability to capture and hold waste (e.g., air pollution, hazardous materials, plastic pollution; Carpenter & Bennett, 2011; Steffen et al., 2015).

Beginning with those developments in the 1970s and continuing through the launch of the SDGs in 2015, high-level global leadership discussions were held in response to ever-increasing consumption and economic growth that were made possible by ecologically inefficient methods and nonrenewable resources.

The report *Our Common Future*, written by the Brundtland Commission in 1987, was a turning point in the history of RCP as scientists and government leaders began applying the term "sustainable development" to explain the change on the whole-society scale that would be needed to protect the environment from further destruction. Specifically, sustainable development refers to development in such a way that meets the needs of current generations without compromising the ability of future generations to fulfill their needs (Brundtland, 1987). This implies a difference between wants and needs, which often goes overlooked in the highly consumptive economies of North America, Europe, and Australia.

The term sustainable development and the concept of RCP continued to grow in popularity and evolve through the 1990s, 2000s, and 2010s. Consistently, leaders called on the morality of global citizens to prioritize intergenerational equity as a primary responsibility. The Rio Declaration of the 1992 Earth Summit (the UN Conference on Environment and Development) called on states to "reduce and eliminate unsustainable patterns of production and consumption" (UNCHR, 1994). A decade later, The 2002 World Summit on Sustainable Development in Johannesburg asserted that "fundamental changes in the way societies produce and consume are indispensable for achieving global sustainable development." Importantly, these assertions and calls were rarely supported by legislative rules or incentives, slowing progress. Over time, the Brundtland focus on consumption norms, "standards," and limits of growth was gradually replaced by a focus on methods of production and consumption—in other words, we shifted from "How much can we responsibly take from the planet without

harming it?" to "How can we take as much as possible in the least damaging way?" Though subtle, this shift proved an important success for corporate lobbyists who pushed to minimize regulation in the intervening 30 years.

The influence of corporate and industrial interests on the formulation of sustainable development concepts and strategies from the beginning cannot be understated. During the first wave of modern environmentalism (1960–1970s), strong regulatory laws were enacted in several countries including the United States (Clean Air Acts of 1963 and 1970, and the Clean Water Act of 1972), and China (Provisions on Protecting and Improving Environment of 1973; Xie, 2020). The prospect of more regulation that might compromise corporate growth plans motivated businesses to propagate ideas of self-regulation and market-based innovation as counterweights to regulation. Meanwhile, non-profit organizations working on sustainable development actively sought corporate involvement (Weerawardena et al., 2010) because they recognized that much of the change they desired regarding production and consumption would occur in the context of private transactions as the private sector is often able to respond to problems faster than the public sector.

SDG 12, as it is currently written, reflects the tensions between corporate and industrial interests on the one hand, and development practitioners and governments on the other, with response time, fast-depleting natural resources, and definitions of "needs" and "wants" hanging in the balance.

35.2 The concepts that underscore SDG 12

35.2.1 Tragedy of the commons

Originally coined by Garrett Hardin in the late 1960s, the *tragedy of the commons* describes what happens to common resources as a result of human greed (Marciano et al., 2019). The tragedy of the commons demonstrates that when a resource is publicly owned without regulation, the overall sustainability of the resource is susceptible to being compromised. Specifically, a tragedy occurs when everybody is open to taking and using the resource, as much as they want, even if it is beyond their fair share or unsustainable (Ostrom, 1990). As such, the tragedy of the commons can be invoked in discussions about SDG 12 to describe the potential dangers of over-extraction of resources and the importance of sourcing raw materials responsibly at the beginning of a product's life cycle.

The tragedy of the commons reappears as a relevant scenario at the waste stage of a product's life cycle. At this stage, it is not a question of taking something out of the commons, but of putting something in—waste, pollution, sewage, hazardous materials, fumes, and so on—to the common air, land, and water. In any situation where waste and pollution are not managed, individuals and organizations can easily determine that the cost of releasing waste into the commons is less than the cost of purifying or eliminating wastes (Marciano et al., 2019). Since this is true for everyone, we are locked into a system of "fouling our own home" if we behave as independent, rational, and free enterprises. To avoid further compromising precious natural resources with more pollution (e.g., plastics in the ocean, GHGs in the air), we must adopt strong environmental values and prioritize the long-term sustainability and availability of natural resources (Gasper et al., 2019).

35.2.2 Externalities

To avoid falling into the tragedy of the commons at the sourcing and waste stages of the product life cycle, one possible strategy is to adopt the concept of externalities from economics and apply it to the environment (McCullough et al., 2020). An externality is defined as a cost or benefit caused by a producer that is not financially incurred by that producer (Mankiw, 2014).

In other words, an externality is an impact or outcome of the production or consumption of a product or service that the producer or consumer is not responsible for. An externality can be both positive and negative.

In the context of the environment and sustainability, we are mostly concerned with the negative externalities of pollution in the air, in water, or on lands, for which the producing or consuming person or business is not responsible. For example, if a NASCAR event welcomes thousands of spectators using personal cars, on top of the emissions from the event itself, the air quality in the host area is likely to be poor. And yet, NASCAR pays no fee and bears no responsibility for their contribution to poor air quality, nor do NASCAR fans or participants who also contribute. Another sports example is the runoff of pesticides from turf management. Often, harmful pesticides are used to keep the grass bright green at golf facilities, soccer fields, baseball diamonds, and so on. This is called the Augusta effect, and refers to the quest for perfect grasses and turf that has been rampant in sports since the Augusta National Golf Club popularized the use of such chemical treatments (Bailey, 2016). While attractive on the surface, and possibly good for the playing conditions, the chemical pesticides risk leaking into aquifers and onto adjacent lands, which can be problematic for safe water in the area and can complicate land management on adjacent properties. Without regulations or some form of a common system to account for these types of externalities, organizations can inadvertently or intentionally harm their neighbors and the natural resources that surround them.

35.2.3 Cradle to cradle

The term "cradle to cradle" entered the business lexicon in the 1980s and was introduced by Walter R. Stahel. However, it was William McDonough, a sustainable architect, and Michael Braungart, a chemist, who popularized the concept through a book called *Cradle to Cradle*, published in 2002.

Cradle to cradle is a business strategy that mimics the regenerative cycle of nature in which waste is reused for the same or a different purpose. In traditional business models, a product has four life stages: (1) raw material, which is transformed through (2) manufacturing; it then enters the (3) use stage, and finally, the product is subject to (4) disposal. This is commonly called the "cradle-to-grave" approach. In nature, when a tree or animal dies or creates waste, that waste becomes the basic nutrients for another process. For instance, trees consume carbon and produce oxygen as waste, which humans can then inhale. Another example is animal waste, which is naturally broken down and gets used as a natural fertilizer for plants. This natural cycle creates a cyclical process instead of a linear one. In the cradle-to-cradle approach, the fourth stage (disposal) becomes reuse or repurpose. As such, the cradle-to-cradle approach attempts to eliminate waste, by reusing or repurposing the product or its components. This approach represents a thoughtful and sustainable way to minimize waste and negative externalities in each stage of the product life cycle, promote durability in product design, prolong the use of the product, and encourage eco-innovation. These themes will be revisited in the following sections on circular economy and eco-innovation.

35.2.4 Circular economy

An alternative to measuring and accounting for environmental externalities is to adopt a circular economy (CE) approach to the production and consumption of goods and services. Grounded in the practices of reusing, repurposing, and recycling goods to reduce overall waste, the term circular economy can be traced back to mean "leaving the house undamaged" (Murray et al., 2017). The

concept of circular economy has been applied across a number of industries and academic disciplines including ecology, economy, engineering, business, and design (Murray et al., 2017).

CE models encourage resource efficiency and recovery to reduce overall environmental impacts. Specifically, a circular model features a move toward zero waste by keeping resources and materials in circulation as long as possible and closing the loop through the recovery of goods and materials. The CE creates an opportunity and mechanism for continued economic growth without worsening resource shortages, by introducing recovery and reuse as central business constructs (Murray et al., 2017).

The CE involves moving toward a closed-loop system that avoids waste and resource depletion while emphasizing improvements in eco-design, waste prevention, and waste recovery. Implementing these slight changes can realize net savings to business and industry in the long term. In this type of regenerative system, CE becomes a critical part of the solution for achieving sustainable development (Murray et al., 2017). However, the transition to CE requires a reimagination of innovation models and the meanings of "progress" and "growth."

Some early efforts to move to CE models in sport have begun emerging. These include the companies like rCup, which manufactures "endlessly reusable" steel cups for drink service at sports facilities to eliminate plastic cups from the site. Another organization working to repurpose sport waste is Looptworks, which uses old jerseys, fabric banners, table cloths, and towels, and turns them into backpacks and accessories for fans.

There are also some efforts in major league sports to find creative ways to dispose of waste and grow food onsite. One example is Target Center in Minneapolis, home of the Minnesota Timberwolves and Lynx. The chef at the facility sources meats locally from nearby farms, and through this partnership, sends pre-consumer compost back to the farms to be used to grow food or in some cases, feed to the pigs. Moving forward, the implementation of CE models in sports represents an opportunity to grow business opportunities without growing environmental impact and should be considered a key priority for managers.

35.2.5 Eco-innovation

Traditional business models currently position firms as independent actors advancing their interests. If a sustainable society is to be achieved, this model will not get it done due to the tragedy of the commons and the lack of attention to externalities that this model enables (Bocken et al., 2015). As suggested by Kranz in Bocken et al. (2015), businesses are going to need to make even bigger changes, implementing new business models, involving more trust and more stakeholders, and basing this new thinking on a long-term vision for pursuing environmental and business sustainability simultaneously. Eco-innovation presents a unique approach to this much-needed shift.

Within the management literature, the following definition for eco-innovation has been widely accepted: "All efforts from relevant actors that introduce, develop, and apply new ideas, behaviors, products and processes and contribute to reducing environmental burdens or ecologically specified sustainability targets" (Rennings, 2000, p. 321). Eco-innovation has evolved in lockstep with CE. The driver for this change has been a widespread increase in environmental awareness and a shift from anthropocentric thinking to eco-centric perspectives (Prieto-Sandoval et al., 2018).

Repairing previous damage done to the environment by redesigning operational systems represents an important contribution to eco-innovation. Stahel (2016) emphasizes the importance of using eco-innovation to recover and enhance damaged resources and used materials, either through natural processes or industrial processing, instead of disposing of them.

Injecting sustainable thinking into current business models or business strategy is going to take implementation and management tools, integration with research and development, new product developments with an eco-focus, and financial support and commitment (Verboven & Vanherck, 2016). However, there are currently very few practical tools offering an easy transition to eco-innovation and CE.

An important exception lies in value mapping. Value mapping is a method of ideation for sustainable business model innovation that involves mapping the value captured, missed, and destroyed, and encourages identifying new opportunities to reduce lost value in the production or use of products. In this context, the value does not simply represent economic value but also environmental and social value. Bocken et al. (2015) examined the potential use of value mapping as a tool for planning and evaluating environmental sustainability outcomes that focused on products and process design. They found value mapping might be a better tool for broader sustainable business thinking, possibly suitable for a range of functions across an organization. Importantly, Bocken et al. highlighted the utility of value mapping as a sustainable tool for firms of all sorts: from startups to established private firms, educational institutions, and more.

Encouragingly, eco-innovation is beginning to show up in the sport sector. Perhaps the most obvious example is the creation and meteoric rise of Formula E, a single-seater motorsport championship series that uses electric cars. Beyond the innovation going into the cars, proving that electric vehicles can be as fast and more efficient than fuel-based cars, the organization has taken a number of steps to become the first carbon-neutral sports organization in the world, using carbon offsetting programs local to the events, to compensate for the inevitable emissions associated with shipping event supplies and the vehicles, which cannot be reduced. Additional efforts have been made in other sporting organizations to move toward digital ticketing to reduce the use of paper, and adopt biomimicry principles in facility design to reduce the footprint of sports venues. The eco-innovation possibilities in sports are endless and will be an important part of moving the sector toward a CE model.

35.3 The targets of SDG 12 and their applications in sport

In this section, we review the targets of SDG 12 and their current and possible future applications in sport. It should be noted that a comprehensive list of applications is beyond the scope of this chapter; the examples listed in Table 35.1 are simply meant to initiate a discourse on the actual and potential practices associated with RCP in the sport sector.

35.3.1 Target 12.1

The 10-year framework of programs (10YFP) is a "global framework of action to enhance international cooperation to accelerate the shift towards sustainable consumption and production…patterns in both developed and developing countries" (United Nations Division for Sustainable Development, 2014, p. 1). The framework is aimed at supporting capacity building and facilitating access to technical and financial assistance among developing countries to promote a shift to more responsible mechanisms of producing goods and services. Importantly, the 10YFP calls on "all actors from all countries… [including] government, private sector, civil society, researchers, UN agencies, financial institutions, and other major groups" (p. 1) to be involved in the shift to RCP. Sport is included in this, and sport organizations have ample opportunity to facilitate knowledge sharing of best practices for RCP across the sport supply chains, especially through international events such as the Olympic and Paralympic Games, international sport organizations like FIFA and the World Anti-Doping Association, and global

Table 35.1 Targets of Sustainable Development Goal 12

12.1	Implement the 10-Year Framework of Programmes on Sustainable Consumption and Production Patterns, all countries taking action, with developed countries taking the lead, taking into account the development and capabilities of developing countries
12.2	By 2030, achieve the sustainable management and efficient use of natural resources
12.3	By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses
12.4	By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment
12.5	By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse
12.6	Encourage companies, especially large and transnational companies, to adopt sustainable practices and to integrate sustainability information into their reporting cycle
12.7	Promote public procurement practices that are sustainable, in accordance with national policies and priorities
12.8	By 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature
12.a	Support developing countries to strengthen their scientific and technological capacity to move towards more sustainable patterns of consumption and production
12.b	Develop and implement tools to monitor sustainable development impacts for sustainable tourism that creates jobs and promotes local culture and products
12.c	Rationalize inefficient fossil-fuel subsidies that encourage wasteful consumption by removing market distortions, in accordance with national circumstances, including by restructuring taxation and phasing out those harmful subsidies, where they exist, to reflect their environmental impacts, taking fully into account the specific needs and conditions of developing countries and minimizing the possible adverse impacts on their development in a manner that protects the poor and the affected communities

Source: General Assembly (2015).

sporting goods companies like Nike and Adidas. If these organizations adopt and publish RCP best practices and share them globally, and if they hold their suppliers and partners accountable to CE and eco-innovation models, progress can be made that aligns with the 10YFP.

35.3.2 Target 12.2

As will be discussed in later chapters on SDGs 13, 14, and 15, the sport sector relies on natural resources and it is thus in the best interest of sport organizations that these resources be well maintained and managed for long-term use. While most sport organizations are not directly responsible for the management of natural resources, there are some exceptions: golf courses and ski resorts, for example, manage large swaths of land. Similarly, several yacht clubs and boating clubs hold the responsibility for the sustainable management of the bodies of water on which they train, including lakes, rivers, and in some cases, parcels of oceanfront property. In the circumstances where sport organizations are directly responsible for managing natural resources, all efforts should be made to protect and regenerate biodiversity on the site, and to employ sustainable extraction methods, if extraction will be used at all.

There are significant opportunities for sport organizations to indirectly partake in this target. All sport organizations can take steps to manage their use of natural resources, for example by

adopting circular strategies to prolong the use of products and reuse materials in the same or new ways, rather than buying new. Identifying materials that are made from more durable materials is an additional way to ensure natural resources are well managed, as this prolongs the lifespan of the product and reduces the frequency of product replacement. This is especially important in new facility builds as the construction materials will be instrumental to the long-term use and ease of maintenance at the facility.

35.3.3 Target 12.3

Recycling and composting campaigns are the most popular sustainability initiatives among sports organizations, often colloquially hailed as the "gateway drugs" to sustainable practices. Nonetheless, these represent important mechanisms for reducing food waste at retail and consumer levels (McCullough, 2013; McCullough & Cunningham, 2010). In Chapter 37, Lee Spivak, Managing Principle at Waste Management (WM) and the sustainability lead for the WM Phoenix Open, explains how to accomplish the goal of reducing food waste.

Additional opportunities for reducing food waste at sport events exist. Altering portion sizes to amounts that will be easily consumed on-site, sourcing food for sports facilities locally to reduce food loss in transit, and ushering in pre-game food ordering systems for fans are all strategies currently in place for reducing overall food waste.

35.3.4 Target 12.4

Some sport organizations employ pesticides, pool-cleaning chemicals, cleaning products, and other potentially hazardous products to maintain their facilities. To align with this target, facility managers ought to ensure their maintenance practices follow local guidelines for chemical waste management and that ventilation be sufficient to avoid negative health impacts of chemical use.

35.3.5 Target 12.5

As mentioned under target 12.3, recycling and waste management initiatives are popular among sport organizations, in part, because they signal the sustainable values of the organization to the participants and fans (McCullough, 2013; McCullough & Cunningham, 2010). This chapter has introduced several important concepts for the reduction of waste, including the adoption of circular economy models and ecocentric approaches to product management. Through part-nerships with local waste haulers and innovative companies that are designing products aimed at reducing the overall amount of recycling and landfill waste, sport organizations can achieve the elusive goal of becoming zero-waste.

35.3.6 Target 12.6

At the International Olympic Committee's Centenary Congress in 1994, the environment was declared a third pillar of the Olympic Movement, joining sport and culture as the organization's top priorities (Diederichs & Roberts, 2015; Weiler & Mohan, 2010). In 1999, the IOC created Agenda 21, an action plan modeled on the United Nations' sustainability goals that document steps for sustainable development within the Olympic Games and the Olympic Movement more broadly (Del Fiacco & Orr, 2019; Homma & Masumoto, 2013). Several years later, in 2018, the Sport for Climate Action framework was established to encourage the adoption of sustainable practices among sport organizations. As of September 2020, over 150 of the world's

largest sports organizations have signed on and have committed to integrating environmental sustainability into their everyday practices. Similar efforts have been made to promote social sustainability with respect to human rights in sport through, for instance, the Center for Sport and Human Rights. However, more pressure is needed from fans, participants, officials, and convenors to ensure the continued pursuit of environmentally friendly practices in sport.

35.3.7 Target 12.7

In some countries and sport systems, sport services are delivered through public offices. Examples include Sport Canada, which oversees the delivery of recreational and amateur sports in Canada, and the Japanese Ministry of Education, Culture, Sports, Science and Technology (MEXT). For those national organizations, their subsidiaries, and sport events and organizations that benefit from public investments, the adoption of sustainable practices is especially important due to the size and scope of the public office. While opportunities to adopt sustainability practices are largely place-dependent, these public national governing bodies may find it useful to adopt the Sports for Climate Action framework and develop partnerships with other national offices such as public lands or natural resources to participate in knowledge sharing.

35.3.8 Target 12.8

Awareness of both the SDGs and sustainable development principles more broadly are areas in which sport can contribute meaningfully on a whole-society level. This potential of sport to "raise environmental awareness to a broad audience" (Trendafilova et al., 2013, p. 310) derives from the high participation and consumption rate that sports enjoy. Inoue and Kent (2012) refer to the status that sport has in society as "unique" (p. 417) and demonstrated sport organizations' potential to raise consciousness and awareness for sustainability as a very important part of how sport organizations can contribute to the combat against climate change. Through clever sustainability campaigns and activations, both for fans and participants who visit sport sites in person and those who consume sport through the intermediary of television or social media, sport can inspire individuals to change their at-home behaviors (McCullough et al., 2020).

35.3.9 Target 12.a

As mentioned in target 12.1 above, it is possible for global sport organizations, and those based in developed countries, to support organizations based in developing countries. This can happen, for example, through knowledge sharing of best practices and new industry-wide standards on RCP that can be developed by large international sporting organizations and shared through the global supply chains that create the sport products and experiences. The sport sector provides developed countries and developing countries with strong ties, communication links, and opportunities for knowledge exchange. There are also international agreements such as the Sport for Climate Action Framework developed by the United Nations Framework Convention on Climate Change, that can assist with this effort (McCullough et al., 2020), though it lacks detail on the "how-to" aspects of achieving RCP.

35.3.10 Target 12.b

Sports tourism is a significant driver of tourism in many parts of the world. Large events like the Olympic and Paralympic Games and the FIFA Men's and Women's World Cups attract global attention and thousands of visitors, offering host communities the opportunity to promote their destination to the world. Sustainable sports tourism may mean reducing the number of tourists on-site for large sports events, and instead, find ways to promote post-event visitation to the place through, for example, prolonged Olympic cultural events and the prolonged opening of Olympic exhibits and public art displays. This strategy reduces the need for destinations to build excessive hospitality infrastructure that subsequently goes unused or underutilized, and ensures the long-term economic viability of jobs in the tourism sector.

Decision-makers responsible for selecting the host locations for large and mega-events ought to also consider the visitor capacity of the place in their decisions regarding hosting rights to ensure a city will not be overrun by tourists or unreasonably expanded for the event.

35.3.11 Target 12.c

While the sport sector cannot singlehandedly eliminate fossil-fuel subsidies, it can leverage its considerable platform to promote green options for energy and mobility. Sport organizations can also divest from fossil fuels by choosing to not accept funds from oil and gas companies or their subsidiaries. While this may prove financially challenging initially, there are significant opportunities for seeking alternative sources of income and investment from green energy corporations. This is especially true in developed countries where, since the mid-2010s, the development of green energy has outpaced fossil fuel industry development (Matthews, 2016; Tollefson, 2018).

Based on the available evidence, each of the targets in SDG 12 are feasible by 2030. This is true in the context of sport, if fast and transformative action is taken across all organizations and their supply chains. And yet, due to the limitations of SDG 12, discussed in the next section, these efforts may be too slow or insufficient for affecting the overall, systemic changes needed to protect people and the planet.

35.4 A critique of SDG 12

The SDGs, overall, have been critiqued on a few points that are particularly salient to SDG 12. First, the SDGs are based on the assumptions that capitalist models for growth are inevitable and consumerism is never-ending (Gasper et al., 2019), which is not necessarily the case and certainly not at a global level. In the context of SDG 12, the implied centrality of continued productivity, defined as economic growth measured in GDP, risks exacerbating the coupled problems of social inequality and ecological destruction.

Specifically, the problem here is that the SDGs, overall, and especially in SDG 12, are written based on the assumption that there is a positive relationship between economic impacts and social impacts. Consequently, economic benefits that accrue from increased production and consumption are either counted as social benefits or assumed to trickle down to produce social benefits. There is little evidence to suggest that this assumption is valid, and further, there is evidence to suggest that economic growth in the capitalist model can exacerbate social inequities, such as the disparity between the richest and poorest in a country (Fleurbaey, 2009; Panizza, 2002). Additionally, and as discussed above, economic growth models often fail to account for the negative externalities of production and consumption, which include pollution,

negative health outcomes, and widespread environmental degradation. In this way, SDG 12 (in its current form) is aligned with SDGs 8 (Decent Work and Economic Growth) and 9 (Industry, Innovation, and Infrastructure), but the group of these goals is ideologically at odds with other SDGs including 5 (Gender Equality) and 10 (Reduced Inequalities).

Second, importantly, the goal fails to highlight unsustainable patterns of consumption (that is, overconsumption and the difference between wants and needs; Gasper et al., 2019). There are two references to unsustainable consumption: targets to reduce consumer food waste (12.3) and promote (voluntary) consumer action by ensuring universal access to information for sustainable lifestyles (12.8). Given that sporting goods (e.g., running shoes, tennis rackets) and experiences (e.g., tickets to a game) are largely considered luxury expenses, it is important for sport organizations to critically consider the sale and promotional giveaways of items that meet people's "wants" rather than their "needs," and to limit the supply of such goods. Production to meet people's wants, or to meet purely financial or economic goals, is not sustainable production.

Third, the target aimed at monitoring sustainable tourism (12.b) offers no clear limits or guidance on what "sustainable" means in this context. Does sustainable tourism refer to reducing the number of tourists to suit the current visitor capacity of the place, or altering the capacity of the place by building new hotels, airports, transit links, and hospitality services, and depleting or compromising biodiversity in the process? From this target, it becomes clear that the targets of SDG 12 are counterproductive to the targets of *even more* other SDGs, such as biodiversity preservation targets of SDG 15 which seeks to "protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss" (General Assembly, 2015).

Finally, the targets of SDG 12 emphasize voluntary and indirect policy approaches achieving this goal: to "encourage sustainable corporate practices and reporting" (12.6), "promote" sustainable public procurement (12.7), or provide people with "relevant information and awareness" (12.8). By failing to identify responsible parties for these targets, and not mandating legislation to guide the transition to sustainable corporate practices, much of the progress toward SDG 12 will be left up to the individual and corporate morality of decision- makers. Except for rationalizing inefficient fossil fuel subsidies (12.c), which is itself a vague target, there is "no explicit acknowledgement of the need for regulatory changes to enforce sustainable practices and to restrict or prohibit unsustainable ones" (Gasper et al., 2019, p. 85). Other scholars have noted that SDG 12 gives no attention to key drivers of unsustainability, such as the business strategy of built-in obsolescence (Akenji & Bengtsson, 2014; Gasper et al. 2019). Given some corporations have based their long-term strategies on unsustainable practices, such as persistent cross-country flights and mass-tourism that overwhelms existing infrastructure (e.g., the Olympic Games, current professional sports models in North America), or resources that are fast-depleting (e.g., NASCAR, which relies on fossil fuels and a complicated supply chain of metals to produce its cars), it is unlikely that most corporations in sport will voluntarily adopt sustainable practices that limit growth and protect natural resources, leaving this SDG—and the SDGs more broadly—subject to precarity. Reinforcement of the targets, whether by legislation or industry controls, is necessary to ensure continued progress and the ultimate success of the SDGs.

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Measuring Sustainable Development Goal 12

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Considering the increased emphasis being placed on the UN's Sustainable Development Goal 12 discussed in the previous chapter, one key concept that needs to be considered is the ways in which these goals can be measured. This is especially important, as the UN's report (UN Economic and Social Council, 2019) highlighted that one of the critical challenges toward the implementation of all SDGs has been the availability of data to be able to measure whether proper progress has been made. Indeed, the UN notes that the issue is a multifaceted one that indicates the difficulty of being able to get all countries from around the world to be able to provide timely data that is directly related to sustainability goals.

In terms of progress, the UN has noted that perhaps one of the most beneficial aspects of the creation of the SDGs has been in getting many governments around the world to adopt either some or all aspects of the SDGs as part of their own government policy and regulations. This has been highlighted as a critical component of promoting sustainability, as it not only creates the general awareness among key constituencies and the public, but also has led to the adoption and enforcement of certain sustainability goals among other partners and industries.

Additionally, having a uniform set of sustainability goals being adopted by governments and other key stakeholders has also been cited as being beneficial for eliciting other interest groups to develop further initiatives to try and help meet these goals. At the same time, the UN does note that the global political climate has worsened since 2015 in relation to implementing the SDGs, especially as governments, such as the United States, have pushed back or even reversed important standards set for improving sustainability. In this sense, although there has been general progress in adoption and implementation, the backlash by a number of global powers has meant that it has fallen more to non-profit groups, industries, and common citizens to push for the implementation of sustainability goals.

In specifically considering SDG 12 focused on ensuring sustainability consumption and production pattern (General Assembly, 2015), recent assessments paint a rather dire picture in terms of implementing and meeting this sustainability goal. Specifically, the UN noted that there was a greater than 5% increase in the worldwide consumption of materials from 2015 to 2017. Despite the increasing global population, the growth of material consumption continues to outstrip population growth, with the material footprint per capita having increased from 8.1 tons per person in 1990 to 12 tons per person in 2015. In this, the increased demand for natural

resources around the globe continues to grow as more economies become involved in the global supply chain. From this, the UN insists that there is a need for greater adoption and implementation of the SDGs by national governments in order to make critical changes necessary for promoting sustainability. However, although there has been a significant increase in the number of policies that have been created by countries and regions around the world to try and meet sustainability goals, the general trend shows that at best they may only be softening the impact of increased demand for consumption, rather than reversing any trends that are detrimental to the environment. Furthermore, it should be highlighted that the effects of these sustainability issues also have crossed over into impacting other SDGs, including those focused on poverty and human health. That is, as there has been a growing increase in the use of natural resources and the emission of pollution and waste, it is being demonstrated both by national reports and scientific research that the byproducts of increased consumption is having a greater negative impact on those living in lower socioeconomic conditions. For example, it has been shown that levels of air pollution are highly correlated with areas that have higher poverty rates, consequently causing a number of unintended effects such as impacts on health, cognition, and even access to resources such as clean water. In this sense, it is becoming more critical for everyone to pay attention to sustainability efforts, as they have the potential not only for impacting our environment, but also in creating spillover effects in other aspects of society.

36.1 Measurement in sport

Focusing on the context of sport, the question then arises in regard to how sport organizations have attempted to measure their progress toward SDG 12, or in some instances, have measured sustainability actions that are closely aligned with the targets of SDG 12. In general, several tools have emerged to quantify life cycle emissions or impacts within sport, although there is some inconsistency within these various types of measurement.

36.1.1 ISO 20121

To begin with, the International Organization for Standardization (ISO) helped to develop ISO 20121 as a way to measure and enhance the sustainability of events. Notably, the ISO 20121 approach is built on trying to measure the full life cycle of an event, and is developed not just for large-scale mega-events such as the Olympics, but can be applied to smaller local or community level events as well. The general idea for this measurement standard was created by David Stubbs, who, while serving as the Head of Sustainability for the London 2012 Olympic and Paralympics Games, was seeking a way to measure and meet the sustainability goals set for the Games.

Specifically, ISO 20121 was created to take into account the entire supply chain that was related to an event. That is, beyond simply just examining sustainability in relation to venues and ancillary facilities related around the site of an event, this framework considers the greater supply chain and how it may be impacted by the hosting of any size event. Moreover, in addition to considering potential negative environmental impacts that may come about from staging an event, this approach to sustainability also considers other economic and social impacts that may emerge. In this manner, ISO 20121 is notable for being one of the earlier sustainability frameworks in sport that try to approach the impact of an event from a holistic manner.

In considering the application of ISO 20121, it has been applied to not only sporting events, but also other facilities and businesses that deal with larger events. Furthermore, it also has served as a framework for organizations to try and conduct more extensive examinations of the

environmental impact of sporting events. That is, where previous studies of environmental sustainability in sport may have simply tried to calculate the carbon footprint of an event and then find ways to reduce emissions, ISO 20121 has led organizations to enhance the level of detail when trying to measure the impact of an event. Notably, in the carbon footprint report for the 2016 Rio Olympic and Paralympic Games (Quantis, 2016), not only was the carbon footprint of operating facilities considered, but the report went to the detail of considering the full supply chain needed to operate the games. For example, in analyzing the carbon footprint of catering for the 2016 Games, the carbon footprint report specifically examined the amount of meals that were provided, as well as the type of meats that were used in the meals. As cattle raising has a greater level of impact on GHGs (Greenhouse gases), this approach allowed for a more precise calculation of the actual environmental impact based not just on the number of meals supplied at the event, but also the supply chain used to create the ingredients for the meals.

36.1.2 Council for responsible sport certification

Another type of measurement that is prominently used by sporting events is the Council for Responsible Sport certification. Started in 2007, the Council for Responsible Sport emphasizes five pillars that are needed for creating sporting events that are responsible to the sport and the environment: planning and communications, procurement, resource management, access and equity, and community legacy. Similar to the ISO 20121 approach, the Council for Responsible Sport certification for sporting events moves beyond event–level environmental impacts, and also considers supply chain logistics and socioeconomic impact. Furthermore, as it also incorporates aspects of access and equity, it could be argued to demonstrate an even greater holistic consideration of ways that sporting events could impact local communities and the environment.

Specifically, this certification is based on a series of standards that events must consider, measure, and meet in order to reach certain levels of certification ranging from "Certified" to "Evergreen." In order to obtain certification, organizations are required to take a variety of actions that begin with the mandatory development of a plan to reduce the environmental impact of an event, while also trying to develop positive social impacts. One part of the Council for Responsible Sport's certification process that closely aligns with SDG 12 is its emphasis on measuring sustainability in a number of ways. Specifically, it is not the case that just the overall carbon footprint needs to be measured, but also the amount of water and waste created from hosting the events. Furthermore, the certification requires creating diversion plans so as to not overload local landfills, and even providing notification to the local community of some of the potential effects of the event. As such, although it is similar to the ISO 20121 in its overall conception, the Council for Responsible Sport certification provides a high level of attention to detail in terms of the many ways in which sport events can impact the environment and communities.

36.1.3 Leadership in Energy and Environmental Design (LEED)

A third way in which sustainability is measured is through the Leadership in Energy and Environmental Design (LEED) standards that are used to certify the sustainability of facilities and the events that they host. Although they do not account for all part of hosting a sporting event, the LEED standards are important in terms of developing facilities that meet a number of set criteria. For example, sport facilities that seek LEED certification are considered for their

performance in regards to energy and atmosphere, water efficiency, sustainability of the building site, indoor environmental quality, materials and resources, and innovation in design. In this, similar to the Council for Responsible Sport Certification, the LEED standards range from a based level of "Certified" through three additional levels, with the highest being "Platinum."

The first LEED Platinum professional sport stadium to be constructed was Mercedes–Benz Stadium, which was completed in Atlanta in 2017. Serving as the home to both the Atlanta Falcons of the NFL and Atlanta United FC of MLS, the facility is a roofed stadium that replaced the Georgia Dome. In order to obtain this certification level, Mercedes–Benz Stadium was required to meet standards in specific ways, including utilizing on-site renewable energy, using water-efficient landscaping that reduced potential heat island effects from the facility, and following specific plans for management of waste resulting from the construction of the stadium. In this sense, although the LEED requirements are able to lead to the creation of more sustainable stadiums, they do not fully account of the entire impact and supply chain for events that are hosted at these sites. For example, while LEED certification lists public transportation as one of the potential criteria for which a facility will be graded, it is not required to meet even the highest level of certification. When considering that the greatest amount of air pollution and carbon footprint for a sporting event actually comes from fans traveling to the event, this means that even when following LEED certification, it does not guarantee the sustainability of sporting events.

36.1.4 Life cycle assessment for sporting goods

While a significant amount of attention is placed on the potential environmental and social impacts that come from hosting sporting events, it is important to recognize the effects that can come about from the development, production, shipping, and use of sporting goods and equipment. For example, in the United States alone, the sporting goods marketplace was projected to grow by $11.9 billion in 2020 (Business Wire, 2020), with forecasts suggesting continued growth through the first half of the next decade. Because of the ubiquitous nature of sporting goods, whether it be tennis shoes, gym shorts, or home gym equipment, the sheer amount of raw materials, production, labor, and other resources that are created by this industry is staggering. At the same time, because sporting goods are often focused on large-scale production at the lowest costs possible, or even the outsourcing of production to factories in countries with lower environmental standards, it is certainly the case that the entire sporting goods supply chain has a significant impact on natural resources and the environment. Thus, there is need for a complete life cycle assessment (LCA) for sporting goods.

Specifically, LCA is a method for considering the environmental impacts that are linked to every stage of the development, design, production, and use of a product or service. In essence, when conducting LCA, a researcher will consider the entire life cycle of a good or service—including even the eventual disposal of that good by a consumer—and trace the ways in which each stage affects the environment. It should be noted that there are a number of variants for LCA, such as the "cradle-to-grave" approach that focuses on creation to disposal, but there are also some who use the "cradle-to-gate" approach that only looks at the partial product life cycle up to the point where it is delivered to consumers.

LCA can be beneficial in uncovering negative environmental impacts for goods, and this is certainly the case when considering sporting goods in general. Although much of the literature focusing on the sport industry relates to the amount or tonnage of waste generated by events, it is evident that sporting goods also can have negative environmental impacts. What LCA

provides is a way to consider where those impacts occur and the ways in which some of these effects can be mitigated. For example, in a review of the LCA of sports equipment, Subic and Paterson (2006) note that in developing sport equipment, about 80% of the environmental impact actually occurs during the design stage. From this, the authors argue that special consideration needs to be placed on the design of sport products, not just in terms of the economic costs they present to companies, but also in the negative environmental effects that may result as well.

At the same time, although the LCA framework can provide a useful way to examine the environmental impact of the production of goods and services, it is recognized that this approach is not entirely comprehensive. Perhaps the two biggest criticisms of LCA are that it is impossible to consider all factors that exist within such models, and thus is not always a complete accounting of environmental impacts. Furthermore, as LCA is focused on the supply chain and product life cycle, it ignores other potential externalities that may occur, such as those that impact local communities near industrial plants or even greater society as a whole. Nevertheless, LCA has been employed by a number of organizations and researchers to try and quantify the environmental impact of the sport industry. This includes the aforementioned production of sports equipment (Subic & Paterson, 2006), the development of artificial turf and turfgrass for stadiums and playing fields (Walker, 2007), and the delivery of large-scale events such as the Rio Olympic Games (Quantis, 2016).

36.2 Using the DeEI framework for sporting experiences

In response to the limitations of LCA and other methods of considering the environmental impact of sporting events, researchers have recently proposed the use of the Direct and external Environmental Impacts (DeEI) framework to examine sport activities (McCullough et al., 2020). Specifically, the DeEI framework considers both the direct impact of an event and the potential externalities that may result based on the direct impacts. Furthermore, the DeEI framework extends the concept of the LCA and considers both the production and consumption sides of an event, including how the entire supply chains and consumption of sport create both direct impacts and negative externalities. As such, this proposed framework may advance the measurement of negative environmental impacts from sport in a more comprehensive manner.

In examining the benefits of using DeEI, it may be considered as being a more wide-ranging and accurate measure of environmental impacts of sporting events, precisely because it attempts to provide a granular approach in its analysis. That is, where previously discussed approaches and measurements often focus on either one product (e.g., sports equipment) or one unit of measurement for an event (e.g., carbon footprint), the DeEI framework attempts to incorporate as many measures as is reasonably possible. For example, in measuring the air pollution from a sporting event, traditional approaches tend to use carbon footprint or levels of carbon dioxide. However, those following the DeEI method would consider a wide range of potential pollutants, including the air quality index (AQI), the amount of lead in the air for events that use lead-based gasoline such as NASCAR, as well as other particulate matter. In this, rather than just providing a single figure that shows environmental impacts, the DeEI method calls for wide-ranging reporting that is highly detailed.

At the same time, this level of detail may be the biggest drawback in terms of using DeEI. The ability to condense all forms of pollution or environmental impact into a single measure or number is often much easier for businesses and the general public to understand. Thus, the detail provided in the DeEI approach can make it somewhat cumbersome to recognize the full

level of impacts. Additionally, because measurement of environmental impacts is easier to do when focused on a single metric or resource, it is also difficult for researchers to be able to consider wide ranging environmental impacts from sport. For example, while studies have noted the potential impacts sport has on air pollution and the health of consumers (Locke, 2019; Watanabe et al., 2019), they have generally condensed their focus to a handful of measures. In this sense, being able to conduct a complete assessment of all aspects of an event using DeEI is still a long way off, as there needs to be more sources of data and information for researchers to be able to develop the complete accounting that this system calls for.

While researchers and organizations may not be able to conduct a complete DeEI, it does represent one of the more extensive frameworks for analyzing and understanding the impact that sporting events can have on the natural environment. Moreover, if sport is to become more sustainable in order to try and meet the goals set out in SDG 12, there is need for governments, organizations, and other stakeholders to recognize the need for measurement approaches such as DeEI. That is, as the SDG assessment noted, because the negative impacts that deteriorating environmental conditions can have on society, it is vital that future attempts to understand sport's environmental impact also consider the negative externalities and costs that may be imposed on society.

36.3 Conclusion

While measurement of the progress toward SDG 12 is thus far limited in the sport sector, and presents a complicated task, it is critical that measurement be a part of responsible consumption and production (RCP) efforts for four key reasons. First, measurement allows for monitoring, which permits managers to assess progress and to compare the relative gains made through various initiatives or practices. Second, measurement offers insights that can lead to further efficiencies in RCP and a deeper integration of circular economy models. Third, if made public, measurements can lend to overall transparency of sport organizations, which is important especially in the cases where sports organizations are publicly funded or subsidized. And finally, if made public, measurements can provide important leadership across sectors and be one more mechanism through which sport can demonstrate its capacity for championing sustainable development.

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37

Applying Sustainable Development Goal 12

Lee Spivak

Responsible consumption and production are at the core of the Waste Management (WM) Phoenix Open, a professional golf tournament on the PGA TOUR and the largest zero-waste event in the world. We use the tournament's platform to not only showcase which sustainability goals we achieve but also how we achieve them. This helps make our uniquely large golf tournament a surprisingly relatable case study on circularity and environmental practices in sport, aligned with the targets of SDG 12. Diverting 100% of any event's materials from the landfill is complicated, as the earlier chapters suggest, so this case study aims to present the basics. It's all about creating an effective foundation that lasts.

37.1 The anatomy of a zero waste event

37.1.1 Set the right goals

This book demonstrates that for a goal to effectively drive action, it must be specific. Drawing a boundary around an event's operations is an essential starting point. Do not ignore any material generated from your event that occurs within this boundary, even if it is a difficult product or source to control.

The WM Phoenix Open boundary consists of all public and back–of–house areas, including the entire golf course, event parking lots, media production areas, and a concert venue. Areas where we have no operational control and activities not directly related to the tournament are omitted. Of course, our zero waste tracking timeline starts on day one of construction and ends over eight months later when the last waste container is hauled away from the breakdown. Some areas within this boundary offer challenges related to material control, training, and crowds, but we don't leave anything out.

37.1.2 Avoid venue headaches

When possible, select venues with existing or accessible recycling and compost programs. Before signing a contract with a venue, make sure the operators understand your sustainability goals, and are capable of supporting them.

The WM Phoenix Open's host, the Thunderbirds, and venue, the TPC Scottsdale, are integral to our zero waste success. We all coordinate to facilitate the zero waste operations and support the sustainability culture across all tournament activities. Without this coalition, our sustainability goals would not be met.

37.1.3 Design for the dumpster

Not all material processing sites (e.g., recycling plants, compost facilities) are built the same, so for a zero-waste event to be successful, one must understand the specifics about what materials can be accepted by the local waste haulers. Use this information to set up procurement requirements that prioritize reuse while outlining the materials local waste haulers can accept. Local haulers can explain what their material processers want and how commodity markets dictate what gets recycled. Share this information with all vendors, sponsors, and suppliers so that any materials used at the event site are compatible with the waste diversion systems.

Food service products at the WM Phoenix Open are all certified compostable, based on material specifications set by local processors to ensure the waste breaks down in the timeframe required by the composter. As processor capabilities shift, the WM Phoenix Open team updates the product requirements. In 2012, event organizers started with "Acceptable Material Guidelines" that evolved into contractual "Sustainability Requirements." Including procurement requirements in contracts ensures that sustainability is prioritized at the start of every stakeholder agreement.

37.1.4 Engage everyone

Identify every stakeholder group involved with your event and ensure they understand your procurement guidelines. Your goal is to make this as easy as possible for everyone involved. Remember that vendors, sponsors, exhibitors, and venue employees have another job to do—they need your help. Frame your approach to explain how stakeholders can help reach your goals instead of simply following the rules.

WM supports the WM Phoenix Open procurement process by reviewing stakeholder purchases and providing supplier options. After we distribute requirements, we have in-person meetings, surveys that reinforce requirements, remote follow-up, on-site procurement checks, employee training, and exit surveys to assess future improvements. We guide everyone through the zero-waste process.

37.1.5 Make it easy

Fans produce a lot of waste, so it is important to keep everyone informed about your material management goals and zero-waste process. Set up a system to keep it simple. Prioritize reuse whenever possible and keep disposal in public areas as simple as possible without degrading material value. Implement strategies to educate fans and train each stakeholder type. Landfill bins should always be paired with recycling and compost bins, and signage should include both images and text to minimize confusion.

The WM Phoenix Open finds a lot of value in fan communication. The WM Phoenix Open branding of the "Greenest Show on Grass" institutes a foundation to educate fans before they step on course while also demonstrating the brand's promise. In 2012, WM removed trash bins from the course. Bin lids designate what items to recycle and compost. Color-coded signage, bins, and liners establish consistency in the waste conveyance system after fans dispose of their recyclable and compostable products.

37.1.6 Collect good data

As discussed earlier in the chapter, measurement is the key to management. At sporting events, one of the best sources of disposal data is the weight of reused products, recyclables, organics, landfill waste, and donations. So, weigh everything, either on-site or through haulers. Whenever possible, set up a bottleneck to sort waste. Disposing of materials in a recycling or compost bin does not mean they will be in the right condition to get reprocessed. It is vital to showcase sorting efforts to demonstrate your commitment to thoughtful material management and inspire behavior change.

WM documents every step of the process for an annual third-party zero waste validation. While waste diversion metrics are an important focus, the WM Phoenix Open also prioritizes sustainable procurement, material reductions, reuse, and GHG (greenhouse gas) emissions from the diversion. We sort all waste from the WM Phoenix Open, and every other zero-waste event WM oversees to ensure the right materials make it into the right waste diversion streams.

37.1.7 Highlight successes and challenges

Shine a light on problems to help make the case for future adjustments. Planning a zero waste campaign for a sporting event is a year-round process. Establish an atmosphere to identify concerns from all areas of operation. Create procedures for pre- and post-event management to ensure everyone is engaged and improvements are implemented each year. It's important to share your successes and challenges publicly as well.

The WM Phoenix Open Planning Committee meets monthly to review improvement opportunities and new initiatives. This process has engrained environmental sustainability in the tournament's DNA. Every department involved in tournament planning, from branding to operations to customer experience, focuses on sustainability. This enables us to identify success and concerns from every area of operation. We also share an annual report (Waste Management, 2021) to highlight best practices and we pursue a Golf Environment Organization (GEO Foundation, 2021) certification that includes continual improvement recommendations as part of the public verification report.

37.1.8 Implement a comprehensive program

In addition to material management, an effective sustainability program includes measuring and managing your water, energy, and GHG footprint. Benchmarking these impacts is a key first step. Whether it is an inaugural sustainability effort or years into a program, every event needs a comprehensive impact baseline to determine the most effective plan of action.

The WM Phoenix Open's sustainable procurement, water restoration, and GHG management initiatives started with benchmarking existing operations. Post-consumer recycled-content products were a WM priority that morphed into multiple collaborations with large brands. WM balanced our operational water footprint initially and now we have sustainability sponsors that have helped us restore over 325 million gallons in local rivers. Tracking our carbon footprint helped compel our partners to expand renewable energy and alternative fuel usage. Programs evolve at different paces, but taking on every area of environmental impact leads to incredible opportunities.

Lee Spivak

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Part XIII

Sustainable Development Goal 13: climate action

An overview of Sustainable Development Goal 13

Brian P. McCullough and Jessica R. Murfree

Sustainable Development Goal 13 seeks that governments, organizations, and individuals "take urgent action to combat climate change and its impacts" (General Assembly, 2015, p. 13). The goal sets ambitious yet wide-ranged targets to be achieved by 2030. Ultimately, Goal 13 aims to increase reliance and adaptive capacity to climate-related disasters. Governments, organizations, and individuals can fulfill the goal's targets through national and organizational policies outlining a response in anticipation of climate-related disasters' adverse consequences. Further, educational programs can outline and teach individuals what they can do to be climate resilient and advance Goal 13. These educational programs can also inform generations of students about the importance of climate action and the widespread consequences of inaction.

To that end, the last decade (2010–2019) was the warmest in recorded human history—the effects of global warming. Global warming is the "long-term heating of Earth's climate system observed since the preindustrial period (between 1850 and 1900)" (NASA, 2020, para. 3). Increased GHG (greenhouse gas) emissions (e.g., methane, NO_2, CO_2) cause global warming in the atmosphere, and this increase in global warming causes climate change. Global warming, caused by human and natural activity, refers to the trapping and reradiation of GHGs which heat near the Earth's surface, creating what is known as that greenhouse effect. Water, ozone, and increased CO_2 continuously absorb GHGs, resulting in a concentration of heat on Earth. The predominant producer of GHGs are human activities consuming fossil fuels, which consequently increase the surface-level temperatures on Earth (i.e., land and sea level temperatures).

Often used interchangeably with global warming, climate change is the "long-term change in the average weather patterns that have come to define Earth's local, regional and global climate" (NASA, 2020, para. 5). Changes in climate patterns are due to the disruption of the global ecosystem, and are observed for a given region over a period of time. These patterns are manifested as increases in ocean acidification, glacial melt, sea level rise, and events of extreme weather. The increasing average surface temperatures combined with the adverse effects of climate change compound the ability of Earth's atmosphere to stabilize climatic conditions.

Take, for example, a toy ship with a long mast in a bathtub. The mast will rock back and forth with little waves or volatility as it seeks equilibrium. With more volatility in the tub, the mast will sway violently back and forth, seeking stability. Too much volatility and the ship will capsize, succumbing to the turbulence. Our global climate is encountering that same volatility

because it is not able to regulate itself. If water, the underlying source of the volatility in the bathtub, is filling the tub faster than it can drain, the ship will experience increasingly violent rocking with little opportunity for resolve. As a result, we suffer more severe weather patterns (e.g., rain, hurricanes, flooding, drought, extreme heat) so long as the ship keeps rocking. To achieve a manageable equilibrium, the United Nations, Intergovernmental Panel on Climate Change (IPCC), and other international governing bodies and national governments endorse the efforts to keep Earth's average surface temperature from exceeding 1.5°C from the pre-industrial era mentioned earlier.

The Paris Climate Agreement, much like the international climate agreements before it (e.g., Toyoko Protocol), seeks global commitments to prevent average global temperatures increasing 1.5°C through climate action. Climate action describes the behaviors that result in decreased GHG emissions and increased capacity for climate resilience in the face of the impending consequences of global warming and climate change. Goal 13 outlines the desired targets and actions to address and take urgent climate action. To continue the bathtub analogy, the commitment to climate action would be a commitment to draining the water from the bathtub at least as quickly as it flows in, while also finding solutions to slow the inflow of water before the tub overflows.

38.1 Targets

Much like the other SDGs, Goal 13's targets and indicators are focused on the national level. However, these targets are more concise than those of other goals in that they are fewer in number, three, than the other SDGs with a median of 7 marks. These targets explicitly focus on increasing resilience and the adaptive capacity of nations, organizations, and the like to climate risk, hazards, and natural disasters. The targets as defined by Sustainable Development Goal 13 (General Assembly, 2015) are in Table 38.1.

Similarly, SDG 13's indicators focus on national–level data, including the number of deaths, missing persons, and displaced individuals impacted by a natural disaster. The other indicators focus on integrating policy across organizations to increase capacity to address and adapt to climate change and the risks associated or corresponding to the respective organizations. For example, the European Region's World Health Organization (WHO) has pledged a commitment to support SDG 13 by implementing specific strategies to protect human health. These

Table 38.1 Targets of Sustainable Development Goal 13

13.1	Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries
13.2	Integrate climate change measures into national policies, strategies and planning
13.3	Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning
13.a	Implement the commitment undertaken by developed-country parties to the United Nations Framework Convention on Climate Change to a goal of mobilizing jointly $100 billion annually by 2020 from all sources to address the needs of developing countries in the context of meaningful mitigation actions and transparency on implementation and fully operationalize the Green Climate Fund through its capitalization as soon as possible
13.b	Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing States, including focusing on women, youth and local and marginalized communities

Source: General Assembly (2015).

efforts include assessing climate change risks to public health, surveillance of climate-related illness, and including climate change resilience and mitigation in health education (World Health Organization, 2019). The educational components seek to integrate these policies and the procedures necessary to fulfill them into curricula and the empowerment that education provides for individuals to build their capacity to respond to climate change risks. Goal 13 instead specifically focuses on taking "urgent action to combat climate change and its impacts" (General Assembly, 2015, p. 13). Thus, it is essential first to examine how sport is threatened by inaction and then proceed to discuss how sport can act.

38.2 Connections to sport

Sport and the natural environment are intimately intertwined. Without the natural environment, we would not be able to engage in physical activity, participate in sport, enjoy recreation, or watch others perform. Even with an imbalanced and threatened natural environment, there are detrimental consequences that impact sport. Considering SDG 13, it is essential to know how sport will be affected by climate change.

The IPCC (2016) notes the severity of climate change and its impacts on everyday life. More critically, climate change will impact people's essential elements to life—clean water, access to food, safety, and shelter, among other aspects. Climate change will make such precious resources scarcer and result in famine and war, further exacerbating life's initial consequences and impact. Notwithstanding these challenges, if more people are consumed with such existential threats, they do not have time to enjoy sport. Much less, if the natural environment is not conducive to life, then it will be even less so to sport, physical activity, and recreation.

38.2.1 Climate vulnerability

All the while, as the effects of climate change amass, the ways we engage in sport, physical activity, and recreation are changing. Consequently, the livelihoods of sport sector employees are being impacted. The ways that the sport sector is affected by climate change can be described as climate vulnerability, or the function of the potential impact of climate change on institutions or individuals (Tuner et al., 2003). Climate vulnerability is comprised of exposure and sensitivity. Exposure refers to the likelihood to encounter a climate event (e.g., hurricane, flood, unseasonable extreme heat, wildfire). Coastal sports are vulnerable to hurricanes, flooding, and other extreme weather events. The consequences of climate change impact the ability of these teams to exist due to rising ocean levels (e.g., Miami Heat), increased heat (e.g., Texas Rangers), or increased intensity of hurricanes (e.g., Superdome in New Orleans; Kellison & Orr, 2020; Murfree & Moorman, 2021).

Consequently, these vulnerabilities also make sport organizations more economically vulnerable. Such exposure is referred to as sensitivity in the scope of climate vulnerability. Sensitivity refers to "the internal or external physical, social, and economic features of an observational unit" (Orr & Inoue, 2018, p. 454) that are impacted by climate change. For example, some sports may be more sensitive than others. As Orr and Inoue (2018) note, winter sports are susceptible because of the decline in wintry seasons for winter-based sports (e.g., skiing, snowboarding, ice skating). Access to participate and engage in these sports is already geographically limited and is becoming even more so with fewer regions experiencing prolonged freezing temperatures and accumulating snowfall. As a result, these sports are forced to adapt for survival. These sports most commonly seek artificial environments (e.g., indoors) to permanently access the sport (Orr et al., 2020).

Alternatively, outdoor sports demonstrate climate sensitivities. Extreme weather events have resulted in game cancelations. These events can range from flooding in India and canceled cricket matches, wildfires resulting in low air quality levels and canceled MLB games, and hurricanes and canceled events for teams along the U.S. Gulf Coast. To this end, event cancelations and lack of preparedness of extreme weather events can be quite costly. Murfree and Moorman (2021) found collegiate athletic departments located in the most climate-vulnerable areas (i.e., those with high levels of exposure to hurricanes) did not contractually protect their organization from possible economic damages as a result extreme weather events that could cause postponements or cancellations.

Climate vulnerabilities and consequences lead to fewer opportunities to engage with sport whether in a participant or spectator role. The lack of adaptation, weak reliance within the sports sector as a whole, or individual organizations threaten humankind's ability to continue our usual way of life as it pertains to sport, physical activity, and recreation. However, understanding the sport sector's climate vulnerabilities as a whole, individual sports, and sport organizations is one aspect to address climate action in and through sport. Conversely, it is also essential to consider the environmental impact of sport organizations to reduce their contribution to climate change and global warming (McCullough et al., 2020).

38.2.2 Environmental impacts of sport organizations

The sport sector is not formally recognized as an official business industry. As a result, it is difficult to define the sport sector and, subsequently, its environmental impact. The sport sector relies on disaggregated business sectors (e.g., transportation, food and beverage, television; Cooper & McCullough, 2021). The disaggregation of the sport sector has provided an opportunity for sport organizations to escape direct criticism of their environmental impacts. Thus, sport organizations have been slow to respond by measuring and remediating their carbon emissions. However, academics have conducted studies across various sport organizations and events to assess their environmental impacts (Collins et al., 2009). Most notably, the research teams including Collins (Collins et al., 2007; 2012) and Dolf (Dolf & Teehan, 2015) have made substantial contributions to the understanding of the environmental impact of sport events and organizations. Similarly, others have examined transportation's ecological impact (Cooper, 2020; Cooper & Alderman, 2020; Cooper & McCullough, 2021).

Specifically, McCullough et al. (2020) complemented this prior work conducted by the researchers in this space but noted the limited scope of these studies. For example, researchers take different approaches to examine the environmental impact of sport organizations and events, whether through methodological (e.g., carbon footprinting vs. life-cycle analysis) or contextual (i.e., consumption vs. production). McCullough and colleagues concluded that while valuable, these views limit the findings and minimize the sport organizations' environmental impact.

McCullough et al. (2020) suggested that environmental impacts should examine sport events' production and consumption in response to these limited scopes. Moreover, prior research has predominately examined the direct ecological effects and less so on the externality environmental impacts. That is, researchers and practitioners can gain a more robust picture of a sport event's environmental impact by looking at all scopes of its impact, specifically the direct and externality impacts. These scopes include the production and consumption of the event, which the sport organization has the most direct control over. These impacts include the environmental impact for hosting the event in a facility or within a defined space. Examples of these direct impacts of a sporting event's production and consumption include venue energy use, staff and team travel, the carbon footprint of spectators' pre-and post-game activities, and

Table 38.2 Direct and externality environmental impacts in sport

	Item	
Direct	Production	• Venue energy use (during set-up, event-time, and tear-down) • Venue water use (during set-up, event-time, and tear-down) • Venue waste output (during set-up, event-time, and tear-down) • Staff and team travel • Staff and team accommodations • Office energy use • Office water use • Office waste output
	Consumption	• Local transport to-and-from venue • On-site purchases (merchandise and food/beverages) • Venue energy use of consumers • Venue water use of consumers • Venue waste output of consumers • Carbon footprint of tailgating activities • Waste output of tailgating activities
Externalities	Production	• Auxiliary facilities (e.g., practice facility, media center, festival and tailgating areas) energy use • Auxiliary facilities (e.g., practice facility, media center, festival and tailgating areas) water use • Auxiliary facilities (e.g., practice facility, media center, festival and tailgating areas) waste output • Energy use of sponsors, media, vendors • Water use of sponsors, media, vendors • Waste of sponsors, media, vendors • Transport emissions of sponsors, media, vendors • Accommodation footprint of sponsors, media, vendors • Restaurant meals of sponsors, media, vendors
	Consumption	• Out-of-town travel by consumers • Accommodation footprint of consumers • Emissions related to tourism activities (e.g., sightseeing) by consumers • Carbon footprint of restaurant meals/drinks by consumers • Waste of restaurant meals/drinks by consumers

local transportation use to and from venue. Similarly, the externalities of the environmental impact of sport events that are frequently overlooked by academics and practitioners are the ecological impacts of auxiliary facilities (i.e., practice facilities, team offices), accommodation impacts for sponsors, visiting teams, and fans, and the impacts of other tourism events related to a consumers' visit to a specific area. Other examples are provided in Table 38.2.

Assessing the environmental impact of sport organizations and events can allow sport practitioners to develop a strategic plan to mitigate these impacts. While this approach may not be an institutionalized practice within the sport sector, more sport organizations are responding to the need for urgent climate action. There is an overwhelming necessity for more ambitious leadership in the sport sector to address its environmental impacts and thereby the harm caused by the sports sector (Sartore–Baldwin & McCullough, 2018; Sartore–Baldwin et al., 2017). To

spur this movement, the UN Climate Secretariat has taken a prominent lead to inspire collective climate action across multiple business sectors, including sport.

38.2.3 United Nations Sports for Climate Action Framework

During the twenty-third Conference of Parties (COP23), the UN Climate Secretariat introduced the Sports for Climate Action Framework (United Nations, 2021). The framework was designed to ensure that sport organizations aligned their environmental efforts with the Paris Climate Agreement to prevent a 1.5 °C rise in average global temperature. However, the framework seeks to leverage the sport sector's social platform and reach new market segments and engage them in more sustainable behaviors. Thus, the objective is to engage the sport sector to fulfill Goal 13's targets. The framework uses five principles to achieve these primary goals (see Table 38.3).

The framework is designed to ensure that sport organizations are environmentally responsible through their designed policies and environmental performance. The purpose of this approach is to ensure authenticity in the organization's communications when encouraging corporate partners, vendors, and fans to follow the organization's example of being environmentally responsible. Once an organization has determined its environmental impact, the organization can establish its internal strategy to reduce its overall effect (Principle 1). This strategy result should result in a decrease of carbon emissions, or its equivalent, through increased environmental performance.

This approach is likely to take time and collaboration with stakeholder groups. Strategic partners with corporate sponsors, local governments, environmental groups, among others, will increase the perceived legitimacy among external stakeholders (e.g., fans and community members; Inoue & Kent, 2012; McCullough & Trendafilova, 2018; McCullough et al., 2016). Through certifications, public commitments, endorsements, and direct partnerships, sport organizations increase their reputation. However, such efforts should be made with caution to avoid greenwashing accusations (Miller, 2017). This can be counteracted through transparency and reporting. However, some sport organizations, particularly in North America, do not engage in sustainability reporting, while others in Europe are more likely to produce such reports (McCullough et al., 2020; Pelcher et al., 2021). Once a sport organization is a legitimate platform, it can more appropriately educate stakeholders to educate them on ways to engage in climate action (Principle 3).

Throughout this process sport practitioners are learning and diffusing innovation to best achieve their organizational goals as they strive to fulfill their commitments to the framework to be more environmentally responsible. This spread of innovation can be characterized in waves discussed in the next section to evaluate and classify the stage as a sport organization progresses (or regresses) in their environmental efforts (McCullough et al., 2016). However, through this innovation process, the sport organization and practitioners can share their best practices and

Table 38.3 Principles of the United Nations Sports for Climate Action Framework

Principle 1	Undertake systematic efforts to promote greater environmental responsibility
Principle 2	Reduce overall climate impact
Principle 3	Educate for climate action
Principle 4	Promote sustainable and responsible consumption
Principle 5	Advocate for climate action through communication

Source: United Nations (2021).

understand how to best address environmental sustainability. This allows the organization to promote sustainable and responsible behavior (see Chapters 35 and 36).

Finally, sport organizations can engage their external stakeholders and communities to advocate for climate action through communication campaigns. This strategy is quite useful to leverage sport's platform and reach through the points of attachment that sport fans have with sport in general, their team, coach, favorite player, and even city (McCullough & Kellison, 2016; McCullough & Trail, 2021; Trail & McCullough, 2018, 2020, 2021). For example, Casper and colleagues (Casper et al., 2020; Casper et al., 2014, 2017) found that when sport organizations promote their environmental sustainability initiatives, fans become more committed to the sport organization and increase the frequency of at-game and in-home sustainable behaviors. Moreover, Trail and McCullough (2018, 2020) found that such campaigns can be leveraged across different communication mediums and result in targeted segmentations advocating for sustainable change within their home communities.

To date, the Sports for Climate Action Framework is the best codifying effort to promote climate action across the global sport sector. When this chapter was written, over 190 sport organizations have declared their commitment to the framework's principles as signatories. More information about the Sports for Climate Action Framework, including current signatories, can be found on its website (United Nations, 2021)

38.3 Theoretical foundations

Researchers within the sport academy have examined the environmental impact of sport and the natural environment in various ways (McCullough et al., 2020). McCullough and colleagues conceptualized sport ecology research to study the bidirectional relationship between sport and the natural environment. Within the sport ecology literature, multiple conceptual and theoretical frameworks help understand how the sport sector can address Goal 13. These perspectives vary based on the directionality of the relationship between sport and the natural environment. For example, the initial research as sport ecology research emerged within the broader sport management discipline focused on sport organizations seeking to be more environmentally friendly through their operations and engagement activities. Others examined the environmental impacts of their organizations and events, seeking ways to improve environmental performance by decreasing their ecological impact or GHG resulting in climate change. More recently, researchers have focused on how sport organizations are responding (or ought to respond) to changes in the natural environment to protect their financial viability. In the following sections, we outline how these theoretical foundations can help sport practitioners, researchers, and advocates advance Goal 13 in and through sport.

As mentioned, the global sport sector has a mixed level of commitment to environmental or climate action (McCullough et al., 2016). Researchers have examined why practitioners do not engage in environmental sustainability (Casper et al., 2012) and the conceptual and empirical evidence of why sport practitioners engage in such initiatives (Babiak & Trendafilova, 2011; McCullough & Cunningham, 2010). Sport practitioners must overcome internal and external barriers, whether real or imagined, to engage in these efforts. For example, Casper et al. (2012) noted that sport practitioners do not engage in environmental sustainability initiatives because of the perceived cost and uncertainty of the financial return on investment. Additionally, sport organizations are apprehensive that they may be criticized for concentrating too much on environmental sustainability and not on "winning" on the field. Conversely, practitioners are concerned about doing too little and being criticized by other stakeholders for their inaction. As a result of this problem, sport practitioners tend to do nothing.

However, to encourage participation and active engagement of the sport sector, McCullough and Cunningham (2010) suggested that institutional pressures (i.e., political, functional, social) be applied to these organizations to abandon their businesses practices' disregard for the natural environment and their environmental impact. All three pressures have been demonstrated to be useful to engage sport organizations. For example, Babiak and Trendafilova (2011) found that sport practitioners engage in such activities to reduce costs (i.e., overhead) and increase revenue streams. Moreover, practical examples would show increased environmental performance among teams in areas of the country with stronger environmental laws requiring composting, sustainable urban design, and sustainable transportation.

The most daunting challenge is to apply social pressure on sport organizations to engage in environmental initiatives like climate action. Nonetheless, Sport Positive found a way to use such pressures within the English Premier League to encourage more robust and prioritized climate action among EPL clubs. This example is further explored in Chapter 40. What is most notable about Sport Positive's efforts is that the positive publicity that clubs received for their environmental initiatives inspired straggling clubs to engage and more quickly advance their sustainability practices to improve their ranking among the other clubs. This strategy has expanded into other regions, including Germany, Italy, and the United States. Efforts like the ones taken by Sport Positive and replicated elsewhere need to be developed to further apply appropriate pressures on sport organizations to take action and address their environmental impacts and become advocates for climate action—consistent with Goal 13 and the UN's Sports for Climate Action Framework.

38.3.2 Climate vulnerability of sport organizations

As sport organizations move toward more robust environmental sustainability initiatives, it would behoove them to examine their vulnerabilities to climate change. This assessment can help organizations know how they may need to adapt to deliver their product or service to their customers due to climate change. For example, ski resorts must adapt to shorter ski seasons by producing artificial snow or finding alternative revenue sources (e.g., mountain biking trails for off-season revenue). Similarly, warm weather sports should consider how extreme heat may impact how participants or spectators consume sport. Fall sports that engage in preseason practices during the summer might consider air quality and heat index standards to protect the well-being of players if their region is at risk for wildfires or extreme heat.

However, before a practitioner can address their risk, they ought to conduct an assessment of those risks. To that end, Orr and Inoue (2018) introduced the climate vulnerability of sport organizations (CVSO) framework as the first robust examination of the directional impacts that the natural environment has on sport. Their proposed framework aligns with Target 13.1, "to strengthen the resilience and adaptative capacity to related hazards and natural disasters in all countries" (General Assembly, 2015, p. 13). Orr and Inoue developed the CVSO to specifically examine the possible climate vulnerabilities that sport organizations and events may encounter as a result of climate change. The authors utilize research constructs such as vulnerability, exposure, sensitivity, and sport organizations' adaptive capacity to respond (i.e., capacity and reliance) to climate change.

The CVSO may be utilized to assess the climate vulnerabilities through climate impact on organizations (CIO) or the "impact that may occur given a projected change in climate without considering adaption" (Collins et al., 2013). Alternatively, they mark the delineation from COI by defining organizational climate capacity (OCC) or "the ability of a system to adjust to climate change to moderate potential damage, to take advantage of opportunities, or to cope
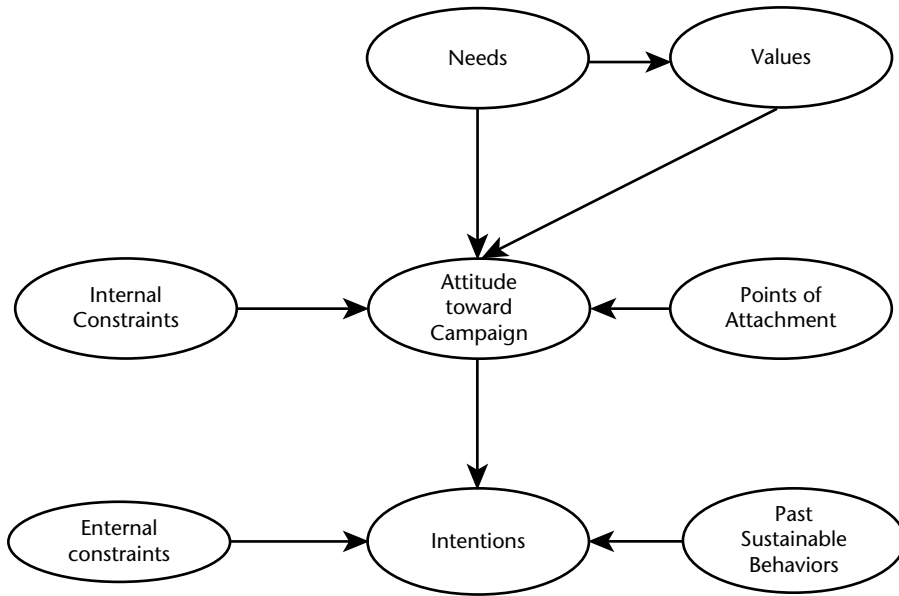
Figure 38.1   Sport sustainability campaign evaluation model

with the consequences" (Collins et al., 2013). CIO and OCC are juxtaposed through analysis on a quadrant map to determine how vulnerable an organization is to climate change and their preparedness level to respond. The researchers classify four different states as fortified (high CIO–high OCC), redundant (low CIO–high OCC), responsive (low CIO–low OCC), and problem (high CIO–low OCC). These quadrant typologies are an advanced way for sport practitioners, researchers, and government officials to determine the ways the sport sector, leagues, and individual teams fulfill Goal 13.

38.3.3 Engaging sport fans

Sport spectators represent the biggest source of a sporting event's environmental impact (Dolf & Teehan, 2015; McCullough et al., 2020). Sport organizations can implement various environmental initiatives that are "back of house," or controlled by the sport organization. However, event organizers still need to engage sport spectators with "front of house" initiatives like sustainable transportation and waste management (Trail & McCullough, 2020). Researchers have examined the campaigns that sport practitioners created to engage their fans in sustainable behaviors (Casper et al., 2020; McCullough & Trail, 2020; Trail & McCullough, 2020). With concerns to improving environmental behaviors at sporting events and home, their findings are positive. Casper et al. (2014, 2017) found that sport fans will engage in behaviors if their favorite sport team asks them to do so. These behaviors, they found, even extend from the gameday environment into everyday life. However, Casper and colleagues' work were limited based on the organizations they examined to post-campaign assessments.

Trail and McCullough (2020) built upon the initial findings of Casper et al. (2014, 2017, 2020) to explore ways to design, implement, assess, and revise such campaigns to increase the organization's key performance indicators associated with (environmental and social) sustainability campaigns. Trail and McCullough (2020) proposed the sustainable sport consumer

evaluation model (SSCEM; illustrated in Figure 38.1). The SSCEM used various socio-behavioral models and theories to design campaigns according to the organization's consumer segments. Specifically, the SSCEM shows that needs mediated by values will predict attitudes toward the sustainability campaign. Similarly, internal constraints—or those aspects that an individual perceives as obstacles—must be identified and addressed to improve the individual's attitudes towards the campaign (McCullough & Trail, 2020). Specifically, internal constraints may include the perceptions that climate change isn't real or that engaging in specific environmental behaviors will not make a difference. Understanding the needs, values, and internal constraints of a sport organization's fanbase will allow sport organizations to create campaigns that leverage these aspects (i.e., needs, values), which should increase attitudes or combat negative perceptions (i.e., internal constraints).

Sport practitioners can promote these campaigns by various points of attachment that fan segments may have with a sport organization or brand. For example, segments may be more responsive to messages from the team, an individual player, a coach, or more generic messages from the city or facility. Regardless of the point of attachment, campaigns can leverage these various touch points to increase attitudes toward the campaign, increasing behavioral intentions.

Ultimately, behavioral intentions are dependent on minimizing external constraints (McCullough & Trail, 2020) and past sustainable behaviors (Trail & McCullough, 2020). That is, the sport organization should do its best to remove any barriers, perceived or otherwise, that may prevent individuals from engaging in environmental behaviors. For example, a sport organization should not promote composting or mass transit unless the predominant barriers to composting or taking mass transit are addressed. The sport organization should ensure that composting is as convenient as possible in and around the venue. This may include messages to address internal constraints (e.g., promoting the value of collective action) while leveraging their needs and values (e.g., to protect the natural environment for future generations).

The SSCEM model is useful not only to create campaigns that encourage sustainable behaviors but it can also be used to track behavioral change. The essence and importance of the SSCEM in relation to Goal 13 is that the model can be used to bring awareness to environmental issues (i.e., need for urgent climate action), educate fan segments (i.e., how to engage in climate action), and assess the collective actions of fan segments attending sporting events and in their everyday lives. This approach addresses targets 13.2 and 13.3 at the community level and is consistent with principles 3, 4, and 5 of the UN Sports for Climate Action Framework. As discussed further below, in addition to educating fans, current and future sport practitioners can learn how to address environmental sustainability issues as they relate to the sport sector.

38.4.4 Educating future generations in and beyond the sport sector

Another way to engage and educate the sport sector to take climate action is through transformative sustainability learning (TSL; Sipos et al., 2008). TSL utilizes teaching pedagogies to engage students in environmental sustainability through their heads, hands, and hearts via more digestible and relatable contexts. Climate change or understanding the science in the IPCC report can be quite daunting to a lay population and even those with science backgrounds. TSL teaches students about climate change in a context like sport (McCullough & Pelcher, 2021; Orr 2020). As Orr et al. suggest, sport is a disarming and relatable context to communicate and teach students about climate change and its impacts on activities that are relatable to the students.

TSL addresses three components—engage (head), enactment (hands), and enablement (heart)—through
experiential learning techniques (Sipos et al., 2008). These three components are interrelated. These components seek to challenge preconceived notions and relate complex issues (e.g., climate

change) in interactive classroom activities and assignments. Engagement is fulfilled by immersing the student in the course's readings, activities, and discussions (Orr et al., 2020).

Such exercises like venue tours, forming green teams, and engaging in living labs allow students to reflect on what they have learned and how that may challenge previous understandings. That is, this critical thinking aspect of the progression from the initial (i.e., venue tours) to deeply involved activities (i.e., green teams, living labs) may engage the student in processes known as "unlearning."

Similarly, enactment leveraged the students' newfound knowledge and understanding of specific processes to engage with the industry to make positive change. Students use their hands through real-life case studies or projects directly involved with sport organizations engaging in environmental sustainability initiatives. Lastly, enablement fulfills the processes of TSL and provides the confidence to students to engage in similar activities in their future careers. This final step aims to engage the student's heart to the point where they become an advocate for sustainable change across the sport sector. They are then agents of change, moving the sport sector toward more robust climate action to fulfill Goal 13.

38.4 Conclusion

Global climate action is necessary to combat the causes of climate change. The sport sector is an influential piece in the worldwide effort to address climate change through collective action. Sport organizations can effectively promote sustainable behaviors to new target audiences that may otherwise be unaware or unprepared for the consequences of climate change (Casper et al., 2020; Inoue & Kent, 2012; Trail & McCullough, 2020). Like other business sectors, the sport sector contributes GHGs to the atmosphere but also is impacted by changes to the global climate (McCullough et al., 2020). Collective efforts have formed across the globe and are being led by the UN, FIFA, and IOC, all of which encourage sport organizations to address their environmental impacts and engage their stakeholders to choose more sustainable actions. The Sports for Climate Action Framework is one way that sport organizations can become active in the collective movement to address Goal 13. The sport sector can manage its own contributions to climate change through climate action while encouraging others (e.g., vendors, sponsors, fans) to act sustainably.

Like the other SDGs, the applications of Goal 13 and its targets to the sport sector are challenging but not unrelated. It is possible that the sport sector can play a role in the global effort to promote global climate action and educate vast populations about the necessitates to increase climate resistance. These programs can focus on internal operations, encouraging behavioral changes when consuming sport and through community outreach programs. We contend the sport sector is not the "be all, end all" solution for enacting global climate action. Instead, the sport sector can be used strategically to engage new business sectors and consumers that may not otherwise consider how climate change will impact their lives without immediate action.

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39

Measuring Sustainable Development Goal 13

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The integration of climate change measures into national policies as well as the immediate implementation of the Green Climate Fund were two main measures for sustainable development stated by the UN General Assembly in 2015 (General Assembly, 2015). Even though the report on the progress toward the Sustainable Development Goals admits that climate change is occurring at a much faster pace than the General Assembly anticipated in 2015, some indicators of positive progress can be observed, especially in financial terms. In the period 2015–2016, the global climate finance flows increased by 17% compared to the period of 2013–2014. Beyond that, 28 countries were granted access to Green Climate Fund financing for national adaptation plans and further adaptation planning processes, with the value of the granted financial support amounting to $75 million. This number will continuously rise in the future, with 75 countries seeking support from this fund, resulting in a combined value of $191 million (UN, 2019).

Another indicator of progress represents the type of countries receiving financial support. Specifically, 67% (of $75 million) were granted to least developed countries, Small Island Developing States, and African states, which were particularly targeted by the original SDGs (UN, 2019). The current numbers of climate-related and geophysical disasters, such as the earthquake in Haiti 2010 with 316,000 deaths, suggest that money spent on reducing climate change is well invested, since the economic losses from previous disasters in the period of 1998–2017 add up to almost $3 trillion. Even more important, 1.3 million lives were lost by geographical disasters so that there is still progress needed to strengthen the resilience and adaptive capacities to climate-related hazards and natural disasters (UN, 2019).

Despite some positive indicators of progress, the overall report questions the attainment of SDG 13 (UN, 2019), especially in the light of GHG emissions driving climate change. Although the 2015 Paris Agreement had the common goal to hold the average global temperature increase under 2°C compared to pre-industrial levels, the GHG concentrations reached new heights in 2017 (Scott et al., 2016; UN, 2019). This negative progress is especially alarming, since the Intergovernmental Panel on Climate Change (IPCC) explained that a failure in reducing the GHG emissions would result in a change of all components of climate change (IPCC, 2018). Hence, climate change occurs faster than anticipated, which leads to the UN conclusion that more ambitious plans and actions are needed for mitigation and adaptation. Overall, the report on progress toward the sustainable development goals conveys just small and

mainly financial progress in reaching this goal. As time is running and positive results in reducing global GHG emissions are punctual, the achievement of SDG 13 is in jeopardy.

39.1 Measurement in sport

Sport organizations and events have been faced with questions about environmental sustainability since the 1990s (Cantelon & Letters, 2000). Especially the International Olympic Committee has to deal with criticism regarding the environmental impact of the Olympic Games, mainly related to the Winter Olympic Games, which often require sport venues that cannot be properly used after the event (Cantelon & Letters, 2000). However, the discussion of climate sustainability by sport organizations is largely unrelated to the UN SDGs, because sport organizations mostly create their own sustainability goals (e.g., FIFA, 2020; IOC, 2014). For example, a closer look into the sustainability goals of the IOC and FIFA reveals that they are not very specific. The sustainability strategy for the 2022 FIFA Men's World Cup in Qatar encompasses five environmental sustainability areas: building, GHG, air pollution, waste generation, and water production (FIFA, 2020). Although the strategy includes important areas of environmental sustainability, goals such as *minimize local air pollution* or *minimize waste sent to landfill* lack quantitative specification and are thus hardly measurable. In 2014, the IOC introduced the Agenda 2020 consisting of 40 recommendations, which were not translated into policies in the first place (Boykoff & Mascarenhas, 2016). Even if these recommendations had been binding, the environmental sustainability goals are not specific and cannot be summarized as a *going green* (MacAloon, 2016).

Nevertheless, some positive examples of past Olympics in terms of sustainability can be advanced. For example, the 2008 Beijing Games spent more than $17 billion to address environmental issues (McCullough et al., 2016). The Vancouver Organizing Committee (VANOC) monitored environmental impacts over the pre-event and event phases and split carbon emissions into different categories, with travel-related emissions representing the highest portion (Dolf & Teehan, 2015). Furthermore, FIFA and the IOC emphasize the importance of sustainable measures in their bidding processes for future Olympic Games and World Cups (McCullough et al., 2016). One such example is the usage of existing venues, reducing carbon emissions from the construction of new facilities.

Further examples include the so-called *green weeks* implemented by North American sport leagues like the NBA and NHL. During these weeks, the leagues use the relationship with strategic partners or stakeholders to deliver environmental-themed activities at the event locations (Casper et al., 2017; 2020). Furthermore, the Green Sports Alliance was founded in 2010 to advise sport teams, venues, and events in the reduction of their environmental impact. Since then, pro-environmental measures such as LEED certification of venues, reduction of waste, promotion of recycling, and installation of renewable energy systems took place across major sport teams and universities (Blankenbuehler & Kunz, 2014).

These examples of pro-environmental measures by sport organizations and venues show that the sport sector, in general, is willing to become more environmentally sustainable. However, they also display the need for concrete goals that are set by the sport industry as a whole so that every sport organization could measure the progress toward them and could be made accountable for failures in reaching common targets. A first step toward such common goals was reached by the UN's Sports for Climate Action framework, which was created with over 185 signatories up to date. The initiative commits to adhere to five principles and incorporate them into strategy, procedures, and policies. The second principle includes the quantitative measurement of GHG emissions to evaluate the overall climate impacts by sport organizations (UNFCCC, 2020). Consequently, the current state of research in sport is at the measurement

stage to identify different environmental impacts and their sizes and, in doing so, estimate the status quo that represents the reference point for goal setting and measuring goal achievement.

Concerning measurement, three methods have been frequently applied to estimate environmental impact in sport: environmental input–output analysis (ENVIO), ecological footprint analysis, and carbon footprint analysis focusing on GHG accounting (e.g. Dolf & Teehan, 2015; Wicker, 2019).

ENVIO has its origin in the evaluation of indirect economic or environmental consequences because of additional or lost economic activity. It is based on the Leontief-inverse matrix, which measures economy–economy interactions. It investigates how demand or production of one product influences the demand for other products within an economy (Leontief, 1970). This matrix was revised to measure the environmental repercussions based on the economic structure and display economy–environment interactions, essentially measuring how the production of a good or an appearance of an economic activity is connected to environmental externalities.

Several studies applied ENVIO to estimate environmental externalities of sport events (Collins et al., 2007; Jones, 2008). At the 2004 World Rally Championship in Wales (Jones, 2008), over a third of the total carbon dioxide equivalent (CO_2-e) emissions were related to the direct and indirect impact by organizers and team spending. Since carbon dioxide is responsible for more than three-quarters of all anthropogenic GHG emissions, the warming potential of other gases (e.g., methane, nitrous oxide, and various fluorides) is converted into carbon-dioxide equivalent emissions (CO_2-e). Additionally, nearly two-thirds of the waste production was accounted for by them. For every £1 million of additional value created through the event, 930 tons of carbon emissions were produced, indicating that the event performed rather poorly on carbon emissions per pound of value added compared to other sectors (Jones, 2008). However, since every sector has unique characteristics, comparisons across sectors are difficult. At the 2003–04 FA Cup Final, the economic impact of visitor spending was converted into carbon emissions: £2.2 million of visitor spending translated into 560 tons of carbon emissions (Collins et al., 2007). At the UK stages of the 2007 Tour de France, the economic impact of £147.5 million was associated with 170,000 tons of carbon emissions (Collins et al., 2012).

The second method is the ecological footprint analysis. The concept of the ecological footprint, which was first introduced by Wackernagel and Rees (1996), is defined as "the biologically productive land and sea area required to sustain a given human population" (Pandey et al., 2011, p. 137). Essentially, it conducts a comparison between demand and supply or, in other words, how much land the humans demand compared with the supply the earth can give us (Pandey et al., 2011). The unit of measurement for the ecological footprint is an area, such as global hectares per person (gha/capita). The available biocapacity of the earth was 1.63 gha/capita in 2016, which is the capacity every single human being is allowed to use per year so that a biological equilibrium is reached (Wackernagel & Beyers, 2019). While ENVIO is restricted to the national level because of industry dependency, ecological footprint analysis allows measuring global environmental impact.

To provide some examples in sport, the ecological footprint of the 2004 FA Cup Final was estimated at 0.0417 gha/visitor. In comparison to the average ecological footprint at their home location for the same duration, the impact of the event was seven times greater. Nearly all of the additional ecological footprint can be attributed to transportation as well as food and drinks of visitors (Collins et al., 2007). For the 2007 UK stages of the Tour de France, the ecological footprint was divided into the categories travel, food and drink, and energy consumption. Visitor travel generated the highest part of the total ecological footprint of the event with 0.0153 gha/visitor, which was 2.6 times higher than their travel footprint at home for the event duration of three days. Consumption of food and drinks was also 2.3 times greater compared to

the visitors' consumption at home (Collins et al., 2012). Notably, the average ecological footprint in the UK amounted to 5.35 gha/capita in 2001, which was already three times higher than the earth's biocapacity of 1.8 gha/capita during the same time period (Collins et al., 2007).

More recently, the focus of sport researchers has shifted to a third method, the carbon footprint analysis. According to Wiedmann and Minx (2008), "the carbon footprint is a measure of the exclusive total amount of carbon dioxide emissions that is directly and indirectly caused by an activity or is accumulated over the life stages of a product" (p. 4). The carbon footprint is reported in grams/kilograms/tons CO_2-e and reflects the global warming caused by these gases (Pandey et al., 2011).

Performing a carbon footprint analysis requires the definition of organizational, temporal, and operational boundaries (Franchetti & Apul, 2013). The temporal boundary is the time period over which the carbon footprint is measured, whereas the organizational boundary relates to the entity for which the carbon footprint analysis is performed (e.g., event, organization, person, product). Concerning the operational boundary, three different scopes of emissions are distinguished (Franchetti & Apul, 2013; Pandey et al., 2011). Scope 1 emissions are direct emissions, which result from onsite fuel consumption. Within sport, these would include, for example, transportation vehicles that are used to travel to and during a sport competition or event. Scope 2 emissions are indirect emissions that result from purchasing electricity, steam, heating, and cooling. Sport-specific examples include watering of tennis courts, heating of arenas, or recently the cooling down of a whole stadium during the 2019 World Athletics Championships in Qatar. Scope 3 emissions encompass all emissions that occur during the life cycle of the product through production, workers, materials, distribution, and waste management (Franchetti & Apul, 2013; Pandey et al., 2011). Within sport, for example, producing, purchasing, and disposing equipment like tennis rackets or bikes produce Scope 3 emissions as natural resources need to be made available and the production, transportation, distribution, and disposal of products cause emissions.

A number of studies have investigated carbon footprints in sport using different boundaries. As temporal boundary, the event or game day including traveling to and from the event (Collins et al., 2007, 2012; Jones, 2008; Scrucca et al., 2016; Triantafyllidis et al., 2018), a one-year period (Wicker, 2018, 2019), and up to one or two seasons were used (Chard & Mallen, 2012; Dolf & Teehan, 2015). The organizational boundaries included the respective event (e.g., Cooper & McCullough, 2021; Scrucca et al., 2016, Triantafyllidis et al., 2018), specific teams or athletic departments (Chard & Mallen, 2012; Dolf & Teehan, 2015), active winter sport tourists (Wicker, 2018), or active sport participants in different sports (Wicker, 2019).

Data for the operational boundary are typically obtained through surveys, where respondents give information about their travel behavior, specifically about distances traveled and transportation means. This information can be converted into CO_2-e in different ways. Some scholars used this information to calculate carbon footprint estimates with the help of emission factors that indicate the level of emissions when one person rides one kilometer or mile with a specific transportation mean (e.g. Scrucca et al., 2016; Triantafyllidis et al., 2018; Wicker, 2019). These emission factors are region-specific and are often restricted to direct emissions. One notable exception is Dolf and Teehan (2015), who were able to use emission factors of the whole product life cycle relying on a life cycle assessment (LCA); this method created a more holistic picture of the carbon footprint as all scopes of emissions were captured. Apart from general emission factors, more detailed carbon calculators were used which provide emission levels of specific vehicles based on their make, model, and year (Chard & Mallen, 2012). This overview shows that carbon footprint estimations are dependent on the different boundary

settings by scholars and the availability of emission factors for converting per person distances for different travel means into CO_2-e.

Since existing studies typically focus on some dimensions of environmental impact, McCullough et al. (2020) proposed the Direct and external Environmental Impacts (DeEI) of sport events framework, a conceptual framework for assessing the environmental impacts of sport events more comprehensively. They suggest applying an LCA for the whole event period instead of focusing on single-day measures. This can be achieved by including the consumption (e.g., attendee and participants) and the production side (e.g., event organization) and by considering both direct impacts and externalities. In a first step, an LCA on all direct impacts is conducted, which includes all categories or types of pollution and emissions, respectively. Examples of direct effects are venue operations, event production, staff impacts (production side), transportation to and from the event, and tailgating activities (consumption side). An accurate first LCA is needed, because the direct impact measures serve as the basis for estimating the impact of the externalities. The LCA of externalities can include impacts of suppliers or sponsors, off-side restaurant meals, or hotel stays. One example for such an LCA would be to estimate the environmental impact of additional meat consumption during the event by multiplying the additional amount of food with the respective carbon footprint to produce the food. The final part of their framework is the combination of direct impacts and externalities to provide an aggregate measure that reflects the whole environmental impact of a sport event (McCullough et al., 2020).

By design, such a comprehensive measurement requires a huge amount of data which can be difficult to gather. The difficulty of obtaining adequate data represents a challenge for all methods estimating environmental impacts in sport. Nevertheless, such efforts are necessary to reach the goal of taking urgent action to combat climate change and its impacts and evaluate the progress of the sport sector toward this goal. Quantitative results are essential for comparing the environmental impact of different events and they may help with strategy formulation and policy prioritization.

39.2 Implementation challenges

Before implementing specific measures to combat climate change, a comprehensive measurement of the environmental impact of sport is needed first. Problems in providing such a measurement occur not only by setting specific boundaries, but also by the availability of adequate data. Another challenge relates to the possible consequences of environmental impact measurements. Notably, and naturally, sport organizations prefer estimating positive externalities of sport rather than negative ones, which explains why the number of studies on the former exceeds those on the latter by a margin (Wicker & Downward, 2019). Even if a comprehensive measurement of the environmental impact is provided, the implementation of measures to reduce environmental impacts requires knowledge about its main drivers.

Existing studies have identified a number of factors that influence pro-environmental behavior in sport, including environmental values, beliefs, and norms; environmental consciousness; and socio-demographic characteristics. Specifically, biospheric values were found to have a significant influence on individuals' beliefs, which, in turn, had a positive effect on personal norms (Casper & Pfahl, 2012). Individuals with higher pro-environmental values and personal norms showed higher intentions of pro-environmental behavior at a sport event (Casper et al., 2014). Environmental program sponsors and athletic department initiatives received higher awareness in a target group with pro-environmental values, which can be used to convey sustainability-related messages through sport events (Casper et al., 2017). Creating

environmentally friendly values and sport norms can positively influence the perception of recycling benefits, which can foster recycling behavior (Casper et al., 2020). These findings suggest that initiatives directed at increasing individuals' environmental values, beliefs, and norms will lead to higher levels of pro-environmental behavior in sport.

Another option is targeting environmentally conscious individuals where pro-environmental behavior is more likely than less environmentally-conscious individuals (Kollmuss & Agyeman, 2002). However, environmental consciousness does not automatically lead to pro-environmental behavior in sport (e.g., Casper et al., 2012; Wicker, 2018, 2019). This means that individuals who state that they are concerned about the environment do not behave environmentally friendly in the sporting domain. This discrepancy between environmental attitudes and behavior is referred to as the environmental value–action gap (Blake, 1999). This gap is particularly big in high-cost situations (i.e., situations where the perceived costs of pro-environmental behavior in terms of money, time, and convenience are perceived as too high by individuals; Diekmann & Preisendörfer, 2003). Especially individual sport participation and sport tourism were found to represent such high-cost situations (Wicker, 2018, 2019). This means that the sport industry needs to implement measures and provide opportunities to reduce this value–action gap, ultimately reducing the perceived costs and hence encouraging pro-environmental behavior by environmentally conscious individuals.

Socio-demographic factors such as gender, age, and income were also found to affect pro-environmental behavior, but the findings are not consistent across studies and research contexts. For example, females were found to behave more environmentally friendly than males in one study (Casper et al., 2017), while other studies found no significant gender effect (Wicker, 2018, 2019). Likewise, a *U*-shaped age effect on pro-environmental behavior was discovered among active sport participants (Wicker, 2019), but not in other contexts (Wicker, 2018). While the evidence is more consistent for income in the sense that higher income is associated with larger (negative) environmental impact (Wicker, 2018, 2019), this finding contradicts original assumptions expecting individuals with higher income to purchase more environmentally friendly products which are typically more expensive (Laroche et al., 2001). These findings suggest that the role of socio-demographics is sensitive to the specific context where sport takes place and that income does not work in favor of pro-environmental behavior, causing implementation challenges for the sport industry.

Implementation challenges also arise from the fact that most of the above factors can hardly be changed by event organizers or organizations. Hence, reducing the overall environmental impact of sport can be challenging, and environmental initiatives by the sport industry can be put in jeopardy. Nevertheless, some sport organizations and events may have the power to influence individuals' values and norms toward the environment positively, potentially resulting in environmentally-friendly behavior. Also, while event organizers cannot force spectators to act in a specific way (e.g., traveling to the event with public transportation), they can provide incentives to use transportation alternatives to the commonly used passenger car. Overall, sport organizations need to be creative and offer environmentally-friendly alternatives with low costs in terms of time, money, and convenience, encouraging the more inclined consumer groups to behave environmentally friendly. They can evaluate their progress within SDG 13 by defining specific temporal, organizational, and operational boundaries and estimating their environmental impact on a regular basis. Such a regular assessment within the same boundaries allows monitoring their progress and identifying the effectiveness of potential initiatives aimed at reducing their environmental impact.

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40

Applying Sustainable Development Goal 13

Claire Poole

Sport Positive was set up in 2019 to build a global community to help connect sports organizations with like-minded global counterparts who they otherwise may not have met, educate organizations around what is possible, delve into the challenging questions around sport climate action, and to increase ambition. However, my work with sport as a sector to combat climate change started in early 2015. Working in the renewable energy, sustainability, and climate landscape for over a decade, my passion for sport became a natural home for driving forward climate action (SDG 13).

Since 2015, I have organized and hosted numerous events and summits, consulted for sports organizations and UNFCCC (at the inception of UN Sports for Climate Action Framework), and published research—all within the remit of advancing and expanding the global sports sector's focus on reducing their climate impacts, and encouraging fans to do the same in their own lives. My work and opinions have been covered by *BBC*, *Guardian*, *Independent*, *EuroNews*, *SportsBusiness Journal*, IUCN business blog, and UN Environment's "Ask the Expert," among others.

The first thing to say is that to galvanize people to take action on climate, we have to meet them where they are and talk to them about what they care about. Four billion people globally follow association football, 2.5 billion follow cricket, and 1 billion follow tennis—sport has a lot to offer SDG 13 when it comes to communication.

While Sport Positive's goals are more comprehensive and include all sports globally, for this case study, I will focus on the *Sport Positive English Premier League Sustainability Table* devised, researched, and launched by Sport Positive in 2019 (Sport Positive, 2021). This ranking covers eight environmental categories—from sustainable transport to plant-based food and communications—highlighting Premier League clubs' action to reduce their climate impact. The English Premier League has an approximate cumulative audience of 3.2 billion people (Premier League, 2019). By these clubs taking bold climate action and talking to their fans about it, huge impacts can be generated.

This work's initial strategy was to more deeply understand all clubs' activity: to gain a perspective on how seriously they were taking their environmental stewardship and which areas they focused their efforts on. Clubs are not mandated to take action on climate by the UK Government nor the Premier League, so all actions are of the clubs' own volition.

Table 40.1 Sport Positive EPL Sustainability Table points allocation key

				Categories			
Clean Energy	Energy Efficiency	Sustainable Transport	Single-use Plastic Reduction or Removal	Waste Management	Water Efficiency	Plant-based/Low-carbon Food	Commitment, Communication, and Engagement
+2 points100% of energy at stadium and other club sites is from a renewable source (via utility or mix of utility and onsite generation)	+2 pointsClub has a systemic energy efficiency plan in place across their sites, via building/energy management systems, BREEAM standards, ESOS compliant, etc.	+2 pointsClub both actively and visibly advocates for fans/staff to use sustainable transport options and give incentives to do so (i.e., free travel in fan zones, bikes to work scheme, money off public transport)	+2 pointsClub has a current policy/systemic effort in place that is already reducing or has entirely removed all single-use plastic from across all sites of their organization	+2 pointsClub has put in place a systemic waste management program that reduces waste, diverts at least 95% of waste from landfill, and ensures all waste is recycled/works within the circular economy across all sites—stadium, training facilities, and offices	+2 pointsClub has a policy/systemic effort in place that is currently reducing and enabling water reuse from their organization—across stadium, training facilities, and offices. To include water recycling, reduction, and reuse where applicable.	+3 pointsClub offers sustainably sourced, vegan food options across all sites; to fans on the stadium concourse for every game and hospitality and for staff across all sites	+3 pointsClub has a publicized sustainability policy/strategy that shows commitment to long-term, holistic sustainability efforts. The policy and associated efforts must be available on the club's main website
+1 point40% of energy being provided from renewable source across all clubs sites, but less than 100%, or for	+1 pointsIsolated energy efficiency efforts have been made (e.g., LED lighting), but policy or management system in place	+1 pointClub actively and visibly advocates for fans and staff to sustainable transport options; public transport, active	+1 pointEfforts to remove single-use plastic are ad hoc, or only focused on individual products	+1 pointClub has a waste diversion/recycling system in place but it doesn't lead to 95% diversion from landfill, or doesn't	+1 pointEfforts to conserve/reuse water are isolated efforts across 1 or 2 areas, or don't take place across the whole club's operations OR a	+2 pointsLocally sourced vegan food is available, but not across all sites	+2 pointsClub regularly publishes climate/sustainability club news and campaigns OR club has a page on the website focused on

(Continued)

Table 40.1 (Continued)

			Categories			
having any onsite generation	transport, bike racks, carpooling, etc., but no incentive is given		operate across all sites	strategy is in place but no work started yet		sustainability and shows sustainability/ climate change focused campaigns
+0.5 pointsClub has some energy provided from renewable sources, but not 40% or more	0 pointsClub cannot show that they have any energy efficient efforts in place	0 pointsClub has not succeeded in reducing or removing single-use plastic from their operations	0 pointsClub does not have a waste management program/doesn't recycle or attempt to divert waste from landfill	0 pointsClub doesn't currently conserve or recycle water	+1 pointVegetarian, locally sourced food is available at the stadium for fans, or if all foods are sustainably sourced	+1 pointClub has communicated climate change/ environment/ sustainability club news in the past 6 months
0 pointsClub has less than 40% of energy derived from renewable sources or cannot show that any of their energy is provided via renewable sources	0 pointsClub doesn't actively or visibly advocate for fans and staff to travel sustainably +1 bonus pointClub tracks and reports on the percentage of fans taking various modes of transportation to games				0 pointsFood is not sourced sustainably, and no plant-based food options are available on any sites	0 pointsClub does not actively communicate on sustainability through their own comms channels, club news articles, or any coverage is more than 6 months old

+1
bonus pointClub
actively engages
fans towards
positive behavioral
change that
reduces
environmental
impact in their own
lives

+1
bonus pointClub is
a signatory to UN
Sports for Climate
Action Framework

Table 40.2 Sport Positive EPL Sustainability Table 2020

Rank	Club	Clean Energy	Energy Efficiency	Sustainable Transport	Single-use Plastic Reduction or Removal	Categories Waste Management	Water Efficiency	Plant-based/ Low-carbon Food	Commitment, Communication, and Engagement	Total Score
1	Tottenham Hotspur FC	2	2	2 + 1 bonus	2	2	2	3	3 + 2 bonus	21
2	Arsenal FC	2	2	2	2	2	2	3	3 + 2 bonus	20
2	Brighton & Hove Albion	2	2	2 + 1 bonus	2	2	2	3	3 + 1 bonus	20
2	Manchester United FC	2	2	2 + 1 bonus	2	2	2	3	3 + 1 bonus	20
3	Manchester City FC	2	2	2 + 1 bonus	2	2	2	3	3	19
4	Southampton FC	2	2	1 + 1 bonus	2	2	0	3	3 + 2 bonus	18
5	Liverpool FC	2	1	2	1	2	1	3	3 + 2 bonus	17
6	Chelsea FC	0	2	2	1	2	2	2	3	14
6	West Bromwich Albion FC	2	2	1 + 1 bonus	2	1	1	1	3	14
7	Everton FC	0.5	1	2	1	2	1	3	3	13.5
8	West Ham FC*	2	2	1 + 1 bonus	1	2	1	3	0	13
9	Crystal Palace FC	0	1	2 + 1 bonus	2	1	2	3	0	12
9	Newcastle United FC	1	2	2	1	1	2	3	0	12
9	Wolverhampton Wanderers FC	2	2	2	1	1	1	3	0	12
9	Leeds United FC	2	2	1	1	2	2	2	0	12
10	Fulham FC	1	1	2	1	2	1	3	0	12
11	Leicester City FC	2	1	2	1	1	1	2	0	10
11	Sheffield United FC	1	1	1	1	2	1	3	0	10
12	Burnley FC	2	1	1	1	1	1	1	0	8
13	Aston Villa FC	0	1	1	1	1	1	2	0	7

Note. Standings current as of January 25, 2021. Reprinted with permission from Sport Positive Ltd.
*West Ham FC does not hold stadium-ownership rights.

The 2019 table scoring system was rudimentary. It was based on a simple yes/no system for most categories, with 1 point allocated for *yes* and 0 for *no*. Sample questions included:

- Are you powering your stadium with renewable energy?
- Do you provide plant-based food options for fans?
- Do you help or encourage fans to travel to games via active or public transport?

The findings of this table were heartening. All Premier League clubs had some activity across all the categories—there were none at all who weren't taking some positive steps toward sustainability. All 20 clubs had some kind of initiative to reduce or remove single-use plastic from stadiums, 17 clubs had vegan food options on stadium concourses, and 16 clubs had water efficiency strategies.

The 2020 update of the Sustainability Table (see Tables 40.1–40.2) delved deeper into clubs' climate commitments, giving more points to clubs who took a holistic approach to sustainability across all club operations (not just the stadium), surveyed fan travel method behavior, made more extensive commitments to combat climate change, and actively engaged their fans toward positive behavioral changes.

While getting some clubs to work with us on this was initially challenging, all did communicate with us directly about their efforts. Their cooperation resulted in a credible Sustainability Table, where all information was provided or verified directly by the clubs—the first time this had ever happened.

During the initial research period where clubs provided information, many were interested in how to rectify the areas where they hadn't received points, and in some cases, sped up internal processes or decisions to ensure points were obtained. This underlines both the competitive nature of sport and that organizations may not be communicating climate efforts with fans not because they don't want to, but perhaps because they hadn't previously considered it as important to do so.

In the period between the launch of the 2019 and 2020 table, four Premier League clubs have committed to the UN Sports for Climate Action Framework, two launched new sustainability strategies, and many others built on current efforts—despite a global pandemic. The Sustainability Table is referenced directly and indirectly as something that provided the impetus for this work, and is responsible for many clubs now having sustainability information on their websites for fans to easily access.

While connecting climate change and sport remain challenging for some, mainly the "shut up and dribble" folks (Sullivan, 2018) when it comes to the power of sport in the fight against climate change, it really is game on.

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Part XIV

Sustainable Development Goal 14: life below water

An overview of Sustainable Development Goal 14

Leon Mach and Jess Ponting

Sustainable Development Goal 14 calls for the conservation and sustainable use of the oceans, seas, and marine resources for sustainable development (General Assembly, 2015) (Table 41.1).

41.1 Targets

See Table 41.1

41.2 Theoretical foundations

From the surface to the seafloor, the ocean continues to be adversely impacted by human activity. Sea temperatures are rising, acidification is increasing, coral reefs are vanishing, overfishing and pollution are accelerating, certain marine species are collapsing, and plastics are piling up at the surface (Millennium Ecosystem Assessment, 2005). Plastics have also beaten humans to the deepest ocean trenches. Though 85% of the seafloor has not yet been mapped or studied, multinational mining companies are stripping the seabed without understanding the full scope of the harm being caused (Hylton, 2020).

This is particularly sanguine considering bacteria found in the deep ocean has proved useful in rapid testing to detect the presence of COVID-19 amid a pandemic (UNESCO, 2020). Also, from the public health perspective, deep-sea marine biodiversity breeds compounds that treat cancer, Alzheimer's, inflammation, and nerve damage. The oceans also provide the oxygen we breath and its regenerative capacity ensures the availability of the seafood protein essential for more than a billion people (Patil et al., 2016). The oceans, furthermore, regulate climate by absorbing roughly 30% of all anthropogenic carbon emissions (five times more than tropical forests) and regulate atmospheric pressure (Patil et al., 2016). The global ocean is fundamental to the planetary ecosystem and as such, is also vital to human health, well-being, and prosperity.

Despite the known benefits of ocean health and biodiversity, which extend well beyond those mentioned above, researchers have found that multiple stressors jointly impact 98% of the global ocean (Halpern et al., 2015). In other words, the oceans have entered the Anthropocene. The earth's ecosystem is more than 70% surface water and almost all of it is impacted by more than one threat at any given time.

Table 41.1 Targets of Sustainable Development Goal 14

14.1	By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution
14.2	By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans
14.3	Minimize and address the impacts of ocean acidification, including through enhanced scientific cooperation at all levels
14.4	By 2020, effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices and implement science-based management plans, in order to restore fish stocks in the shortest time feasible, at least to levels that can produce maximum sustainable yield as determined by their biological characteristics
14.5	By 2020, conserve at least 10% of coastal and marine areas, consistent with national and international law and based on the best available scientific information
14.6	By 2020, prohibit certain forms of fisheries subsidies which contribute to overcapacity and overfishing, eliminate subsidies that contribute to illegal, unreported and unregulated fishing and refrain from introducing new such subsidies, recognizing that appropriate and effective special and differential treatment for developing and least developed countries should be an integral part of the World Trade Organization fisheries subsidies negotiation
14.7	By 2030, increase the economic benefits to small island developing States and least developed countries from the sustainable use of marine resources, including through sustainable management of fisheries, aquaculture and tourism
14.a	Increase scientific knowledge, develop research capacity and transfer marine technology, taking into account the Intergovernmental Oceanographic Commission Criteria and Guidelines on the Transfer of Marine Technology, in order to improve ocean health and to enhance the contribution of marine biodiversity to the development of developing countries, in particular small island developing States and least developed countries
14.b	Provide access for small-scale artisanal fishers to marine resources and markets
14.c	Enhance the conservation and sustainable use of oceans and their resources by implementing international law as reflected in the United Nations Convention on the Law of the Sea, which provides the legal framework for the conservation and sustainable use of oceans and their resources, as recalled in paragraph 158 of "The future we want"

Source: General Assembly (2015).

These issues, however, are challenging to address by conventional managerial and policy approaches for a number of reasons. The oceans are vast and difficult to surveil, and many aquatic spaces transcend the politics of individual nation–states. Pollution from the rapidly urbanizing world, as well as vanishing marine species, migrate well beyond national boundaries (Bennett et al., 2019; Halpern et al., 2015). While coastal states possess Exclusive Economic Zones (EEZs) that fall within their respective jurisdictions, they account for only 42% of total ocean space and are extremely problematic to monitor and police (Silver et al., 2015). The remaining 58% is known as the "high seas" and despite the existence of many international agreements and accords, many issues remain in terms of overexploitation both on the "high seas" and at their interfaces with EEZs (Halpern et al., 2015; Mu & Zuniga, 2020).

From an economic perspective, our oceans are responsible for 80% of global trade and the ocean economy has been conservatively estimated at US$1.5 trillion annually (OECD, 2016). The ocean economy refers to all economic activities that take place in the ocean—including oil and gas extraction, as well as seafloor mining and commercial fisheries (Park & Kildow, 2014).

In 2017, coastal and marine tourism accounted for roughly 26% of the entire ocean-based resource economy, making it the fastest-growing value-added segment at the time (Brumbaugh, 2017). The percent contribution of the ocean economy to GDP has also been found to be higher in low-to-middle-income countries (LMICs) with large ocean territories (Economist Intelligence Unit, 2015). For all of these reasons, oceans will inevitably remain a key source of economic growth, particularly in the developing world. However, if the ocean's resources are not utilized in a socially and environmentally sustainable way, short-term economic growth will come at the expense of its long-term health.

Researchers are arguing that the COVID-19 pandemic offers an unprecedented moment for oceans to revive, while also providing an opportunity to put in place governance systems that ensure we collectively put more effort into ensuring a healthy ocean for future generations (United Nations, 2020). The main theoretical foundation for discussing and assessing SDG 14 has been referred to as the "blue economy" approach for deriving economic benefits from the ocean in a manner that is both environmentally sustainable and socially just (Bennett et al., 2019). Just as "green" terrestrial development has been susceptible to greenwashing, or being branded as sustainable despite falling short on many objective measures, the "blue economy" requires normative frameworks to assess and ensure compliance with observable criteria (Silver et al., 2015).

41.2.1 Blue economy paradigm

At its most broad interpretation, the blue economy paradigm calls for a balance between economic activity and the long-term capacity of ocean ecosystems to support this activity while remaining resilient and healthy (Bennett, et al., 2019; Economist Intelligence Unit, 2015; Silver et al., 2015). There is no one unified framework for assessing or operationalizing a "blue economy," but most approaches for outlining how it ought to be achieved require some degree of good ocean governance (including protected area governance). This involves multiple stakeholders collaborating effectively in the planning, implementation, and monitoring process of any and all forms of ocean and coastal protection. Bennett et al. (2019) suggest that inclusive:

> blue-economy governance focuses on how the ocean will be developed and by whom, how and to whom benefits will be distributed, how harms will be minimized, and who will bear responsibility for environmental and social outcomes. Inclusive governance requires that decision-making structure and processes are representative of diverse actors from civil society, the private sector and governments. (p. 992)

The priorities of big non-governmental organizations, often working in collaboration with national governments to conserve ocean resources, particularly through the implementation of marine protected areas (MPAs), have often been administered in a top-down fashion causing conflict with local resource demand (Mach et al., 2020; Rife et al., 2013). Protected areas have often prevented local access to historic fishing grounds, other coastal resources (i.e., space for coastal agriculture), or traditional recreational pursuits (Mach et al., 2020). These exclusions have contributed to rendering protected areas ineffectual, because without local stakeholder buy-in, "paper parks" end up existing only on legal documents, but not in practice, as regulations are ignored and conservation goals are not achieved (Rife et al., 2013). A regularly cited study published in the journal *Nature* suggested that 59% of all MPAs are ineffectual, leading the authors to call for "better MPA design, durable management and compliance to ensure that MPAs achieve their desired conservation value" (Edgar et al., 2014, p. 216).

While SDG target 14.5 echoes the Convention on Biological Diversity's (CBD) call to place 10% of the world's marine spaces under protected area status, quality ocean and protected area governance are required for achieving mutually agreed upon conservation goals and to provide local benefits—either directly from or beyond species and habitat preservation. Governance quality is most effective when it meets five basic principles: legitimacy and voice, direction, performance, accountability, and fairness (Borrini-Feyerabend & Hill, 2015; Graham et al., 2003; Lockwood, 2010). In short, effective ocean resource conservation is not imposed upon local community members but established collaboratively with mechanisms in place to ensure mutual interests are addressed. Successful implementation requires different stakeholders to collaborate across spatial scales to ensure global conservation targets can be met without ignoring local needs.

While global environmental challenges can seem impossibly broad and complex, it has been argued that understanding scale and global/local linkages can reveal practical pathways forward (Cash & Moser, 2000; Ostrom, 2009; Paavola et al., 2009). A socio-ecological systems approach suggests that governance relates to how individual actors (private sector, NGOs, government officials, and private citizens) collaborate (or do not) to coordinate behavior concerning natural resources surrounding where they live and operate. Examples abound of stakeholders organizing to establish collective choice rules for preserving ocean resources (Mach & Ponting, 2018; Ostrom, 2009). This chapter will now turn toward discussing how ocean sports participants and organizations seek to change attitudes and behaviors among their participants in more ocean positive directions and also how these critical stakeholders operate to initiate advocacy and political campaigns to foster quality ocean governance.

41.3 Connections to sport

In 2020, the *Journal of Sport and Social Issues* published a special issue dedicated to understanding the intersection of blue spaces and sport (ocean swimming, surfing, sailing/yachting, and waka ama paddling) to interrogate the role of physical and leisure activities in how we access, understand, experience, and develop relationships to seas and oceans (Olive & Wheaton, 2020). Many of these articles echo the finding that blue spaces can be "therapeutic landscapes" that produce an atmosphere conducive to healing and well-being (Gesler, 1992). The anthology also shows that ocean sports enthusiasts have a deep appreciation for the ocean as a setting that provides highly sought-after experiences that combine physical activity with immersion in nature.

In the United Kingdom alone, it has been estimated that 5.4 million people (nearly 10% of the population) participated in recreational activities that required direct contact with the aquatic environment (Brewin et al., 2015). Surfers (including kite and windsurfers), sailors, outdoor swimmers, kayakers, and recreational fishers, among others, closely tie their identities with the ocean and receive measurable physiological and physical health benefits from participating in ocean sports (Nichols, 2014; Wheaton, 2013). Practicing sports in nature facilitates an all-encompassing multisensory (visual, auditory, taste, olfactory, and feel) interaction with water, animals, weather systems, sporting equipment, and clothing, which has been found to have many benefits for participants (Booth, 2018; Foley et al., 2019). Surf therapy has been shown to aid the recovery of combat veterans (Caddick et al., 2015) and also act as an empowering social program for marginalized groups (including in post-apartheid South Africa) to develop confidence and self-worth (Britton et al., 2018). Gascon et al. (2017) reviewed nearly 40 quantitative studies to lend empirical weight to the general claim that blue spaces have a positive effect on perceived well-being.

Despite the multiple benefits associated with participating in ocean sports, environmental challenges, and particularly ocean pollution, are threatening the ability to produce these positive outcomes. Evers (2019) identifies "polluted leisure" as an important theoretical contribution, beckoning consideration of how everyday leisure pursuits in the ocean bring participants into contact with as much human refuse as nature, requiring "negotiating valuations of risk, health, and wellbeing in blue spaces" (p. 9). While some ocean sports enthusiasts normalize and adapt to heightened levels of pollution, many leverage the benefits of participation to enact various approaches to cleaning and protecting the seas in line with SDG 14.

Bryce et al. (2016) proposed a three-pronged framework for contextualizing the cultural benefits of blue spaces which included place-based identity (e.g., spirituality and a sense of care and responsibility for the environment), experiences (e.g., connection to nature and sense of belonging), and capabilities (e.g., physical and mental health, skills and knowledge). Kelly (2018) points out that marine sustainability and human well-being policy imperatives have common objectives—suggesting that "valuing the coast, through increased personal wellbeing, the creation of emotional meaning or place attachment, and/or through outdoor play and learning, can increase future sustainable marine attitudes and pro-environmental behaviors" (p. 223). This connectivity with the ocean has been linked to direct environmental action (e.g., campaigns like Surfers Against Sewage) and political advocacy for things like creating protected areas expressly for the participation of ocean sports such as surfing (Scheske et al., 2019) and diving (Bennett et al., 2019).

Perhaps one of the main linkages between sport and SDG 14 has been striving for targets 14.2 and 14.5 through the growing interest in preserving coastal areas for practicing ocean sports like diving, snorkeling, and surfing in healthy ocean spaces. In the context of surfing, this has brought forward alliances between surfers and environmental organizations to scientifically research coastal habitats, estimate the economic value associated with ocean sports participation, and also lobby for preservation over competing uses (Arroyo et al., 2019; Mach & Ponting, 2018). These surf-based ocean protection measures have taken both legal and symbolic routes to incentivize ocean preservation through collaborative stakeholder governance (Scheske et al., 2019).

In Peru, the National Federation of [Surf] Boarding collaborated with the Peruvian Institute of Sports to pressure the national congress to create Law 2780, or the Law of the Breakers, which became official in 2013 by presidential decree and created the legal backing for marine protected areas on the grounds of surfing heritage (Viatori & Scheuring, 2020). This law prohibits infrastructural changes that might negatively impact local wave dynamics or restrict coastal access to surfers. This law has been utilized by surfers and environmentalists to fight road expansion, pollution outflows, and coastal infrastructure in areas with vibrant local surf cultures that attract visiting surfers from around the world.

Save the Waves Coalition (STWC) worked with local stakeholders and these government agencies in Peru to establish this law and this has coalesced into an international movement. STWC lobbies for marine protected areas, which they call World Surfing Reserves (WSRs), on the basis that preserving the surf experience is vital to place identity and the coastal economies of many places around the world (Farmer, 2015; Wright et al., 2013). To obtain WSR recognition, STWC requires local communities to form stewardship councils meant to draw in support across stakeholder groups and develop consensus-based parameters for protecting surf areas. This system has been utilized by a coalition of surfers, local businesses, and politicians on the Gold Coast of Australia to use the WSR banner to fight against the development of a cruise ship terminal (Ware et al., 2017). In Punta de Lobos in Chile, local stakeholders utilized the same process to fight a proposed paper mill. Utilizing the WSR designation, 900 donors were mobilized to purchase land surrounding the surf-break and to designate it to conservation in

perpetuity. There are currently 11 WSRs around the world and STWC is committing to adding one new one per year.

These advocacy and protected area measures extend beyond ocean sports participants preserving their coastal backyards. Tourism has been proposed as one of the principle drivers of achieving many SDGs (UNWTO, 2018). In the context of tourism and SDG 14, the United Nations states directly that:

> coastal and marine tourism rely on healthy marine ecosystems. Tourism development must be a part of Integrated Coastal Zone Management in order to help conserve and preserve fragile marine ecosystems and serve as a vehicle to promote a blue economy, contributing to the sustainable use of marine resources.

Many ocean sports enthusiasts travel incessantly to practice their favorite activities abroad and often in LMICs and Small Island Developing States (SIDS). Surfer travel and dive tourism, however, do pose challenges and are not inherently sustainable pursuits. For one, this travel entails carbon emissions associated with international flights and often considerable travel once in-country to reach remote areas to practice these sports in the best conditions. Ocean sports enthusiasts, like surfers, have been alleged to emit double the amount of CO_2 as the average citizen due to this penchant for travel (Butt, 2015). Surfers have been found to search the world for uncrowded surf and once they find it, development often occurs swiftly and carries significant social and environmental changes (Borne & Ponting, 2017; Hough-Snee & Eastman, 2017). Diving tourism has also been found to be centered around direct transport to remote high-end resorts (similarly to some segments of the surf tourism industry), which often entail little interaction with host communities, and therefore, benefits do not tend to reach local communities, which represents a missed opportunity to reach target 14.7 (Phelan et al., 2020; Ponting et al., 2005).

Efforts are being made, however, to foster more measurably sustainable forms of ocean resource-based tourism. An organization called STOKE Certified (www.stokecertified.com) has developed criteria for certifying the sustainability of surf resorts and surf events, which have taken both the blue economy paradigm and the SDGs into consideration in the development (O'Brien & Ponting, 2018). STOKE is comprised of 142 metrics that measure the efficacy of the sustainability management system, surf resource conservation, quality and safety of surf experience delivery, as well as social, economic, cultural heritage, and environmental impacts. Efforts like STOKE and academic work seek to accomplish target 14.7 by inspiring forms of tourism that ensure benefits sustainably accrue to local stakeholders, through purchasing local goods, prioritizing local hiring, and offering opportunities for local advancement to high-level hospitality positions, while causing minimal, if any, environmental harm (Borne & Ponting, 2017).

There are also countries or destinations within countries seeking to implement measures. For example, on the island nation of Palau, a popular dive destination, visitors watch a compulsory educational film (wherein touching, feeding, chasing, or taking wild animals, or stepping on corals, are deemed bad for the islands) and sign a pledge in their passports promising to tread lightly, act kindly, and explore mindfully, while leaving no physical trace of their visit (Russell, 2019). This is just one example of a country trying to instill environmental awareness to its constituents and visitors and press for a healthier ocean through compliance.

Ocean sport participation is also growing in LMICs, which helps foster effective global advocacy campaigns for the protection of aquatic spaces around the world. Beyond protecting areas, organizations that certify divers, such as PADI, include sustainability education into the certification process. These efforts work to socialize the dive community to participate in sustainability behaviors such as wearing reef-friendly sunscreen, not touching reefs, and not taking anything

from the oceans. PADI has also partnered with Project Aware (www.projectaware.org) with the directly expressed goal of supporting the implementation of the SDGs through political advocacy and creating a community of adventurers who engage in direct action to counter the most serious threats to the oceans—including contributing to citizen science by making every dive a survey dive (targets 14.a and 14.4), documenting and removing marine plastics and debris (target 14.1), and raising awareness about pressing ocean issues and presenting opportunities to combat worrisome outcomes. 11th Hour Racing included as a case study in Chapter 43, also represents an initiative where an ocean sailing organization helps collect marine plastics on their voyages for use in scientific analyzes and seeks to inspire climate action among the current ocean sailing community and future generations of sailors. World Sailing, the governing body for the sport of sailing, has also published a comprehensive sustainability agenda for 2020 where they directly state the goal of adhering to target 14.1 by preventing and significantly reducing marine pollution of all kinds (World Sailing, 2017).

Both the Surfrider Foundation (www.surfrider.org) and Project Aware also raise awareness about marine plastics and work to advocate for single-use plastic bans around the world, organize beach cleanups (to both monitor and remove trash), and motivate sport participants to eliminate or greatly reduce their plastic usage and make commitments toward recycling (SDG 14.1). The majority of surfboards are made of "resins and foam containing styrene, volatile organic compounds, and isocyanates sourced from the petrochemical industry" (Evers, 2019, p. 430), and are thus non-recyclable. The Eco board project (www.sustainablesurf.org) and other initiatives, however, have been instituted to improve the materials used in surfboard manufacturing and packaging. There are also private sector initiatives to increase the use of sustainable materials in wetsuits and apparel and educate consumers about the importance of this consumption (Evers, 2019). Companies like Waterlust (www.waterlust.com), a self-described purpose-driven marine apparel brand, use sustainable materials in the creation of dive and snorkel apparel and filters that proceeds toward marine science research.

Recreational and sport fishing are also popular sporting activities directly dependent upon healthy oceans. In high-income countries, 1 in 10, or 220 million people, consider themselves recreational anglers (Arlinghaus et al., 2019) and these participants cite relaxation, exercise, and experiencing nature as their main rationales for fishing (DG MARE, 2017). Estimates suggest that total global catches have steadily increased since 1990, amounting to 900,000 t·year^{-1} in 2014 and that recreational fishing amounts to less than 1% of global fish takes (Freire et al., 2020). Some are advocating, however, that recreational fisheries not be overlooked in policy and managerial discussions because, in many localities, recreational catch exceeds the biomass removal associated with commercial fisheries (Arlinghaus et al., 2019). Better data are needed to understand how many of which fish are being taken, and where, during recreational activities, because certain areas in which recreational anglers congregate (particularly where they also intersect with commercial fisheries or local sustenance fishing) could have underappreciated ecological consequences, even if a high percentage follow prevailing regulations based on the best available local scientific knowledge (Font & Lloret, 2014). Heading calls for providing better recreational fisheries data (target 14.a), NGOs like the Sea Around Us (www.seaaroundus.org) have been working to establish a clearinghouse of all published data on fisheries (recreational or commercial) in order to make information easier to find and publicly available for organizations developing fisheries regulations.

Sport and recreational fisherfolk have been found to show concern and willingness to advocate for and follow managerial approaches geared toward ensuring the viability of the sport (FAO, 2012). The Food and Agricultural Organization of the United Nations (FAO) has established and continues to revise sustainability guidelines for recreational and sport fishing, which describe

strategies to promote environmentally sustainable and socially responsible management (FAO, 2012). In accordance with target 14.4, the FAO details policy, management, and behavioral recommendations for sustainable recreational fisheries on a global scale. In many cases, these are implemented in local jurisdictions around the world in ways that aim to combine knowledge about the reproduction of desirable catch in order to develop rules that foment minimal impact on the regenerative capacity of the species in question. These often materialize locally through mechanisms such as requiring registrations for anglers, prohibiting exotic bait, restricting size and quantities of catch, forbidding certain equipment (i.e., fish finders or SCUBA equipment with spearfishing), and instituting bans during critical spawning and reproductive periods.

Climate change can be felt and experienced viscerally by ocean sports enthusiasts by way of sea level rise and ocean warming (Reineman et al., 2017). Snorkelers and divers also view coral bleaching with increased frequency, which reduces the value associated with these activities (Andersson, 2007). Ocean sport participants' engagement with direct mitigation efforts, however, are mixed at best (Butt, 2015; Reineman et al., 2017). Still, NGOs like Sea-Trees.org, the Surfrider Foundation, Project Aware, and others do discuss the importance of healthy oceans and coastal areas to climate change mitigation and adaptation, and they fund efforts to reforest mangroves and kelp forests to protect coastlines while sequestering carbon.

The World Surf League (WSL), which owns and broadcasts surfing's professional world championship tour has also developed an environmental advocacy program called PURE, which has committed the WSL to carbon neutrality (through buying regionally relevant carbon offsets in areas where they have competitions), banning single-use plastics, and investing in grassroots campaigns that clean and protect the coasts where they have contests. PURE's aim is for the pro-tour to have a net positive ocean impact despite its reliance on global travel and also use the platform to inspire members of the growing surf culture to engage in similar actions wherever they live or travel.

While ocean recreation gives rise to the many efforts listed above to achieve SDG 14 targets, it is important to note that many critical scholars point out that blue spaces can also be exclusionary (Phoenix et al., 2020; Puwar, 2004). People of minority groups and many genders have been excluded from ocean sports through many forms of aggression and discouragement both subtle and overt. This is why many sport development organizations operating in LMICs have tried to foster inclusive participation in ocean sports to empower minorities and non-dominant genders to change social norms and improve societies (Britton, 2015; Mach, 2019). One development worker operating in this arena was named the National Geographic Adventurer of the Year for "bringing surfing to children around the world in an effort to empower coastal communities" (Gibbens, 2018). There is evidence suggesting that empowerment through sport development programs does help local participants increase economic benefits through coastal tourism (target 14.7; Mach, 2019). Evidence suggests that it is difficult to walk the "reflexive middle ground" between cultural imperialism and challenging inequality, but that efforts to empower marginalized groups through fostering inclusion in ocean sports demand further attention as an important conduit for social and environmental change with respect to the ocean (Mach, 2019; Thorpe & Chawansky, 2017).

In short, many are drawn to ocean sports participation. Connectivity with the ocean through sports creates a foundation for efforts by different actors (individuals, private sector, government officials, and entrepreneurs) to achieve SDG 14 targets through both local action and global policy advocacy and awareness spreading. The next chapter will discuss indicators of progress, the methodologies used to measure compliance, and the efforts of ocean sports entities to implement these methods to reach these targets.

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Measuring Sustainable Development Goal 14

Leon Mach and Jess Ponting

The many challenges facing the ocean give rise to the SDG 14 targets introduced in the previous chapter for charting a new and more sustainable course. When it comes to an entity as vast as the ocean, however, developing and implementing methodologies for evaluating SDG 14 indicators continue to pose challenges for scholars and practitioners assessing changes in ecosystems over time and organizations attempting to have measurable positive impacts. However, the pressing need for drastic improvement in the global human–ocean relationship has encouraged the UN to suggest the following indicators for monitoring progress toward SDG 14 (Table 42.1).

According to scientific studies, most indicators in this category (e.g., plastic density, acidity, eutrophication, and areas fished within their sustainable yields) are, unfortunately, going in the wrong direction. Plastics are perhaps the most eye-catching problem for most. Anecdotally, most of us have experienced plastic waste as ubiquitous in and around the ocean, but quantifying plastic's presence, particularly from a global perspective, is a fairly recent endeavor. This makes comparisons over time difficult, but this is becoming a priority in the scientific community, particularly because a great deal of research highlights the damage that marine plastic can have on marine species at all levels of the food chain (Gregory, 2009) as well as on the birds (Tanaka et al., 2013) and humans (Smith et al., 2018) that feed on them. One of the most cited estimates of plastic density in the world's oceans suggests that more than 5 trillion plastic pieces weighing more than 250,000 tons afloat (Eriksen et al., 2014). This was measured using net tows and visual surveys from multiple ocean voyages to find the average amounts of plastics in different areas to estimate the global presence. Combining trawls with aerial surveys, it has been further found that the Great Pacific Garbage Patch (the area with the highest density of plastic in the oceans) is increasing exponentially, which signifies that despite greater awareness of plastic pollution, its accumulation in the sea is still on a growth trend (Lebreton et al., 2018).

The UN's (2020) special report on progress toward the SDGs detailed a 26% increase in ocean acidification (caused by the uptake of atmospheric CO_2 into the ocean) since pre-industrial times. Another concerning data point lies in the fraction of the world where fisheries remain within biologically sustainable levels, which has declined by nearly 25% since 1974. Large-scale industrial fisheries are credited with the rapid depletion of fish stocks, aided by difficulty monitoring their practices and financial incentives that discourage compliance with

Table 42.1 Indicators of Sustainable Development Goal 14

14.1.1	Index of coastal eutrophication and floating plastic debris density
14.2.1	Proportion of national exclusive economic zones managed using ecosystem-based approaches
14.3.1	Average marine acidity (pH) measured at agreed suite of representative sampling stations
14.4.1	Proportion of fish stocks within biologically sustainable levels
14.5.1	Coverage of protected areas in relation to marine areas
14.6.1	Progress by countries in the degree of implementation of international instruments aiming to combat illegal, unreported and unregulated fishing
14.7.1	Sustainable fisheries as a percentage of GDP in small island developing States, least developed countries and all countries
14.a.1	Proportion of total research budget allocated to research in the field of marine technology
14.b.1	Progress by countries in the degree of application of a legal/regulatory/policy/institutional framework which recognizes and protects access rights for small-scale fisheries
14.c.1	Number of countries making progress in ratifying, accepting and implementing through legal, policy and institutional frameworks, ocean-related instruments that implement international law, as reflected in the United Nation Convention on the Law of the Sea, for the conservation and sustainable use of the oceans and their resources

Source: General Assembly (2015).

international laws. Researchers have found that many commercial fishing vessels act as "roving bandits," intensively fishing areas into a depleted state before moving on to other areas to repeat the process. This sequential exploitation has led to a global decline in fish stocks (Berkes et al., 2006).

While fish stocks are declining, it is imperative that small-scale artisanal fisherfolk, particularly in low-to-middle-income countries (LMICs) and Small Island Developing States (SIDS), have access to sustainable fisheries for both income and sustenance. To this end, many countries have developed regulatory and institutional frameworks to ensure market access and that sustainability policies (e.g., seasonal bans, catch limits) are in place, but more than 20% of countries have been found to have low-to-medium levels of compliance with such frameworks and policies (UN, 2020).

The one indicator where there has been measurable global progress is the percent coverage of protected areas. As of 2018, slightly more than 17% of the world's Exclusive Economic Zones (EEZs) were covered by protected areas, which represents a doubling from 2010 (UNEP-WCMC, IUCN, & NGS 2018). Just as on land, scientists are working to isolate marine areas with the highest levels of biodiversity that are facing the highest concentration of threats to suggest conservation priority areas for protected area status or coverage under effective governance regimes (Bennett et al., 2019; Halpern et al., 2015). As mentioned earlier in the chapter, research has exposed reasons for looking upon increasing the coverage of protected areas with a certain level of skepticism. Effective ocean governance remains the critical metric for considering not only how much ocean is protected, but how effective the protection regime is for meeting locally set indicators of ocean health and stakeholder access to healthy resources.

42.1 Measurement in sport

This section will turn to how ocean sport organizations and participants seek to both monitor and incite measurable change toward SDG 14 indicators. These changes involve global scale

actions (i.e., influencing global policy and changing their participants' global attitudes and behaviors through awareness and action campaigns) and local measures to not only keep beaches and coasts clean, but also establish parameters for ensuring particular coastal environments can continue to provide enjoyable and valuable ocean sport experiences for future generations.

Coalitions between ocean sport enthusiasts and scholars have been forming to increase the percentage cover of protected areas capable of preserving marine species abundance and diversity on coral reefs and also to protect access to clean coastal environments for surfing and swimming. A major thrust for this expansion has involved a neoliberal approach of establishing methodologies to demonstrate the economic value of ocean sports participation in order to incentivize various political interventions and area protections (Mach & Ponting, 2018; Spalding et al., 2017).

A widely cited pre-COVID-19 estimate suggested that coral reefs were generating $36 billion a year in economic value from tourism—$19 billion was attributed to direct "on reef" activities like diving, snorkeling, and wildlife boat tours, and $16 billion to "reef adjacent" tourism, which includes activities "afforded by the sheltering effect of adjacent reefs" (Brumbaugh, 2017; Spalding et al., 2017). The demonstration of this economic value has been utilized to advocate for protecting areas that are demanded by the roughly 20 million snorkelers and 6 million divers worldwide, who travel frequently in their pursuit of underwater exercise and aquatic species encounters (DEMA, 2019).

This valuation methodology has also been a part of establishing rhetoric suggesting that many marine species have more value alive (through tourists' continued interactions with them) than when consumed once as a fishery. This approach has been very effective in the realm of shark conservation, where knowledge of the conservation need tends to grow alongside the value associated with shark diving (Gallagher & Hammerschlag, 2011). Diving organizations have contributed toward this awareness spreading in their operations and these efforts have helped to put pressure on legislation to curb illegal shark fishing (indicator 6.1) and to increase protected area coverage in areas inhabited by high-value shark viewing species (indicator 5.1). PADI, the institution that certifies most divers, has included a special shark conservation course to teach divers about the conservation status of sharks, the economic and ecosystem value of sharks, and ways to protect sharks and dive with them appropriately. In 2013, the global value of shark fisheries was found to be $630 million per year and steadily declining (Cisneros-Montemayor et al., 2013). This same study, however, found that shark diving tourism generated about half that value at the time of the study, but that visitors to shark watching sites had been growing at 30% per year over the last 20 years, and showed no signs of slowing before the COVID-19 border closures of 2020. These types of valuation studies have helped to incentivize certain areas around the world to create shark sanctuaries to try and meet conservation goals in a way that provides income for constituents. In Palau, the lifetime value of each shark has been valued at $1.9 million, and shark diving tourism has been estimated to represent 8% of the entire GDP for the nation (Jolly, 2011). In Fiji as well, shark diving was found to generate $42.2 million annually while providing significant benefits to the local communities (Vianna et al., 2011).

Many surf-breaks also happen to be located in areas with high levels of marine biodiversity (Scheske et al., 2019). Mach and Ponting (2021) estimated that prior to the COVID-19 pandemic, surfers were spending as much as $65 billion annually to travel away from their home countries for the primary purpose of surfing. Two of the largest surf-related environmental non-profit organizations (Save the Waves Coalition [STWC] and the Surfrider Foundation) have also been conducting and funding valuation studies of individual surf areas through the direct valuation method they have dubbed "surfonomics." This method entails estimating the

annual number of surf visitors to an area and multiplying this by survey results demonstrating their average length of stay and daily spending averages (for example, see Wright et al., 2013). These studies have resulted in direct expenditure estimates suggesting surf tourism per annum is worth $1.6–6.4 million in Pichilemu, Chile; $4.2 million in Guarda do Embau, Brazil; $1.7 million in Huanchaco, Peru; and $35 million in Uluwatu, Indonesia (Wright et al., 2013). These data have been leveraged to encourage the creation of World Surfing Reserves and other forms of surf-protected area networks in these locations (and others) as part of an effort to protect surf-breaks from competing industrial, agricultural, and infrastructural projects that could harm surf resources and attract sustainable tourism (Arroyo et al., 2019).

To ensure these reserves are effective, a part of the process is establishing local stewardship councils created to include all resource stakeholders' interests and to facilitate collaboration and dialogue related to the goals of the reserve. Mechanisms are required to be put in place to ensure there is monitoring and compliance, as well as agreed-upon regulations and benefit-sharing schemes. STWC is advocating for greater recognition of these important ocean conservation sites and forging collaborations with entities like Conservation International to expand their influence and legitimacy (Scheske et al., 2019).

Beyond valuing ocean-based recreation to incentivize progress on key indicators of SDG 14, many sport organizations have been contributing toward collecting data for many critical ocean indicators. Smartfin (smartfin.org) represents a novel approach taken by a surf non–profit organization in collaboration with a university (Scripps Institution of Oceanography), a global surfing advocacy group (Surfrider Foundation), and a surf fin manufacturer (Futures) to improve collective understanding of ocean health and raise awareness about issues. Because typical ocean data collection sensors cannot safely sit stationary to evaluate the rough impact zones of the world, having surfers use fins with data collection sensors creates the capacity to provide real-time data on ocean indicators such as temperature, acidity, and salinity needed to assess many SDG 14 indicators. Studies suggest there are 30 million surfers worldwide (O'Brien & Eddie, 2013) and that some surf more than 100 times per year (Wagner et al., 2011); as such, Smartfin has the potential to provide a wealth of data for scientific studies (Brewin et al, 2015).

Project AWARE has also instituted a divers against debris program. During dives, dive instructors organize the collection of debris and geotag their dive location along with the composition (type of debris) and volume of what they removed in order help populate an international map with data gathered by this approach to underwater citizen science. This data is publicly available to help illuminate plastic debris density (indicator 1.1) and also helps to expose the "unseen" pollution on the seafloor. Since 2011, roughly 86,000 divers in 120 countries have removed 1.6 million pieces of trash from the ocean and cataloged the abundance of different types of plastic to assist in political advocacy campaigns and demonstrate areas of high density for more intensive clean-up efforts (PADI AWARE, n.d.). Studies also suggest that recreational SCUBA divers can contribute data on marine species during dives comparable to trained volunteers, demonstrating the potential ability of ocean sports participants to contribute to citizen science beyond plastics (Branchini et al., 2015).

Chapter 41 demonstrated how many organizations and individuals have established similar targets to SDG 14 and attempt to change global consciousness related to ocean issues. At present, ocean sports organizations are not necessarily prioritizing measuring global indicators toward SDG 14, but they have played a role in publishing the best possible data on these indicators and many entities support the collection of this data. Though it is beyond the scope of this chapter, one might also speculate that many scientists working toward establishing methodologies and measuring important indicators of ocean health have been inspired, at least in some part, due to their interactions with the ocean through sports. While measurement has

not been the priority for a number of reasons, we have mentioned creative ways these entities measure recreational values to incentivize conservation and how divers and surfers can contribute important data. Future collaborations can, and perhaps ought to, leverage ocean sports participants and organizations more directly and effectively in measuring and monitoring critical ocean indicators.

42.2 Implementation challenges

In terms of collecting data and moving the needle on SDG 14 indicators, ocean sports participants are well-positioned. Love for their respective sports draws humans to the sea—in some cases, even daily. Passion for the ocean also lays the foundation for a willingness to contribute to ensuring improvements in ocean health. At present, ocean sports organizations and participants have been integral to raising awareness about ocean challenges and pressing for global change or specifically adopting the language of SDG 14 into their mission statements and action plans. To measure progress toward particular indicators more effectively, institutions could do well to find approaches for productively incorporating active ocean enthusiasts in the creation of methodologies that utilize their intrinsic knowledge and frequent positioning in and around the sea.

Efforts are being made in this direction and are leading to unique and powerful collaborations fueled by a passion for ocean sports. One example worth mentioning is the Save the Waves Coalition mobile app, which allows surfers to report and geotag apparent threats to coastlines they frequent. Multiple reports can trigger action geared toward learning more about the threat (often in collaboration with research institutions) and moving toward action campaigns, usually beginning with signing petitions and moving toward greater actions and coastal protections. Entities in the surf media and clothing brands, like Patagonia, help fund this initiative and also help to spread the word to fellow surfers and ocean enthusiasts about the threats and the ways to support conservation efforts. Local grassroots efforts to raise awareness about issues can quickly become global priorities through these types of platforms. Recreational anglers, ocean swimmers, sailors, and others could adopt similar approaches to reporting issues and scaling up awareness and scientific support.

This same sort of infrastructure can be utilized with collaborations between research entities dedicated to measuring SDG 14 indicators. There is potential to work with ocean sports enthusiasts to collect the data they need and feed it back to them in a usable format. One avenue could involve putting smart fins on divers and surfers and asking them to upload their data after each ocean encounter. Pilot studies have already demonstrated this approach's potential value (Brewin et al., 2015), and with support, activities like this could be scaled up and provide critical metrics from ocean environments that are difficult to constantly monitor. In this way, by just doing what they love most, ocean sports participants can provide a wealth of data over time to help improve our collective understanding of the changing sea.

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Applying Sustainable Development Goal 14

Jill Savery and Alessandra Ghezzi

11th Hour Racing is an international organization based in Newport, Rhode Island, that establishes strategic partnerships within the sailing and maritime communities to promote collaborative, systemic change benefitting the health of our ocean. 11th Hour Racing was founded in 2010 by philanthropist Wendy Schmidt and professional sailors Jeremy Pochman and Rob MacMillan.

Our co-founders believe that the success of our planet rides on one thing: the health of our oceans. We believe fostering environmentally sustainable practices on and off the water is critical to the restoration of our ocean and its vital resources.

43.1 How 11th Hour Racing contributes to life below water

11th Hour Racing's work contributes toward the achievement of several Sustainable Development Goals, in particular SDG 14, which endeavors to conserve and sustainably use the ocean, seas, and marine resources for sustainable development.

With the engaged support of our network of sailors and partner organizations, we reach a broad audience, including communities that may not feel a connection to the ocean. 11th Hour Racing works on a global scale through three primary areas of engagement:

1 sponsorships with sporting entities and other organizations,
2 grants to nonprofit organizations, and
3 ambassadors.

The professional sailing community offers a unique platform to promote sustainability, and as a sponsor, we require environmental leadership and the implementation of best practices to spread the message of ocean stewardship. Our sponsorship model is unique, in that we do not sell a product or service like typical sport sponsorship organizations. We require sponsored entities to embed sustainability into their operations and promote ocean health in their activities. Our return on investment is success in driving impact for the ocean. 11th Hour Racing's sponsorships include premier sailing races and events, individuals and groups working

on innovative and responsible marine technologies, teams driven by robust sustainability strategies and operations, as well as awards, competitions and conferences.

Our global grant program, funded by The Schmidt Family Foundation, is committed to advancing innovative projects that improve ocean health. Grants support local pilot programs that model best practices of sustainability, restore coastal ecosystems, and advance ocean stewardship and literacy.

11th Hour Racing's Ambassadors are respected marine industry professionals who drive change within the sport of sailing. They are committed to ocean health and adopt sustainable practices in their daily lives, at sailing events and regattas—while inspiring others, including the next generation of sailors, to do the same. All 11th Hour Racing Ambassadors have the opportunity to select and work with a nonprofit organization on an ocean health project close to their hearts.

11th Hour Racing's work with our Partners, Grantees, and Ambassadors contributes to several of the specific targets associated with SDG 14, namely:

- reducing marine pollution, especially marine debris and plastics;
- protecting and restoring marine and coastal ecosystems;
- addressing the impacts of ocean acidification through climate action;
- promoting sustainable fishing through sustainable seafood;
- conserving coastal and marine areas; and,
- raising awareness of issues impacting the ocean, developing solutions and promoting behavior change to restore ocean abundance.

43.2 Our work in action

Two of our flagship sponsorships are linked to a professional sporting event at the intersection of human adventure and world-class competition: The Ocean Race and the 11th Hour Racing Team.

11th Hour Racing is a Premier Partner of The Ocean Race (previously known as the Volvo Ocean Race)—the most iconic, fully crewed, offshore sailing race in the world, and a pinnacle event in the sport of sailing. 11th Hour Racing was the Founding Principal Partner of the Sustainability Program for the 2017–2018 Volvo Ocean Race. Building on the multi-award-winning Sustainability Program from that event, 11th Hour Racing renewed and expanded its sponsorship for the event in subsequent years.

This visionary partnership focuses on a broad range of initiatives that promote the restoration of ocean health and embed sustainability in all event operations. The Ocean Race's *Racing with Purpose* sustainability platform aims to act as a catalyst to restore ocean health.

While racing around the world, through some of the most remote, inaccessible areas on the ocean, sailors witness first-hand the impacts of plastic pollution and ocean health changes. These experiences often inspire sailors to raise awareness of the need to improve ocean health. They leverage The Ocean Race's powerful international media platform that reaches millions of people, to draw attention to the health crisis facing our ocean.

Through our sponsorship, the partners have committed to a comprehensive action plan to:

- Convene The Ocean Race Summits, Action Labs, and Innovation Workshops focused on bringing global leaders together to develop and share solutions that drive change to restore ocean health.
- Use state-of-the-art renewable energy systems onboard the racing boats during the race.

- Inspire thousands of children around the world to take action for the ocean through the multi-lingual, curriculum-based, The Ocean Race Learning program.
- Build on the powerful Science program developed in the last edition of the Race, which gathers critical oceanographic and microplastics data from onboard the race boats, and shares it with the global scientific community.
- Inspire millions of Race Village visitors at race stopover host cities with the possibility of a sustainable world and healthy ocean through interactive experiences.

43.3 11th Hour Racing Team

11th Hour Racing Team was formed in September 2019 and is led by American offshore sailors Charlie Enright and Mark Towill. Supported by title sponsor 11th Hour Racing, the team's mission is to build a high-performance ocean racing team with sustainability at the core of all operations, inspiring positive action among sailing and coastal communities, and global sports fans to create long-lasting change for ocean health. The team accelerates change through sporting excellence in sailing, ocean advocacy, and sustainable innovation.

The team's campaign headline "*what's under the surface connects us*" highlights how the beauty and discovery of life under the water's surface can inspire people to adopt more sustainable behaviors—emphasizing how the wellbeing of our ocean is critical to our wellbeing and informing people about the impacts of climate change on the ocean.

11th Hour Racing Team's *net positive* approach focuses on the following four principles to guide its mission:

- Be *leaders*, advocating for ocean health, climate action, and sustainability with the industry, communities, and fan base.
- Develop *innovative* solutions to responsibly manage resources, applying circular economy principles to material needs, as well as reducing water and climate footprints, and becoming water neutral and climate positive.
- *Collaborate* with partners to create sustainable solutions, minimizing the environmental footprint across spheres of influence, including going zero waste, and implementing a ban on single-use plastics.
- Leave a lasting *legacy* by inspiring others to make changes, including a community outreach program, internships, and grant-giving.

43.4 Challenges and opportunities

11th Hour Racing's unique impact model was developed over several years. Challenges have included creating a framework for working with sport organizations to drive ocean impact. It took many years for sailing organizations to realize the opportunity they have to engage and achieve change on and off the water. It has taken time for sailors, sailing teams, and event organizations to change their approach and see sustainability as a way to enhance their efforts, while still driving peak performance. We have shown, through working with our partners, that an integrated approach enhances performance, purpose, brand loyalty, impact, and legacy.

Measuring success has also been a journey. Defining metrics, enhancing reporting and transparency, developing skills and knowledge, and sharing legacy learning have taken time to develop. Our sponsored organizations no longer view this information as competitive, but rather see the opportunities in sharing knowledge for ocean health.

Evaluating the "real" effectiveness of media and marketing campaigns continues to be a challenge. While it is possible to measure how many media mentions our programs earn, as well as data related to audience and viewership, and advertising value equivalency, it is more challenging to calculate how many people change their sustainability behaviors after being exposed to targeted campaign messages and promotions.

11th Hour Racing believes in the power of partnerships. Working together with our Sponsorships, Grantees, and Ambassadors, we have collectively made a positive difference in marine health and have engaged with millions of people to increase ocean literacy and action.

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Part XV

Sustainable Development Goal 15: life on land

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An overview of Sustainable Development Goal 15

Melanie Sartore-Baldwin

While the majority of the United Nation's 17 Sustainable Development Goals appear to focus on human life, SDG 15 is concerned with *all* life on land. Specifically, SDG 15 is to "protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss" (General Assembly, 2015, p. 14). Thus, the intent of SDG 15 and its associated targets (listed in Table 44.1) is to protect the relationships between all life forms and the habitats in which they live. While some may view this goal as separate from the goals focused on human life, a great deal of literature has identified the inextricable link between environmental health, nonhuman animal health, and human health (e.g., Wilcox et al., 2004). Further, some argue that the protection of biodiversity is inherent in all 17 goals, thus identifying the profound importance of SDG 15 (Opoku, 2019).

Earth exists as a harmonious biosystem in which organisms and the environment exist as a single, self-regulating system (Lovelock, 2003). As such, the biologically diverse organisms (i.e., biodiversity) within this system adapt for survival within changing environments. As Lovelock (2007) noted, humans' actions have threatened the stability and inhabitability of the planet such that the livelihoods of humans, nonhuman animals, and the environment as a whole continue to be threatened. The manner in which all of these entities' livelihoods are interrelated is referred to as a social-ecological system (SES). This complex and dynamic system comprises the inter-dependent relationships among humans, nonhuman animals, and the environment in which human behavior is integral in shaping ecosystems, and humans are reciprocally dependent upon ecosystems for their well-being and societal development (Fischer et al., 2015). While traditional approaches to studying social-ecological systems have focused on aiding humans in things like combatting diseases (e.g., Roger et al., 2016), there has been little-to-no work that has employed the same approaches from the vantage point of nonhuman animals and their habitats, particularly in the sport literature (cf. Sartore-Baldwin & McCullough, 2018). Thus, the predominant view is that human well-being is more important than the well-being of other living entities. Simply put, these approaches have been characterized as anthropocentric (Mi et al., 2016).

The anthropocentric view of ecosystems revolves around the use of ecosystem goods, services, and processes for human needs and for human gain (Binder et al., 2013). Ecosystem goods refer to the tangible items and products produced through and from ecosystem processes

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Table 44.1 Targets of Sustainable Development Goal 15

15.1	By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements
15.2	By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally
15.3	By 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world
15.4	By 2030, ensure the conservation of mountain ecosystems, including their biodiversity, in order to enhance their capacity to provide benefits that are essential for sustainable development
15.5	Take urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity and, by 2020, protect and prevent the extinction of threatened species
15.6	Promote fair and equitable sharing of the benefits arising from the utilization of genetic resources and promote appropriate access to such resources, as internationally agreed
15.7	Take urgent action to end poaching and trafficking of protected species of flora and fauna and address both demand and supply of illegal wildlife products
15.8	By 2020, introduce measures to prevent the introduction and significantly reduce the impact of invasive alien species on land and water ecosystems and control or eradicate the priority species
15.9	By 2020, integrate ecosystem and biodiversity values into national and local planning, development processes, poverty reduction strategies and accounts
15.a	Mobilize and significantly increase financial resources from all sources to conserve and sustainably use biodiversity and ecosystems
15.b	Mobilize significant resources from all sources and at all levels to finance sustainable forest management and provide adequate incentives to developing countries to advance such management, including for conservation and reforestation
15.c	Enhance global support for efforts to combat poaching and trafficking of protected species, including by increasing the capacity of local communities to pursue sustainable livelihood opportunities

Source: General Assembly (2015).

(Brown et al., 2007). These include things such as water, living entities that are turned into food for humans, and sources of fuel such as timber. Ecosystem services are the natural processes that regulate nature (i.e., ecosystem goods) to fulfill and sustain human life. These processes include the natural purification of water and air, recycling waste, and pollination of lifeforms and are anthropocentric. Ecosystem processes are thus the natural, biological cycles and interactions that produce ecosystem goods and services (Brown et al., 2007).

Recognizing the profound impact that sport and sport organizations can and do have on the natural environment, the purpose of this chapter is to examine the ways in which sport patrons, spectators, and organizations can replenish, contribute to, and sustain the ecosystem goods and services that have been strained, depleted, exploited, and, in some instances, eradicated and offer insights into countering the values, beliefs, and so on that maintain these impacts. Sport, a term and activity affiliated with health and well-being, has a profound reach that could create a great deal of positive change for the health and well-being of all life on Earth—plant and animal (e.g., Sartore-Baldwin & McCullough, 2018)—and the information provided here draws from the public health, justice, and sport literature to explore ways in which sport can help "protect,

restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss" (General Assembly, 2015, p. 14). By doing so, this chapter will also challenge the anthropocentrism inherent in these disciplines.

44.1 Theoretical foundations and constructs

44.1.1 Social-ecological systems

The social-ecological system perspective is guided by the notion that natural and social systems do not exist as separate entities (Berkes & Folke, 1992). The biosphere (i.e., the summation of the natural and social systems) exists as a dynamic global ecosystem that houses the lives of all living beings and the relationships among them. The social dimension of the biosphere refers to humans and human actions across a multitude of components (i.e., economic, cultural, and ecological; Folke et al., 2016). The natural or ecological component of the biosphere is comprised all other lifeforms. Accordingly, the social-ecological approach to examining and researching the biosphere highlights the interdependent relationships between humans, communities, cultures, economies, and so on at both local and global levels (Folke et al., 2016).

A great deal of social-ecological research has found that the profound planetary changes that have occurred over the last two centuries can be attributed to humans and human behaviors. Indeed, while researchers once focused on the natural environmental and geological changes that occur over time (i.e., the Holocene epoch), researchers have begun to examine these changes in relation to now view the role humans have played in the profound environmental, geological, and overall planetary changes of the past two centuries (i.e., Anthropocene epoch; Crutzen & Stoermer, 2000; Steffen et al., 2007). While specific individuals, groups, and communities cannot be identified as solely responsible for these changes, social-ecological research has demonstrated that the linkages between the social and ecological realms have produced a future that is not sustainable, nor equitable, for nearly all involved (Leach et al., 2018). Thus, the health of all parties is at stake.

44.1.2 Health, ecology, and equity

The definition of health varies by discipline. In general, however, health refers to the well-being and vitality of individuals, groups, and populations of humans and nonhuman animals with an emphasis on the former, not the latter (Rapport et al., 1998). Despite this anthropocentric view, however, without a healthy planet, no living entity can thrive and be healthy, thus demonstrating the need for social-ecological approaches to examining health across disciplines. Within these approaches, questions of fairness, right, wrong, and justice are inherent suggesting that critical inquiry is needed to examine, identify, and challenge unjust societal structures and institutions as well as the inequitable power relations within them (Buse et al., 2018). Perhaps more importantly, the interdependent relationships that exist among the health of animals, nonhuman animals, and the habitats in which they live need to be interrogated (Buse et al., 2018).

Several approaches have been employed to investigate the interconnections among humans, nonhuman animals, and the environment as they relate to health and disease, and both are primarily concerned with human processes and outcomes (Buse et al., 2018; Roger et al., 2016). One Health deals primarily with biomedical issues and questions related to zoonoses. EcoHealth focuses on the social-economic and environmental issues related to biodiversity

conservation and human well-being. While both approaches are concerned with the health and well-being of human beings first, and animals and their habitats second, the EcoHealth approach acknowledges the important linkages between living beings and their environments. EcoHealth is also based on the premise that humans cannot be healthy in an unhealthy environment.

EcoHealth is defined as the "systemic, participatory approaches to understanding and promoting health and wellbeing in the context of social and ecological interactions" (Waltner-Toews, 2009, p. 520). This ecological public health approach puts forward that "everything matters" when it comes to health and well-being (Morris, 2010). Kickbusch (1989) identified four principles of this approach: conviviality (i.e., care for the community of life), equity (i.e., justice), sustainability (i.e., ecological integrity), and global/shared responsibility. These principles provide the beginnings of a theoretical explanation of why and how to attain a more ecological approach to public health and highlight the importance of operating as a collective to attain a unified view of health that includes the cultural, social, physical, and biological (Buse et al., 2018). Perhaps most importantly, they explicitly address issues of equity related to nonhuman animals and natural habitats. Of particular use when adopting this approach is ecosocial theory (Krieger, 2001), a holistic approach that considers "every ecological scale and social context of which health is the product" (Buse et al., 2018, p. 422)

To date, there are very few works that examine sport, sport organizations, and the natural environment from a holistic perspective. While some works have claimed to do so, failure to acknowledge and integrate the health and well-being of nonhuman animals and their habitats into theoretical and practical discussions of ecosystems persists. Thus, borrowing from the public health literature and adopting the stance that every lifeform matters, the following sections provide deeper contextual understanding of the relationship between sport and all lifeforms within the natural environment.

44.1.3 Sport, social equity, and anthroparchy

Across all of the aforementioned public health models, there is an implicit focus on equity. Indeed, the topics of sustainability and equity cannot be addressed individually when examining social-ecological systems in anthropocentric cultures (Petrosillo et al., 2015). Rather, to identify the best paths forward that ensure safe, fair, and sustainable futures for all living beings, the interlinkages between the two must be explored. Recognizing this, the current equity issues within the sport context, as they relate to SDG 15, need to be identified and context provided. For example, anthroparchy has been identified as inherent in the structures of the sport and sport organization contexts (Sartore-Baldwin & McCullough, 2018, 2021). Cudworth (2005) refers to the institutions, processes, and practices through which these relationships exist as anthroparchic and suggests that species domination intersects with gender, race, ability, social class, and other socially constructed systems of dominance. Cudworth's (2005) conceptualization of anthroparchy differs from speciesism in that it describes a system of complex relations that establish human domination over the natural world, not just the ideological system of nonhuman animal oppression (i.e., speciesism).

Dominance is "a general descriptor for systemic relations of power that inhibit the potential of an individual organism, group, micro or macro landscape, to 'flourish'" (Cudworth, 2014, p. 28). Adopting this definition allows for a broad examination of how and why human domination of the environment and the nonhuman life housed within it varies in form and practice around the world. Thus, within dominant systems, specific types and practices of power that shape anthroparchy can be identified, as can the degree and amount of social

domination present. Calvo (2008) focuses on three primary types and practices of power that represent the different degrees of human domination: oppression, exploitation, and marginalization. Oppression refers to the extreme degrees to which humans apply dominatory power over other species. Exploitation refers to the use of animal materials and behaviors as a resource from which humans benefit. Marginalization is akin to anthropocentrism, as it refers to the rendering of species to the extreme periphery, thus making them nearly insignificant.

There are five primary areas of anthroparchic cultures: production, domestication, polity, violence, and anthropocentrism (Cudworth, 2011, 2014). Production refers to the relationships formed with nature as humans produce needed items such as food and fuel. Within the sport context, humans use natural resources, such as wood and animal hide, for the production of sport equipment, facilities, and venues. Likewise, nonhuman animals are used to create animal sport as a whole. Domestication and reproduction of plants and animals involves the breeding of plants and animals for specific purposes and can refer to the actual and symbolic beings that are safely domesticated or dangerously not. Plants and animals are domesticated and reproduced by humans for the specific purposes of sport participation and consumption. Racehorses are often selectively bred from championship bloodlines, for example, and specific types of grass are bred for the racetracks on which these horses will compete, as well as for golf courses and other sporting venues.

The third area, the political, involves the institutional entities that can create, perpetuate, and change systemic domination either directly or indirectly (Cudworth, 2014). While the safety and well-being of human athletes are of primary concern and regulated by governmental laws and organizational policies, the same is not ensured for animal athletes. Animal athletes have no voice and cannot report abuses and mistreatment. As a result, there is no assurance that the rules and regulations established to protect animal athletes, the likes of which are quite lacking, are being followed. In addition, the rules and regulations that do exist reinforce the use of animals as goods in the sport context. For example, the Professional Rodeo Cowboys Association (PRCA) has a list of 60 rules that are presumed to ensure the proper treatment of livestock in their competitions. While it is important that these rules focus on the welfare of the livestock, they fail to recognize animal athletes as possessing rights, cognitions, emotions, and so on. Thus, humans are dominant, as they determine what they believe to be what is best for these animal athletes and use animals to satisfy the interests of humans. The fourth area is systemic violence. Various forms and degrees of violence are used by humans to "control" animal athletes, as things like electric cattle prods, spurs, whips, and crops are all used to elicit desired behaviors. Animals are also killed and dismembered to make the aforementioned sport equipment (e.g., baseball gloves and saddles).

Within the sport context, the type of domination varies, as does the outcome (Cudworth, 2014). These types of dominance represent not only anthroparchy but also the importance of justice and equity within cultures that are human-centric, systematic, and emphasize the social dominance humans possess over all other living entities (Calvo, 2008). Namely, that justice and equity are rarely recognized for nonhuman living entities despite their required existence for sustaining human life (Leach et al., 2018). For example, the thoroughbred racehorse who has won the Triple Crown will experience domination differently than the Sumatran tiger, whose likeness is used as a school mascot. Similarly, the cow who was slaughtered to make burgers for sport spectators at the stadium will experience human domination differently than the Malamutes and Siberian huskies used for sled-dog racing. These distinctions are important to consider and can perhaps be better explained by further differentiating between animals used as sport participants and animals used as sport-related materials.

44.1.4 Nonhuman animal as participants

Morgan and Meier (1995) distinguish between three types of animal sport. The first emphasizes human athletic excellence and includes horse racing, polo, dressage, jumping, eventing, and certain rodeo events. The second type involves human athletic skill by pitting human against animal in events such as hunting, fishing, and bullfighting. The third type does not involve human athleticism but rather animal athletic prowess, and involves pitting animals against each other in deadly combat. Events within this third category include cockfighting, dog fighting, dog racing, and horse fighting. While the events and participants distinguish each type of animal sport, one commonality exists across all three—the animal athlete is not a voluntary participant. Indeed, animal sport is human-centric and produced through the use of coercion and violence between human and animal. The animal athletes have been domesticated and are often bred for the sole purpose of killing, fighting, racing, and so on. These activities are well established and often sanctioned through laws and other regulatory bodies.

While a complete historical review of the uses and abuses of animals within sport is beyond the scope of this chapter, the manner in which animals have come to serve humans within this context can be attributed to anthroparchal norms. The anthroparchal relations that constitute and reinforce these norms include marginalization, oppression, and exploitation. They coalesce with the intersection of capitalism, patriarchy, and social class to create and reinforce human dominance (Cudworth, 2011, 2014). The impact of these other structural inequalities is evident within the different types of sport that involve the use of animals. For example, while dog-fighting was common and accepted among royals and aristocrats during the 19th century, its modern existence is predominantly affiliated with the lower and middle classes (Evans et al., 1998). Thoroughbred horseracing, on the other hand, is predominately associated with the upper class and elite, as some racehorses are purchased for millions of dollars and, likewise, millions of dollars are placed on the outcome of the races in which horses compete. Conversely, dogs used for dogfighting may be acquired from local shelters or obtained online for little or no cost. While horseracing is legal, and to a large extent celebrated, dogfights are illegal and linked to nefarious activities like drug trafficking, homicide, rape, and illegal gambling (Forsyth & Evans, 1998).

Events like dog fighting and cockfighting also serve as an extension of masculinity, as men are the primary partakers of these events. The behaviors within the ring are traditionally masculine (Kalof & Taylor, 2007; Martin, 1984). The performance of these animals, good and bad, is viewed as a reflection of the owner, thus suggesting that, for example, the toughest, most aggressive dog will win and therefore be owned by the toughest, most aggressive man with high social standing (Evans et al., 1998; Kalof & Taylor, 2007). Hunting and hunting weaponry also possess gendered and sexualized associations, as they glorify masculine dominance through killing, violence, and the use of weapons (Kalof et al., 2004). Bowhunting in particular has been described as "manly, exciting, intimate, and—above all—*sexual*" (Kalof et al., 2004, p. 240). Further, the arrow itself has been described as a phallic symbol (Langness, 1974).

The aforementioned examples support the contention that sport is anthroparchal. Indeed, within sport, humans have formed relations with animals such that humans possess power over all other species and exert it through oppression, exploitation, and marginalization (Cudworth, 2011). While the effects of these relations vary as a result of other structural inequalities (e.g., patriarchy), the fundamental point is that sport exists as a system of human domination over animals and nature. This domination is not only evident within animal sport where animals are forced to be participants, but also through the use of animal-based products, materials, and items within the sport context.

44.1.5 Nonhuman animals as materials and items

Animal body parts are used as sport equipment, their bodies are used to feed spectators at sporting events, and their likenesses and caricatures are used to represent teams (i.e., mascots). Thus, animals have prominent roles in the sport experience even when not being forced to participate—that of consumption and profit generation. For instance, cowhide from an estimated 3,000 cows is used to supply the National Football League with enough footballs for one season (Yurcaba, 2015). According to the National Hot Dog & Sausage Council, an estimated 21.4 million hot dogs were consumed across all Major League Baseball venues during 2014. In 2015, an estimated 18.5 million hot dogs were consumed at MLB venues. According to the National Chicken Council, 1.3 million chicken wings, weighing 162.5 million pounds, were consumed during the 2016 Super Bowl matchup between the Carolina Panthers and the Denver Broncos. While the number of animals who lost their lives is not known for these and other consumptive statistics, the sheer volume of the animal products consumed suggests that billions of animals perish to feed and supply sport fans each year.

There are a few cruelty-free options for sport equipment to date, but no sport franchise has adopted the use of these goods. However, some sport franchises and venues have taken measures to address the current level of meat consumption within the United States, as the production of meat and other animal-based products is a primary contributor to climate change (Hedenus et al., 2014). Some examples include Capital One Field at Maryland Stadium (formerly Byrd Stadium), the home of the University of Maryland Terrapins. It now offers vegan and vegetarian options such as hummus, veggie dogs, fresh fruit cups, and "byrd" salad. Several National Football League stadiums also offer a variety of vegan and vegetarian options. Lincoln Financial Field, home of the Philadelphia Eagles, offers options such as black bean burgers, veggie tacos, and breaded eggplant hoagies to their non-meat eating patrons. Further, some notable athletes (e.g., Joe Namath, Venus Williams, and ultramarathon runner Vlad Ixel) have also promoted their own vegetarian and vegan diets with the intent of advocating for animals and the planet.

The production and consumption of meat is not only harmful to the planet, but it is associated with manhood, power, virility and is thus, a symbol of patriarchy (Adams, 1990; Hedenus et al., 2014). Within sport, a male-dominated domain (see Messner, 1992), patriarchy impacts human domination over other species in three primary ways. First, the hunting and killing of animals for meat is a way in which humans, primarily men, assert their power over nature and other species (Kalof et al., 2004). Second, the consumption of meat by sport spectators, as mentioned previously, is not only excessive but also historically synonymous with the male sport experience (Brady & Ventresca, 2014). Lastly, the belief that protein obtained from meat is needed to gain strength and muscle has normalized the consumption of meat as a necessity for athletes, particularly male athletes (McGann, 2004). These connections between masculinity and meat within sport are difficult to challenge, as they are deeply rooted in sport's masculine culture. There have been instances, however, whereby traditionally masculine athletes like NFL linebacker Arian Foster have adopted a vegan diet and maintained their athletic prowess. Interestingly, Foster's "decision" to become vegan was received with both gendered and racialized commentary within the popular press (Brady & Ventresca, 2014), suggesting that the media is perhaps the primary perpetuator of many anthroparchical norms.

Another way in which animals serve humans in the sport context is by representing sport teams as mascots. The selection of an animal for a mascot is based upon the characteristics of the animal and the belief that the representation of the animal will bring luck (Slowikowski, 1993). Animals chosen to represent a sport team are selected on the basis of presumed aggressive and

vicious tendencies or because they represent honor at a larger level (Sloveno, 1994). While there are some exceptions, docile animals are not typically selected as mascots. The connection established between fans and their mascot can be incredibly powerful, as it can influence emotions, attitudes, and behaviors (Callais, 2010). Mascots are used to generate revenue, yet rarely, if ever, do the animals whose likenesses are being used receive any monetary assistance. In fact, in most instances, little-to-no effort is made to preserve and enhance the livelihood, conditions, and experiences of the animals that mascots represent, nor are fans aware of the plight that endangered animal mascots suffer (cf. Baltz & Ratnaswamy, 2000).

44.1.6 The three Ds: degradation, desertification, and deforestation

The term anthroparchy refers to human domination of all nonhuman nature (i.e., the environment; Cudworth, 2005). Thus, nonhuman animals are dominated, as are plant species. The impacts of this domination are generally reflected through simplified metaphors like ecological or carbon footprint that communicate the extent to which one's actions impact the natural environment. What these indicators lack, however, is the acknowledgment that nature also possesses intrinsic value. Nature can be defined as "the physical and biological world not manufactured by people" (Sandifer et al., 2015, p. 2) and is primarily valued in two, often conflicting, ways—intrinsically and instrumentally. The instrumental value of nature relates to the value that humans assign to and the benefits received from ecosystems, or communities, in which all living and nonliving entities are linked (Pelenic et al., 2013). Intrinsic value refers to valuing something for its inherent worth (Pelenic et al., 2013). Humans are an integral component of ecosystems and almost entirely dependent upon nature for survival, yet often fail to recognize the intrinsic value of the natural world. Thus, we continue to use footprint indicators as environmental sustainability.

Sport's ecological footprint represents the impact of its operations, functions, and outcomes on the natural environment (Casper & Pfahl, 2015). Take, for example, a sporting mega-event in which millions of fans attend. While some spectators may rely on public transportation, depending on location and availability, many of the spectators fly long distances or drive their cars to and from the venue. The carbon emissions from these forms of transportation can and do rival those of a small country (Goldblatt, 2020). The event itself also requires the use of a great deal of energy as well as produces a large amount of waste. Food and non-food items are produced and transported in massive quantities, the likes of which often end up as garbage. In some areas, this mass production of waste adds to already unmanageable amounts of trash and pollution. For example, at the 2016 Olympic and Paralympic Games in Rio, the already polluted waters of Guanabara Bay were the venue for several sporting events. An estimated 10,000 liters of polluted wastewater and 90 tons of floating waste contaminated the bay resulting in toxic water that had the potential to sicken event participants (Mavropoulos, 2016). These alarming levels of pollution increased as a result of the Games taking place. A longstanding problem due to Brazil's fractured infrastructure, the impact of this pollution on the natural habitats surrounding the bay and the living beings within these habitats has been disastrous (Fischer et al., 2015).

It should be noted that during the Rio Olympic Games, the organizing committee did implement many of the suggested practices to reduce waste and carbon emissions, but efforts to recover the integrity of the bay are ongoing (Alves Martins et al., 2020; Fischer et al., 2015). It could be argued that, should the 2016 Games not have been held in Rio, efforts would be further than they currently are. Because the instrumental value of the environment was considered in the decisions of the organizing committee and the IOC and not the intrinsic value,

the ecosystem continues to struggle. While not typical to consider intrinsic value when making global decisions, organizations can opt to do so and have profound impacts as a result.

Taken together, the examples used in explaining animal sport, the use of animals and animal products within sport, and the degradation of natural habitats exemplify anthroparchy. Further, they suggest a profound need to better understand sport's anthroparchal culture. This is particularly true with regard to the issues of sport-related sustainability and sustainable development, which, to date, have lacked any focus on interspecies equity. The next chapter offers suggestions for researchers and practitioners to integrate the interests of all species and natural habits into discussions of sustainability by merging the models that focus on the health, wellbeing, rights, wants, and needs of the natural environment within the sport context.

44.2 Conclusion

The purpose of this chapter was to introduce and define SDG 15 within the sport context. More specifically, the purpose was to highlight the importance of sustaining all lifeforms on Earth to sport researchers, practitioners, and even spectators so that sport and sport organizations can help "protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss" (General Assembly, 2015, p. 14). Borrowing models from the public health, justice, and sport management disciplines, sport and sport organizations were identified as part of an anthroparchic social-ecological system that has failed to address the needs of nonhuman animals and the habitats in which they live when implementing sustainability efforts, interventions, and practices. By employing the systems thinking paradigm to this issue, the root of this failure was identified and suggestions for changed offered.

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Measuring Sustainable Development Goal 15

Melanie Sartore-Baldwin

The purpose of United Nations Sustainable Development Goal 15 is to "protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss" (General Assembly, 2015, p. 14). Thus, the goal itself is to improve the health of the natural environment and all its inhabitants—human and nonhuman. Indeed, the reciprocal relationship between the health of the environment and the health of its inhabitants is becoming increasingly recognized (Coutts et al., 2014). As such, individual, community, organizational, and institutional practices have become informed by the needs of the environment (e.g., Hoffman & Jennings, 2015). One could argue that the natural environment is the primary stakeholder of sport organizations because, as inhabitants, humans have a vested interest in maintaining a stable living environment in which to enjoy sport (Mallen & Chard, 2011). Some action has been taken by sport organizations to address the increasing stresses placed on the planet, but these actions are primarily reactive in nature and seek to establish legitimacy and competitive advantage (Babiak & Trendafilova, 2011; Trendafilova et al., 2014). Thus, they do not address the underlying systemic structures and mental models that promote the excessive consumption and exploitation of Earth's natural resources. Sartore–Baldwin and McCullough (2018) address this shortcoming in their conceptual model of ecocentric management practices, the components of which are congruent with the EcoHealth and ecological public health research approaches. As such, an integrated model of these components is presented below.

45.1 Public health, sport, and SDG 15

As mentioned in the previous chapter, EcoHealth is defined as the "systemic, participatory approaches to understanding and promoting health and wellbeing in the context of social and ecological interactions" (Waltner–Toews, 2009, p. 520). Within this definition, five vital elements can be identified (Dakubo, 2010). First, there is an emphasis placed on human and ecosystem health and the connections between the two. Importantly, however, and despite the notion of equal importance, this approach, as well as other integrative approaches, remains inherently anthropocentric (Assmuth et al., 2020). The second vital element is an emphasis on the linkages between health at various levels, most notably macro and micro–levels. Inherent in

this element is the recognition that the summation of each component or level of ecosystem health comprises a larger and hierarchically complex system. The third element highlights that differences in societal power that can adversely impact some social groups more than others. As an example, cultural meanings associated with race and gender can shape one's relationship with the environment and, in turn, one's health and well-being (Dakubo, 2010). The fourth element identifies the importance of participation from stakeholders at all levels. Similarly, the fifth element highlights the vital need for shared interventions prompted by a transdisciplinary examination and understanding of ecosystem health.

The key elements presented by Dakubo (2010) identify a level of complexity that is inherent in the presence of ecosystems. To better understand these elements, Charron (2012) identifies six principles of EcoHealth research: systems thinking, transdisciplinary research, multistakeholder participation, sustainability, gender, and social equity, and knowledge to action. As Lisitza and Wolbring (2018) point out, each one of these principles is linked to a larger discussion of social justice. While social justice in this context is typically associated with the rights of humans, the rights of nonhuman animals and their habitats should also be considered.

45.1.1 Systems thinking

Systems thinking is an integral component of both the public research approach to ecosystems and the ecocentric management practices model presented by Sartore-Baldwin and McCullough (2018). Systems thinking (ST) is an abstract yet structured, cognitive endeavor in which the focus lies on the relationship between the whole, its parts, and the spaces in between (Cabrera et al., 2008). One of the most common tools employed within systems thinking is Maani and Cavana's (2007) four levels of thinking model. Visualized as an iceberg, this model identifies the different ways in which humans interact with the world around them. The first level is termed the *events* level and is represented by the visible tip of the iceberg. At this level, people notice and become aware of some kind of change that has occurred locally, nationally, or globally. Within organizations, managers tend to respond to this level in a reactive manner and fail to recognize that events are almost certainly symptoms of deeper issues. Thus, quick fixes are put into place, but because the root cause has not been identified, events reoccur and reemerge.

The submerged portion of Maani and Cavana's figurative iceberg represents the remaining levels of the model. *Patterns*, the next level of thinking, are just below the surface of the water, indicating that they are linked to events. The result of repeatedly occurring sets of events (i.e., data points) that can be linked together, patterns demonstrate change across time. The next level, *systemic structures*, represents a deep level of thinking in which the interaction between patterns and trends is examined for causal relationships. It is also at this level that relationships between components of the system are revealed as inhibitive, restrictive, or supportive. The deepest level of thinking is the level in which the reason for why things work the way they do is explained. Specifically, the *mental model* level represents the values, beliefs, and assumptions that form the basis from which we do the things we do. This level of thinking influences the design of system structures, rules for behavior, and how individuals go about their daily lives.

The application of systems thinking and Maani and Cavana's four levels of thinking model to the sport context are best explained with an example. In March 2014, the National Wildlife Federation (NWF) released a report entitled, *Mascot Madness: How Climate Change is Hurting School Spirit*. This report detailed how the effects of climate change are adversely impacting the fate of mascots that represent schools like the University of Florida (Gators), Kansas State University (Wildcats), the University of Memphis (Tigers), and even The Ohio State

University (Buckeyes). Things like extreme weather, warming temperatures, rising sea levels, and extreme droughts have put the long-term survival of mascots like the University of North Carolina's ram, Baylor University's bear, the University of Michigan's wolverine, and Syracuse University's orange into question. Thus the *events* indicating the changing of the Earth's climate suggest a relationship between the survival of some sport team mascots; however, these events are indicative of something much larger.

The long-term trends and *patterns* of mascots being negatively impacted by planetary changes are associated with increased consumption of the Earth's natural resources and the inability of nature to keep up with human demand. Likewise, excessive consumption can be identified as at least partially responsible for shaping the sustainability and environmentally conscious practices of organizations in general, and sport organizations in particular. Specifically, in response to dwindling natural resources, sport organizations across the world have instituted environmental sustainability initiatives with the intent of reducing their impact on the planet (Trendafilova et al., 2014). Governmental policies and social pressures to protect the Earth's environment have guided these efforts. The policies and pressures represent *systemic structures* that promote the tenets of environmental justice. The belief systems from which these systemic structures, trends, and events stem associate the use of natural resources with human needs, wants, and motives. Thus, the guiding beliefs and *mental models* behind sustainability initiatives are anthropocentric (i.e., human-centered) and rarely, if ever, address the issue of ecological justice.

The use of systems thinking to understand social-ecological systems allows for humans to be seen as one component of an ecosystem that both shapes and depends upon it. By employing systems thinking through the four levels of thinking model to the issues of climate change and sport mascots, a more thorough insight into the issues and their causes can be explored. Specifically, because a holistic approach is used to identify the events, patterns, and systemic structures surrounding the issues, the underlying, contextually pertinent beliefs upon which the issues are based can also be identified. In the example provided above, the underlying beliefs that have led to the threatened existence of multiple components of the natural environment can be discussed in terms of the predominant values society holds. More specifically, the underlying beliefs of anthropocentrism (i.e., human-centeredness) present within organizations, in general, and sport organizations, in particular, highlight the ways in which contemporary organizational practices fail to look beyond the interests of humans (Shrivastava, 1995).

45.1.2 Shared responsibility, transdisciplinary research, and multi-stakeholder participation

A vital component to the ecological public health approach is recognizing responsibility at the global level (Bentley, 2014). Similarly, Sartore-Baldwin and McCullough (2018) posed that shared responsibility is needed to create more ecologically just sport organizations. Shared responsibility refers to the level of responsibility entities have because they are connected to an issue. As Young (2006) noted, this type of responsibility stems from "belonging together with others in a system of interdependent processes of cooperation and competition" (p. 119). Schrempf's (2014) conceptualization of shared responsibility within the business industry is explained by the social connection approach to corporate responsibility. This approach, heavily influenced by Young's (2004, 2006, 2011) work on global justice, encourages industries and organizations to look beyond specific consequences of business activities and consider broader implications related to larger societal issues that are systemic in nature. Therefore, by incorporating the ideals of shared responsibility into the discussion of the public health literature

that emphasizes the importance of transdisciplinarity and multi-stakeholder participation when creating change, additional insights can be gained.

In essence, transdisciplinarity and participation are the active responses to recognizing and accepting one's shared responsibility. Transdisciplinarity research, in this work, refers to the process through which researchers, practitioners, and stakeholders participate in the knowledge production processes (Polk, 2015). Transdisciplinary research is inherently participatory and, when focused on real-life problems, can result in the co-production of knowledge meant to address these problems from multiple vantage points. Thus, rather than identifying any party as a consultant or advisor, research activities are carried out collaboratively in a setting that "is both embedded in and insulated from both research and practice proper" (Polk, 2015, p. 111) because of the collective responsibility of all parties to address the problem of interest. As a result, knowledge is collaboratively produced.

Polk (2015) identifies five focal areas, three research phases, and three research strategies when adopting this transdisciplinary co-production of knowledge approach. The focal areas include involving multiple stakeholders in the entire knowledge production process (i.e., inclusion), developing in-depth contributions from stakeholders within both research and practice (i.e., collaboration), sufficiently and accurately defining the problem being examined through the insights of various stakeholders (i.e., integration), developing assessment and reflective processes through which outcomes can be examined (usability), and allowing ongoing inquiry of choices being made throughout the entire process (i.e., reflexivity). The research processes include formulating, generating, and evaluating the problem, project design, data, findings, and implications. All of these foci and research processes work together to produce the most open, inclusive, collaborative, and transdisciplinary useful knowledge for all involved (Polk, 2015). Ideally, this information would be transformed into policies, practices, and laws aimed at addressing a global issue from multiple vantage points. Further, this information can be used to challenge structural injustices that exist in underlying systemic structures and mental models (Marshall et al., 2018).

45.1.3 Equity-based sustainability and earth jurisprudence

While implementing international laws heavily influenced by the needs of the planet would be ideal in generating local ecocentric laws and organizational practices, but there lacks any identifiable initiative to do so. This lack of initiative, however, offers sport organizations an opportunity to be at the forefront of influencing global change. Thus, rather than adopting laws and principles that are exclusively focused on the needs of humans, governance would focus on the needs of the planet at large and all of its inhabitants, not just humans (Koons, 2009). At the global level, this can be approached by adopting the tenets of Earth jurisprudence. Earth jurisprudence is a systems-based, justice-based, legal theory that puts planetary needs above all others. As such, nature and all it encompasses should be granted legal consideration because of their intrinsic value and necessity in ecosystem and planetary functioning. Simply put, laws and policies should be based on the relationship humans have with the Earth, not what humans can take from it.

Within organizations, sustainable development is typically interpreted as a way to address present and future human needs. However, the importance of biodiversity has been the focus for some. Approaching sustainable development as an issue of social and environmental justice, Haughton (1999) identifies five interconnected equity-based principles that guide the process of sustainability development. The first two principles, intergenerational equity or futurity and intragenerational equity refer to establishing better equity across and within generations,

respectively. Specifically, intergenerational equity is concerned with the distribution of re-sources from one generation to another, and intragenerational equity is concerned with the processes by which resources are distributed within the current generation. The third principle, geographical equity, involves considering the impact of local decisions and actions at the global level. Haughton also refers to this as transfrontier responsibility. The fourth principle, proce-dural equity, also discussed as the participation principle, focuses on the right of access to information for all parties impacted by negative environmental impacts. The fifth and final principle, inter-species equity, "places the survival of other species on an equal basis to the survival of humans" (p. 236) and emphasizes the importance of preserving ecosystems and retaining biodiversity.

While Haughton's (1999) equity principles are not mutually exclusive from one another, sustainability's human-centered history has led some principles to receive a great deal more of attention and action than others. Adopting an equity-based perspective, however, does require that the interests of all are incorporated, not just those of humans. As Earnshaw (1999) notes, the anthropocentric approach to the traditional concepts of sustainability and sustainable de-velopment promotes the exploitation of resources for the sole purpose of maintaining human quality of life. Earnshaw refers to conventional sustainability as exploitation-based sustainability because it "regards all living and non-living systems other than the human species as means by which to maximize wealth" (p. 116). Exploitation-based sustainability thus views the Earth, its ecosystems, and the nonhuman animals within them as natural, renewable resources for humans to use as they see fit while seeking a way to ensure that future generations can use them to suit their own needs.

In contrast to anthropocentric sustainability and sustainable development, an ecocentric approach recognizes the importance of protecting the health of Earth's ecosystems and all living entities housed within them (Imran et al., 2014). From this perspective, nonhuman beings have no less right to life than humans, and as such, sustainability involves the equitable protection of all life. Thus, rather than viewing ecosystems, nonhuman animals, and the environment as resources and objects needed to fulfill the needs of the current and future generations, these entities are considered subjects whose needs must also be met to ensure survival (Imran et al., 2014). Adopting an ecocentric perspective, Earnshaw (1999) identifies the necessity to tran-sition from the traditional exploitation-based sustainability approach to an equity-based sustainability approach. Focusing specifically on interspecies equity, Earnshaw points out that nonhuman animals value many of the same fundamental rights that humans possess. For ex-ample, just as humans value life, liberty, and the pursuit of happiness, so too do animals value their lives, their freedom, and their friendships and families. Further, animals also wish to live free from harm, fear, and exploitation (Broom, 2016; Veenhoven, 2000). Thus, while not identical to humans, nonhuman animals experience and enjoy their own quality of life and wish not to suffer physically, emotionally, and psychologically (Earnshaw, 1999).

While a great deal of research affirms that nonhuman animals are sentient creatures (see Duncan, 2006), there exists reluctance by some to believe or accept that animals possess awareness, emotions, cognition, and senses. This latter perspective is the result of ideological belief systems that have hierarchically placed humans above all other living beings. For some, this belief system is rooted in cultural and religious beliefs, while for others, the use and abuse of nonhuman animals is financially driven and legally maintained (Francione, 1996). Regardless of its manifestation, however, this ideology or "set of socially shared beliefs that legitimates an existing or desired social order" (Nibert, 2003, p. 8) represents speciesism, a system akin to sexism, racism, ethnocentrism, and so on (Gruen, 2009).

45.1.4 Knowledge to action and leverage points

A shift in perspective and thinking is necessary to study and assess sustainability within the ever-changing context of social-ecological systems (Ludwig et al., 2001). Indeed, Buse et al. (2018) identify the need to relearn or unlearn deeply ingrained dominant narratives, beliefs, ideals, and an assumption so that power structures can be identified and dismantled. In systems thinking terminology, these processes equate to dismantling or expanding current mental models. Indeed, mental models must be greatly challenged and changed if the targets of SDG 15 are going to be met. While not a small undertaking, it is possible with the use of resilience thinking. Resilience thinking can exist as an additional layer to systems thinking that focuses on responding to the vulnerability of social-ecological systems to disturbances (Berkes, 2007; Holling, 1973). Vulnerability, in this context, refers to the likelihood that a social-ecological system will experience harm due to some event, threat, hazard, or stressor (Turner et al., 2003). As the result of this vulnerability, social-ecological systems must learn to build resilience in response to ever-changing conditions and not rely on maintaining the status quo (Holling, 2001). Implicit in this response is the necessity to consider social well-being (Armitage et al., 2012).

Whereas a great deal of research has adopted the systems and resilience thinking approach to examining the issue of global sustainability, little achievement has been made. Casarejos (2020) suggests that perhaps this is the result of failing to challenge the "ingrained social values, perspectives, and habits that deter regenerative changes at both the individual and collective levels" (p. 3). Indeed, for long-term change to occur, events must be understood as aspects of larger trends, and trends must be understood as indicative of underlying systemic structures and mental models (Maani & Cavana, 2007). Specifically, Casarejos asserts the necessity of acknowledging and celebrating nature and all of its complexity and all levels. One way of doing this is by seeking out leverage points. Through extensive scrutinization, leverage points can be identified and used as places to create small changes that may subsequently result in larger, systemic changes (Casarejos, 2020; Meadows, 2008).

Abson et al. (2017) suggest three realms of leverage points that can be used to create interventions that will transform sustainability such that system change has been made. The first realm, reconnecting people with nature, involves informing people of the value of the natural world through their perceptions and interactions—specifically, identifying human dependency on the natural environment to live a good life. The second realm, restructuring institutions, involves challenging institutions as well as institutionalization. Institutionalization refers to the ways in which organizations unquestionably accept "the way things are done" (Scott, 1987 p. 505). The third realm, rethinking knowledge production and use, involves examining and rerouting knowledge content and flow within systems in relation to sustainable transformation goals. These three realms are not mutually exclusive from one another, despite being presented individually. The interactions among them are also important for creating transformational change.

The realms identified by Abson et al. (2017) are perhaps best understood in the sport context through the use of an example. In 2019, Marco Lambertini, the Director General of the World Wildlife Foundation (WWF) and International Union for Conservation of Nature member (IUCN), wrote an open letter to members of the IUCN detailing the interdependent relationship between sport and the natural environment. In this letter, Lambertini (2019) points out that nature is the foundation for sport, and in many instances, it even represents the stadiums in which sport takes place. While fairly intuitive, this connection with nature is not often articulated among sport fans and athletes or within sport organizations. As Abson et al. (2017)

suggest, however, making this relationship more explicit (i.e., [re]connecting patrons with nature) has the potential to create change. For example, sport teams with team mascots that are endangered species animals could help these species by connecting sport fans with information about both their plight and ways to subsequently help. Research has demonstrated that once sport fans are aware of these issues, they are motivated to both learn more and take action to help (Baltz & Ratnaswamy, 2000; Sartore-Baldwin & McCullough, 2019).

The second realm, challenging institutions, and institutionalization, requires structural change within sport organizations (Abson et al., 2017). One way that this can be accomplished is by incorporating the mission of other organizations into the mission of sport organizations. For example, the International Olympic Committee recently released guidelines called "Sustainability Management in Sports" as part of their Sustainability Essentials series. The intent of this document was to provide guidance to sport organizations such that a focus on environmental sustainability is incorporated into the purpose, mission, and actions of these organizations and become established as "business as usual" practice (International Olympic Committee, 2020). Inherent in this guide is also the intent of challenging how things have traditionally been done (i.e., institutional norms). The third realm, questioning existing knowledge within sport organizations, can be accomplished by acknowledging the importance of varied sources of information and subsequently seeking out these sources for the purposes of collaboration. For example, Lambertini (2019) credits the two-decade-long relationship between the WWF and the IOC for enhanced sustainability at the London 2012 Olympic and Paralympic Games. Collaborations occur at the community and local levels as well, as evidenced by NASCAR's partnering efforts with venue-specific organizations to include renewable energies and efficient energy use into their organizational practices (NASCAR, n.d.).

The leverage points identified by Abson and colleagues (2017) represent identifiable and reasonable starting points for creating systemic change. As components of resilience thinking, leverage points are crucial for transformation and sustainability. However, just as social-ecological systems continuously adapt, so too do leverage points; thus, scrutiny is important (Casarejos, 2020). Leverage points themselves possess different characteristics, the likes of which characterize them as shallow and deep (Meadows, 2008). The realms identified by Abson et al. (2017) are particularly important because of their deep nature and the subsequent impact on organizations. Indeed, the integration of creating institutional change, (re)establishing connections to nature, and producing and using new knowledge forms presents exciting potential for change. Further, and most importantly for SDG 15, they have a profound potential to deconstruct the anthroparchic mental models that continue to halt change within sport organizations.

45.2 Measuring SDG 15 in sport

Indeed, the aforementioned suggested leverage points provide organizations with a blueprint that can be used to meet many of the SDGs, including SDG 15 and its targets. Across all of the 17 SDGs, there are 167 targets and over 300 indicators identified. For SDG 15 alone, there are 12 targets and 14 indicators for SDG 15, but this does not mean that outcomes related to SDG 15 are mutually exclusive from outcomes related to other SDGs. Further, and as noted by Costanza et al. (2016), measuring sustainability outcomes is done after the fact and is thus "a prediction of which characteristics of the system might ultimately be sustainable" (p. 350). Simply put, measurement mechanisms and indexes are quite complex and complicated and thus are typically examined aggregately. Historically, the most common aggregate indicator used is a country's gross domestic product (GDP) because of the assumption that it is a representative of

societal well-being (Costanza et al., 2014). Over time, however, alternative measures have been developed to better reflect the needs and well-being of the planet and its inhabitants.

Costanza and colleagues (Costanza et al., 2016, 2018) have identified three broad categories of contemporary aggregate measures. The first category involves including social and environmental factors into economic measures. The second category is subjective in nature and relies upon well-being data collected through surveys. The third category uses weighted well-being indicators such as life expectancy and housing. Numerous models have been developed in each of these categories as well as across them. These latter models are hybrid in that they assess societal well-being from three vantage points—economically, socially, and environmentally (Costanza et al., 2016). Further, they are not linear models but rather systems-based models that prioritize a "shared wellbeing on a healthy planet" (Costanza et al., 2018, para. 8). To accomplish this, nations, institutions, and organizations espousing these models adhere to practices and policies that respect planetary boundaries, meet the needs of humans and nonhumans, emphasize fair distribution of resources, and operate within larger governing systems that are just and responsive. Further, they recognize the shared responsibility sport and sport organizations have in keeping the planet habitable and finding ways for all lifeforms to live free from harm (Sartore-Baldwin & McCullough, 2018).

Sport organizations like Adidas recognize their responsibility and, as a result, have shaped their sustainability efforts to reflect sustainable futures for economic good, planetary good, and the good of all lives on Earth. This holistic approach includes innovations, measurable goals, and subsequent milestones that document how their efforts have been effective. To the extent that a single sport organization can serve as an exemplar, other sport organizations may follow suit (Orr et al., 2020; Sartore-Baldwin & McCullough, 2018). Further, the more that sport organizations follow suit may ultimately result in the creation of a more socially and environmentally conscious consumer culture, thus creating a cyclical relationship in which consumers expect organizations to operate in an ecologically just manner.

45.3 Conclusion

The purpose of this chapter was to provide a model that integrates sport and sport organizations into the larger discussion of planetary health and well-being. Borrowing models from the public health, justice, and sport management disciplines, sport and sport organizations were identified as part of an anthroparchic social-ecological system that has failed to address the needs of nonhuman animals and the habitats in which they live when implementing sustainability efforts, interventions, and practices. By employing the systems thinking paradigm to this issue, the root of this failure was identified, and suggestions for changes offered. Further, a blueprint for the implementation and measurement of SDG 15 was provided.

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Applying Sustainable Development Goal 15

Hugh Webster and Lesley McNutt

Abson et al. (2017) highlight the importance of reconnecting people with nature—elucidating both the material and intrinsic value of the natural world to explain human dependency on the environment—as a key to leveraging sustainable development targets. Coaching Conservation (CC) focuses on the advantages inherent to sport and play to encourage an appreciation of these connections. Sport-based education programs for sustainable development promote values linked to fair play, gender equality, teamwork, and health and compare favorably with more passive learning techniques.

Since 2003, CC has been developing a unique program that utilizes the fun and participatory nature of sport to foster enthusiasm and empathy for wildlife. CC then harnesses this emotional connection to encourage awareness of and concern for the challenges that wildlife faces, with a clear focus on issues relevant to participants' communities and the animals they share space with.

The CC program is based on the principle that behavior may be shaped by a combination of knowledge ("problem awareness") and attitudes (including the perception of personal control and responsibility), albeit subject to various other complicating factors (e.g., economic, social, and cultural normative pressures). Indeed, the influence of a number of these external influences undermined CC's early efforts to deliver a program of education for sustainable development among adults in rural communities in northern Botswana.

These problems prompted CC's switch to a focus on youth, specifically on students passing through Grades 5, 6, and 7 (i.e., children aged 11–13 years old). Today, CC attempts to reach the entire cohort at Grades 5 and 6 within participating communities before a smaller number of selected students are offered entry into our "ambassador" program in Year 7.

This approach is supported by other programs reporting interventions that most effectively improve environmental behavior actively involve young participants. Children in this age range are old enough to understand the complexities and significance of environmental issues and yet remain young enough that they are still forming their own worldview.

CC is currently operational in Botswana and South Africa, with programs focused among poor communities adjoining National Parks and other Wildlife Management Areas (WMAs). Here, human–wildlife conflict is typically intense, education provision is often weakest, and any increase in environmental awareness is likely to deliver the greatest gains for community development and conservation.

Within these areas, specially trained CC staff (recruited from among the communities in which they work) teach children about wildlife using CC's "Learning from Wildlife" model. Selected native species (characteristic of that region) are utilized as charismatic "coaches"—animal mentors chosen to exemplify particular skill sets—with participants first introduced to these animals in a brief "MEET the animal" talk, sufficient only to transfer enough knowledge to inform the activities which follow.

In the subsequent "BE the animal" session, participants are engaged in fun activities that demonstrate the "skills" of their animal coach. In CC's flagship six-week program, a hierarchy of basic soccer skills is linked to different animals' unique adaptations, which learners discover during their participation in a succession of drills, games, and activities. In every program, CC's animal mentors serve to both inform and enthuse participants about wildlife, with each animal modeling specific characteristics that children are encouraged to reproduce and emulate, first on the sports field and later in their day-to-day lives.

Thus, children might be challenged to participate in a soccer drill that encourages them to exhibit speed and balance like a cheetah or to change direction like a black rhino. They are then asked to imagine how they might usefully employ these same skills in their everyday lives, perhaps by finding a more sustainable balance in their lifestyle choices or simply displaying the agility required to change direction when they find themselves on the wrong path. For example, one CC participant made the following connection:

> At CC, we played football in a kind of way that we learned about wild dogs. It was about teamwork and how they work together as a team and succeed as a team. We were learning something from the wild dogs.

Soccer is especially suitable for this task. The world's favorite game is enjoyed by boys and girls, has low set-up costs and few barriers to accessibility, while it generates valuable teaching and learning opportunities. Soccer activities can create a culture of respect—a core theme underpinning the CC program—and help participants develop important transferable social skills, including cooperation, communication and collaboration, responsibility, personal commitment, and discipline.

The aim of these activities is not just to spread knowledge about wildlife, but more importantly, to inspire an *emotional response* that may ultimately generate the concern needed to motivate pro-environmental behavior. CC understands that people will only strive to protect what they care about—what they are emotionally connected to—and by encouraging participants to ape their animal coaches in a process of motor-mimicry, CC seeks to generate a form of "hot empathy" whereby participants assume the sensory, motor, physiological, and affective states of animals to achieve a degree of "self-other overlap."

In the concluding "HELP the animal" phase, CC participants are engaged in activities that illustrate some of the conservation challenges faced by the same animal coaches with which they have recently developed this emotional connection. For example, games relating to rhinos highlight issues with poaching, with staff using this time to guide participants on how they can undertake specific actions to help mitigate the conservation challenges faced by their animal mentors.

Well-documented gaps can sometimes arise between knowledge transfer and hoped-for behavioral changes, with inconsistencies observed between verbal commitments to act (intentions) and realized pro-environmental behavior. CC seeks to bridge this gap by guiding the application of newly acquired environmental knowledge toward specific, achievable actions. This reflects CC's experience that the most efficacious environmental knowledge transfer stimulates emotional engagement while also guiding actions that recipients can take in their own

lives. Conversely, uncertainty about translating knowledge into meaningful action can result in a decline in participants' interest, and motivation dissipates fairly rapidly.

CC's "Learning from Wildlife" model aims to emphasize our commonality with other animals and our mutual interdependence. CC devotes particular attention to the concept of a shared environment, with activities intended to promote a culture of coexistence through an exploration of those survival needs (e.g., food, water, shelter, and space) that are shared by both humans and wild animals, using real-world examples to reveal how we are all connected.

Eighty-five percent of participants who have completed a CC program either agree or strongly agree with the statement: "I often feel connected with plants and animals." Additionally, 77% of surveyed participants subsequently agree or strongly agree that "without animals they would not be as happy as they currently are."

Children who have attended a CC program are further encouraged to share their newly acquired knowledge with their parents, relatives, and friends, becoming agents of change and peer educators in their own right, and providing a route into the "ground floor" of communities, thereby raising wider awareness about the value of their shared environmental heritage and facilitating attitudinal changes in older generations, too.

CC's methodology thus attempts to overcome some of the barriers to pro-environmental behavior and foster increased enthusiasm for, appreciation of, and empathy with wildlife and the natural environment, inspiring young people and helping them become ambassadors for change within their communities.

CC addresses the need for children to have a more intuitive relationship with the natural world for them to become responsible national and global citizens, subtly blending knowledge acquisition into games, skills, drills, songs, and activities in a way that empowers children to work together and adopt healthy core values, while motivating them to seek ways to enact pro-environmental behavior. The program's core respect messages are also easily memorized in a group cheer that the children enjoy chanting together: "Respect yourself (clap, clap, clap); Respect each other (clap, clap clap); Respect your en-vi-ron-ment, yeah!"

Furthermore, CC's programs are not exclusively based on soccer. Responding to demand, CC has successfully modified its activities for a rugby-based program. In contrast, our "safari" program (aimed at the children of visitors to safari lodges) utilizes activities with frisbees and hacky sacks. The constant in CC's methodology is its basis in the theory of experiential learning. Physical activities (soccer or some alternative) make up the majority of every CC program, offering an experiential route toward learning that is followed by reflection and analysis of each activity led by our qualified coaches, linking physical activities with each session's key conservation messages.

The full extent to which programs such as CC can deliver SDG outcomes remains under-explored in the existing literature on social development through sport. Still, feedback from participants in the CC program suggests that even brief interventions can have long-lasting and profound impacts. As a consequence, we believe that CC has been successful in encouraging the development of environmental consciousness and a culture of respect for self, others, and the environment.

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Part XVI

Sustainable Development Goal 16: peace, justice, and strong institutions

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An overview of Sustainable Development Goal 16

Jon Welty Peachey and NaRi Shin

During the latter part of the 20th century and into the 21st century, the United Nations has had a growing and evolving interest in the potential of sport to help achieve various sustainable development goals, such as peacebuilding, conflict resolution, and creating just institutions and societies. One-time UN Secretary-General Kofi Annan expressed his view on the possibilities of sport in effecting social change at an Olympic Aid Roundtable in 2005:

> Sport can play a role in improving the lives of individuals, not only individuals, I might add, but whole communities. I am convinced that the time is right to build on that understanding, to encourage governments, development agencies, and communities to think how sport can be included more systematically in the plans to help children, particularly those living in the midst of poverty, disease and conflict. (United Nations, 2005, p. 1)

Annan's vision was realized in 2001 when the UN created the Office of Sport for Development and Peace, which was tasked with activating and supporting the UN in utilizing the power of sport to develop individuals, communities, organizations, and society (Cohen & Welty Peachey, 2019). This office was disbanded in 2017, with duties transferred to the International Olympic Committee and other international sport organizations to continue supporting an active role for sport in development (Shin et al., 2020).

However, the UN's interest in sport as a development tool did not wane. With the advent of the UN's Sustainable Development Goals in 2015, sport again was and is seen as a viable mechanism to assist in the achievement of these laudable goals. In this chapter, we focus on SDG 16, which has as its focus to "promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels" (General Assembly, 2015, p. 14). This is arguably a very broad remit for an SDG, as it centers upon both peace, inclusion, and justice issues in broader society as well as at the institutional level. In this chapter, we examine the intersection of sport with this SDG.

With regards to the UN's focus on promoting peaceful, inclusive, and just societies for sustainable development within this SDG, the field of sport for development and peace (SDP) intersects with this goal at many levels. SDP is defined as "the use of sport to exert a positive influence on public health, the socialization of children, youth and adults, the social inclusion of

the disadvantaged, the economic development of regions and states, and on fostering inter-cultural exchange and conflict resolution" (Lyras & Welty Peachey, 2011, p. 311). The SDP field has grown tremendously in recent years, with over a thousand organizations around the world offering programs utilizing sport to tackle issues of individual, community, and societal development (Svensson & Woods, 2017). For instance, the Football 4 Peace International (F4P) program in Israel, which began in 2001, uses the sport of soccer (football) to work at bridging cultural divides between Israeli and Palestinian youth in the Middle East (Sugden, 2006; Sugden & Spacey, 2020). The program emphasizes social justice, human rights, and equality as it works at easing tensions and bridge-building between communities historically in conflict. As such, the work of F4P directly relates to this SDG by endeavoring to promote peaceful and inclusive societies for sustainable development, and by striving to provide access to justice for all.

The second aspect of SDG 16 focuses on building effective, accountable, and inclusive institutions at all levels. Unfortunately, sport is rife with examples of institutions and organizations around the world engaging in inappropriate and even unethical conduct in pursuit of business or societal objectives. Within sport, one only has to look to the many instances of bribery scandals with the Olympic Games, and the financial mismanagement and mis-appropriation of funds by Sepp Blatter, President of FIFA from 1998 to 2015 and currently serving a six-year ban from the sport (Conn, 2017), for examples of conduct that tarnishes the value and role of sport in society. Or, within college sport in the United States, one can point to the coverup associated with the Jerry Sandusky scandal at Penn State University over the many years he was sexually abusing boys and young men in his role as Assistant Football Coach, or to the numerous recruiting violations and unethical behavior engaged in by coaches, to readily see that the sport industry constantly struggles with creating just, inclusive, accountable, and ethical institutions and entities (Burton & Welty Peachey, 2013). Strides have been made to address issues of justice, inclusion, and equality within the sport landscape as aligned with SDG 16, including explorations of new models of leadership in sport, but there is still a long way to go.

Below, we first define and discuss the targets associated with SDG 16. We then discuss some of the theoretical foundations related to the intersections of sport and SDG 16, followed by a more detailed discussion of how SDG 16 is being activated within the sport context. This discussion will center upon how sport organizations have engaged the community in promoting the SDG, and how sport organizations can adhere to the SDG in their daily operations.

47.1 SDG 16 targets

All of the UN's sustainable development goals have various targets and indicators associated with them (General Assembly, 2015). For SDG 16, there are 12 targets covering a rather wide-range of specific goals and outcomes related to the two central aspects of this SDG—promoting peaceful, inclusive, and just societies, and building effective, accountable, and inclusive institutions at all levels. The targets associated with SDG 16 are provided in Table 47.1

As will be discussed below, systems and institutions within the sport industry are actively focused upon and activating some of these targets in their work, but certainly not all of them. Perhaps the strength of sport institutions as of this writing is in addressing targets associated with promoting peaceful, inclusive, and just societies (e.g., targets 16.1, 16.2, 16.3, 16.a).

Organizations and institutions within the SDP field, for instance, capture many of these targets in their missions and foci as these organizations work to foster peace, inclusion, and justice, using sport as a mechanism to help achieve these goals. The connection between SDP and SDG 16 will be explored in more depth later in this chapter. On the other hand, the sport industry has struggled to a much greater extent in activating targets associated with building

Table 47.1 Targets of Sustainable Development Goal 16

16.1	Significantly reduce all forms of violence and related death rates everywhere
16.2	End abuse, exploitation, trafficking and all forms of violence against and torture of children
16.3	Promote the rule of law at the national and international levels and ensure equal access to justice for all
16.4	By 2030, significantly reduce illicit financial and arms flows, strengthen the recovery and return of stolen assets and combat all forms of organized crime
16.5	Substantially reduce corruption and bribery in all their forms
16.6	Develop effective, accountable and transparent institutions at all levels
16.7	Ensure responsive, inclusive, participatory and representative decision-making at all levels
16.8	Broaden and strengthen the participation of developing countries in the institutions of global governance
16.9	By 2030, provide legal identity for all, including birth registration
16.10	Ensure public access to information and protect fundamental freedoms, in accordance with national legislation and international agreements
16.a	Strengthen relevant national institutions, including through international cooperation, for building capacity at all levels, in particular in developing countries, to prevent violence and combat terrorism and crime
16.b	Promote and enforce non-discriminatory laws and policies for sustainable development

Source: General Assembly (2015).

effective, accountable, and inclusive institutions at all levels (e.g., targets 16.5, 16.6, 16.8). Some progress has been made in improving the effectiveness, accountability, and inclusivity of sport-based institutions, most notably through examining new and alternative leadership models (e.g., servant, shared, authentic, ethical) and Board governance issues which will be discussed below. Overall, SDG 16 has a broad mandate with diverse targets, enabling many intersections with sport governance, policy, organizational leadership, and the SDP field moving forward.

47.2 Theoretical foundations

Scholars have employed a variety of theoretical foundations and frameworks to undergird their work associated with SDG 16. While a few of these frameworks have emerged from within the sport context, most have been imported from other disciplines in a derivative fashion due to their social and institutional relevance (Chalip, 2006). The following section elucidates many of the popular and important foundations and frameworks that have been drawn upon by sport scholars, but this list is certainly not all inclusive. The theoretical foundations and frameworks below showcase the depth and breadth of sport scholars' engagement with SDG 16, but as-suredly, other frameworks will continue to emerge as more sport-focused theoretical con-ceptualizations are advanced (Chalip, 2006).

47.2.1 Sport-for-development theory

Sport-for-Development Theory (SFDT; Lyras, 2007, Lyras & Welty Peachey, 2011, 2015) was developed from within the SDP context to help explain how sport-based programs should best be designed and managed to achieve positive outcomes such as peacebuilding, conflict re-solution, inclusion, and just societies at the micro, meso, and macro levels, and as such, is highly relevant for SDG 16. SFDT draws from interdisciplinary theoretical and conceptual foundations

including organizational theory, intergroup contact theory, humanistic psychology, educational psychology, and theory and methods of research (Lyras & Welty Peachey, 2011, 2015). SFDT has five key components: (a) impacts assessment, (b) organizational, (c) sport and physical activity, (d) educational, and (e) cultural enrichment.

SFDT advances that impacts assessments should measure multilevel change over time and that both top-down and bottom-up organizational structures are needed, ones that are culturally sensitive and give voice to all stakeholders (Lyras & Welty Peachey, 2011). With regards to sport and physical activity, SFDT posits that non-traditional sport programming and inclusive play are critical, that the level of competition should be matched to the nature of the population being served, and that quality educational lessons should accompany the sport and play activities in order to facilitate transferability of learning outcomes to the real world. Finally, cultural activities such as music, dance, and the arts should be packaged with sport and educational programming. Taken together, these components can provide a holistic, theoretically grounded programmatic and design strategy for SDP interventions aimed at promoting peace, inclusion, and just societies as specified in SDG 16 (Lyras & Welty Peachey, 2015).

47.2.2 Ripple-effect model

The ripple-effect model (Sugden, 2010) draws on critical left-realism and bottom-up activism to influence positive societal change and contribute to peacebuilding through sport, serving as a strong theoretical foundation for SDG 16. The model evolved out of Sugden's F4P program, a sport-for-conflict-resolution project in Northern Israel (Sugden, 2006, 2010). The model advances that through social and cultural engagement, peace activists on the grassroots level can join forces with key partners from within and outside sport to activate positive and inclusive change in any given context. Importantly, the impact of a specific SDP program is most clearly felt and more easily measured at the center of the intervention. As the ripples move further away from the center and reach the next level of the project (i.e., families of participants, their local communities, related stakeholders, and the wider political spheres), they dissipate and reduce in force.

47.2.3 Sport-for-development framework

Also emerging from within the SDP context, Schulenkorf's (2012) Sport-for-Development (S4D) framework presents a conceptual, process-oriented management tool that was designed to inform sport and event planning, management, and leverage. While conceived to address management and leverage issues of SDP interventions focused on a host of outcomes, it has been employed fundamentally to help understand how sport programs can be designed to facilitate peacebuilding and inclusion, directly linking to SDG 16. With its malleable framework, S4D advantages cultural heterogeneity and program diversity, while shaping implementation, directing evaluation, and encouraging future planning of development initiatives. The S4D framework can integrate the social processes generated through participatory sport activities, and as a guiding framework, advocates for the tailored application of individual projects to address specified targets and outcomes.

47.2.4 Social capital

An important theoretical foundation for helping to understand inclusion and exclusion of individuals in society and sport is related to SDG 16 is the concept of social capital. Social capital

remains a contested term with multiple theoretical perspectives, most notably attributed to Bourdieu (1986), Coleman (1988), and Putnam (2000). Bourdieu (1986) viewed social capital as "the aggregate of the actual or potential resources which are linked to a durable network of more or less institutionalized relationships and mutual acquaintance and recognition" (p. 248). As such, social capital is unevenly distributed and predicated upon the resources individuals have access to within their networks. Different from Bourdieu, Coleman's (1988, 1994) conceptualization of social capital views it as a resource, or "the set of resources that inhere in family relations and community social organization and that are useful for the cognitive or social development of a child or young person" (Coleman, 1994, p. 300). Here, social capital is focused on how people cooperate through the social processes resulting from free choice to further one's self-interests (Coalter, 2007).

While both Bourdieu and Coleman have been utilized by sport scholars to ground their work in social inclusion and exclusion, arguably the most popular social capital theorist among scholars is Robert Putnam. For Putnam (1995), social capital is the "features of social organization such as networks, norms, and social trust that can facilitate coordination and cooperation for mutual benefit" (p. 66). Trust, networks, and reciprocity are the key ingredients within Putnam's conceptualization. Once trust is built, networks can be developed which enable inclusion and social mobility, and then an exchange process can occur (reciprocity). Mechanisms to facilitate social cohesion and inclusion are bonding and bridging. Bonding social capital brings to the fore social networks between homogenous groups, such as family, neighbors, or close friends. On the other hand, bridging social capital is formed when relationships are developed with individuals who are different from oneself, where social ties and bonds may be looser and more diverse. These bridging relationships enable individuals to leverage a broader set of resources, which are critical for social cohesion, inclusion, and mobility (Putnam, 1995, 2000). Many scholars within sport and in other disciplines have grounded their social inclusion work in Putnam's conceptualization of social capital, providing a theoretical anchor for activating SDG 16.

47.2.5 Intergroup contact theory

SDG 16 encompasses goals and targets for peacebuilding, conflict resolution, and violence reduction around the globe. A theoretical foundation scholars has drawn upon to ground their investigations and interventions into peacebuilding and conflict resolution, both within and outside of sport, is Allport's (1954) intergroup contact theory. The contact hypothesis draws from the social categorization framework (Tajfel & Turner, 1979), in which people categorize themselves and others into social groups. In-group members are individuals similar to one's self and are generally viewed in a positive light and trusted. Out-group members, however, are individuals who are different from themselves, and are not viewed as positively or trusted to the same extent. Consequently, intergroup bias can exist, whereby people express more positive attitudes toward in-group members than they do toward out-group members. For example, in the F4P program described earlier, a Jewish athlete might consider other Jewish athletes as in-group members and Arab athletes as out-group members, with the potential for intergroup bias following.

Within intergroup contact theory then (Allport, 1954; Pettigrew, 1998), it is suggested that personal interactions among in-group and out-group members should result in reduced intergroup bias. Bias is reduced because contact (a) allows for people to learn more about the out-group, (b) reduces their anxiety when around out-group members, and (c) serves to enhance their empathy and perspective-taking toward the out-group (Pettigrew & Tropp, 2008). To

support the contact hypothesis, Pettigrew and Tropp's (2006) meta-analysis demonstrated that contact holds a reliable, negative association with prejudice toward out-group members. Lederach (1997) also suggested that to facilitate reconciliation and peace-building, relationships must begin with an encounter, and these relationships should be forward-looking, build trust, and enhance sustainable, consistent interconnections between groups. Inter-group contact can thus provide this encounter and establish the foundation for sustainable relationships between individuals who are quite different from each other, thus contributing to the peace-building and conflict resolution goals of SDG 16.

47.2.6 Organizational capacity

The second aspect of SDG 16 focuses on building effective, accountable, and inclusive institutions at all levels. One theoretical foundation that has been embraced by scholars inside and outside of sport to understand organizational effectiveness and accountability is that of organizational capacity (Hall et al., 2003; Svensson et al., 2018). In general, organizational capacity is the ability of organizations to draw upon a set of structures and resources to fulfill their mandates and missions, and do so effectively, efficiently, and sustainably (Svensson et al., 2018). Hall et al. (2003) model of organizational capacity has served as the foundation for a multitude of studies inside and outside of sport. Their framework revolves around five capacities: (a) human resources capacity, (b) financial capacity, (c) external partnership capacity, (d) internal infrastructure capacity, and (e) planning and development capacity. The more efficiently and effectively an organization can develop and capitalize on these capacities, the more sustainable it will be over the long term.

47.2.7 Leadership theories and frameworks

Leadership plays a pivotal role in organizational theory and development, and in building and sustaining effective, just, and inclusive organizations, along with being instrumental in the effectiveness of sport-based interventions aimed at various individual and social outcomes. Traditional leadership theories and styles such as autocratic, democratic, transformational, and transactional are giving way to newer, contemporary models of leadership, such as servant, shared, authentic, and ethical leadership, that are necessary for creating transparent, just, and inclusive institutions at all levels. In fact, recent conceptual work has advanced that servant and shared leadership, in particular, could be essential leadership paradigms enabling better outcomes, such as conflict resolution, peace, and inclusion, for organizations utilizing sport-based interventions to work at issues of social change and justice (Welty Peachey et al., 2020). Several of these influential contemporary leadership paradigms are discussed below.

47.2.7.1 Servant leadership

Recent work in business and sport management has embraced the paradigm of servant leadership, which emerged from the thinking of Robert Greenleaf (1977) and has since gained more traction in academic circles. Servant leadership is predicated on follower development rather than the focus being on achieving organizational outcomes; by developing followers and attending to follower needs, better organizational outcomes will naturally be achieved. As Greenleaf (1977) said, being a servant leader is "the natural feeling that one wants to serve, to serve first" (p. 7.). van Dierendonck (2011) conceptualized the following six dimensions of servant leadership: empowering and developing people, humility, authenticity, interpersonal

acceptance, providing direction, and stewardship. This leadership paradigm has been gaining further credence in the sport industry, with scholars citing it as a way to address many of the ethical issues plaguing the industry, such as in intercollegiate athletics (Burton & Welty Peachey, 2013). Scholars have also advocated for its applicability in the SDP field, with its inherent focus on follower development being important for achieving various individual and social outcomes (Welty Peachey et al., 2020; Welty Peachey & Burton, 2017). As such, servant leadership is a leadership paradigm directly applicable to SDG 16 in that it could help organizations achieve development goals of peace and reconciliation, inclusion, and social justice, as well as contribute to more transparent, accountable, inclusive, and just organizations.

47.2.7.2 Shared leadership

Similar to servant leadership, recent work has suggested that a shared leadership model could be highly effective in enabling SDP organizations and interventions to empower local stakeholders and enable sustainable development programs (Jones et al., 2018; Welty Peachey et al., 2020). Shared leadership has also been positioned as important in sport governance and Board functioning (Ferkins et al., 2018). Shared leadership is defined as "a dynamic, interactive process among individuals in groups for which the objective is to lead one another to the achievement of group or organizational goals" (Pearce & Conger, 2003, p. 1). At its core, shared leadership involves a focus on the dynamic interactions between individuals and groups within an organization and situated around its periphery, rather than viewing an organization and leadership as static (Drescher & Garbers, 2016). Instead of traditional hierarchical forms of leadership, shared leadership models distribute leadership across organizational members and stakeholders, and by doing so, capitalize on the skills and knowledge of members (Pearce & Conger, 2003). It has been suggested that shared leadership can be particularly effective in the SDP context, in that leadership can be shared with local community members to transition power and responsibility away from the SDP organization, and that this will eventually allow for more sustainable outcomes, such as enhanced conflict resolution and inclusion initiatives (Jones et al., 2018; Welty Peachey et al., 2020). As mentioned, shared leadership can also be important for Board functioning to enable more effective and inclusive organizations (Ferkins et al., 2018).

47.2.7.3 Authentic leadership

Authentic leadership is another leadership model gaining traction among business and sport scholars, particularly when examining governance and Board functioning issues related to ethical leadership (Takos et al., 2018). Avolio et al. (2004) defined authentic leaders as "those individuals who are deeply aware of how they think and behave and are perceived by others as being aware of their own and other's values, knowledge and strengths, and aware of the context in which they operate" (p. 4). The focus here is on the positive strengths that a leader brings to the table, rather than on shortcomings, and there is a centrality of values-driven behavior undergirding the leadership behavior, a genuineness that can engender greater trust in the leader from myriad stakeholders (Takos et al., 2018). There are four components of authentic leadership: self-awareness, relational orientation, balanced processing, and internalized moral perspective (Avolio et al., 2009). As such, to integrate authentic leadership with SDG 16, this leadership model can enhance an understanding of how governance and organizations can be more effective, just, inclusive, and transparent.

47.2.7.4 Ethical leadership

Relatedly, the concept of ethical leadership (Brown & Treviño, 2006) provides an important paradigm for activating SDG 16 and its focus on developing accountable, just, and inclusive institutions at all levels. In fact, a number of sport scholars have called for an enhanced focus on ethical leadership within the sometimes ethically-challenged sport industry (Staurowsky, 2014; Sagas & Wigley, 2014). Ethical leadership is "the demonstration of normatively appropriate conduct through personal actions and interpersonal relationships, and the promotion of such conduct to followers through two-way communication, reinforcement, and decision-making" (Mayer et al., 2009, p. 120). An essential component of ethical leadership is role modeling—if leaders practice ethical behavior and decision making, then subordinates will also practice ethical behavior and decision making (Brown et al., 2005). To reinforce ethical behavior by sub-ordinates, ethical leaders provide rewards for ethical behavior and punish unethical behavior (Brown et al., 2005). Scholars have advocated that a focus on ethical leadership is needed to help curb unethical conduct and unjust systems and structures in society and in the sport industry (Burton & Welty Peachey, 2013; Sagas & Wigley, 2014), and thus, this leadership paradigm is directly applicable to SDG 16's focus on building accountable, just, and inclusive institutions.

47.2.8 Organizational justice

We conclude this section on theoretical foundations with a brief examination of organizational justice as related to SDG 16, with a particular focus on distributive, procedural, and interactive justice. These frameworks are helpful to scholars and organizations, both within and outside of sport, for understanding and improving issues of equity and fairness in the work environment (Mahony et al., 2010). In essence, organizational justice revolves around the role of fairness, and perceptions of fairness, in the workplace (Greenberg, 1990). It began to gain traction within the sport discipline about 25 years ago with the work of Hums and Chelladurai (1994). Distributive justice is concerned with perceptions of fairness of equity, equality, and need in the workplace, with much of the work in this area in the sport discipline occurring initially in intercollegiate athletics. Procedural justice is the perceived fairness of decision-making processes, while interactional justice centers upon the communication of those decisions (Mahony et al., 2010). A synthesis of scholarly work in organizational justice demonstrated that perceptions of justice by employees are associated with job performance, job satisfaction, organizational commitment, organizational citizenship behaviors, and trust (Mahony et al., 2010). As such, the organizational justice framework is helpful for understanding SDG 16's focus on building accountable, just, effective, and inclusive institutions at all levels.

47.3 Connections to sport

We next turn attention to how SDG 16 is activated within various levels and contexts of the sport industry. First, we discuss how sport organizations and entities have engaged in the community and society in promoting and activating SDG 16, followed by a brief discussion of how sport organizations and entities can adhere to SDG 16 in their daily operations.

47.3.1 Sport engagement with SDG 16

Myriad sport organizations and entities have engaged communities and society in SDG 16, particularly over the last 25 years. With regards to SDG 16's focus on promoting peaceful and

inclusive societies for sustainable development, and to provide access to justice for all, we can begin by pointing to the espoused goals and historical precedence of the Olympic Movement and Olympic Games. The Olympic Games, when Pierre de Coubertin reinvigorated them in 1896, were partly founded on the premise that the Games would help to promote peace and understanding between the youth of the world through sport (Cohen & Welty Peachey, 2019). It was envisioned that conflicts would be suspended during the timeframe of the Games and that they would ultimately assist in peace-building between nations through the catalyst of sport competition. The Games have indeed served as a catalyst and platform for change—we can look to the 1968 Olympics in Mexico City where American sprinters Tommie Smith and John Carlos made a political statement aligning with Black Power by raising their fists cloaked in black gloves on the medal stand; or to Cathy Freeman in the Sydney 2000 Games advocating for the rights of Aboriginals in Australia, long victims of racism in the country (Cohen & Welty Peachey, 2019). Of course, we can question the activation of this laudable goal with the ever-increasing commercialization of the Olympic movement and medal counts becoming more divisive between nations than not, but it is noteworthy that on arguably its biggest stage, sport was envisioned as a foundation for peace and justice.

Other examples abound where sport has been leveraged for peace, justice, and inclusion at the international or national levels. Take, for instance, the 1995 Men's Rugby World Cup, which had a significant impact on racial integration in South Africa as the first sporting event in the country that took place since the end of apartheid. President Nelson Mandela, the first Black president of South Africa, stepped onto the field wearing the Springboks team jersey while presenting the championship trophy, a significant political statement given that the Springboks are South African's national team. The event served as a springboard for re-conciliation and unification among White and Black South Africans (Cohen & Welty Peachey, 2019).

On a smaller scale, arguably, it is in the area of peace, justice, and inclusion where the sport discipline and sport entities have activated the strongest connection to SDG 16. Numerous sport non-profits and other entities working in the SDP space around the globe have initiated programs and interventions targeting peace-building efforts among groups historically in conflict, and in fostering justice and inclusion for marginalized and disenfranchised individuals. The F4P program in Israel has been mentioned earlier as a long-standing example of a sport intervention working at peace-building and conflict resolution between groups historically in conflict, in this case Arabs and Jews in the Middle East. Even earlier examples exist, such as the Belfast United Program in Belfast, Northern Ireland, launched in the late 1980s (Sugden, 1991). This community-based intervention manipulated the conditions under which sport is played to target improving peace and understanding among Protestant and Catholic youth. As one of the first sport-based interventions of its kind, Belfast United was successful at helping youth form more positive impressions of those from different religious traditions, at least in the short term.

Many other sport-based interventions targeting peace and reconciliation followed suit. For example, the Doves Olympic Movement program took place in Cyprus in the 2000s, an in-tervention that employed sport, the cultural arts, and educational initiatives to help Greek and Turkish Cypriot youth bridge cultural divides and work at issues of cultural understanding and conflict resolution (Lyras, 2007). This program, which had success in fostering better under-standing between these youth, was the genesis of one of the most important theoretical foundations in the SDP field—Sport for Development Theory (reviewed above; Lyras & Welty Peachey, 2011, 2015). Another similar program in Sri Lanka (the Asian-German Sport Exchange Program, formed in 2002) utilized sport to try to heal divides in the ethnically divided country between Sinhalese, Tamil, and Muslim peoples (Schulenkorf, 2010).

Importantly, the strategically designed and managed sport intervention contributed to establishing interpersonal friendships and inclusive social identities that transcended ethnic community lines. However, critically, the initiative highlighted the fact that sport intervention events such as this must be woven into ongoing political and social agendas, and receive sustainable socio-political support, for them to be effective at reconciliation, inclusion, and peace-building efforts over the long term (Schulenkorf, 2010).

Also at the international level, an important sport-based program in the United States in the 1990s and 2000s—the World Scholar-Athlete Games—brought together more than 2,000 youth leaders from 200 countries at each event in order to attempt to foster peace, understanding, and inclusion among these future leaders (Welty Peachey et al., 2015). Through the utilization of mixed-nation teams, impactful cultural and educational activities, and conflict resolution workshops, the event was successful at reducing prejudice and fostering change agent self-efficacy in these youth (Welty Peachey et al., 2015). This event also underscored the importance of basing program design on sound theory (in this case, SFDT), and in strategically designing programs to target specified outcomes.

Sport-based interventions targeting peace-building, conflict resolution, and inclusion are also taking place around the world at the local level. For instance, Beyond the Ball is a sport-based non-profit in the city of Chicago utilizing sport, primarily basketball, to help reclaim play space in areas of the city rife with gang violence, and to work at building relationships and opportunities between youth from disparate backgrounds and neighborhoods (Beyond the Ball, 2020). Founded in 1998, Beyond the Ball is an example of a sustainable SDP organization built upon a solid curricular and theoretical foundation that has won many national and international awards for its outreach efforts, in which the organization provides services to more than 1,500 youth each year. While not on as grand a stage as the Olympic Games, Beyond the Ball, and the hundreds of other local sport-based programs around the world using sport for peace and inclusion, are critical to activating and sustaining SDG 16.

Aside from peace-building and conflict resolution efforts, many other organizations around the world have tapped sport as an avenue to work at issues of social inclusion, justice, and building social capital among marginalized and disenfranchised individuals. For instance, globally, there are quite a few programs that utilize soccer, particularly a modified form of soccer called street soccer, to address issues of inclusion and justice with individuals suffering from homelessness. The Big Issue program in Australia is one such example, in which youth taking part in the program developed stronger bonding and bridging social capital that they were able to leverage, with the help of the organization, to better their life situations (Sherry, 2010; Sherry & Strybosch, 2012). A similar program in the US, Street Soccer USA, works in 13 cities around the country to utilize soccer to help individuals suffering from homelessness and poverty to make positive changes in their lives (Street Soccer USA, 2020). Like the Big Issue, this initiative has been successful since 2009 in helping more than 15,000 youth and adults improve their life situations, leading to more secure housing and sustainable jobs (Street Soccer USA, 2020; Welty Peachey et al., 2013).

Other organizations have targeted different marginalized populations, such as refugees. Sport can be influential in the lives of refugee youth because this leisure practice allows for the expression of bodily practices, construction and performance of social identities, and development of emotional closeness (or distance) with others (Spaaij, 2015). For example, the Refugee Sport Club in the United States was a sport-based youth development program aimed at helping refugee youth, primarily from African nations, acculturate into their new country. Participants in the program perceived that it contributed to feeling a sense of belonging and inclusion in their new country, as they learned values of respect, teamwork, and leadership

through the sport program and how to transfer these values to their everyday lives (Whitley et al., 2016). Many other examples could also be showcased where organizations around the world are utilizing various forms of sport to help with acculturation and resettlement of youth in particular to a new society. However, sport is not a panacea for refugees. Boundaries of inclusion and exclusion can be difficult to cross, most notably those pertaining to gender, race, ethnicity, and religion, and participation in community sport or targeted interventions will not be a quick fix, and must be strategically planned over time to help integrate marginalized individuals into community life (Spaaij, 2015).

Inclusion for girls and women in sport is another area where sport and sport-based organizations have been aligned with SDG 16. There are hundreds of examples of programs for women and girls aimed at empowering them through sport to help prevent issues of sexual violence and exclusion. For example, the Vancouver Aboriginal Friendship Centre Society in Vancouver, Canada, and the Role Models and Leaders Australia program in Perth, Australia, are two such programs targeting indigenous young women through sport. While the programs did reproduce the hegemony of neoliberalism and competitive capitalism, participants in both programs argued that their participation in the programs would help them change racist and sexist stereotypes in their communities and work at issues of justice and inclusion (Hayhurst et al., 2016). Nevertheless, while many SDP programs of this nature may give voice to participants and inspire them to be change agents, the extent to which this activism creates social contexts that are fundamentally inclusive remains in question (Collison et al., 2017).

Despite these debates about effectiveness, the organizations and examples above have indeed made positive efforts to activate SDG 16, and only time will tell how sustainable these initiatives will be in truly enabling peaceful, just, and inclusive communities and society.

47.3.2 SDG 16 and daily operations of sport organizations

While there are many vital connections between sport, sport organizations, and SDG 16 as discussed above, and many positive strides that have been made in this regard, adhering to SDG 16 in daily operations presents an entirely different set of challenges. From the bribery scandals of the Olympic Games to the corruption associated with FIFA, unethical conduct and lack of transparency and accountability still permeate the sport industry. This corruption is not just occurring at the highest levels of sport, but can also manifest in more community-based and grassroots sport organizations, and even in SDP organizations with a social mission. Take the case of Dan Doyle, one-time executive director of the Institute for International Sport in Rhode Island, an SDP non-profit that administered the acclaimed World Scholar-Athlete Games and did much to advance sport and development work around the world. Doyle was convicted in 2016 on 18 counts of embezzlement and sentenced to seven years in prison (ABC6, 2020). Thus, adhering to SDG 16 in terms of being accountable, just, fair, and inclusive sport organizations at all levels has been a monumental challenge.

Fortunately, inroads have been made. Some of the highest profile sport organizations are becoming more transparent and putting in place stronger checks and balances to prevent corruption and other unethical behaviors. As will be discussed in the next chapter, the IOC, FIFA, and various international sport federations are implementing more and more regulations and procedures to address issues of bribery and corruption that have historically been associated with these organizations. Emphasis is being placed on good governance and leadership, and the steps that Boards and governing bodies must take in order to be more accountable, transparent, and just in their activities (Takos et al., 2018). Authentic, shared, and servant leadership models are being advanced as leadership paradigms to help keep sport organizations aligned with their

missions and to be just and transparent in their work (Ferkins et al., 2018; Takos et al., 2018; Welty Peachey et al., 2015). This body of scholarship essentially advocates for the importance of relationship-building in Board leadership and sport governance, coupled with trust building and the social construction of leadership, where leadership is jointly shared and developed among stakeholders. Encouragingly, sport organizations and governing bodies are changing their approaches to leadership and governance, giving voice to more stakeholders, and ardently working to address corruption issues. There is still a long way to go, but encouraging steps are being made.

Even SDP organizations with a social cause face challenges in adhering to SDG 16, as was illustrated above with the case of Doyle and the Institute for International Sport. On a broader scale, many SDP organizations face the challenge of mission drift, which is often due to pressures from funding bodies and partners, forcing the organization to veer off track from its goals and objectives to satisfy priorities of the funder or partner (Coalter, 2010). When this occurs, the SDP organization may "drift" away from its original purpose, causing a misalignment with the goals and targets of SDG 16. And as will be discussed further in the next chapter, the inherent power dynamics within the SDP field present challenges to mission fulfillment and sustainable development (Darnell, 2010). Often, organizations based in the Global North and High-Income Countries (HIC) will design programs and take them to the Global South and Low- to Middle-Income Countries (LMIC) to "develop" them in some way. Power dynamics are embedded in this model, with local stakeholders having little voice in how or what is developed. Progress is being made involving local stakeholders in all facets of SDP programs and transferring leadership and capacity to them (Welty Peachey et al., 2020), which will only help with developing sustainable strategies for peace, justice, and inclusion in local communities.

This concludes our discussion of SDG 16, its targets, its theoretical foundations and the myriad connections to the sport industry. Many examples of sport organizations activating SDG 16 in communities were provided, along with challenges associated with adhering to the intent of SDG 16 in the daily operations of sport organizations. In the next chapter, we turn attention to the measurement of SDG 16 both outside and within sport.

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Measuring Sustainable Development Goal 16

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As SDG 16 indicates, the promotion of peaceful and inclusive societies, provision of access to justice, and building effective and inclusive institutions have been goals sought by non-governmental organizations (NGOs), governing bodies, sport organizations, leagues, and federations. In this chapter, how these institutions have endeavored to improve the measurement and evaluation of SDG 16 is discussed in detail. To do this, a summary of the progress made toward SDG 16 with particular attention paid to SDG indicators is provided. This is then followed by examples of how sport organizations have measured progress toward SDG 16. Lastly, potential problems and barriers to implementing and measuring SDG 16 in the sporting context are discussed.

48.1 The intersection of sport, peace, and just institutions: progress, tensions, and challenges in pursuit of SDG 16

Since 2015, when world leaders came together at the UN and adopted the 2030 Agenda for Sustainable Development, progress has been made toward SDG 16 along with other SDGs. The achievements include, for example, the adoption of significant global agreements such as the Addis Ababa Action Agenda of the Third International Conference in Financing for Development, the Sendai Framework for Disaster Risk Reduction 2015–2020, and the Paris Agreement under the United Nations Framework Convention on Climate Change. However, as suggested in the Secretary-General's *Progress Towards the Sustainable Development Goals* report (United Nations Economic and Social Council, 2019), there still exists difficulty of measurement due to the lack of regularly collected data and established methodology to measure SDG 16 in a number of countries. As this lack poses a negative impact on the ability to fully understand SDG 16's progress and challenges, it requires further attention by diverse stakeholders.

According to the Secretary-General's report (United Nations Economic and Social Council, 2019; "the report" hereafter), advances in ending violence, promoting the rule of law, strengthening institutions, and increasing access to justice are uneven and continue to deprive people of their security, rights, and opportunities. Therefore, it is essential to renew efforts to move toward the achievement of SDG 16. A discussion of the more specific status of SDG 16 and its targets and indicators follows.

Target 16.1 is concerned with reducing violence and death rates. The number of international homicides per 100,000 people increased from 6.0 in 2015 to 6.1 in 2017 (indicator 16.1.1). The report explains this slight increase was largely due to the increased homicide rates in Latin America, the Caribbean, and in some countries in sub-Saharan Africa. On violence, about 20% of people between the age of 15 and 49 had experienced physical or sexual partner violence in the past 12 months. With regard to violence against children (target 16.2), recent data from 83 countries, mostly from developing regions, showed that nearly 8 in 10 children from 1 to 14 years of age were subjected to some form of physical punishment or psychological aggression at home. In 76 countries among the 83, at least half of children experienced violent disciplinary methods (indicator 16.2.1). There are very limited data to evaluate indicator 2.3, the proportion of young people experiencing sexual violence. However, at least 5% of women between the ages of 18 and 29 experienced sexual intercourse or other sexual acts that were forced, physically or in other ways, for the first time before they were 18 years of age in 14 of 46 countries with comparable data. More data are available for indicator 16.2.2, the number of victims of human trafficking. The report suggests an overall increase in the detection of victims of human trafficking, which could have been caused by either a positive (enhanced efforts by authorities to identify victims) or negative (larger trafficking problem) development. According to recent data, there was an increase in trafficking victims detected domestically in each country: 43% in 2014 to 58% in 2016. It is concerning that still the vast majority of detected victims of human trafficking, almost 70% of them, were women and girls, most of whom were trafficked for sexual exploitation.

Target 16.3 concerns equal access to justice for all. Per indicator 16.3.2, the share of un-sentenced detainees in the overall prison population has remained largely at 30% in recent years. The report indicated the absolute number of the total prison population increased, although the proportion of the prison population remained constant as a share of the total population. With regard to indicator 16.3.1 concerning victims of violence by authorities or other officially recognized conflict resolution mechanisms, it is reported that the killing of human rights defenders, journalists, and trade unionists is on the rise. The UN recorded and verified 431 killings in 41 countries between 2017 and 2018. In addition, at least eight people were murdered per week at the front lines of efforts to build more inclusive and equal societies. This shows an increase from an average of seven victims per week observed between 2015 and 2017. The victims included 99 journalists and bloggers.

Developing effective, accountable, and transparent institutions (target 16.6) is a major part of SDG 16. Indicator 16.6.1 refers to primary government expenditures as a proportion of the original approved budget, as the difference between the approved and the implemented budget reflects a government's ability to achieve development objectives, such as delivering services to the public. Among 108 countries between 2006 and 2017, about half of them showed actual spending was within plus or minus 5% of the approved budget, while almost half of low-income countries showed more than 10% deviation. One out of 10 countries exhibited a range of 15%.

Provision of legal identity for all, mainly birth registration, is another important target area (target 16.9), as birth registration plays a primary role in ensuring individual human rights and access to justice, social, and medical services. Despite the universal or near-universal birth registration in many regions, the global average remains at 73%. Particularly in sub-Saharan Africa, more than half of all children (about 54%) under the age of 5 have not had their births registered. With regard to the improved public access to information and related national legislation and international agreements (target 16.10), 125 countries have adopted binding laws and policies that allow individuals a right to access information held by public authorities. At least 31 countries among the 125 have done so since 2013. As of 2019, data on the legal

framework are available in 123 countries among which 40 did not include the right to appeal to an independent administrative body, which is a key to properly implementing the public right to access information.

Target 16.a is focused on strengthening national institutions to prevent violence. According to the report, institutions are not generally strong or effective enough to respond adequately to massive transnational challenges such as extreme poverty and hunger, obesity among children, and deteriorating biodiversity. It is necessary to improve multilateral cooperation, including international cooperation indicated in target 16.a, to successfully implement SDGs. Moreover, to achieve the target, the progress to put in place national human rights institutions compliant with the Paris Principles must be accelerated (indicator 16.a.1). In 2018, only 39% of all countries had established an institution that was fully compliant with the internationally agreed standard—this was seven countries more than was the case in 2015. Although the number of countries with compliant institutions is increasing, the growth rate is still low. The report anticipated that if growth continues at the same rate, about 54% of all countries worldwide will have compliant national human rights institutions.

48.2 Measurement in sport

Sport organizations, governing bodies, leagues, NGOs, and nonprofit philanthropic initiatives have been (re)developing ways to measure and evaluate practices related to the SDGs. Sport is addressed as one of the most important enablers of sustainable development thanks to the growing contribution of sport to the achievement of development and peace (General Assembly, 2015). As SDG 16 is about promoting peace, the power of sport is most visible and has the greatest potential to affect global change (Sustainable Development Goals Fund, 2018). Evidence-based evaluation using high-quality, timely, and reliable data has been significantly enhanced as it is also promoted by SDG 17's two targets (target 17.18: Enhance availability of reliable data and 17.19: Further develop measurements of progress). In what follows, examples of how sport organizations have measured progress toward SDG 16 and suggestions for improved measure practices are provided.

The International Safeguarding Children in Sport Founders Group is an organization working with more than 50 organizations from a diverse range of countries and contexts in order to increase awareness that abuse in sport against children and youth needs to be addressed across the sporting landscape (International Safeguarding Children in Sport Working Group, 2014). Concerning target 16.1, on reducing all forms of violence, and 16.2, on ending all forms of violence against children and their respective indicators, the organization provides practical guidance and resources for local and national organizations to monitor and evaluate practices implemented to achieve progress toward children's rights in sport. Among the eight Safeguards (i.e., policy; responding to concerns; advice and support; minimizing risk; guidelines; recruiting, training, and communicating; partners; and monitoring and evaluating), Monitoring and Evaluating indicates the "on-going monitoring of the effectiveness of each of the other Safeguards through involving all relevant groups, including children" (International Safeguarding Children in Sport Working Group, 2014, p. 118). The organization's toolkit, *International Safeguards for Children in Sport*, provides standards and resources for measurement using the eight Safeguards and pillars (see Table 48.1). This set of standards and questions was developed to ensure that all organizations working in sport should have standards in place to make sure that children are safe from harm.

Indicator 16.2.2 is concerned with the number of human trafficking incidences per 100,000 population, by sex, age, and form of exploitation. FIFA has worked on developing interventions

Table 48.1 Eight pillars and questions for monitoring and evaluation

Pillar	Question
Cultural sensitivity	Have you adopted the Safeguards to your context?
Holistic	Are the Safeguards integrated into everything you do?
Incentives	Are there clear reasons for people to work towards the Safeguards?
Leadership	Do the leaders in your organization publicly support the Safeguards?
Dynamic	Are you reviewing your Safeguards on a regular basis?
Resources	Are you effectively using the available resources to help you work towards the Safeguards?
Engaging stakeholders	Are you working effectively with all of the groups in your organization?
Networks	Are you building relationships with organizations who can help you work towards the Safeguards?

Source: International Safeguards for Children in Sport Working Group, 2014, p. 127.

and measures to regulate the trafficking of youth football players (i.e., minors) from Africa, South America, and Asia to European professional teams. FIFA's press release (2014) emphasized the level of importance of protecting minors:

> The protection of minors in the context of international transfers is an important social and legal issue that concerns all stakeholders in football. Above all, the committee [FIFA's Disciplinary Committee] highlighted that while international transfers might, in specific cases, be favourable to a young player's sporting career, they are very likely to be contrary to the best interests of the player as a minor. On the basis of this analysis, the committee concluded that "the interest in protecting the appropriate and healthy development of a minor as a whole must prevail over purely sporting interests."

With the concerns surrounding the trade of minors in football, FIFA banned the international signing or transfer of players under the age of 18 in 2001 based upon Article 19, Regulations on the Status and Transfer of Players (RSTP). These regulations apply globally and, therefore, all players and clubs registered to any national football (soccer) association are subjected to the regulations (Drywood, 2016). Since the introduction of the regulations, FIFA has gradually added a series of further checks in order to identify exploitative practices by clubs and agents, with a goal to ensure compliance with Article 19. With the effort, all international transfers and first registration of minors have been supervised by one of FIFA's subcommittees, the Players' Status Committee, since 2009 (Federation of International Football Associations, 2014).

It is noteworthy that the Committee's supervision is facilitated by a computer-based Transfer Matching System that requires clubs to input information on all non-national players who are and could be the subject of a transfer or first registration (Drywood, 2016). Without the Players' Status Committee's approval, no transfer can go ahead. Although FIFA and the Committee publish neither the results of supervision nor the status of players registered in the transfer matching system, it is a significant contribution by a global sport governing body to monitor and regulate an issue related to indicator 16.2.2. FIFA and the Committee investigated several cases that resulted in sanctioning a number of clubs in Europe with an administrative collaboration with FIFA's Disciplinary Committee. One of the significant cases occurred in April 2014, when FC Barcelona and the Spanish Football Federation were targeted for breaches related to the international transfer and registration of players under the age of 18 (van Maren & Marino, 2014). FIFA and its subcommittees jointly investigated through the Transfer Matching

System and identified the breaches that occurred between 2009 and 2013. Imposing a transfer ban and a fine on FC Barcelona and a fine on the Spanish Football Federation, FIFA demonstrated the organization's commitment as a governing body to the protection of minors.

Target 16.5 and its indicators (16.5.1 and 16.5.2) are about corruption and bribery. Global organizations such as the IOC, FIFA, and Transparency International have been endeavoring to tackle organizations' and members' corruptive behavior. Reducing corruption and bribery is an important step toward target 16.6 as well, as good governance can be built upon effective, accountable, and transparent institutional practices. Transparency International, a global coalition against corruption, published *Global Corruption Report: Sport* (2016) to provide an authoritative look at the state of corruption in the sport field and to implement necessary actions to tackle corruption in sport organizations. The report delineated how sport organizations uncovered corruption and what measures they have taken to reduce related activities. Chapters cover subjects including the status of good governance in sport organization (Chappelet, 2016), governance and corruption related to Asian football (Dorsey, 2016), corruption in African sport (Tsuma, 2016) and South American football (Kfouri, 2016), good governance in grassroots sport (Kirkeby, 2016), and crime and corruption in Hungary (Ligeti & Musci, 2016) and the city of Milan, Italy (Bonoli & Gozzoli, 2016). More specific areas of corruption discussed in the report are: the bidding process of sport mega-events (Horne, 2016; Szymanski, 2016; Zimbalist, 2016), the planning and management of sport mega-events (Burrow, 2016; Carpenter, 2016; Koval & Jvirblis, 2016; Maening, 2016; Mishra, 2016), sport organization's involvement in match-fixing (Trumpyte, 2016; Zaman et al., 2016), and intercollegiate athletics in the United States (Lopiano, 2016; Smith, 2016). The report itself demonstrates an effort to monitor the status of corruption and related behavior in multiple levels of sport (from global to local and grassroots)—a collective effort by a non-sport organization (Transparency International) and others from sport organizations such as the International Sport and Culture Association, Football Observatory of the Centre International, FIFPro, IOC, UNESCO, and UNI World Athletes.

Another important actor in promoting good governance in global sport is the IOC. Briefly mentioned above, it is one of the biggest global sport organizations that has fought to reduce corruption and develop good governance. After the Salt Lake City scandal, for which the IOC investigated around 30 of its members accused of receiving bribes from Salt Lake City's 2002 Winter Olympic bid committee, the IOC introduced a code of ethics to sanction unacceptable behavior (Chappelet, 2016). As a continuous effort to promote transparent governance, the IOC introduced Basic Universal Principles for Good Governance of the Olympic and Sports Movement (BUPs), organized in seven chapters. The BUPs were adopted at the Olympic Congress in 2009 (International Olympic Committee, 2009) and became incorporated into the IOC's Code of Ethics in 2010: "The Basic Universal Principles of Good Governance of the Olympic and Sports Movement, in particular transparency, responsibility and accountability, must be respected by all Olympic Movement constituents" (point C1 of the IOC Code of Ethics, International Olympic Committee, 2010). Gradually, good governance became embedded in the IOC's mission (Article 2.1), "to encourage and support the promotion of ethics and good governance in sport" (International Olympic Committee, 2011, p. 14), and the Olympic Charter (Fundamental Principle 5): "Sports organizations within the Olympic Movement shall have the rights and obligations of autonomy, which include [...] the responsibility for ensuring that principles of good governance be applied" (International Olympic Committee, 2011, p. 10). As a result, International Federations (IFs) and national Olympic committees (NOCs) then became obliged to practice good governance. The BUPs were implemented in 2012 by the IOC to evaluate 28 IFs that wanted to remain a part of, and seven

IFs that applied to join, the Summer Olympic Games programming (International Olympic Committee, 2012). Examples of criteria used included: the existence of a code of ethics, alignment of IF's Code of Ethics with the principles and rules of the IOC Code of Ethics, the existence of transparent and enhanced internal dispute resolution mechanisms, comparison between the number of women and number of men on the executive board (or equivalent), and rules and procedures to fight against competition fixing. Among the 35 IFs evaluated, one IF (United World Wrestling) underwent a provisional exclusion because it failed to follow the practices of good governance (e.g., it had no women on its executive board).

While the IOC was working to introduce its good governance standard, IFs and NOCs joined the work as well. The Union Cycliste Internationale adopted its rules of good governance in 2004 (Chappelet, 2016), followed by the Dutch Olympic Committee and the United States Olympic Committee in 2005, the Commonwealth Games Federation in 2006, and the European Team Sports Association in 2008 (Chappelet & Mrkonjic, 2013). Other examples of tools for measuring sport organizations' good governance practices include UK Sport's Governance Requirements, the Australian Sports Commission's Mandatory Sports Governance Principles, and the Basic Indicators for Better Governance in International Sport (Chappelet & Mrkonjic, 2013). Table 48.2 presents a chronological overview of published principles of good governance in sport.

Promoting peaceful and inclusive societies is one of the three main themes of SDG 16. As discussed in the previous section, the SDP field has flourished particularly after the UN recognized sport as an important apparatus for sustainable development. For example, F4P, one of the most significant peace-building interventions using sport, and its involved academics have conducted a number of studies on its outcomes since the beginning of the project (Schulenkorf & Sugden, 2011; Schulenkorf et al., 2014; Sugden, 2006a, 2006b, 2008, 2010). Due to the ethnically and politically complex nature of the project, most studies utilized qualitative approaches such as focus groups, observations, and interviews to identify the project's contribution to intergroup relations between disparate communities—in this case, Israelis and Palestinians. A study by Schulenkorf et al. (2014) that engaged with local participants found that sport (soccer) played a connective role as a vehicle around which to bring divided groups together in spaces and environments that were not hostile. John Sugden, who was a founding member of F4P, argued in his study (Sugden, 2010) that to objectively understand the outcomes of SDP programs, it is essential to have a two-fold evaluation: (1) ongoing learning about the social and political context to be used for the pragmatic design and development of the intervention and (2) detailed evaluation of the impact of the project at each level. This approach, positioned as "circular and inclusive" (p. 266) to research and evaluation, enabled the project to (re)develop organically "from the bottom up, as the knowledge and viewpoints gleaned from all key actors and stakeholders are used to refine and reform interventions year on year" (p. 266).

48.3 Implementation challenges

Despite the progress made over the past years concerning SDG 16 and its targets, stakeholders have encountered challenges and barriers when implementing relevant strategies. Understanding these challenges is crucial for developing political leadership and multi-stakeholder actions to accelerate progress, to ultimately achieve SDG 16 by 2030. First and foremost, progress toward SDG 16 has not been equal across different regions. Gaps among regions make it difficult to develop a holistic and universal strategy that can be adopted by multiple areas and countries at the same time. For example, according to the Asia and the Pacific SDG progress report (United

Table 48.2 List of published principles of good governance in sport

Organization	Year	Title
Union Cycliste Internationale	2004	Rules of good governance
Sport and Recreation South Africa	2004	Best practice principles of good governance in sport
UK Sport	2004	Good governance: A guide for national governing bodies of sport
United States Olympic Committee	2005	USOC preliminary NGB governance guidelines
Sport and Recreation New Zealand	2006	Nine steps to effective governance: Building high performing organizations
International Olympic Committee	2008	Basic universal principles of good governance of the Olympic and sports movement
European Team Sports Association	2008	Good governance by sports federations
Union of European Football Association	2011	Good governance menu card for UEFA member associations 2012-2016
Sport England	2011	Good governance guidance
Australian Sport Commission	2012	Governance principles: A good practice guide for sporting organizations

Adapted from "Basic indicators for better governance in international sport (BIBGIS): An assessment tool for international sport governing bodies", by Chappelet and Mrkonjic (2013, p. 28).

Nations Economic and Social Commission for Asia and the Pacific, 2020), SDG 16 was among the three goals with the most diverse patterns of progress observed across Asia-Pacific subregions. Another challenge comes from the lack of effective communication of statistics, that is, low data availability regarding SDG 16. Although data available on the SDG 16 indicators has substantially increased over the past few years, still data are lacking on many SDG 16 indicators. The Asia and the Pacific SDG progress report indicates that only four among 12 targets of SDG 16 were measured, leaving eight targets non-measurable due to the lack of, or skewed data. Therefore, there is a continuous need to collect robust, consistent, and comprehensive data to measure the progress across regions and to develop more effective communication and engagement with data users at the local and national levels.

The power imbalance between Global North and Global South, HIC and LMIC, or "the West and the Rest" (Hall, 1996, p. 184), has posed challenges in implementing contextualized and culturally sensitive practices toward SDG 16. Take the case of the IOC, for example, the proportion of IOC members from European countries was 48% while 15% for Asia, 17% for Africa, 5% for the Middle East, and 11% for Latin America as of 2006 (Brownell, 2008). Scholars like MacAloon (2008), Edwards and Skinner (2006), and Zakus (2005) also pointed out that the IOC's operation and management are deeply rooted in the European cultural and political tradition. When a global sport organization is operated with a region-focused perspective, it poses challenges to achieving good governance (target 16.6). Similar are the cases of SDP organizations operated at the global level. Programs are designed and funding is situated in HIC (usually located in the West) with little involvement of local communities and grassroots practitioners in LMIC (Coalter, 2013; Lindsey & Banda, 2011). As Nicholls et al. (2011) argued:

> Academics and development agencies in the Global North have consistently had the privilege of shaping what sport for development is and what constitutes relevant and valid evidence of its success. Grassroots practitioners' knowledge… is rarely considered as part of

the evidence base of sport for development and is often dismissed in favor of knowledges emanating from the Global North. (p. 250)

This power imbalance in SDP is a difficult challenge for organizations and practitioners to achieve progress toward SDG 16 as it can negatively impact the quality of governance of global SDP organizations. As indicated in target 16.8, broadening and strengthening the participation of developing countries (usually located outside the West) in the institutions of global governance is the key to achieve SDG 16. However, statistical and situational evidence indicates that global sport organizations need to take more actions to seek a balance in their governance system. Nevertheless, we have seen more recently that an increasing number of Olympic Games and other major events are held in non-power countries located outside the West (e.g., Brazil, China, South Africa). Global sport organizations' efforts to increase inclusivity in their governance systems and practices is and will be consistently needed to achieve SDG 16 in the near future.

Lastly, challenges exist in building effective and accountable institutions in the sport field. As Chappelet and Mrkonjic (2013) delineated in his report, global sport organizations are not governed by national laws, nor is there universal legal structure to regulate the organizations' operation and management activities. Both sport governing organizations (e.g., the IOC or FIFA) and SDP organizations operating globally (e.g., Right to Play or Beyond Sport) have a relatively higher level of autonomy for organizational governance (Chappelet, 2010). What is critical is that autonomy can hide corruption in sport organizations at all levels (see the case of Dan Doyle in Chapter 47). There are, however, very few ways to address and penalize organizations or individuals involved in corruptive and unethical behavior. For example, there are numerous international sport organizations located in the territory of Switzerland but rarely do Swiss judges prosecute such organizations due to restrictions related to international legal practices (Chappelet & Mrkonjic, 2013). As a strategy to prevent corruption in organizational governance, the United Nations Office on Drugs and Crime (UNODC) hosted the Convention against Corruption, followed by the publication of relevant strategies (United Nations Office on Drugs and Crime, 2013). Continuous efforts to develop appropriate regulations that can address and amend corruption and unethical activities will be necessary to achieve good governance in effective and accountable sport organizations.

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Applying Sustainable Development Goal 16

Taylor Smith

Free to Run operates in some of the most challenging regions in the world, where decades of conflict and instability have resulted in extreme isolation for women and girls, as well as harassment, constrained mobility, and unequal access to education. Using a combination of sports programs, life skills development, and community outreach, Free to Run helps women and girls reclaim public space and change views about the roles they can and should play in a society. Through this, Free to Run supports women and girls to transfer successes to their everyday lives so they can and will be a positive force in building an enduring equal and just society.

Since 2014, Free to Run has worked with over 3,500 women and girls in conflict regions, including past programs in Hong Kong, South Sudan, and Democratic Republic of Congo, and current programs in Afghanistan and Iraq. In 2020, Free to Run was awarded the Beyond Sports & Social Justice Award for its courageous use of sports, the With & for Girls Middle East and North Africa award for most disruptive girl-led organization, and founder and president Stephanie Case received the Meritorious Service Medal on behalf of the Office of the Secretary to the Government of Canada.

49.1 Relationship to sustainable development goals

Free to Run unites women and girls across cultures, offering the support to share experiences and challenge preconceptions to support the following SDGs:

- SDG 4: Quality Education: Through Free to Run's Life Skills through Sports (LSS) curriculum, women and girls are taught the skills to become self-reliant and take control of their lives, including positive communication, conflict prevention, and leadership skills.
- SDG 3: Good Health and Well-Being: Skills gained through LSS translate into all other aspects of young girls' and women's lives, with monitoring and evaluation (M&E) demonstrating positive impacts on sustained mental, physical, and social well-being.
- SDG 5: Gender Equality: Free to Run uses innovative sport activities to support women and girls to reclaim public space, building alternate visions to their futures through increased visibility.

- SDG 10: Reduced Inequalities: Through local community engagement, women and girls apply skills learned in LSS to their communities, exposing them to positive perceptions in public spaces and challenging inequalities.
- SDG 16: Peace, Justice and Strong Institutions: Free to Run's emphasis on inter-regional events encourages social inclusion and female participation in public spaces, decision-making processes, and community leadership roles, supporting their active involvement in peacebuilding movements.

49.2 FTR's approach

As a woman and youth-led organization, Free to Run uses adventure sports and life skills to support women and girls in areas of conflict to build physical, emotional, and social well-being, strengthening their involvement and active participation in local communities to unite people across cultural, ethnic, and religious lines. To achieve this, Free to Run implements the following approach:

- Community buy-in: Free to Run maintains an open dialogue with schools, parents, community members, and other key stakeholders about program structure and activities offered, answering questions and sharing the benefits of female engagement in sports.
- Create safe spaces: Free to Run creates safe spaces for women and girls to be active in ways and places they didn't think possible. Through regular community volunteering and positive community interactions, Free to Run challenges preconceptions communities hold about women's roles, increasing community acceptance and expansion of public safe spaces.
- Increase visibility: Free to Run brings women and girls outside of their usual environments and creates opportunities for new experiences through sport education, uniting them across cultures, offering them space, time, and support to begin sharing experiences and challenging preconceptions. This enables them to become visible to each other and those in surrounding communities.
- Learn through adventure sports: Free to Run's LSS curriculum is taught alongside adventure sports, such as running, hiking, and kayaking, teaching the skills needed for leadership, conflict resolution, resiliency, and effective communication.

49.3 Execution

49.3.1 Challenges

Due to Free to Run's focus on women and girls in conflict zones, security is a constant challenge. In response, programs are designed to respond to critical events flexibly that allow operations to run relatively seamlessly despite security-related obstacles. Free to Run also relies on a core group of individual relationships and agreements and varying recognizable patterns of movement to ensure the security of the programs and participants.

In 2020, Free to Run faced an unprecedented challenge: COVID-19. Fortunately, Free to Run's focus on socially distant activities (reclaiming public spaces outdoors and use of non-contact sports) and adaptability to a flexible virtual, hybrid, or in-person programming for security reasons allowed for a quick reaction that minimized program distribution. Free to Run is currently operating under a three-step approach, using a bi-weekly assessment, program/movement criticality matrix, and reopening guidelines to determine the program delivery

format. Preliminary, 2020 M&E data suggest that although the overall number of beneficiaries and events was lower due to COVID-19, programing was equally impactful.

49.3.2 Successes

Despite ongoing security issues in Iraq and Afghanistan, Free to Run has delivered on several ground-breaking initiatives. Successes include:

- In 2019, we reached over 870 participants across two countries (Iraq and Afghanistan) and seven provinces (Kabul, Mazar, Kandahar, Heart, and Bamyan in Afghanistan, and Erbil and Mosul in Iraq) through sports and education sessions, including over 30 participants with disabilities.[1]
- We are conducting over 1,800 sports sessions, including running, strength workouts, yoga and meditation, volleyball, ice skating, biking, and skiing to date.
- We are conducting over 1,050 educations sessions through FTR's LSS and nutritional curriculum to date.
- We are conducting over 40 community outreach events, six inter-regional sports and leadership weeks, four Paralympic races, and 13 mixed gender races to date.
- Supported the first woman to complete a marathon in Afghanistan and the first female Afghan teams to compete in international ultramarathons.

Additional successes can be told through the stories of our participants. First, in 2020, Free to Run participant Shaymaa received the Courageous Use of Sport Award Winner. Originally from Sinjar, she fled ISIS to an internally displaced persons (IDP) camp in Erbil. Shaymaa joined Free to Run in 2018 and has persevered through extremely difficult circumstances to become a coah for Free to Run, an advocate for women's rights, and a community activist. On the importance of sport in empowering women, Shaymaa says: "Sports is the secret of survival, the drive to achieve what I cannot do. It's the light in the midst of the darkness of displacement and masculinity which I've been forced to challenge."

Second, Sediqa was 17 when she joined Free to Run. At first, her family wouldn't let her join due to traditional beliefs. However, with the support of Free to Run, Sediqa's family granted her permission to join. Sediqa traveled to the Central Highlands for the Winter Inter-Regional Sports & Leadership Week—her first time traveling independently. On Free to Run's impact, Sediqa said:

> The (Winter Sports Week) was over a year ago, but I still remember the powerful feeling of being able to do something that was once impossible for me. It serves as a source of positive energy whenever I face difficult situations. Now, I am preparing for my university entrance exams. Every very morning, I tell myself that I can do it. Just as I found a way to participate in Free to Run and travel on my own to a different province with them, I will pass my exams and any other challenge in my life.

Note

1 2020 M&E data is currently being finalized.

Part XVII

Sustainable Development Goal 17: partnerships for the Goals

50

An overview of Sustainable Development Goal 17

Iain Lindsey

The statement of SDG 17 as an intention to "strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development" gives it a unique status in respect of the complete set of Goals specified in the *2030 Agenda for Sustainable Development* (General Assembly, 2015). Rather than focusing on a distinct aspect of sustainable development, SDG 17 articulates and prioritizes underpinning processes and mechanisms that are proposed as "key to realizing" the priorities expressed in the other 16 SDGs (General Assembly, 2015, p. 10). This positioning of SDG 17 means that it has a particularly broad scope with the *2030 Agenda* also including substantial additional text on the "Means of implementation and the Global Partnership" by which the collective aspirations of the SDGs are expected to be achieved. This breadth is expressed within the SDG itself, which is subdivided into five categories (Finance, Technology, Capacity Building, Trade, and Systemic issues) that, as subsequent sections of the chapter will articulate, have differing relevance to sport.

Initially, however, it is important to recognize three overarching features of SDG 17 that require consideration in any analysis of this Goal and overall implementation toward the SDGs in general. First, the General Assembly (2015) clearly and repeatedly articulates a national-level focus for policy development and implementation of SDG 17 and the other SDGs. For example, within the additional text of the *2030 Agenda* declaration, it is stated that:

> We underscore that, for all countries, public policies and the mobilization and effective use of domestic resources, underscored by the principle of national ownership, are central to our common pursuit of sustainable development, including achieving the Sustainable Development Goals. (General Assembly, 2015, p. 29).

This prioritization of "national ownership" of SDG implementation within individual countries is aligned with, and adds weight to, the central role accorded to national governments in the *2030 Agenda*. While this second feature has specific implications for sport that will be considered further in this chapter, it is recognized that governments cannot deliver on the SDGs alone. Thus, the third defining feature associated with SDG 17 is the importance of partnerships in "bringing together Governments, the private sector, civil society, the United Nations system and other actors and mobilizing all available resources' towards the SDGs as a whole"

(General Assembly, 2015, p. 28). Embedding these three features throughout, the chapter now moves in the following sections to discuss particular SDG 17 targets, relevant theories, and broader connections to sport in turn.

50.1 Targets

The scope and breadth of SDG 17, as indicated in the previous section, are exemplified by it having a set of 19 associated targets that is greater in number than any other SDG. While the full list of these targets is included in Table 50.1, it is necessary in the chapter to focus on those that may be, and have been identified as, particularly relevant or priorities for sport. The most comprehensive practical or academic analyses that has considered SDG 17 and sport have been undertaken by and for the Commonwealth Secretariat (2016, 2017a). These sources highlighted specific SDG targets that may be clustered into those related to policy, partnerships, resources, and monitoring and evaluation, as follows.

50.1.1 Policy targets in SDG 17

SDG 17 targets specifically orientated toward policy are 17.15, which reiterates the commitment to "respect each country's policy space," and 17.13 and 17.14, which both focus on policy coherence and coordination toward "global macroeconomic stability" and "poverty eradication and sustainable development," respectively.

The inclusion of policy coherence in two SDG targets reflects the growing prominence of this concept in international development and global policies from the mid-2000s onward. While there is little explicit elaboration in the *2030 Agenda for Sustainable Development* and SDGs themselves as to what policy coherence may specifically entail, Ashoff (2005) provides a commonly reproduced and influential overview that recognizes that:

> The term "policy coherence" is used in two senses. …On the negative side, it means the absence [removal] of incoherencies, i.e., of inconsistencies between and the mutual impairment of different policies. …On the positive side, it means the interaction of policies with a view to achieving overriding objectives. (p. 11)

This differentiation of negative incoherencies and positive synergies that may exist across different policies reflects the historical emergence of policy coherence as a concept and ambition. Originally, aspirations for policy coherence were primarily recognized in the policies of a range of multinational agencies that primarily represent Northern donor countries, such as the Organisation for Economic Co-operation and Development (OECD), its Development Assistance Committee, and the European Union (Barry et al., 2010; Verschaeve et al., 2016). These organizations sought to address intentional and unintentional "incoherencies" across different policies of Northern donor countries, such as those separately concerned with trade and development, which ultimately hindered the achievement of development outcomes in countries of the Global South. The subsequent expansion of thinking about policy coherence has not only encompassed enhancing complementary "synergies" between different policies among donor countries, but also spanned different "vertical" and "horizontal" axes. As such, policy coherence has been increasingly recognized as a multi-level concept, "vertically" applicable across global, international, national, and sub-national policies (OECD, 2016) and "horizontally" across the range of public, private, and civil society organizations that influence the achievement of policy coherence in different countries (Janus et al., 2015; OECD, 2016). In

Table 50.1 Targets of Sustainable Development Goal 17

Finance	
17.1	Strengthen domestic resource mobilization, including through international support to developing countries, to improve domestic capacity for tax and other revenue collection
17.2	Developed countries to implement fully their official development assistance commitments, including the commitment by many developed countries to achieve the target of 0.7% of gross national income for official development assistance (ODA/GNI) to developing countries and 0.15 to 0.20% of ODA/GNI to least developed countries; ODA providers are encouraged to consider setting a target to provide at least 0.20% of ODA/GNI to least developed countries
17.3	Mobilize additional financial resources for developing countries from multiple sources
17.4	Assist developing countries in attaining long-term debt sustainability through coordinated policies aimed at fostering debt financing, debt relief and debt restructuring, as appropriate, and address the external debt of highly indebted poor countries to reduce debt distress
17.5	Adopt and implement investment promotion regimes for least developed countries

Technology

17.6	Enhance North-South, South-South and triangular regional and international cooperation on and access to science, technology and innovation and enhance knowledge sharing on mutually agreed terms, including through improved coordination among existing mechanisms, in particular at the United Nations level, and through a global technology facilitation mechanism
17.7	Promote the development, transfer, dissemination and diffusion of environmentally sound technologies to developing countries on favourable terms, including on concessional and preferential terms, as mutually agreed
17.8	Fully operationalize the technology bank and science, technology and innovation capacity-building mechanism for least developed countries by 2017 and enhance the use of enabling technology, in particular information and communications technology

Capacity-building

17.9	Enhance international support for implementing effective and targeted capacity-building in developing countries to support national plans to implement all the Sustainable Development Goals, including through North-South, South-South and triangular cooperation

Trade

17.10	Promote a universal, rules-based, open, non-discriminatory and equitable multilateral trading system under the World Trade Organization, including through the conclusion of negotiations under its Doha Development Agenda
17.11	Significantly increase the exports of developing countries, in particular with a view to doubling the least developed countries' share of global exports by 2020
17.12	Realize timely implementation of duty-free and quota-free market access on a lasting basis for all least developed countries, consistent with World Trade Organization decisions, including by ensuring that preferential rules of origin applicable to imports from least developed countries are transparent and simple, and contribute to facilitating market access

Systemic issues

Policy and institutional coherence

17.13	Enhance global macroeconomic stability, including through policy coordination and policy coherence

(*Continued*)

Table 50.1 (Continued)

Finance	
17.14	Enhance policy coherence for sustainable development
17.15	Respect each country's policy space and leadership to establish and implement policies for poverty eradication and sustainable development

Multi-stakeholder partnerships	
17.16	Enhance the Global Partnership for Sustainable Development, complemented by multi-stakeholder partnerships that mobilize and share knowledge, expertise, technology and financial resources, to support the achievement of the Sustainable Development Goals in all countries, in particular developing countries
17.17	Encourage and promote effective public, public–private and civil society partnerships, building on the experience and resourcing strategies of partnerships

Data, monitoring and accountability	
17.18	By 2020, enhance capacity-building support to developing countries, including for least developed countries and small island developing States, to increase significantly the availability of high-quality, timely and reliable data disaggregated by income, gender, age, race, ethnicity, migratory status, disability, geographic location and other characteristics relevant in national contexts
17.19	By 2030, build on existing initiatives to develop measurements of progress on sustainable development that complement gross domestic product, and support statistical capacity-building in developing countries

Source: General Assembly (2015).

this way, SDG 17 targets for policy coherence are well-aligned with the broader focus of the Goal as well as with specific targets that are centered on the systematic development of partnerships.

50.1.2 Partnership targets in SDG 17

"Multi-stakeholder partnerships" are recognized in SDG 17.15 an also a further two specifically-focused SDG 17 targets. SDG 17.16 is centered on how an enhanced "Global Partnership for Sustainable Development" can seek to "mobilise and share knowledge, expertise, technology and financial resources." SDG 17.17 focuses more on the range of stakeholders potentially involved in partnerships through recognition of the need to "encourage and promote effective public, public–private and civil society partnerships, building on the experience and resourcing strategies."

Policy and rhetoric that has advocated enhanced partnerships have a long history, predating the adoption of the *2030 Agenda* and SDG 17. Most prominently and pertinently, the eighth and final Millennium Development Goal reads very similarly to relevant SDGs in seeking "to develop a global partnership for development" (General Assembly, 2005). Given this continuing emphasis, it is perhaps unsurprising that partnership has been recognized as a development "buzzword" that is characterized by "ambiguity" (Black, 2010, p. 125). As far back as the turn of the century, Fowler (2000) captured the ways in which the terminology of partnership has been loosely and problematically applied: "Relationships within and beyond

institutions in the [development] aid system are dominated by the notion of 'partnership' between everyone, for everything, everywhere" (p. 23).

Nevertheless, and similar to the concept of policy coherence, it is appropriate to differentiate between vertical and horizontal forms of partnership. "Vertical" relationships that may be considered to be, or termed as, partnerships would typically be those that span international development donors from the Global North and beneficiaries such as non-governmental organizations in the Global South. As shall be further discussed in the following sections, such partnerships may seek to address—or, alternatively, perhaps mask—wider power inequalities between development stakeholders in the Global North and South. Harrison (2007) goes as far as suggesting that the "rhetoric of partnership therefore focuses on reversing the power relations in the aid chain" (p. 391).

Alternatively, "horizontal" partnerships may be those that encompass development actors in particular geographical areas or operating at similar levels. Such partnerships, as SDG 17.17 refers to, may span and bring together organizations from public, private, or civil society sectors. The different forms that these relationships and partnerships could take will be further examined in the penultimate section of the chapter. Furthermore, and again linked to policy coherence, horizontal partnerships can also bring together different institutions and organizations from across different policy sectors, such as education, health, and sport.

50.1.3 Resource-oriented targets in SDG 17

The number of SDG 17 targets oriented toward financial resources is a clear indicator of the importance of increasing funding in order to enable implementation toward the collective set of SDGs. While the *2030 Agenda* (General Assembly, 2015) is clear that the SDGs and targets are "universal…and involve the entire world" (p. 3), the resource-oriented SDG 17 targets encompass a clear differentiation in respect of "developing" and "developed" countries. For developing countries, the importance of "mobilising additional financial resources…from multiple sources" is specifically indicated in SDG 17.3. This focus is reinforced in SDG 17.1 and SDG 17.5, which represent targets to "strengthen domestic resource mobilization" through "improved tax and revenue collection" and improve "investment promotion regimes" for developing and least developed countries, respectively. The focus of these aspirations is, therefore, is not only toward developing countries but also specifically toward their internal resource generation to implement sustainable development.

Alternatively, SDG 17.2 specifically concerns resources provided by "developed countries" highlighting existing targets of 0.7% gross national income for "official development assistance" and giving encouragement to providing at least 0.2% specifically to least developed countries. Debates regarding the value and consequences of international aid, both more generally and within sport, remain contentious especially given connections to histories of colonialism, and inequalities of power and financial resources. While not wishing to underplay the complexity of these debates, it can be simply recognized that this SDG target will not resolve, but may also continue, these issues. The full wording of target 17.2 is certainly written in a more qualified way than others in SDG 17. Moreover, even though the target offers some particular focus on those countries identified by the United Nations as "least developed," the specific set of "developed countries" that have specific responsibilities to the target remains somewhat open to interpretation in the *2030 Agenda* and in broader United Nations documentation.

As well as these targets focused on financial resources, the focus of SDG 17.9 on "international support for…capacity-building" is recognized within related sport policy documents (Commonwealth Secretariat, 2016, 2017a; UNESCO, 2017) to relate to institutional and

human resource development required for work toward implementation of the SDGs. There is a broader conceptualization of the direction and flow of international capacity-building support in SDG 17.9 than in the other finance oriented targets. Besides support through "North–South" relationships, the text of the target is notable in also recognizing potential for "South–South" cooperation, which refers to capacity building support between countries that the *2030 Agenda* otherwise refers to as "developing." In doing so, SDG 17.9 gives brief recognition of wider interest and some support for moving beyond "conventional North-to-South development models" (Giulianotti et al., 2019, p. 418) that may otherwise remain implicitly embedded in repeated encouragement for a "Global Partnership for Sustainable Development" (General Assembly, 2015).

50.1.4 Data and monitoring targets in SDG 17

Two specific SDG 17 targets relate to collection, collation, and use of data. These targets are also related to the designation of indicators for all SDGs and wider consideration in the *2030 Agenda* of processes for reviewing overall implementation of the SDGs. While the following chapter reviews specific indicators for SDG 17, key features of SDG 17.18 and SDG 17.19 have broader resonance and implications that are relevant to consider briefly here.

Most obviously, both targets are oriented toward quantitative data and forms of analysis that are emphasized in the *2030 Agenda* more broadly. Specifically, SDG 17.19 seeks in part to "build on existing initiatives to develop measurements of progress on sustainable development that complement gross domestic product." In this regard, this target is in keeping both with global measures such as the UN's Human Development Index that emerged from the 1990s as a counterpoint to purely economic indicators of development (Darnell et al., 2019) and also the broader focus of the *2030 Agenda* and SDGs on "people," "planet" "peace," and "partnership," as well as "prosperity."

Both SDG 17.18 and SDG 17.19 also give importance to capacity-building support for developing countries to enable "availability of high-quality, timely and reliable data" (General Assembly, 2015, p. 27). In this regard, there are clear connections with both the resource-oriented SDG 17 targets considered previously and the national-level focus that is evident in the *2030 Agenda* more broadly. SDG 17.18 also links to the *2030 Agenda* theme of that "no one is [to be] left behind" in advocating disaggregation of data by "income, gender, age, race, ethnicity, migratory status, disability, geographic location and other characteristics relevant in national contexts," with the final qualification in this phrase again emphasizing national approaches to implementing the SDGs.

50.2 Theoretical foundations

Returning to the three key features of SDG 17 identified in the first section of this chapter, it is relevant to recognize that national-level policies, governmental leadership, and partnership across different sectors have been subject to limited research in respect of sport and sustainable development specifically. There is certainly a variety of previous research in different contexts that examines national sport policies and governance in sport, and partnerships and relationships between different sporting organizations respectively. Nevertheless, the breadth and alternative focus for sport provided by the SDGs necessitates further conceptual consideration that may link to the features of SDG 17 and the *2030 Agenda* specifically.

Research in the development studies field has, however, given significant attention to issues connected to, and ultimately the features of, SDG 17 over a considerable period of time. Of

	ENDS	
	Common potential impacts toward (particular) SDGs	Divergent potential impacts detract from (particular) SDGs
MEANS OF IMPLEMENTATION	State-centered Implementation	State-led regulation
	Complementary Implementation / Co-Produced Implementation	
	Non-state-centered Implementation	Non-state-led adversarial advocacy

Figure 50.1 Configurations of potential relationships between state and non-state actors in sport and sustainable development.

particular relevance are theorizations that consider the role of, and types of relationships between, state and non-state actors in implementing development policies and practices (see Teamey, 2010, for a review of such theorizations in the development studies literature). For sport and sustainable development, these theorizations can offer an entry point to considering and conceptualizing approaches to SDG 17 and implementation of all SDGs within specific countries. This thinking informed the work undertaken in part by the author of this chapter in providing a framework for policy guidance on sport and the SDGs for the Commonwealth Secretariat (2017a) and its member governments. Subsequently, Lindsey et al. (2020) developed this work into an extended conceptualization of potential relationships between state actors (i.e., governmental institutions at different levels) and non-state actors (e.g., governing bodies of sport, sport-for-development NGOs, other organizations from within and outside sport) that may enable sport to contribute to various SDGs.

A starting point for this conceptualization was recognizing the importance of moving beyond the simplistic terminology of "partnership" that has continued to predominate across sport and development sectors. The range of potential state and non-state organizations, as well as varied country contexts across the world, means that conceiving of all relationships as "partnerships" is limiting both for improving the potential contribution of sport to the SDGs and for academic research that seeks to improve analysis and understanding in this regard. Drawing on insights offered by Najam (2000) and Teamey (2010) in particular, the conceptualization offered by Lindsey et al. (2020) distinguished relationships by: (i) the extent to which the development aims of particular state and non-state actors may or may not be aligned and (ii) the balance and extent of integration between state and non-state actors' contributions to development-oriented implementation. This distinction and further engagement with other development studies literature led to a conceptualization that identified six potential configurations of state and non-state actors involved in sport and development, as shown in Figure 50.1 (Lindsey et al., 2020) and explained further in the following paragraphs.

In line with the approach to "national ownership" in SDG 17 and the 2030 Agenda, *state-centered implementation* represents a configuration in which government and other state institutions have the principle role in working toward sustainable development outcomes. Although Lindsey et al. (2020) recognize this approach to implementation is more common in

other development sectors than in sport, the case of physical education is a relevant exemplar where there is consistent recognition of governments' responsibility to ensure universal provision and access (e.g., United Nations, 1989; UNESCO, 2015; United Nations Office on Sport for Development and Peace and International Olympic Committee, 2011). This points to a wider acknowledgement by Batley and Mcloughlin (2010) that state-centered implementation may be particularly relevant when sustainable development entails universality of provision or scale of impact, even though that may require substantial capacity or resource on behalf of governments.

Governments also have a principal role in a further configuration that Lindsey et al. (2020) term as *state-led regulation*, which would involve implementation and enforcement of regulations that constrain the operation of non-state organizations in some way. Again, there may be limited cases in sport where governments' approach in this regard may move beyond providing legal frameworks that may fundamentally support the operation of non-state organizations. Nevertheless, state-led regulation can become appropriate in cases where non-state actors are operating in ways that may be detrimental to sustainable development. Corruption and violence and abuse against children and women may be two such cases that are specifically relevant to particular SDGs (5 and 16). Regulating non-state organizations does still, however, require governmental capacity and there also needs to be care that the constraints that it does entail do not "have an adverse impact…without achieving compensatory benefits" (Batley & Mcloughlin, 2010, p. 136).

Lindsey et al. (2020) suggest two further types of configurations in which there are greater, productive engagement between state and non-state actors. *Co-produced implementation* would entail formalized relationships and pooling of some resources between those involved. Either state or non-state actors may be the source, recipients or conduit for different types of resources, dependent on the nature and context of specific relationships. From similar examples in other development sectors, Mayhew (2005) and Sansom (2006) suggest that pooling of resources in co-production likely brings requirements to specify agreed objectives, practices, and accountability mechanisms between organizations involved. While specific examples of co-production are likely to involve relatively small groups of state and non-state organizations, there may be imbalances of power or dependency in such relationships dependent on the extent of resources contributed by different actors (Mcloughlin, 2011; Soublière & Cloutier, 2015).

In comparison, *complementary implementation* involves looser, and perhaps more informal relationships, between state and non-state actors. Such relationships could be oriented toward mutual development of policy, sharing information or data, and support through different areas of expertise (Batley & Mcloughlin, 2010; Maxwell and Riddell, 1998). Nevertheless, Brinkerhoff (2002) suggests that relationships toward complementary implementation are unlikely to have the same formalized status or requirements as in co-production and so may be more flexible and fluid. There is also potential for complementary relationships to vary according to the numbers of actors involved, across a span from bilateral associations between specific state and non-state organizations to wide-scale, multi-actor networks (Batley & Mcloughlin, 2010). On the other hand, Lindsey et al. (2020) suggest that this approach may not always be well suited to "scaling up" implementation, even though mutual learning may lead to the expansion of operations over time through "processes of imitation, example and institutional replication" (Batley & Mcloughlin, 2010, p. 145).

The further two types of relationships identified by Lindsey et al. (2020) involve more independent action by non-state organizations. *Non-state-centered implementation* is currently a common approach by sport organizations in many contexts in which they are working toward sustainable development objectives. This aligns with historical claims to the "autonomy of

sport," and also the predominance of non-governmental organizations (NGOs) in the expanding Sport for Development and Peace (SDP) sector. This type of implementation is also often underpinned by the rationale that non-state actors are better connected to population groups and are also well-positioned to enact participatory and grassroots-oriented development (Banks & Hulme, 2012). On the other hand, non-state-centered implementation may result in provision that is "uneven" across geographic areas or demographic groups (Lindsey et al., 2020). It is also important to recognize that governments and other state actors are not irrelevant in this configuration, but may still valuably provide a wider legal or policy framework that enables the work of non-state actors to proceed effectively.

Alternatively, *non-state-led adversarial advocacy* is characterized by non-state actors positioning themselves as "challengers" to (Pereira, 2005) or in "adversarial relationships" (Young, 2000) with state institutions. Such an approach may be relevant when state-led policies and practices associated with sport are detrimental to sustainable development. As an example, Lindsey et al. (2020) point to campaigns that have highlighted cases in which particular states have been complicit with, or even responsible for, breaches of human and workers' rights in the hosting of mega-events. Those actors undertaking adversarial advocacy may operate in isolation or in particular networks, and may also include individuals such as athletes, activists, reporters, and academics (Giulianotti, 2011a; Wilson et al., 2015). Nevertheless, this type of approach and configuration may remain relatively uncommon in respect of challenging states' involvement with sport specifically.

In presenting all six of these configurations, it is important to recognize various complexities of relationships between state and non-state actors that are likely to exist in practice. The different types of relationships between state and non-state actors are not mutually exclusive, in that there can be engagement in several, differently configured relationships at the same time. Moreover, complex interactions among state and non-state organizations will, in practice, cut across and blur distinctions between the six configurations. As an example, Lindsey et al. (2020) identify that "there may be blurred boundaries between states offering passive support (for example, by developing a coherent policy framework) and imposing regulatory or other constraints on implementation by non-state actors" (p. 137). Furthermore, relationships between particular state and non-state actors can be fluid and so may change over time between the types of configurations suggested.

While Lindsey et al.'s (2020) conceptualization is intended to have widespread application, it is recognized that different configurations of relationships may have greater or less relevance dependent on different country contexts with different state and non-state actors and for implementation toward different SDG and targets. In regard to the latter, for example, addressing SDG 3.4 in respect of non-communicable diseases requires a scaled approach that may only be feasible with significant degrees of state involvement. Alternatively, the use of sport to reduce violence in communities or societies (SDG 16.1) may be best served by having more localized and flexible provision led by non-state actors to a greater extent. Contextually, Lindsey et al. (2020) recognize that the governance and political systems in particular countries, balances of power between different actors and the characteristics of specific organizations are also factors that likely influence the type of relationships that can and do emerge.

50.3 Connections to sport

This final section of the chapter will illustrate issues and practices in sport that are relevant to the key features of SDG 17 identified in the introductory section, connect to the different SDG 17 targets that have been highlighted, and the theorization offered in the previous section.

The challenges of addressing SDG 17 through an integrated approach to sport and development implementation, involving coordination and partnership working, are particularly acute given the range and variety of relevant organizations and stakeholders. As a valuable starting point, Giulianotti (2011a) identifies four functional categorizes of organizations involved in the SDP sector: (i) national governmental and intergovernmental agencies and organizations and sport federations, (ii) mainstream NGOs and community-based organizations, (iii) private/commercial institutions, and (iv) new social movements and radical NGOs. Complexity only grows when different geographical scales are considered, given the orientation of the *2030 Agenda* and the breadth of the SDGs. Taking just one of Giulianotti's categories, and considering at the country level that SDG 17 is focused on, Lindsey and Bitugu (2018) recognize the diversity of NGOs and community-based organizations in their studies in both Ghana and Tanzania, with these organizations differentiated by their developmental purposes, specialisms and scale of organization. Moreover, as with other types of organizations in Giulianotti's categorization, NGOs may individually operate at different international, national, or local scales. More broadly, as will have been identified across this book, many sport organizations outside the SDP sector have relevance given new dimensions of development agendas encompassed by the SDGs. Equally, consideration needs to be given to organizations from other development sectors whose work may intersect with sport.

Given this diversity and complexity, it is unsurprising that any progress toward SDG 17 aspirations for policy coherence and partnership must be considered in light of and overcome problems that can be deep-rooted. Competition among SDP organizations, especially for funding, has been repeatedly and widely identified (Giulianotti, 2011b; Kidd, 2008). Significant power imbalances exist between organizations in the Global North that may provide funding for those in the Global South that deliver sport and development programs (Coalter, 2010; Straume & Hasselgård, 2014). Elite sport policies and the practices of professional sport organizations can work counter to policy coherence with development agendas, as Lindsey and Darby (2019) explore in regard to sport-related migration and SDGs 8.7, 8.8, and 10.7. Notwithstanding these and other problems, Lindsey et al. (2020) present examples of productive relationships across the different types identified in the previous section. Efforts toward policy coherence across sport and with other sectors are also being prompted by international institutions (e.g., Commonwealth Secretariat, 2018; World Health Organization, 2018) and the prominence of non-communicable diseases worldwide means that various nations sport policies have increasing connections to SDG 3.4, for example.

There is also some wider evidence of national governments taking more proactive positions on linking sport with development objectives, in line with the *2030 Agenda* and SDG 17. This has certainly been an aspiration that has been a feature of many global policy documents over an extended period. For example, the Sport for Development and Peace International Working Group highlighted in 2008 that:

> national governments can play an important role in convening key players to encourage knowledge exchange, networking, collaboration, partnerships, and coordinated participation in national Sport for Development and Peace policy and program development and implementation. (p. 14)

In examining the extent to which governments in sub-Saharan Africa considered sport in wider development policies, Lindsey and Bitugu (2018) examined the national Poverty Reduction Strategy Papers published for 33 countries between 2003 and 2014. While only Madagascar's national development policy contained a passage on sport in 2003, a steady increase was found

over time until 31 of 33 countries did so in their most recent national development policies published by 2014. Establishment of further national policies for sport and development since the advent of the *2030 Agenda* can also be identified in other countries, such as Mauritius, Botswana, and Sierra Leone (Commonwealth Secretariat, 2017b).

Various evidence does, however, point to various limitations and challenges of implementation toward national policy goals for sport and development. Keim and de Coning's (2014) in-depth, comparative study of sport and development policies across 10 sub-Saharan African countries concluded that there was a lack of "necessary political commitment and leadership" in order to progress policies oriented toward sport and development. Lindsey and Bitugu's (2018) study also suggested that specific policy approaches for sport and development were not fully recognized, and instead a majority of passages in countries' Poverty Reduction Strategy Papers focused on more traditional aims of providing varying types of sporting infrastructure and developing performance in sport. Connected to the resources issues associated with those SDG 17 targets considered earlier, it is perhaps the limitations and relative prioritization of financial resources that remain the most significant barrier to government-led policy implementation. Dudfield (2014) captures this issue in characterizing governmental sport policymakers as being "highly supportive of SDP [but] they have to balance high performance sport and sport development priorities with investment in SDP drawing from an already overstretched resource pool" (p. 6).

A final area of consideration is in respect of evidence and data for sport and development, associated with SDG targets 17.18 and 17.19. Concerns about the extent and quality of the evidence-base for contributions by sport to various development objectives have been widely and consistently articulated (e.g., Harris & Adams, 2016; Hartman & Kwauk, 2011; Sport for Development and Peace International Working Group, 2006). There have been significant efforts toward building capacity and providing guidance for evaluation of particular sport and development programs (Levermore, 2011). However, the focus on national-level data in SDG 17 and the *2030 Agenda* highlights a particular issue with regard to sport. As articulated in UNESCO's (2017) "Kazan Action Plan" for sport policy implementation, "the current scale and quality of data and, especially, of national data sets on physical education, physical activity and sport and sustainable development are limited; they vary significantly across contexts and policy domains." Global efforts to enhance sport and sustainable development policy have recently, therefore, included a specific project to identify a set of "model indicators" to measure and evaluate the contribution of sport, physical education, and physical activity to prioritized SDGs and targets. Publication of a draft set of 84 SDG-specific indicators (Commonwealth Secretariat, 2020) has been followed by piloting their integration into national or institutional monitoring and evaluation processes by four countries and the International Paralympic Committee. These monitoring efforts may be in their infancy, but as with other aspects of SDG 17, progress is ultimately essential to drive the contribution of sport across all of the SDGs.

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Measuring Sustainable Development Goal 17

Ashlyn Hardie and Marlene A. Dixon

Each year, the Secretary-General generates a *Progress Towards the Sustainable Development Goals Report* to note the progress being made toward the 2030 Sustainable Development Goals. In September 2019, global leaders realized that while progress was being made, the world's implementation efforts needed to dramatically increase to reach all 17 of the SDGs by 2030 (Economic and Social Council, 2020). The United Nations (UN) forum of 2020 utilized the most up-to-date information as of April 2020 to address progress toward the Goals. Specifically, as it relates to Goal 17, the report stated:

> Strengthening global partnerships and enhancing the means of implementing the Goals have remained a challenge owing to scarce financial resources, trade tensions, technological obstacles, and a lack of data. The pandemic is adding hardships to the implementations of the Goals. As COVID-19 continues to spread, global financial markets have experienced great losses and intense volatility, and more than $100 billion in capital has flowed out of emerging markets since the outbreak, the largest outflow ever recorded. World trade is expected to plunge by between 13 and 32% in 2020. Strengthening multilateralism and global partnerships is more important than ever before. The global nature of the pandemic requires the participation of all governments, the private sector, civil society organizations and people throughout the world. (p. 140)

Global partnerships have always been a critical key to success for the SDGs, but they will be even more pressing in the following decade as nations work to survive and recover from the COVID-19 pandemic, in addition to then pressing onward to reaching the Goals for the 2030 mark.

51.1 Indicators of progress

To more specifically address the progress announced on the Goal 17 targets, the remainder of this chapter will cross-reference the report with measurable indicators that fall under the various targets of Goal 17. *The Sustainable Development Goals Report* (United Nations, 2020) further depicts progress that has been made in the various target categories, including finance, technology, capacity-building, trade, and systemic issues.

51.1.1 Financial

At the organizational and national level, groups working toward Goal 17 are struggling to make progress toward financial targets and indicators. For example, indicators 17.3.1 and 17.3.2 respectively call for "FDI, ODA and South–South Cooperation as a proportion of total domestic budget," and "volume remittances (in United States dollars) as a proportion of total GDP." The data indicate that official development assistance (ODA) is not advancing sufficiently to meet related targets by 2030 and that foreign direct investment (FDI) is expected to decline drastically.

51.1.2 Technology

Indicators for targets in information and communication technology have shown a continuous increase. For example, the number of broadband subscriptions per 100 inhabitants (indicator 17.6.2) has shown regular growth. However, while over 50% of the global population is now online (addressing indicator 17.8.1: "Proportion of individuals using the internet") and broadband connections are continuing to rise, in developing countries, minimal progress has been made due to a lack of funding and infrastructure. It is worth noting that COVID-19 has exposed just how detrimental this digital divide can be for developing communities, and therefore heightens the importance of cooperative agreements and programs between countries to help increase science and technology on a global scale (indicator 16.6.1).

51.1.3 Capacity-building

The only noted indicator of capacity-building target 17.9 is the dollar value of financial and technical assistance allocated to developing countries. The percentage of overall aid allocated toward capacity-building has not increased but has remained stable since 2010 (Economic and Social Council, 2020).

51.1.4 Trade

Various indicators for progress in trade targets show stagnation or decline. Unfortunately, the worldwide weighted tariff-average (indicator 17.10.1) has declined slightly, and global exports for developing and least developed countries have remained stagnant (indicator 17.11.1).

51.1.5 Systemic issues

From 2018 to 2019, an additional 21 countries reported having national statistical legislation that complies with the Fundamental Principles of Official Statistics (indicator 17.18.2), and 12 additional countries reported implementation of a national statistics plan. While progress toward data, monitoring, and accountability are undeniable, fully funded programs remain at only 25% in sub-Saharan Africa (indicator 17.18.3), and international funding remains around roughly half of what is needed for data and statistics (indicator 17.19.1).

51.1.6 Progress update: impact of COVID-19

The coronavirus pandemic impacted progress toward many of the UN SDGs but has had specific implications for Goal 17. *The Sustainable Development Goals Report* (United Nations, 2020) explains:

> Support for implementing the SDGs has been steady but fragile, with major and persistent challenges. Financial resources remain scarce, trade tensions have been increasing, and crucial data are still lacking. The COVID-19 pandemic is now threatening past achievements, with trade, foreign direct investment, and remittances all projected to decline. The pandemic also appears to be accelerating existing trends of global value chain decoupling. One of the few bright spots at this time is the increased use of technology as people flock to the Internet to work, shop, and connect with others, but even this draws attention to a still-enormous digital divide. Containing COVID-19 requires the participation of all Governments, the private sector, civil society organizations and ordinary citizens around the world. Strengthening multilateralism and global partnership are more important than ever. (p. 58)

It is also important to note that increasing the number of citizens with internet access is a fundamental step, but it still requires technological devices to access the internet. For example, in September 2020, Praveen Pk, Founder of Foot & Boot in Delhi, India, said that during the lockdown phases he and his staff would try to connect with the players via telephone to work on various exercises and practice their English, but due to the technological limitations (e.g., one phone per family of many kids, phones without video capabilities), challenges persisted (P. Pk, personal communication, November 11, 2020). Further, he said they were searching for smartphones to help the children "because their classes are online and there is only one phone in a family that has many children." Fortunately, through a facilitated partnership with a U.S.-based youth soccer club, those needs were met by December 2020.

51.1.7 Goal 17 targets with a 2020 deadline

By the end of 2020, 21 of the 169 SDG targets will have reached maturation; two of these targets belong to Goal 17. This section will briefly address these two targets and their progress assessments as of June 2020 (United Nations, 2020). Regarding target 17.11—"Increase the exports of developing countries and double the share of LDC global exports"—it was reported that no progress has been made because LDC exports are "roughly the same level as 10 years ago" and the share of exports from developing countries has "flattened over the last few years" (p. 61). Target 17.18—"Enhance capacity-building support to developing countries to increase the availability of timely, quality, and disaggregated data"—was reported to have made progress, but not enough to meet the target. While national statistical legislation and reported nations with national statistical plans increased, "many also reported that they lacked sufficient funding for full implementation" (p. 61). Thus, the measurements reflecting indicators of Goal 17 targets show insufficient progress for the *2030 Agenda* (General Assembly, 2015), but they also show the importance and relevance of measuring progress (and lack thereof) toward the Goals. Other targets of Goal 17 have seen considerably higher progress, but measurement methods remain a challenge.

51.2 Measurement in sport

The adoption of Resolution 70/1 *Transforming Our World: the 2030 Agenda for Sustainable Development* by the United Nations General Assembly in 2015 had significant implications for sport and sport organizations around the globe. While sport is not explicitly written into any of the SDGs, the new agenda declared:

Sport is also an important enabler of sustainable development. We recognize the growing contribution of sport to the realization of development and peace in its promotion of tolerance and respect and the contributions it makes to the empowerment of women and of young people, individuals and communities as well as to health, education and social inclusion objectives. (p. 37)

This declaration in the *2030 Agenda* showed recognition for the increased activities and associated global development efforts that had been facilitated in the sport for development and peace (SDP) sector (Lindsey & Darby, 2019), supporting that education-oriented approaches to sport for development (SFD) and SDP substantially contribute to sustainable development. Specifically, as it relates to Goal 17, two target subgroups seem to be the most salient in academic and practitioner dialog and focus within the sport context: (1) policy coherence and (2) multi-stakeholder partnerships. These will be discussed further in the remainder of this chapter.

Before moving on to the discussion of measuring Goal 17 progress and discussing indicators in sport, it is important to address the irony that the aforementioned components of Goal 17 (i.e., policy coherence and multi-stakeholder partnerships) are quite possibly truly mediators for Goals 1–16 to be achieved, as the attainment of the SGDs are predicated on those tenets. As Lynch (2016) has shown, Goal 17 (Partnerships for the Goals) is something organizations have strived toward and utilized as a tool to achieve progress for others. In other words, policy coherence and multi-stakeholder perspectives are essential for the attainment of all the other goals within the sport context. *A Toolkit for Action* (SDG Fund, 2018) stated that Goal 17 is one of the SDGs that is "most intrinsically connected" to sport. Furthermore, the SDG Fund states:

Achieving the 2030 Agenda for Sustainable Development and its 17 SDGs depends on establishing successful and effective partnerships between the public and private sectors. This is precisely why the SDG Fund was established: to bring together governments, civil society, businesses, and UN agencies to achieve the SDGs. (p. 23).

Thus, while Goal 17 currently is a goal in and of itself, it might be more aptly described as the foundation for all other Goals. Number, quality, and coherence of the tenets of Goal 17 impact the success and progress of the other Goals.

51.2.1 Current measurements of progress in sport

To that end, policy coherence and multi-stakeholder partnerships have been used to address, explore, and measure the success of other UN SDGs in the academy and among practitioners. While there is minimal research focused explicitly on Goal 17 itself, there are associated methods and findings that serve as a starting point for this discussion. According to Lindsey and Darby (2019), there was no "substantial academic exploration" that analyzed the relationship directly between sport and the SDGs. There are no represented findings from practitioners' measurements of SDG 17, and the extent to which practitioners are measuring progress toward Goal 17 remains relatively unexplored and unknown. One example of an organization specifically measuring their progress toward Goal 17 is a global consultancy, Coaches Across Continents (CAC). In the following section, two examples of scholarly exploration are presented that provide strong methodological approaches to measuring progress and program success in the sport domain. Then, the example of CAC will be used to show a current method of measurement for Goal 17. Further, in combination with other research findings, recommendations for adaptations that could improve the monitoring and evaluation (M&E) process for organizations will be offered.

51.2.1.1 Scholarly exploration

Lindsey and Darby's (2019) initial attempt to address the literary gap (i.e., the relationship between sport and the SDGs) drew upon the concept of policy coherence because of its obvious significance as a designated target (17.4) of Goal 17. By exploring the dualistic nature of a policy coherence lens, their analysis led to the conclusion that it is unlikely for "complete" policy coherence between sport and the SDGs to take place. They suggest that researchers should continue to utilize policy coherence as a lens to explore and identify factors of sport that can support and constrain progress toward the *2030 Agenda*. Additionally, they suggest that policymakers should identify and consider these factors, as they are prevalent throughout many sectors of the sport industry. Additionally, Lindsey and Darby (2019) highlight the complexities that may also exist as a result of stakeholder involvement, saying that "all stakeholders that have relevance for progress toward policy coherence have their own interests that may or may not be served in seeking to align sport with particular SDGs and Targets" (p. 807). These findings have particular implications for practitioners looking to establish methods of measuring progress toward the SDGs, in that in the process of measuring progress toward some collaboration variables: (a) they must consider variables that may counteract organizational intention as well and (b) they should strategically explore and assess the support and resistance that can be met by stakeholder involvement toward goal progress.

While the previous findings accurately illustrate the barriers that partnerships can potentially cause in the sport sector, Lynch's (2016) study supports the critical role of partnerships in enabling SDG implementation. This particular case study investigated multi-stakeholder relationships holistically as a means to achieve progress toward Goals 3 and 4. It revealed a key role that various partnerships played in the success of implementation.

51.2.1.2 Practical example: CAC

To provide an example of how an organization is currently measuring progress toward Goal 17, we will utilize a global leader in sport for development, CAC, as a working example. CAC's operations are broken down into four key divisions:

1 Instruct: development through on-field trainings, coaching education, and curriculum development
2 Impact: offering year-round strategic resources to improve local ownership and program sustainability
3 Innovate: "creates Corporate Social Purpose and Cause Marketing legacies to address the UN SDGs"
4 Influence: "advises governments, confederations, global NGOs, policy makers, and key donors to create their global legacies, design policies, and address the UN SDGs" (Coaches Across Continents, n.d.)

This organization, known as a leader in SDG 17 efforts, granted us access to their M&E data to provide a learning opportunity for all of us—researchers, students, and practitioners. One component of CAC's current M&E involves detailed annual survey responses from partners, recording the details of the impact of their collective work, and targets that work addressed over the year. Each partner reflects on which of the SDG targets were addressed through collaboration with CAC over the year. One hundred percent of CAC's partners responded that Goal 17 was addressed through their collaborative work with CAC. Nearly 100% of those

responses also reported they specifically addressed targets 17.3, 17.6, 17.9, 17.16, and 17.17, which is consistent with information provided by CAC. In addition, CAC tracks the resources used by each of the individual partners.

While this data collection alone is more than most regarding Goal 17, there may be slight adjustments that could be made to better integrate the measurement of the SDGs into the data already being collected. For example, what if the organization was able to identify the targets and possibly even specific indicators each resource is designed to address? Not only would this help quantify the number of organizations addressing that particular target and/or indicator, but it would assist in providing a more accurate evaluation of congruency between the programs' initial strategic intentions and their reported outcomes. This would start at the organizational level for each grassroots program to identify their work, but be collected and collated at a greater scale, as CAC is a global partnership network and consulting group. For that reason, the methods recommended to apply to CAC's improved M&E could apply to national level measurements.

51.2.2 How sport organizations could measure progress

Continuing our example from above, CAC collects information from partners with reporting processes that are free of academic jargon, SDG language, and detailed knowledge of individual targets and indicators (or what they mean). The reporting process involves organizations reporting (a) what they do, (b) what resources they use, and (c) what outcomes are being reached. In the data analysis process, CAC then translates and organizes that information to fit within related targets and indicators when applicable (N. Gates, personal communication, November 9, 2020). In the same way that CAC operates to collect M&E data for the many grassroots projects in its network, a national government could use a similar approach to collecting data for its sport-sector implementation of sustainable development. That is, the practices that CAC uses for a wide range of their clients and partnerships could be similarly replicated for national governments. If those who analyze and collect the data are "experts" in the SDGs, they should be able to categorize and organize sport initiatives accordingly based on the above-listed information. While it is not a long-term solution to funding crises for national statistics plans, it does provide a step forward that is tangible, manageable, and relatively affordable.

Another tool that can be leveraged to make this measurement process more sport-specific and applicable for various funding and partnership opportunities involves the use of a *Sport and SDG Indicators Toolkit* (Hatton et al., 2019). As we know, Goal 17 is the key to accomplishing the overall *2030 Agenda*. These collaborations are vast and diverse with examples of multi-stakeholder partnerships that take place across the SFD, SDP, philanthropic, and corporate social responsibility (CSR) sectors of the sport industry. Given the popularity of these collaborations in practice, there is still surprisingly little information on how Goal 17 is being measured, what the sport-specific indicators are, and the resources available to practitioners on how they *could* be measuring Goal 17. The *Sport and SDG Indicators Toolkit* is one of the few resources that provides national and organizational units of analysis, that can serve as a starting point for sport-specific measurements toward sustainable development. This resource will be discussed further in the following section.

We have seen the push toward integrating the tenets of Goal 17 in academic literature (Lindsey & Darby, 2019; Lynch, 2016), yet the sport industry in all of its domains can still improve on the focus of measuring this particular goal. The most important thing is for these partnerships to exist, thrive, and push for change toward the *2030 Agenda*. Knowledge and measurement of types of partnerships, the success of partnerships, and related barriers to

partnership collaboration do, however, allow for learning and growth for all stakeholders within the industry. This sentiment is further supported by Lindsey and Darby (2019), who stated:

> The agendas now encompassed by these universal SDGs therefore have significant implications not just within SDP but for and across sport more broadly. As a result, there is a need for expanded analysis of the ways in which the SDGs and associated Targets bring into focus the policies, practices and impacts of a wider array of sporting bodies, organizations and stakeholders to a far greater extent than has previously been considered. (p. 794)

Remaining consistent with the two aforementioned components of SDG 17 that currently intersect the most with the sport industry discourse, the remainder of this section will focus on the tools and potential approaches to measuring multi-stakeholder partnerships and policy coherence in sport.

51.2.2.1 Measuring multi-stakeholder partnerships

Various methods could be employed to explore multi-stakeholder partnerships (e.g., case-study analysis, network mapping, in-depth interviews, field observations, archival methods) from a research perspective. Although measuring SDG 17 indicators does not appear to be a regular practice for organizations or scholars, the *Sport and SDG Indicators Toolkit* provides sport-specific indicators for establishing multi-stakeholder partnerships for sustainable development from a multi-level perspective (i.e., organizational, partnership, national) that could be beneficial for measurements implementation. These sport-specific indicators provide a good starting point for practitioners who are less familiar with the many indicators that fall under Goal 17, and how those indicators can apply in the sport context. Hatton et al. (2019, pp. 97-98) detail the sport-specific Category 1 indicators, complete with sources, types, and units of analysis. Some indicators fall under the organizational level unit of analysis; others fall under the national and governmental level. Increasing national sport policy objectives that align with SDG targets, national budget investment toward sport, physical activity that is connected to development plans, and percentage of public expenditure on sports are all indicators related to strengthening the implementation means of partnerships for sustainable development. Again, there needs to be an operational method for nations to accurately collect and compile this data in order to successfully measure these indicators. At the individual organizational level, identifying, declaring, clarifying, and reporting partnerships, funding sources, and alignment with the SDGs are a start.

The *Toolkit for Action* is a resource that provides quality examples of best practices in sport and how the SDGs have been used by various stakeholders. These examples range from professional sport clubs and companies to individual sport icons who became goodwill ambassadors. The *Toolkit for Action* also speaks to the establishment of the SDG Fund Approach, specifically, which was to "bring together governments, civil society, businesses, and UN agencies to achieve the SDGs" (p. 23). Key principles of the SDG fund activities include: (a) national ownership, (b) UN coordination, (c) due diligence, and (d) catalyzing investments. Case studies illustrate various activities that have addressed some of the SDGs (not including 17). As we can see from practice and the provided examples within *A Toolkit for Action*, the private sector is no longer seen solely as a financial contributor, but instead, a co-designer that is involved in the implementation and contribution of knowledge and skills for operation.

A Toolkit for Action suggests that sport partnerships contribute to the achievement of the SDGs in the following ways: (a) addressing multiple SDGs through one initiative, (b) leveraging sport as a tool to ensure the resilience of programming, (c) gaining advantages of cross-sector partnerships for increased access to funding opportunities, (d) showing accountability of corporate governance structures, and (e) implementing policy through partnerships. For example, the toolkit uses the FC Barcelona Foundation as an example, where programs are funded by a percentage of FC Barcelona's revenue in partnership with organizations like UNICEF, the IOC, and UNHCR. This toolkit provides quality examples of case study analysis that can be used to assess Goal 17, as well as many considerations for variables to test, measure, and assess as it relates to partnerships for the Goals.

51.2.2.2 Measuring for policy coherence

It is important to consider the findings of Lindsey and Darby (2019) when examining policy coherence in sport. Sport organizations and governments could measure Goal 17 in the sport context by assessing targets related to enhancing policy coherence. This includes policies that respect each country's operational methods. There is great value in local, lived-experiences that are critical for social change to take place, while acknowledging the value of those experiences also increases the investment and commitment of local community members and practitioners (Giulianotti et al., 2016). In addition, when measuring policy coherence, and similarly applicable to multi-stakeholder analysis, a program evaluation approach would be most helpful. For public and nonprofit programs, Newcomer et al. (2015) assembled an incredibly user-friendly *Handbook to Practical Program Evaluation* that walks evaluators through step-by-step processes of identifying objectives, outcomes, and the operations that support and hinder success.

Program evaluation can be useful for identifying inconsistencies, weaknesses, and areas that need more intentionality at the organizational level. Accounting for the organizations with policies that support their initiatives is a matter of simply connecting the policy to the objective and tallying which organizations do so. For example, CAC partners are all required to develop child and women's rights policies to benefit from the other various resources offered. There are strategically designed policy coherence efforts at the organizational level and partnership level that assists toward SDG targets. While CAC may be collecting this statistic from an M&E perspective, and grassroots organizations may be practicing policy coherence, there is a gap in reporting and recording at the national level to address the sport-specific indicators previously mentioned. At the governmental level, there are basic measurement methods (e.g., percentage of organizations or headcounts) at the very least that could take place. Knowledge of what organizations are doing and how they are doing it could serve the national government when considering various organizations to support or fund. There is also value internally in making sure that national objectives used to address sustainable development are consistent with operations, outcomes, and funding efforts.

51.2.2.3 Technological measurement in SDP

Indicator 17.8.1, "Proportion of individuals using the internet," is directly impacted by SDP initiatives and sport organizations through organization-level efforts or government-funded initiatives. Before COVID-19, grassroots sport organizations were already providing technological access to youth, allowing them to be involved in various activities related to their objectives (e.g., pen pal programs, mentoring initiatives, study hall/group activities). For example, CAC created technology grants for organizations at the onset of COVID-19 to ensure

coaches and youth players had the means to communicate, continue curriculum implementation, and minimize the dangers of isolation. In addition, organizations like Highway of Hope leveraged local community partnerships to gain access to local libraries that helped their players to access computers when their schools shut down from COVID-19 (Dixon et al., 2020).

51.2.2.4 Practical application

Considering the indicators, tools, and potential measuring approaches above, reporting and national statistical plans and frameworks are still a critical part of the overall tracking and progress of the UN SDGs. When it comes to SFD projects, the overwhelming majority are carried out in Africa, Asia, and Latin America (Schulenkorf et al., 2016). While some projects are located in major cities on their respective continents, there is a substantial number of projects that take place in rural areas, many of which are affected by the lack of infrastructure and broadband access discussed earlier in this chapter. Further, there remains a lack of available funding to support nations that are currently operating without fully funded and implemented national statistics plans. To improve our measurements and ability to track progress on Goal 17, we must address the technological and policy-based implementation challenges that exist.

For global North entities within the sport and SDG space (e.g., collegiate athletic departments, CSR, professional sports team initiatives, and youth clubs), the technological and M&E capacity for reporting will likely not be a barrier for successful measurement and implementation. When reflecting on his experience to measure and quantify SDG 17 and the Goals in general with corporate and "global North" partners, CAC Founder Nick Gates stated:

> So few corporate partners really understand and have exposure to the UN SDGs – at least at the start of our collaboration. We tell corporates and clubs, "have a strategic UN SDG that matches up with your corporate initiative," which allows us to deliver something that focuses on those targets. That is a weakness in the whole system. Even if sport practitioners' knowledge of the SDGs gets really strong, and SDGs are strong within the sport context, and we can measure and show indicators and all of those things—if and when we present that externally, and no one knows what they are looking at, it's like reading Latin. That is what I find when trying to tell the SDG story—that it's easier to tell people, "Oh we will plant a tree," than to say, "We are impacting Life on Land."
>
> *(N. Gates, personal communication, November 9, 2020)*

While the technological limitations may exist in certain contexts, knowledge of the Goals may be the primary barrier in others. Lack of familiarity with UN SDGs and particular targets shows in organizations across the various sport domains. To Gates's point above, even if scholars and practitioners within the sport sector determine a way to measure progress toward the SDG targets, communicating that progress to individuals unfamiliar with the Goals will remain a persistent obstacle.

51.3 Implementation challenges

Nora Dooley, a sport and SDG initiative consultant, stated that in her everyday work, some of the greatest barriers to measuring progress toward sustainable development are "turning the immeasurable to measurable, finding creative and localized ways to measure progress, and overcoming the language barrier that often comes with using traditional methods in grassroots

communities" (N. Dooley, personal communication, November 7, 2020). Working with partners includes processes such as: (a) increasing resources for grant writing support, (b) connecting groups to one another with similar interests and social focuses, (c) hosting small group meetings with representatives from around the globe focused on specific SDGs, and (d) facilitating North–South partnerships for funding and resource access. She goes on to say, "Such a huge part of 17 is recognizing that there are so many organizations that exist. It's about finding ways to leverage that collective impact to achieve greater resources and capacity to accomplish the UN SDGs."

We know that measurement at the organizational level (in regards to counting partners and types of partners and checking for policy coherence) is relatively easy to tally and calculate. Even at the national level, the task of tallying, calculating percentages, and keeping track of Goal 17 tenets being addressed by sport organizations would not be difficult. One of the greatest barriers lies in bridging the gap between the organizational and national level. Without the financial capacity for national statistical plans (that are implemented and fully funded), there is an inability to accurately measure and track national progress. The difficult thing about the UN SDG targets is that they require national data collection; even the sport-specific indicators fall primarily under a national and governmental level of analysis. The data and broadband issues addressed in targets 17.18 and 17.19 are important targets, but again, they are arguably also mediators to accurately measuring progress toward any of the Goals. Many of the nations with national statistics plans lack full implementation, with unequal distribution between Europe and North America (95% fully implemented) and Sub-Saharan Africa that is only fully implemented in 25% of the cases (United Nations, 2020). Even though ODA has benefited countries in Sub-Saharan Africa the most, receiving $885 million, there is a need for continued and even greater support to ensure developing countries can monitor national development progress (United Nations, 2020).

Multiple measurement implementation challenges occur when it comes to M&E. Types of stakeholders involved and stakeholder training in M&E, research methods, and program evaluation techniques at the organizational level is one of the key challenges. This is especially applicable in cases where "global North" program leaders determine the means for M&E, but local leaders are expected to carry it out without training. There are a variety of types of stakeholders to be considered (Guilianotti, 2011) when it comes to sport for development efforts. These stakeholders differ in their agendas, financial contribution, levels of involvement, and types of involvement, which can influence not only the success of initiatives but their design and measurement methods.

The SFD and SDP domains that the SDGs are so deeply integrated within take place on a global scale with many multilateral and international partnerships. This means that research methods, program evaluation techniques, and basic interactions are continuously affected by language, culture, and barriers to authentic dialog. Reflecting on his experience in the sport and SDG space, Nick Gates explained, "There is great difficulty collecting information from the world. M&E is the most difficult thing for any SDP organization. Honest M&E is another interesting one" (N. Gates, personal communication, November 9, 2020). He went on to explain the immense efforts his organization has taken to create safe spaces for people, thereby enabling a more honest reporting process.

Another issue of implementation of measurement and reporting methods is familiarity with and consistency in speaking about the SDGs. Some organizations (including HOH, as discussed earlier in the chapter) may be working toward Goal 17 without knowing or caring that they are doing so. In order for accurate percentages to be represented in the annual report for the *2030 Agenda*, increased education on the breakdown of SDG targets and indicators that can be

measured in sport should be implemented. As mentioned earlier, another solution would involve national-level experts that collect data on what organizations are doing and categorize those initiatives within the SDG targets accordingly, when applicable. As it relates to consistency, Gates urges:

> The world's inability to find a consistent way of [explaining their work towards the SDGs] so that everyone can understand it is a great difficulty. The field is still lacking clear ways of explaining information, with consistency, that is understandable to a layperson. Any information coming out anywhere about work in the sport context towards the SDGs can vary by organizations. It is hard to really understand what we and other organizations are saying, without some degree of expertise on the subject. Because the way that GOALS Armenia is saying it, and the way Slum Soccer is saying it, vary to the way groups in Zambia are saying it. They are all different. But they're all working on Goal 5. This is why [the conversation surrounding impact] reverts back to numbers. So we continue to try and find how we can measure games and interactions and partnerships, going backwards, into numbers. (N. Gates, personal communication, November 9, 2020)

The biggest issue in achieving those numbers, according to Gates, is that the indicators are incredibly formal, making it harder to quantify the *many* informal partnerships and collaborations that exist. There appears to be ongoing difficulty across the board for grassroots projects to measure progress "in an academic way, or a way that makes sense to the other side of this world," referring to the global North funders and researchers. He states, "I don't know that you can measure some of the informal ways that partnerships work." Partnerships are so integrated into the basic functions of sport and SDG-related collaborations.

It is for all of the above reasons that sport specific indicators should be broken down to the organizational level with means of measurement, as well as considerations for the partnership level with means of measurement. Then, national data can be acquired through the reporting of that information. When it comes to reporting and measurement, it seems that there needs to be increased intentionality throughout the entire process for successful measurement at the national level to ever be reached. The SDGs are measurable, and there are many benefits (e.g., monitoring progress toward *2030 Agenda*, increasing program intentionality, boosting support via policy coherence, leveraging collective effort through partnerships, providing evidence to acquire funding) to being able to do so and prove the impact of the initiative toward Goal 17.

In conclusion, we know that "multi-stakeholder partnerships are needed to mobilize and share knowledge, expertise, technology, and financial resources" (SDG Fund, 2018, p. 25), and that "governments should create policies that increasingly favor and encourage collaborations and partnerships to incentivize and fast-track the attainment of sustainable development through sports" (p.53). That said, those policies should be carefully considered to the extent to which they support progress toward the Goals, as well as how they may counteract it (Lindsey & Darby, 2019). Program evaluation techniques (Newcomer et al., 2015), case study approaches (Lynch, 2016; SDG Fund, 2018), and basic percentages and totals through reporting are all viable options for increasing empirical measurement and data on SDG 17 impact through sport initiatives.

Through the application of practical suggestions, and following the example of organizations highlighted in this chapter as well as the referenced toolkits, practitioners should have ample material to begin moving forward in measuring Goal 17. While we are far from establishing an overarching, all-encompassing, globally-friendly practice for measuring, this is a start. Addressing the various implementation challenges identified should proceed with the efforts to

establish a measurement norm and standard. Finally, again, while the tenets of Goal 17 can be considered and measured as their own goal, they should be considered foundational and meditative for the successful implementation and progress toward Goals 1–16 as well.

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52

Applying Sustainable Development Goal 17

Neill Duffy

The word's first integrated sports impact company, 17 Sport, operates at the intersection of sport, business, and purpose. Our purpose is to contribute toward building a more positive future for the world, which we do by inspiring, educating, and enabling the business of sport to do good and do well. We provide commercial, strategic, management, and creative services to transformational leaders in sport and business committed to forging a better tomorrow for people and planet.

52.1 Relationship to SDG 17

Our name, 17 Sport, is inspired by the United Nation's SDGs and the framework for sustainable progress they provide. In particular, Goal 17, which centers on strengthening worldwide partnerships and cooperation, is a central tenet of our guiding principles as an organization. We believe that we can get more done together than we can alone and that collaborative partnerships are a vital ingredient of any successful purpose-driven undertaking.

When building a collaborative team around any purpose-driven initiative in sport, we believe it is optimal to involve a broad range of stakeholders. This goal requires identifying people and organizations that are intentional, aligned around the power of purpose, and are committed to doing good while doing well—not just because it is trendy—but, rather because they truly believe in purpose as a better way of doing business.

52.2 Brainstorming solutions and evaluations

Given its intrinsic values and engagement power, we believe that sport is a valuable tool for the achievement of multiple SDGs using one medium. By convening together various stakeholders around a shared mission, sport has the potential to make an even bigger impact. We therefore embrace the idea of multi-sector partnerships to deliver impact through sport.

Some of the key stakeholders to consider are as follows.

52.2.1 Corporate partners

Since the adoption of the SDGs, the private sector has come to play a much more active role, alongside the UN, civil society, and governments. Corporations are increasingly pursuing more responsible business strategies and are looking for ways to activate their sports investments in a more purposeful way. They have considerable value to add to any purpose-led sports collaboration, whether it be their expertise, funding, resources, or increasing appetite to do good rather than just talk about doing good. Corporate partners also bring resilience, long-term thinking and problem solving skills that they have honed through surviving in the competitive world of business.

52.2.2 Sports properties

While sports properties have traditionally supported external causes through their community affairs departments and foundations, they increasingly recognize their potential to take on issues in their own right and to leverage their platforms directly for good, and in the process, enhance their relevance to fans, sponsors, and other stakeholders. They also see the value in adopting sustainable practices in relation to their stadiums and sports venues.

52.2.3 Athletes

Athletes are the influencers in the sports ecosystem and, therefore, they are a vital stakeholder to amplify impact and messaging. It is important to collaborate exclusively with athletes whose personal purpose is aligned with the social or environmental issues being addressed so that they can authentically and knowledgeably speak on the topic involved. In addition to having athletes endorse and promote an SDG, they can also be directly involved in doing good.

52.2.4 Fans

People increasingly want to work for, buy from, invest in, and advocate for organizations that stand for something more than just profits. As a consequence, fans want to be actively involved in doing good alongside the sports properties and athletes that mean something to them. The days of treating fans as passive bystanders are over.

52.2.5 Staff

An organization's people are its most important asset. They are the living embodiment of an organization's true values, and they want to be actively involved in helping the organizations they work for do good. Not only will the right people be drawn to work for an organization because of its stated purpose, but also because it opens up opportunities to do good in their everyday work.

52.2.6 Impact partners

Collaboration between sports properties and nonprofit organizations as part of community outreach or foundation programs is not new. In addition to delivering the social impact that they do, impact partners are also great influencers. They often have baked in communities that they can activate in support of their mission. Not only does this help to amplify the reach and

impact, but it also adds tremendous credibility given how careful impact organizations are about deciding with whom to work and what projects to support.

Advisors who understand the SDGs, purpose, and what does and does not work in the context of sport can be of great value. They must have credibility, experience, and the track record necessary to design, develop, and implement effective, purpose-led sports impact programs, whether in the area of purpose strategy, operational sustainability (waste management, energy efficiency, pollution and the like), purpose communications, purpose event implementation, or impact measurement.

52.3 Execution

The best sports collaborations seeking to address one or more of the SDGs involve multiple stakeholders working together in partnership to leverage the sports platform and drive a specific social or environmental mission.

There are a number of successful examples where this has been achieved, but two that 17 Sport has been a part of include Super Bowl 50 and the Danone Nations Cup, each profiled below.

The San Francisco Bay Area's staging of Super Bowl 50 in 2016 was a collaboration between the city, the host committee, corporate partners, local nonprofit or impact partners, and fans to deliver a "net positive" event that was built around four sustainability objectives: (1) to reduce the impact on climate change by delivering a low emissions event, (2) to ensure responsible use of resources and materials during and after the event, (3) to actively involve fans and guests in the event's sustainable practices, and (4) to leave a lasting legacy for the entire Bay Area. The host committee created new opportunities for business, vendors, public and private partners, and fans to take sustainable and environmentally friendly event practices to an entirely new level, and Super Bowl 50 was hailed as the most shared, most participatory, most giving, most sustainable, and most commercially successful Super Bowl in history.

Danone recently re-positioned the Danone Nations Cup, its 20 year-old global youth soccer tournament that each year involves over two million kids from around the world to align with its corporate commitment to act as a purpose-led organization and its ambition to leverage the event as a force for good in the world. The event now exists to improve the lives of children around the world by leveraging the passion and reach of soccer to inspire and empower 12-year-old boys and girls to become world citizens and act in the service of good. 17 Sport serves as Danone's impact advisor on the project and, together, we are looking to collaborate with players, corporations, nonprofits, ambassadors, and sports properties that support this mission to help amplify the event's reach and impact over the next year. The event will focus on supporting SDG-related initiatives linked to issues that boys and girls care most about—ending poverty, gender equity, life below water, and climate change—and will create pathways that make it easy for them to act in support of these issues.

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