DIVERSE PERSPECTIVES ON CREATING A FAIRER SOCIETY

EMPOWERING FEMALE CLIMATE CHANGE ACTIVISTS IN THE GLOBAL SOUTH

The Path Toward Environmental Social Justice

PEGGY ANN SPITZER

Empowering Female Climate Change Activists in the Global South

DIVERSE PERSPECTIVES ON CREATING A FAIRER SOCIETY

A fair society is one that is just, inclusive and embracing of all without any barriers to participation based on sex, sexual orientation, religion or belief, ethnicity, age, class, ability or any other social difference. One where there is access to healthcare and education, technology, justice, strong institutions, peace and security, social protection, decent work and housing. But how can research truly contribute to creating global equity and diversity without showcasing diverse voices that are underrepresented in academia or paying specific attention to the Global South?

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Empowering Female Climate Change Activists in the Global South: The Path Toward Environmental Social Justice

BY

PEGGY ANN SPITZER

State University of New York at Stony Brook, USA

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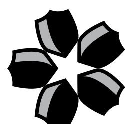

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INVESTOR IN PEOPLE

This book is dedicated to Steven I. Levine
teacher, mentor, and friend for life

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About the Author

Peggy Ann Spitzer is a Research Professor in the College of Arts and Sciences at the State University of New York at Stony Brook. She holds a bachelor's degree from the University of Minnesota and master's and doctoral degrees from American University in Washington, DC – all in International Relations. She studies women's leadership in global climate change adaptation through environmental and gender equity strategies and oral histories.

Between 2017 and 2021, she co-authored four articles and four book chapters (two of which won awards) on the social and cultural aspects of climate change; and one case study on the United Nations' Sustainable Development Goals. In addition, she developed two digital oral history projects, one on women in US–Asian relations and the other on the implementation of a women-led irrigation technology in India. Prior to her work in climate change, she wrote a series of short biographies on women leaders in local communities; and served as a Program Consultant, with a specialty in Asian and Asian American studies, in Washington, DC for the Kluge Center for International Scholars (Library of Congress), Freer and Sackler Gallery (Smithsonian), Carnegie Endowment for International Peace, and the East-West Center.

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Acknowledgments

It is an understatement to say that this book would not have been possible without the support of many – climate change/feminist activists, college and university students, colleagues, and friends. Initially, in thinking about the type of book I wanted to write – one that would appeal to undergraduate and graduate students and their professors, as well as researchers and social activists – I talked with Sue (Ruth) Bottigheimer, who urged me to formulate key questions into chapters. In addition, with, Elizabeth Monroe-Cook, I discussed the psychology of female empowerment. As a Humanities Institute fellow at Stony Brook University, I worked with Adrienne Unger and Susan Scheckel, and two other fellows in my cohort – Shirley Jennifer Lim and Kristina Lucenko – with whom I shared many dinners and conversations about the women pioneers we were all researching. To get over the hump of writing and gain fresh perspectives, Karina Yager, an environmental anthropologist, provided important feedback. And, to help me streamline the hordes of terms, acronyms, and names of international organizations – I am thankful to Mary Diaz.

I could not have followed this path without conducting field interviews in Gujarat, India in 2019. I am thankful to Trupti Jain and Biplab Paul who invited me and my colleague, Jamie Sommer, to interview the farmers, who generously shared their stories with us. Trupti and Biplab arranged for Hetshree Kangad and Dhruti Thaker to serve as interpreters in the field work. Long before I considered writing this book, I had many opportunities to discuss this field experience; and it led to the creation of a digital collection through my university's library, thanks to the Digital Projects Librarian, Victoria Pilato, the then Acting Dean of Stony Brook University Libraries, Shafeek Fazal, and the Principal of *Schema Design*, Christian Marc Schmidt.

All would not have been possible without support from the Faculty in the Arts, Humanities and lettered Social Sciences (FAHSS) Fund; and the careful attention and enthusiasm of those at Emerald Press. Once I decided to write this book, Jamie continued to encourage me; and Trupti and Biplab helped me obtain a deeper, empathetic understanding about the lives of rural women in the developing world. They are my extended family.

My first encounters with female climate change entrepreneurs came from the *Women for Results* awards program through the United Nations Framework Convention for Climate Change (UNFCCC). In 2016, Jamie, Aidée Sauceda Davila, and I interviewed some of the early awardees. Later and up until 2022, I worked with several students at Stony Brook University to research and conduct oral history

interviews with several *Gender Just Climate Solutions* (GJCS) award winners (also through the UNFCCC). All are named, and their projects discussed, in this book. It was gratifying to witness students from my home institution of Stony Brook University– Erin Byers, Kunika Chahal, Jasmeet Kaur, Leio Koga, Martha Maria Chavez Megrete, and Yasmeen Watad – learn from the entrepreneurs and decide upon their own career paths.

Over the past two years, I served as a judge for the GJCS awards program and was inspired by many of my colleagues. In the Woman and Gender Constituency, I learned from many, particularly Anne Barre, Patricia Bohland, Bridget Burns, and Hwei Amy Lim, Gina Cortés Valderrama, and other "fierce feminists" who patiently helped me understand the trajectory of international climate change negotiations.

The world remains very unsure about how to deal with climate change and female empowerment. Because of this, I am thankful for the encouragement of Susan Hinely, a great scholar and teacher of global women's history, and Steven I. Levine, my lifelong friend and mentor to whom this book is dedicated. He and his partner, Madeline Levine, helped me navigate many peaks of sureness and valleys of uncertainty. I could not have accomplished this without them and the support of my husband, Jay Raphaelson, my daughters, Emily Christoff and Caroline Christoff, and our long-time family friend, Anna McCreight.

For Christmas 2021, Caroline sent me a postcard with the following quote from Greta Thunberg: "Adults keep saying we owe it to the young people to give them hope, but I don't want your hope. I want you to act as if the house is on fire, because it is." In fact, ongoing intergenerational actions are crucial, and I am thankful for all who recognize that the fire still is burning.

Endorsements

Inspiring citizens to act to solve the global climate crisis in every aspect of their lives certainly is one of the most crucial missions of humanity today. Dr. Peg Spitzer's wonderful book ***Empowering Female Climate Change Activists in the Global South: The Path Toward Environmental Social Justice***, provides such a galvanizing inspiration, with a wide variety of diverse and stunning true stories. But most importantly, this book reveals the untapped potential of tackling structural gender norms and empowering women to speak up for their rights, to create and to implement relevant and just climate solutions that serve people and the planet. As a university professor, mentor and jury member of the Gender Just Climate Solutions Awards, granted each year during the climate COPs, Dr. Peg Spitzer has had the opportunity to collect numerous oral stories of impressive female and feminist grassroots climate activists from all regions of the world. She offers these life jewels to the reader in a fascinating literary piece.

Anne Barre, Gender & Climate Policy Coordinator,
Women Engage for a Common Future

It is well known that women are uniquely and disproportionately impacted by climate change in the Global South. Alarmingly, many scholars ignore what these women have to say about their lived experiences and the solutions that follow from them. In ***Empowering Female Climate Change Activists in the Global South: The Path Toward Environmental Social Justice***, Dr. Peg Spitzer draws on oral history interviews to give a voice to women affected by climate change and, in the process, describes solutions that not only empower women but also improve the environment. This book is a must read. It leaves the reader with a sense of hope that if women, who find themselves in difficult circumstances across the planet, can leave the world better off for all of us than we surely can do the same.

John M. Shandra, Professor of Sociology,
State University of New York at Stony Brook

Professor Spitzer is committed to expanding access to scholarship on historically underrepresented communities. Her work offers a critical look at the effects of climate change on rural populations around the world. Through oral histories, field studies, and interviews, she examines the effects of patriarchal social structures and cultural practices on rural women's ability to pursue social justice related to climate change and the environment in Africa, Central America, and South/Southeast Asia.

Dana Haugh, Harvey Cushing/John Hay Whitney Medical Library,
Yale University

Dr. Spitzer is answering the question of our time: how do we address climate change while building a more equitable, diverse, and beautiful society? This book tells the stories of the women who are leading the charge to protect and regenerate their environment, their communities, and the women and girls around them. Dr. Spitzer shares with us the struggles, desires, and successes of those who have been without a voice in their words. We need these stories. Dr. Spitzer reminds us why justice matters for climate solutions. She helps us to see past technocratic solutions to climate change to the heart and soul of our path forward, place-based solutions through stories, community, and the women who hold the world together. This book is a must-read for anyone who is interested in the power of narratives, the power of women, and the power of hope in the face of adversity. This book connects us to each other and to women all around the world transforming their communities and each other. Dr. Spitzer introduces us to solutions that put justice, equity, and survival right in the center of how we talk about our changing climate. Dr. Spitzer writes with kindness, beauty, and heart that draws you in and introduces you to women in India, Guatemala, Tunisia, Colombia, Uganda, Vietnam, and more like they were old friends. You will laugh, you will cry, you will get angry at injustice, but mostly you will be empowered, and you will gain the insight that empathy is one of the strongest tools we have for creating a more just, more vibrant, and more sustainable future.

Andrew Hargrove, PhD,
University of South Florida

Dr. Spitzer's book serves as an inspirational handbook guide to empowering woman from the Global South. She combines oral histories with scholarly research and provides deep insights into the challenges and opportunities that rural women from the Global South face with climate change and power dynamics. Spitzer gives voice to underrepresented women in the discussion and navigation of finding translational knowledge and employing new perspectives on gender theory. Her book provides an insightful and thorough examination of the necessary policies that must include women in the decision-making and carry through of climate action initiatives and pathways for sustainable empowerment of rural communities. Dr. Spitzer's book incorporates inspirational stories of women and the ways in which they have bridged the rural and transnational networks to create innovative and empowering opportunities to tackle climate change at the local level. Weaving women's oral histories, scholarly research on gender and power, and an examination of international institutions, Spitzer provides numerous insightful and uplifting reflections on justful and woman empowering movements across the Global South. Any researchers of climate change and practitioners working on the forefront of climate change adaptation planning, and especially relevant to women, will find enlightening and beneficial information in this book on how to realize climate actions that benefit rural to global society.

Karina Yager, School of Marine and Atmospheric Sciences
and Sustainability Studies,
State University of New York at Stony Brook

Introduction

This book introduces several ways that empowering women in climate-challenged regions of the developing world (aka the Global South) enables us to become part of a critical mass for social change. The common feature of these diverse ways is a determination to connect our own individual lives with a worthwhile collective purpose that can best be achieved by joining together with others who share our vision. My own story may serve to illustrate this point.

I now live in a village on the north fork of Long Island in New York state, yet I retain vivid childhood memories of a very different place several hundred miles to the south. My paternal grandparents' farm in the Shenandoah Valley of Virginia was the gathering place for family reunions throughout my childhood and into early adulthood. Some forty years later, I still can clearly picture the rooms in my grandparents' house and my grandmother's vegetable garden, and I can hear the deep southern accents of my relatives' voices as they exchanged stories and laughed together. I often wondered how members of my family made a living: Farming is an incredibly hard life! As it happens, my relatives (especially women in my generation and the one before me) graduated high school and attended college where they learned new farming techniques. However, down the lane from my grandparents' farm, perching on their neighbor Mabel's kitchen stool and straining to understand her Appalachian accent, I recognized early in life that many other farmers lacked the luxury of a formal education, and many struggled to make a living. Mabel and her husband rented the farm until he died. Visiting her before she died, I witnessed her gradually shrinking away. I am extremely grateful to my grandparents for encouraging me to keep in touch with Mabel whom I remember fondly.

Much later, in my professional career as a teacher and mentor, as weather-related disasters severely affecting the Global South increased, I wanted to know much more than I knew about how women farmers survived in these hard times. As caretakers of the home, bearing multiple responsibilities, how did they adapt to weather-related disasters? In this book, I provide some answers derived from

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field studies and oral histories conducted in Africa, Central America, and South and Southeast Asia.

My initial reading revealed a troublesome truth. I learned that all too often women's opportunities to lead movements to change agricultural practices and adopt eco-friendly approaches are severely limited by patriarchal social structures and dominant cultural practices. I wanted to understand more about what "the world" was missing when women were denied a chance to contribute. From field work and oral histories, I became convinced that while rural women's deep knowledge of natural resource management and indigenous oral traditions often were ignored, the women themselves were fully capable of becoming leaders in the pursuit of environmental social justice. In this book, I make the case for foregrounding both women's potential and their achievements.

Between 2016 and 2022, my students, colleagues, and I conducted over a hundred oral history interviews to understand the dynamics of women's empowerment and agency. We discovered many positive models, which included women farmers in the Global South who described their daily challenges – how they felt when their crops were ruined by droughts or floods, when moneylenders charged exorbitant interest rates to keep the farms going, and when, for weeks on end, they and their families did not have food to eat.

In Chapter One, I reframe the ways traditional societies can use a woman-centered approach to better address climate-related disasters. This chapter provides several examples to emphasize the importance of (1) continuing to advocate for integrating female perspectives; (2) confronting inevitable challenges with better communication skills; (3) breaking down binary (either/or) thinking by proposing multiple solutions; and (4) cultivating future generations of leaders.

To present a nuanced picture of women's potential in which self-actualization is an integral part of contributing to the goal of bettering the world, Chapter Two provides an oral history of Trupti Jain, one of the founders of the *Bhungroo* irrigation technology program in India – and relates how she gained acceptance at state and local levels, recognized the value of women's deep agricultural knowledge, and determined what women needed to regain a sense of dignity after enduring climate-related disasters. She describes how she found kindred spirits sharing a common purpose in international women's organizations and elicited outside support to identify the types of expertise needed to transfer technical and cultural knowledge to other countries and regions.

Chapter Three discusses how oral histories elicited from rural women in local communities facilitate the accurate representation of women's lives, nurtures trust, and builds support. It demonstrates that oral history interviewers, including both scholars and lay persons, play an important role in informing the outside world and thereby garnering support for community projects. An aggregation of oral histories from diverse rural settings constitutes an intricate mosaic of experiences that serves as a foundation for civil society and the work of women's international and domestic non-governmental organizations (NGOs). Furthermore, the web of connections fostered by the dissemination of oral histories facilitates and energizes social change directed toward climate change adaptation and community survival in the face of new challenges. In essence, when stories constructed

from oral histories enter the mainstream, they have the potential to influence public opinion and secure support from policymakers and power brokers.

Chapter Four presents ten such oral histories as case studies:

1. A women-led project in the western highlands of Guatemala that involves the cultivation of mealworm farms to provide a source of protein for *indigenous Mam communities*.
2. The establishment of healthcare centers and midwife training in the protected rural areas of Guatemala among indigenous and non-indigenous people outside of the court system to *address domestic violence*.
3. A women-led community education initiative in Tunisia to help local *communities influence decision makers* to get rid of dangerous chemicals such as lead in paint, amalgam in dentistry, pesticides, and hazardous chemicals in makeup products.
4. The *establishment of women's collectives* for recycling in Colombia to enable men and women to work alongside each other to protect the land.
5. A training program for local women to secure community recognition and receive monetary compensation to restore endangered coral reefs in Belize while *gaining cooperation from male peers* and integrating the achievements of women scientists of color.
6. The multiple strategies individual women activists use to gain acceptance and rally public opinion to address environmental degradation in the rural areas of Thailand, where spiritual and cultural centers have been affected by *male migration to urban areas*.
7. A social enterprise in Verona, Italy, which was established to recycle the waste created by the fashion industry to *combat larger social problems* like climate change and provide job opportunities for poor and disenfranchised women.
8. An initiative in Uganda that provides financial support for women farmers, who are uniformly marginalized, to *implement innovative farming methods* to reduce carbon emissions and enhance their social status.
9. A program that involves working with the women's union in Vietnam to *facilitate the dissemination* and use of environmentally friendly cookstoves.
10. A project that produces solar batteries in Syrian refugee camps in Tűrkiye to provide women with *jobs* and prepare their children to take advantage of *educational* opportunities.

In the above case studies and throughout this book, I focus on women's empowerment and climate change programs from the perspectives of the social entrepreneurs who worked with rural communities in the Global South. In Chapter Five, I present the voices of the "Mabels" in the Global South – that is, working farmers with limited opportunities whose lives could be vastly improved by properly addressing the problems of endemic poverty. This chapter profiles oral histories of 42 agriculturalists arising from the work of social entrepreneurs who introduced a new women-owned and operated irrigation technology, *Bhungroo*, to help farmers in Gujarat, India adapt to severe weather-related events.

The farmers' oral histories reveal that climate change has led to unstable family structures; and that, to make incremental changes that endure, intergenerational cooperation between females and males is required. Furthermore, while no single technological innovation can transform the male-dominated social hierarchy, innovations can serve as catalysts, expanding opportunities for females to work for changes that recognize and valorize their vital contributions to their families and communities.

Chapter Six answers a question that many sympathetic persons who want to contribute to a better world ask: "What can I do?" In a climate-changed world that appears to be beyond our control, it is difficult to figure out how best to contribute our time and talent (in the arts, business, computer science, education, health sciences, law, journalism, and so forth) to make a palpable difference. In this chapter, I demonstrate that visual arts and social media, which most of us are affected by and use to one degree or another, can help rural women and social entrepreneurs in the Global South deal with seemingly insurmountable problems of endemic poverty that are made worse by climate change.

In sum, I describe numerous ways by which we can learn to empathize with women farmers. Not only do they "hold up half the sky," as a Chinese saying goes, but they also are indispensable in providing a broad spectrum of solutions that, taken together, can contribute substantially to a world concerned about the environment and our relation to it. Consider this book an extended invitation to embark on life journeys that will provide both meaning and personal satisfaction to the voyager undertaking the journey and contribute to the dual and connected causes of climate justice and female empowerment. I hope you will take to heart the stories and lessons in this book and think of how to include in your life at least one important element – one or more of the kinds of service activities or, perhaps, even the full-scale careers that I introduce in these pages.

Chapter One

Why a Female-centered Approach?

Rural women in developing countries suffer disproportionately from the disastrous effects of climate change. As caregivers, subsistence food producers, water and fuel collectors, and reproducers of human life, their health and wellbeing are severely degraded by constant exposure to climate change disasters. Increased global awareness of this situation has led some organizations to bring to the task remediation and adaptation for women and girls in the Global South.

One such initiative began in 2011 when the Women and Gender Constituency (WGC) obtained observer status in the United Nations Framework Convention for Climate Change (UNFCCC). This constituency worked to ensure that women's voices were heard, and that their rights were protected. To support and advocate for those whose lives are constantly threatened by massive floods, droughts, food insecurity, and migration, the WGC established a network of 33 women's and environmental civil society organizations and over 600 private citizens from around the world.[1] Gaining momentum from the Paris Climate Accords in 2015, it also developed awards programs to showcase women-led environmental projects: Most notable is *Gender Just Climate Solutions* (*GJCS*), which holds an annual ceremony at the UNFCCC's climate change conference to announce the three top projects, presents the winners with seed grants (over time, between 2,000 and 3,000 Euros to each awardee), and organizes mentoring opportunities through its extensive network. Past award winners include feminists who promote women-led irrigation systems in rural areas, clean energy cookstoves, train-the-trainer education, and recycling programs.[2] In addition, the *GJCS* recognizes several other entrepreneurs and innovators who are engaged in devising ways to empower women to help their communities adapt to and mitigate against climate change.

While awards programs are laudable, the fact remains that many United Nations (UN) member countries pay lip service and provide little support for addressing climate justice. As a result of a report issued by the UN and another

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one from the medical journal, *Lancet*, in October 2022, the *New York Times* published the following assessment:

> Countries around the world are failing to live up to their commitments to fight climate change, pointing Earth toward a future marked by more intense flooding, wildfires, drought, heat waves and species extinction .... The [*Lancet*] report raised concerns not only about the direct health consequences of rising temperatures, including heat-related mortality, pregnancy complications and cardiovascular disease, but also the indirect costs, including the effects that drier soil could have on malnutrition and how a changing climate can expand habitats suitable to mosquitoes that carry dengue fever or malaria, ticks that carry Lyme disease, and the pathogens that cause diseases like cholera and Valley fever.[3]

One year earlier, the UNFCCC ignored requests from the WGC and other groups to offer an online platform for those who could not travel to Glasgow, Scotland, during the pandemic to attend its climate change conference (COP26). Thus, the voices of rural women from developing countries – where the effects of climate change are the most severe – were largely unheard.[4] And, at the 2022 conference in Sharm El-Sheikh, Egypt, the WGC felt that it was necessary to distribute guidelines on the safety and likely surveillance of women who were attending COP27. It also developed hashtags (such as #*SilencedCOP27*) to show solidarity for political prisoners and environmental defenders.

It is worthy to understand the historical context within which the above actions occurred: In 2015, the UN General Assembly established Sustainable Development Goals (aka SDGs), which included a commitment "to empower all women and girls." Within this frame, the UN focused on females as victims of violence and discrimination – with respect to a lack of access to equal wages, education, and health care. In taking this stance, however, it minimized the many ways women and girls promoted solutions and challenged the rising numbers of those who are suffering from the effects of climate change.[5]

In this chapter, I introduce an American environmentalist – one of the WGC's early awardees – who developed a new way of thinking about women's empowerment in climate-challenged regions of the developing world. Second, to address potential leadership roles for women, I discuss findings from recent field studies to identify problems and prospects in climate change adaptation in the Global South. Third, building upon the field studies, I present a female-centered approach to climate change initiatives that, I believe, integrates women's agency into existing structures. Finally, I set forth the complexities of intersecting social, economic, and political structures as revealed in a project that sought to establish a women-led irrigation technology in India.

New Ways of Thinking About Women's Leadership

One of the first UNFCCC award recipients, Jeanette Gurung, an American environmentalist who worked for many years in South Asia, asserts that women's political

participation must radically change the hierarchical, male-dominated status quo to garner the benefits of women's intellectual capacities.[6] Gurung notes that "radical change" does not mean promoting women's agendas to the exclusion of men; rather, it incorporates women's strengths and perspectives to "hold up half the sky." As founder and director of Women Organizing for Change in Agriculture (WOCAN), Gurung drew upon her extensive experience in Asia working with international aid organizations (such as CARE and the Peace Corps), where she pushed against the glass ceiling for over 30 years in the male-dominated field of forestry. After leaving that work, Gurung set about creating tools for women to become part of a critical mass for collective change.[7] Here are the key elements of her training program:

1. *Transformation*. The woman must have experienced an "awakening" to move from a low-to-high level of self-confidence. (The process of internal development and consciousness-raising essentially enables the woman to acknowledge her leadership potential.)
2. *Transcendence*. She must move beyond the official title and the established class hierarchy.
3. *Cooption*. Her impulse is to focus on ways to bring others along – to use or take control for her own purposes.
4. *Eloquence*. She effectively and forcefully communicates messages.
5. *Articulation*. She listens deeply to others and, in response, articulates a vision that her audience/colleagues can appreciate.
6. *Ownership*. She works toward gaining an economic advantage on behalf of the organization to which she belongs.
7. *Breakthrough*. She "breaks through" existing levels of secrecy within existing male-dominated institutions.[8]

Gurung's initiatives were the result of her own experiences in dealing with sexist attitudes emanating from the Global North in organizations such as CARE and in the Peace Corps where she had worked as a volunteer.

The above elements are cornerstones of her training; and now they need to be integrated into how a woman masters the subject matter of the field in which she is engaged. Because of gender bias, a woman may need to be *more* knowledgeable and *more* expert than her male colleagues to have her worth and value recognized and accepted, even if grudgingly or resentfully by patriarchal mossbacks. Her experiences may be directly applicable to racial, religious, caste, class, and other obstacles to egalitarian opportunity and leadership roles as well as to the gender dimension. One can find numerous examples of women and others who have been disadvantaged by hierarchical, male-dominated social structures that have culminated in the *Black Lives Matter* and *MeToo* movements. Thus, Gurung's approach applies to women who champion women's rights globally.

Results from Field Studies[9]

Current research on women's roles in climate change adaptation serves to reinforce the complexities Gurung deals with in developing her WOCAN training

programs in Bangladesh, Cambodia, Cameroon, India, Kenya, Madagascar, Malawi, Mozambique, Nepal, the Philippines, South Africa, Thailand, and Zimbabwe. My analysis of current scholarly research, based on field work that took place in Africa, provides policy recommendations for programs in Central America and Asia. For example, one in-depth study of 156 households in rural Kenya by M. W. Ngigi, U. Mueller, and R. Birner found that government programs do not support women in leading climate change initiatives.[10]

At the community level, women often are hindered by insecure land rights and limited access to capital, which empowers men in their communities to pursue agroforestry and conservation agriculture. Consequently, rural women focus on how to achieve a measure of financial independence and financial stability by creating safety net programs through individual and group-based income generating activities, often achieved through savings and loans and access to credit through women's organizations. Yet, their opportunities to lead a movement to change agricultural practices to adopt eco-friendly approaches are severely limited.

Another study, conducted in Nicaragua by N. Gonda, noted that the government's climate policy merely reinforced "hegemonic masculinities and patriarchy" and, as a result, undermined women's confidence in their abilities to implement climate change adaptation projects.[11] In short, *climate policies ignored women's deep knowledge of natural resource management and indigenous oral traditions*. Field researchers in Nicaragua concluded that the only way to change the status quo was through a systematic transformation within the government to alter climate change politics. In Ethiopia, research by S. Balehey, G. Tesfay, and M. Balehegn revealed that while women contribute more labor to their communities than men during droughts and famines, they do not have access to capital, nor do they have the power to make decisions to implement environmentally sustainable activities.[12] In yet another study conducted by R. B. Kerr et al., in addition to the lack of land rights, lack of self-confidence, and limited financial resources, interviews with 425 Malawian farmers indicated that, although women were the ones to develop informal networks to promote eco-friendly farming techniques, men had the final decision in whether the techniques would be implemented.[13]

All four of the above studies demonstrated that women's power to make changes is severely limited, even though they are more inclined than men to participate in programs that: (1) build community and a collective identity; (2) make visible agency and capabilities in enacting different subjectivities; and (3) visualize diversity and differences in unity.[14] To date, scholars have not yet developed a "patriarchy index" in which countries could be classified, using a composite of factors including land ownership, primary head of household, voting trends, educational level, and so on.[15] If this were created, countries could receive a rating according to the degree of patriarchy embedded in their cultures, societies, and political institutions. Obviously, many other factors could go into developing such an index.[16]

Correspondingly, N. Rao et al. conducted a literature review of research throughout Asia and Africa that reveals that women are more apt to participate in decision making in smaller settings with fewer people.[17] In fact, if given the opportunity, they may serve as intelligence gatherers and consensus builders by

developing relationships with several different groups and communicating the practicality of altering farming practices that are detrimental to families and communities. And yet, notwithstanding this capability, a research study in Bangladesh by J. C. Jordan concludes that the only way to make significant changes in the balance of power with respect to decision making regarding agricultural practices is through radical, transformational, gendered, and power-sensitive dimensions.[18] In short, a feminist revolution.

When climate-related disasters devastated farming communities in Ghana, researchers in one study found that more men than women described themselves as providers, hard laborers, and family finance managers, while women were portrayed as dependents who relied on men to provide for them and perform only labor-intensive tasks. W. Adzawla et al. concluded that climate change programs must adopt strategies to incorporate men *and* women in the community to empower women to use women's knowledge of the land and skills in problem solving, communication, and collaboration.[19] However, it is unlikely that this can occur in culturally grounded patriarchal societies where women are exploited in numerous ways.

A second 2020 study in Ghana, conducted by I. Goli, M. O. Najafabadi, and F. Lashgarara found that, because men adhere to traditional roles as landowners and "heads of households," they are the first to gain access to an arsenal of climate adaptation strategies. This study listed multi-tiered suggestions to discuss the best ways to utilize "gender preferences."[20] *However, a "preference" implies a measure of free will that women laborers are not allowed and do not have the time or energy to pursue or that the societies and cultures in which they live recognize as part of their humanity*.

In addressing this problem, another study, a five-year pilot project in Senegal conducted by H. A. Patnaik that examined the Decentralized Climate Funds initiative, reported mixed results: (1) younger and less educated women who follow indigenous religions had a harder time developing the confidence to voice their needs; (2) in two geographical regions of Niole and Kaffrine, women's collective empowerment and unity enabled them to increase their bargaining power in both their communities and their households; (3) in another geographical region, Keur Sette Awa, women felt self-conscious about engaging in discussions of their needs and ideas in public community forums; and (4) in some areas, a significant cost for women actively participating in community affairs was a heavier workload. It is likely that, over the long term, traditional social norms will continue to prevent women from participating in public life.[21] Women in traditional, patriarchal societies are not apt to take on the same types of leadership roles as their male counterparts.

Reframing a Female-centered Approach

Women's oral histories combined with new perspectives on gender theory reveal the ways traditional societies may use a female-centered approach to better address climate-related disasters. First, oral histories involve self-reflections about

how women value their achievements over time. Second, a well-tested "gender schema theory" provides a method for identifying the ways men and women see themselves *within the context of* social norms and existing hierarchies. In this chapter, I suggest that drawing upon both bodies of knowledge – that is, oral histories and gender schema theory – enables a greater understanding of the roles that women can play in promoting innovative solutions in regions most affected by the disastrous effects of climate change.

There are not many oral history collections that systematically identify women's reflections on their careers in hierarchical organizations. One that I developed to teach a course on *Women in US–Asian Relations,* was adapted from a general, non-gender specific, oral history schema developed by the Library of Congress in Washington, D.C.[22] My adaptation contains reflections from about fifty women and points to four requirements needed to challenge formal established structures.[23]

First is continuing to advocate for integrating a female perspective into traditionally male-centered organizations, despite the formidable challenges discussed in the previous section. Second is developing sophisticated (and forceful) communication skills to confront the inevitable challenges. (Two examples, using a safety-in-numbers strategy, are when women approach a male supervisor as a group to confront inequity; and when they interrupt male-only meetings to express their ideas.) Third is promoting "non-binary" approaches, that is, proposing multiple solutions to a problem as a way of breaking down and resisting "either/or" mindsets. And, the fourth requirement of a female-centered approach is considering – and maintaining a focus on – nurturing and cultivating future generations of leaders.

In the *Women in US–Asian Relations* oral history collection, women reflected upon why it is important to change social and environmental constructs and redefine the concept of education to include experiential learning and traditional cultural practices that support rather than restrict them. For example, a director of a prominent foundation stated that the concept of "education" needs to be redesigned to incorporate experiential learning into interdisciplinary studies of multiple subjects.[24] She and several others described how to change education so that it includes the following: using teacher volunteers from other countries; reforming educational structures to provide technical training;[25] offering women empowerment training, even during periods of conflict and reconstruction; involving men and women in the community in training initiatives;[26] organizing public awareness campaigns;[27] attracting outside support from colleges in the Global North; and mandating professional development cross-cultural training for business executives and managers from the Global North who intend to work in the Global South.[28]

In the area of traditional cultural habits or practices, one woman who pursued a career in the culinary arts reflected on the importance of learning about how women feed their families, including the traditional and daily dishes they make.[29] Though not mentioned in her oral history, which focused on immigrant experiences and maintaining traditions from her home country, her thoughts may be related to the lifestyles of rural women who are left behind to tend the ancestral hearth and continue to use highly polluting wood-burning cookstoves, and the biologics of women, as their bodies are not built to adapt to excessive heat.

Traditional cooking habits likely increase the incidence of asthma and respiratory disease. In fact, women dissipate less heat through sweating than men, which causes conditions such as stillbirth and congenital birth defects, along with hypertension.[30] In the realm of climate change adaptation, changing traditional cooking practices is a key aspect of women's survival.

Another oral history focused on the way women express themselves through poetry and song in Arabic.[31] By visiting coffee shops and conversing with women poets, Clarissa Burt interacted with Egyptian women who used the power of literature and poetry to preach their own concerns about the environment and become involved in politics. Throughout her career, Burt experienced a feminist consciousness in the Arab world that was articulated differently from country to country. She noted that backlash from the Egyptian Muslim Brotherhood's candidate winning the presidential election in 2011 and subsequently being overthrown by the military exacerbated hostility towards women on the streets and has been a continuing problem that contributes to the suppression of women.

Other oral histories reflected on the skills women acquire within traditional gendered roles.[32] Margarethe Adams, who pursued a career in ethnography, noted: "Being a woman allowed for a different type of experience ... women have more familial connections in these societies through children and other children's parents."[33] Others noted that oral traditions reveal a spirituality that connects to concerns about the environment; and creates a global awareness and understanding through culturally sensitive films and documentaries and diverse artistic patterns.[34] Perhaps men and women have different roles and social status in these spiritual traditions. In many societies, women are shamans and faith healers, for example. Spirituality connects to female stewardship and nurturing of the natural environment.

Women's oral histories illuminate the risks that women face because of climate-related disasters. According to a human rights attorney who has worked in the United States and Asia, women from the Global North and the Global South must address gender justice together. She mentioned that her work increases women's agency to align with values of anti-women discrimination.[35] Other women noted that, when they first began their careers, "society" considered them to be odd, unusual, and even radical. This included a woman who organized interventions at the UN Sub-Commission on Human Rights and delivered fiery speeches to gain international attention;[36] one who integrated arts education with international and domestic anti-human trafficking programs;[37] and one who pursued a career in the male-dominated field of financial services and banking.[38]

It is interesting to note that when women assumed high-level positions in philanthropic organizations, they used a collaborative (consensus-driven) strategy that combined several different issue areas, encouraged small business development, and maintained long-term relationships with grant recipients in the Global South. It is possible that this type of integrative collaboration may be a gendered response. On the other hand, one could argue that collaboration is essential in team sports that males play, in warfare, and in predominantly male activities like firefighting, just to name a few. Perhaps the gender difference is that in

sports – which women, of course, also play – there are winners and losers, so team collaboration is needed to defeat opponents. In fact, none of the above women's oral histories mentioned "competition" in reflecting on their career trajectories; though they did focus on social collaboration that seems to lack a competitive dimension: It is not a zero-sum game, but a win–win for all involved. One woman stated:

> I like the way I can contribute in a very physical and concrete way building up things like the rule of law, empowering women, or working on environmental issues to develop resources to combat climate change.[39]

Another woman noticed changes in universities that are now combining disciplines to better educate the next generation, which reflected her integrative capacities. Helena Kolenda noted:

> One reason we were interested in the Asian environment is because we were seeing a growing interest in environmental studies on college campuses in the United States, as well as a growing interest in Asian studies: Why not put them together?[40]

In the past and even in the present day, foundations tended to fund programs with a short timespan; and the initiative would disappear at the end of the funding cycle. An emerging trend, which seems to coincide with more input from women, as one woman noted from her experience, is allocating resources to establish long-term and direct contact with local communities.[41] Women may take on roles that require more staying power and persistence, which may be related to their primary role in child-rearing and education in most societies, activities not governed by quarterly financial reports or short-term gains (and losses).

In 1981, a psychologist, Sandra Bem, posited that society teaches children sex-related associations; and that the dichotomy between "male" and "female" is pervasive in every aspect of a child's life. As a result, she maintained, human behaviors and personality attributes should be understood *within* a gender schema as an organized set of beliefs and expectations; and guide a person's understanding of gender or sex.[42] She and many other researchers conducted extensive tests in various countries to refine and categorize both sets of feminine and masculine behaviors in hopes of better understanding how gender roles and societal expectations affect one's self-esteem and general mental health.

Among the many ways Bem's gender schema theory has been used in the present day are studying sex typing in Asian American communities;[43] investigating the moderating effect of gender in FinTech in Indonesia;[44] setting the historical context for the increasing recognition of intersectional feminism and trans-affirmative perspectives in the 2010s;[45] better understanding Nobel laureate Wangari Maathi's persona as an environmental activist;[46] confronting the lack of gender equality in farming communities in Sulawesi;[47] identifying the roles of women and young people to initiate peace-building in Kenya;[48] exploring leadership challenges for African American women;[49] examining Iranian female

identity;[50] investigating patriarchal gender norms in the micro-finance industry in Bangladesh;[51] and charting the dynamics of race, migration, and citizenship in Brazil.[52]

In these and other current studies, Bem's premise that most societies impose a dichotomy of feminine and masculine behaviors and characteristics makes the recognition of a non-binary approach – and women's empowerment – even more valuable in making informed decisions about climate change. For example, while "real men" assert that climate change is a threat to national security,[53] it is imperative to acknowledge that climate change *transcends* national boundaries. Furthermore, thinking within established boundaries does not contribute to collaborative, global scale solutions, but rather, to an "every country for themselves" sort of approach. As one of my students, Yasmeen Watad, pointed out, "Climate change shouldn't be seen as a political game or matter of national security, but a looming global threat that worsens every year."[54]

Bem's work, characterized as androgenous psychology, needs to be re-oriented: That is, to ensure that environmental initiatives and programs are robust and successful over the long term, it is imperative to identify and *incorporate feminine perspectives into existing male-dominated hierarchical organizations*. Another one of my students, Erin Byers, makes the important point that "the notion of 'both/and' are needed, and women will bring differing perspectives from men who traditionally hold positions of power."

Gender schema theory may be applied as a set of interdependent parallels: Ideally, a community (and its leaders) addressing climate change challenges in a holistic way would embody what have been considered as masculine and feminine traits – understanding that men and women can have both traits. Gender schema theory indicates that organizations and communities may benefit from those who are task oriented (M, a masculine trait) and relationship oriented (F, a feminine trait); engage in directive decision making (M) and engage in participative decision making (F); and make quick and efficient decisions (M) and make mindful, measured decisions (F), to name a few. The existence of more male and more female tendencies in these directions with any individual – male or female – may be located somewhere along a spectrum, in most cases exhibiting a certain degree of each characteristic rather than 0 or 100%. Women may cluster more toward one side of the spectrum and men more toward the other side. *The advantage of a female-centered approach is to create and manage collaborative teams that integrate these traits: Moving the needle closer to a feminine perspective opens a range of possibilities for developing realistic problem-solving strategies*.[55]

Complexities of Implementation

As indicated in the oral histories and gender schema theory, it is possible to combine feminine and masculine perspectives to change the way hierarchical organizations respond to climate change. However, implementing structural changes that would lead to women's empowerment in the Global South is complex. I recalled this challenge in reviewing my conversation with Biplab Paul when I conducted field research in Gujarat, India, in 2019. Trained as an engineer and a recipient

of an Ashoka fellowship, Paul was recognized as one of the world's leading transformative social entrepreneurs. His wife, Trupti Jain, also an engineer, had received a Fulbright fellowship to study in the United States. Together, they won many international awards for empowering rural women by placing them in charge of an irrigation system that they named *Bhungroo* (which means "straw" in Gujarati).

Paul and Jain decided to work in the Indian states of Andhra Pradesh, Uttar Pradesh, Maharashtra, Bihar, Karnataka, Gujarat, and Jharkhand – precisely because poor farmers were underrepresented and, in some cases, ignored by local governments. See the map in Fig. 1 to locate these states in India. They initially believed that women in these areas had the most to gain from the *Bhungroo* mission – to empower women – and the introduction of the means to accomplish this through technology. Their project centered on the distribution and management of a water conservation technology that filters, injects, and stores excess farm water or stormwater underground for usage in dry periods.

As they developed plans for introducing the irrigation technology to raise women's social status, they knew that they would confront entrenched social and political norms that excluded women. While their goal was to set up irrigation systems that poor farmers could maintain simply and independently – and sought to identify women who could manage the technology and serve as expert communicators in their communities – they were also struck by the needs of the future generation. Paul stated:

> Those people they don't have anything in their hand they always get kicked in their ass by the family they don't earn anything, and they are the faster to go astray and engage in nefarious activities. Those boys and girls who could not pass 10th level exams are sitting idle in the village. They don't have any work and are redundant in agriculture ... I need them to be socially accepted ... our government is not doing anything. Specifically, our objective is to find [and train] youth male and female school dropouts.[56]

Within Andhra Pradesh, Uttar Pradesh, Maharashtra, Bihar, Karnataka, Gujarat, and Jharkhand, Paul and Jain never used the terms "women's empowerment" or "climate change" and instead focused on understanding how people within the regions described their challenges; and used the socio-cultural landscape to decide how to gain support.

In Andhra Pradesh, they realized that they had to work with those who had connections in the government system. While the region has a large female labor force (and few women in elective offices), with an economy based on agriculture, the region has several radically different agroecological zones. Thus, they chose to work at a micro-level in individual villages to cultivate women's roles within existing male-dominated structures. Uttar Pradesh, the second state mentioned above, is part of a coalition of the poorest Indian states (BIMARU); and Paul and Jain knew that they would have to spend most of their time and upfront costs "sensitizing" male farmers to *Bhungroo's* benefits of cooperating with women. This state

Fig. 1. Location Map of *Bhungroo* Sites in India. "Map-of-India-States" by Monus0727 is licensed under CC-BY-SA-4.0.

has a large migratory population and requires a cadre of committed individuals – both men and women – to "handle all of this territory." They sought to implement *Bhungroo* in Uttar Pradesh because farmers do not receive government support; and they understood that the learning curve would be steep and take many years to be successful.

The third state of Maharashtra also has a large migratory population and has one of the highest suicide rates among men. Noting that the patriarchy hurts everyone, Jain and Paul recognized that migrant men feel that they have failed their families and tend to be more depressed than women who stay at home to take care of their children and farm animals. Still, Paul observed:

> Women continue to be at a low level because they have not been empowered the way women in other Indian states have. I can't push my agenda on them: [Trupti and I] must work directly with all the farmers.[57]

In contrast, Bihar is one of the poorest states in India with the lowest rate of female literacy and labor force participation. The region is exploited by political leaders because of its vast natural resources; and tribal indigenous communities are not mainstreamed. However, Paul sees Bihar as a state that provides the greatest educational opportunities for women and youth. He stated:

> We must work on multiple aspects of designing a solution to fit every farmer's needs. Over the past 15 years, with educational institutions as partners, Bihar has become woman oriented. We can design learning modules here for all other states. Still, we are in the process of figuring out which partner might be the most effective.[58]

As a result of continual climate crises, Karnataka is among one of the worst drought-affected states and the government has been proactive in providing support. In contrast to Maharashtra, farmer suicides are not as prevalent. Paul assesses the situation as follows: "The government is trying to be 'pro poor.' Our political leadership at the local level is sensitive to the farmers' challenges."[59] In promoting empathic understanding, Paul and Jain have observed a diverse mix in women's roles and social status in rural communities. Perhaps one reason is that the female literacy rate is the highest of any of the states. Paul observes:

> We found different layers of women [as leaders and followers] so you cannot generalize. Also, [in contrast to Andhra Pradesh], Karnataka doesn't have a strong agricultural sector, and the government is trying to build it up and provide irrigation facilities. As a result, social security services and social cohesiveness might be higher at the village level.[60]

In Gujarat, they identify and work extensively with local partners and village networks. Paul explains:

> Our work does not depend on the government at all. While there is a problem with money siphoning, self-help groups [SHG] are quite good – and we work directly with partners [external to the state in three, four or five districts]. This takes time. For example, in two districts in Gujarat, we might serve 300 or 500 thousand people. In the archaeological institute in Gujarat, there were 94 villages in which some members and climate leaders are women – we are expanding across the knowledge model because we want to reach into the lowest levels [without imposing copyright or legal fees, which are expensive].[61]

Finally, Jain and Paul work to cultivate women as climate leaders in Jharkhand, which has an extremely low gross domestic product income and female literacy rates and requires a lot of upfront energy to introduce and facilitate change. In addition, while most farmers in Jharkhand are Hindu, Jain and Paul have worked with separate communities of Muslim and Hindu farmers in Bangladesh, for example. In both cases, they focus on confronting (or at least working around) political leaders who ignore the dire situations of poor farmers and uniformly oppose uplifting women. Still, Jain and Paul recognize that Jharkhand's high migratory population results in farmers/laborers sending remittance incomes back to their home villages, which means that they do not contribute to the local economy. Furthermore, Jharkhand has more than 35 different geological conditions, which makes customizing and installing irrigation technology extremely challenging.[62]

In sum, while geographical regions vary in terms of the hurdles that need to be overcome before women can be uplifted, Jain and Paul recognize that change in all seven states will be complex and slow. In this respect, it is not surprising that they identified Bihar and Gujarat, which are among the Indian states with the worst economic conditions, as having the most promise in confronting existing socio-political structures. In fact, these two states have great potential to garner support outside of India.

The United Nations' Gender Just Climate Solutions award was valuable because it enabled Jain and Paul to expand their transnational networks and gain visibility. In essence, to give women dignity and sustain a sense of purpose *within* their families and communities, Jain and Paul recognized that they need *outside* help to design flexible programs at the grass-roots level. Fortunately, they received monetary awards from the Buckminster Fuller Foundation and the United States Agency for International Development, among others. In sum, the above micro-sketches of the different conditions among these seven states suggest the diversity of challenges in other parts of the world, including countries in the Global North. For example, as climate-related disasters increase in the United States, Paul's and Jain's expertise using a woman-centered approach to identify and confront socio-political structures will be valuable in Native American communities, particularly in the increasingly arid West and Southwest. In fact, this very point is the focus of this book, which stresses *the value of mutual learning and cooperation as a global community*.

Conclusion

Oral histories, gender schema theory, and international awards that promote projects like *Bhungroo* reveal key components of a female-centered approach in terms of (1) how women operate within structured organizations; (2) the way they employ communication skills; (3) how they understand gender roles; and (4) why they embrace intergenerational relationships.

Oral histories indicated that women and men who work across cultures to identify a diverse array of social issues and potential partners have a better chance of responding and adapting to other cultural customs and traditions and learning the languages of the people they aim to serve. They learned the "rules" of existing

social hierarchies and proceeded to design work-around, or coping, strategies. In gender schema theory, the feminine spectrum includes a heightened awareness of how socialization affects women's lives. This may involve making connections between and among violent extremism, education, post conflict reconstruction, the rule of law, and domestic violence.[63] A female-centered approach aims to integrate cultural sensitivity and learning about customs and traditions in the developing world.[64] And, as Erin Byers, points out, a feminist approach should demand more from existing systems.

Finally, as Paul recognized in his work, a female-centered approach must emphasize the importance of nurturing future generations. In fact, oral histories have stressed the importance of older generations creating opportunities for girls.[65] Thus, a female-centered approach is universally applicable in that it centers on listening to and learning from "the other" and, as one Asian American storyteller noted in her oral history, "to NOT see yourself through a Western perspective."[66]

Chapter Two

The Case for Gender Equity

In Chapter One, I presented a female-centered approach to climate change programs at the community level in the Global South. Using an oral history collection and a theory of gender norms, I applied this approach to analyze the consequences of patriarchal social norms in India. To extend this analysis, in this chapter, I discuss the factors involved in reorienting gender roles: That is, once the gender equality climate change programs are in place, what must happen for women to maintain a sense of purpose in their roles within these climate change programs and in their public lives generally?

Toward this end, I first discuss the possibility of involving the United Nations Educational, Scientific, and Cultural Organization (UNESCO) in supporting a long-term solution to female empowerment because UNESCO's mission is to "create cultural opportunities for human expression to uplift people and societies." At present, UNESCO does not redress the subordinate position that women occupy in most societies, particularly ones that are overtly patriarchal. Second, I analyze the benefits and limitations of the way current climate change programs address women's emotional, psychological, and intellectual needs. To accompany both of these discussions, below is a reference key to the international organizations and technical terms.[1] Finally, I use the *Bhungroo* irrigation model (introduced in Chapter One) as a transnational example of how projects in Kenya can increase women's sense of purpose and agency in India.

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Reference Key of International Organizations and Terms (in order of appearance in this chapter, with website links in Notes, pp. 163–164)

Names/Terms	Shorthand Descriptions
UNESCO (United Nations Educational, Scientific, and Cultural Organization)[2]	An agency of the United Nations established in 1945 to promote the exchange of information, ideas, and culture
Sustainable Development Goals (SDGs)[3]	Created in 2015 by the United Nations, it consists of 17 interlinked global goals to help achieve peace and prosperity for people (and the planet) by 2030
Department for Digital, Culture, Media, and Sport (DCMS)[4]	Since 2011, it focuses on building a digital presence throughout the United Kingdom that includes broadcasting and the internet, and addresses policy aspects of entertainment, the arts, sports, etc.
World Heritage Sites[5]	UNESCO-designated sites that have cultural, historical, or scientific value. It began in 1965 and currently includes over 1,000 sites around the world – mostly in Europe and North America
The United Kingdom Research Institute's Arts and Humanities Research Council[6]	Since 1998, it supported research in such areas as languages and law, archaeology, English literature, design, and the performing arts
Theory of Change[7]	Used by large organizations to plan, participate, and evaluate social change. The five components are: inputs, activities, outputs, outcomes, and impact
African World Heritage Fund[8]	Launched in 2006 to work with UNESCO to support conservation and protection in Africa
Climate Heritage Network[9]	Established in 2019, a voluntary mutual support network of government agencies, NGOs, universities, businesses, and other organizations committed to re-orienting climate change policy and planning
World Heritage Leadership (WHL) program[10]	Works with IUCN and ICCROM (see these terms below) to set standards, provide resource materials, and establish learning networks between conservationists and cultural practitioners in communities around the world
International Union for the Conservation of Nature (IUCN)[11]	Created in 1948, a global authority on a science-led approach to data analysis and action. Consists of 1,400 member organizations and 15,000 scientific experts from over 160 countries. Climate change is one of eight major themes

(*continued*)

Names/Terms	Shorthand Descriptions
International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM)[12]	Also created after the Second World War, a worldwide interdisciplinary network to conserve and restore different types of cultural heritage. It offers courses and workshops to conserve museum, library, and archival collections
UNESCO's Culture & Sustainable Development[13]	Integrates culture into national level public policies to, for example, reduce poverty and strengthen education for social justice. Develops tools to measure and monitor the impact of culture within the 17 SDGs
PRAXIS at the University of Leeds (United Kingdom)[14]	An interdisciplinary project that aims to demonstrate the ways arts and humanities provide insight into global development challenges – "to capture and communicate arts and humanities research"
2030 Report (UNESCO)[15]	Addresses five dimensions: people, prosperity, planet, partnership, and peace. Through 17 Sustainable Development Goals (SDGs), the report provides a blueprint to eliminate poverty, reduce inequality, and protect the planet by 2030
REDD+[16]	A program created by the United Nations' climate change conference (see UNFCCC below) that guides and implements activities in the forest sector to reduce emissions from deforestation in developing countries
United Nations Framework Convention for Climate Change (UNFCCC)[17]	A multilateral environmental agreement originally drafted in Rio de Janeiro in 1992 to combat human interference with the climate system. Subsequently, it developed other treaties – the Kyoto Protocol, the Paris Agreement, and Intended Nationally Determined Contributions (INDCs). The annual climate change conference is referred to as the Conference of Parties (COP)
CARE[18]	Established at the end of the Second World War, a large non-profit conglomerate that addresses food insecurity and poverty; presently focuses on women and girls
Coral Reef Rescue Initiative (CRRI)[19]	Led by the World Wildlife Fund and has many prominent supporters in conservation, science, and development (including CARE). Increases community resilience in coastal areas

(*continued*)

(*continued*)

Names/Terms	Shorthand Descriptions
Capacity Building[20]	Defined in the United Nations as "the process of developing and strengthening the skills, instincts, abilities, processes, and resources that organizations and communities need to survive, adapt, and thrive in a fast-changing world"
Nationally Determined Contributions (NDCs)[21]	A climate action plan to cut emissions and adapt to climate impacts. Each Party (member of the United Nations) to the Paris Agreement is required to establish an NDC and update it every five years
INDCs[22]	In 2015, the UNFCCC invited each Party (member of the United Nations) to provide to the secretariat a statement about how it plans to address climate change
Food and Agriculture Organization (FAO)[23]	A specialized agency of the United Nations to address food insecurity with 195 representatives (194 countries plus the European Union)
Climate Change Agriculture and Food Security (CCAFS)[24]	A trust fund donor research initiative focused on identifying climate-related threats to agriculture and food security and helping vulnerable rural communities adjust to global changes
Gender Action Plan (GAP)[25]	Established in 2014 through the Lima Work Plan on Gender to ensure equal participation and leadership throughout the UNFCCC: "Effective climate action must respect and promote gender equality and women's rights"
Paris Agreement[26]	A United Nations agreement from 2015 that is a legally binding treaty on climate change. Its goal is to limit global warming by 2 degrees Celsius max, preferably to 1.5 degrees
Non-governmental organization (NGO)[27]	An organization that operates independently from any government – though it may receive funding from a government but operates without oversight or representation from that government

UNESCO, Climate Change, and Gender Equity

Established at the end of the Second World War in 1945, UNESCO's mission was to facilitate collaboration and dialogue among nations. For over 75 years, it focused on preserving cultural heritage and, in 2010, added climate change to its areas of concern. Roughly 10 years later, in a 2021 symposium titled, "Heritage

and our Sustainable Future: Research, Practice, Policy, and Impact,"[28] UNESCO outlined its objectives as follows:

> […] As agreed in 2015 by the United Nations General Assembly, the 17 Sustainable Development Goals (SDGs) unite 193 Governments with the shared aim of leaving both our planet and societies on a sustainable footing for future generations. No poverty, clean energy, sustainable cities, and quality education are among the challenging targets that must be met no later than 2030. The pressure is on, and it's all hands-on deck with experts from across the globe rallying to this call. Since cultural heritage is an expression of human communities through diverse media, experts work to safeguard all manners of heritage: from vast buildings, works of art and folklore, to artefacts, language, and landscapes. The shared goal, however, is simple: to preserve the past so that future generations might enjoy, benefit, and learn from its legacy.[29]

The problem in this articulation, however, is that the shared past is all too often patriarchal and subordinates and oppresses women as part of cultural heritage. So, to fulfill its goals, UNESCO must challenge and overcome those aspects of legacy culture. Documenting women's life experiences in climate-related crises, while not explicitly stated, is necessary to UNESCO's goal of preserving the past by enriching one's life through a variety of human expressions. One of its partners, the Department for Digital, Culture, Media, and Sport (DCMS), acknowledges past inconsistencies in measuring the benefits of cultural heritage – which it defines as "well-being, education, and identity" – and suggests correctives. In its activities, the DCMS notes that emigration and immigration, ruptures of family and community links, increased political dependence, and the inability to keep alive memories (including indigenous scientific knowledge) contribute to the loss of heritage. I suggest, and will make the case, that the above may be addressed by documenting women's expertise and life experiences.

Documenting women's experiences requires establishing trust between individuals and programs. One of UNESCO's project proposals seeks to build trust within communities by recording memories such as individual interviews, photos, and songs. The proposal specifies that collecting memories in such a way that they don't "retraumatize people" will enable UNESCO to (1) measure changes over time in individuals' emotional power and human connections and (2) satisfy two of the seventeen United Nation General Assembly's Sustainable Development Goals (SDGs) – sustainable cities and communities (# 11) and partnerships for the goals (# 17).

To measure the benefits of cultural programs and build trust, UNESCO is in the process of defining its "climate change" mission. In preserving sites of colonial heritages, it has been criticized for supporting cultural imperialism for at least 70 years, since the decolonization of Africa. (See the map below in Fig. 2.); however, this criticism takes on new meaning today in much the same way that the United States presently is reexamining its past glorification of

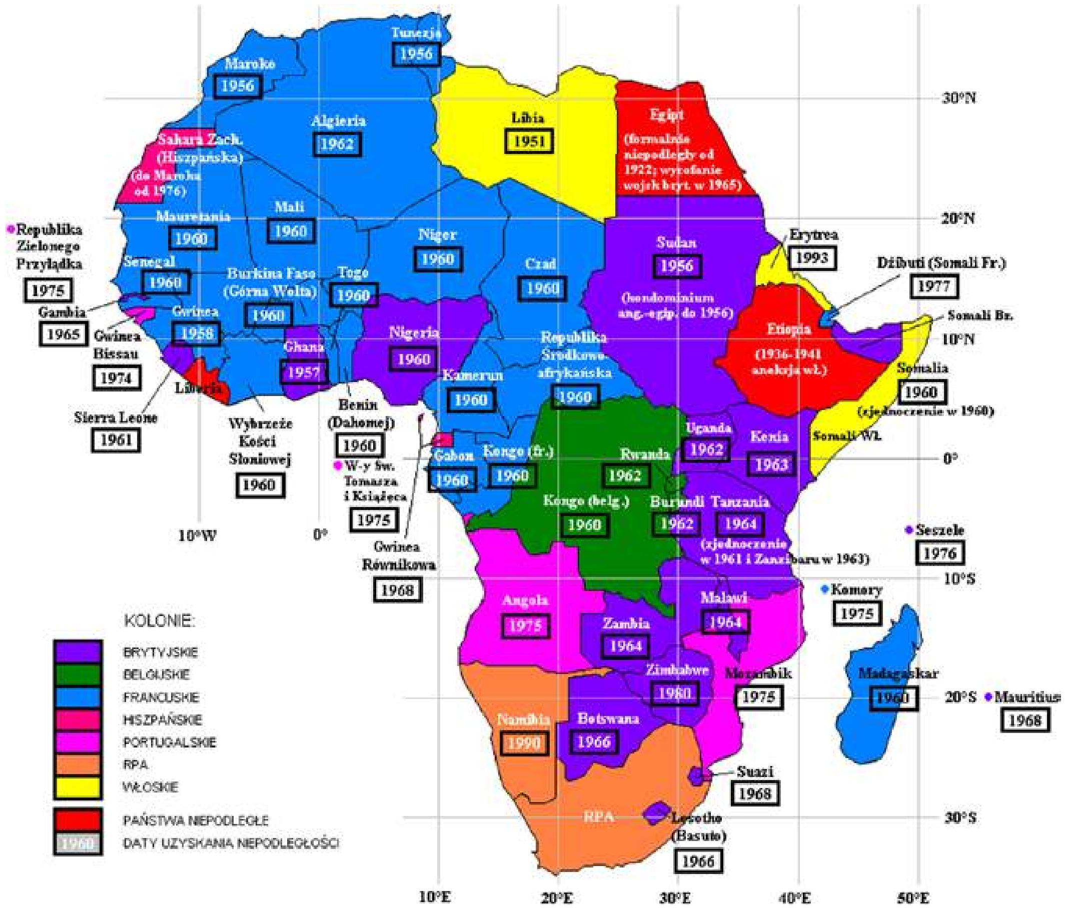

Fig. 2. Decolonization of Africa. "Decolonization of Africa" by Przemko1 is licensed under CC-BY-SA-2.5,2.0,1.0.

slavery and conquering Native Americans through the presence of ubiquitous cultural symbols, including monuments, pejorative names of sports teams, names of buildings, and flags.

Today, UNESCO must face the reality that many, if not all, indigenous people suffer disproportionately from climate-related disasters.[30] In this respect, I believe institutions like UNESCO and others struggle to set aside their own assumptions about what victims of inequality need: These institutions should document "human civilization" with climate change in motion. For example, a profound question posed by Logan and Larsen in the UNESCO symposium was: "Are World Heritage Sites islands of nostalgia in the wider seas of environmental and cultural degradation?"[31]

The UK Research Institute's Arts and Humanities Research Council initiative, also a UNESCO partner, foresees a way to merge (and transform) standard approaches to become more holistic – "by co-developing theories of change to understand user needs and using mixed methods with different voices and historical approaches in compiling oral histories and documentaries." It refines UNESCO's mission to include voices from those in "politically fragile countries" (quite a euphemism for countries torn by ethnic, religious, tribal, etc. conflicts) to increase the world's understanding of environmental issues. This may involve

documenting women's voices, although it may be difficult to gain access to rural women in local communities: Will "politically fragile countries" particularly in the near East and Africa set aside their existing cultural frames and patriarchies to allow this documentation to occur? In fact, many of the countries wherein UNESCO aims to orchestrate this change are burdened by political legacies of patriarchy that discounts women's voices and power.

A further complicating factor is that UNESCO has a minimal investment in Africa for two reasons – one is poor management within the region and the other is the sheer number of environmental disasters. According to the African World Heritage Fund, Africa is the most underrepresented region in the world in terms of the numbers of UNESCO-designated World Heritage sites. There are approximately 1,150 world heritage sites but only 147 in Africa. See the map below (Fig. 3). The lack of such sites in Africa is astonishing and deeply disturbing. UNESCO has been able to meet the new SDG requirements in two ways – first, by establishing a Climate Heritage Network and, second, by supporting science museums and geoparks in the developed world, referred to as the Global North. In describing these initiatives – "to bring the power of arts, culture, and heritage to climate action" – UNESCO prioritizes five SDGs (i.e., good health and well-being (# 3); quality education (# 4); decent work and economic growth (# 8); industry, innovation, and infrastructure (# 9); and partnerships for the goals (# 17). Unfortunately, the reality is that all too often, the SDGs are a way for member organizations to "check a box" while continuing to perpetuate an unsustainable world under the guise of sustainability.

It is also true that UNESCO is in the process of updating its policies relating to science and culture. For example, it supports a World Heritage Leadership (WHL) program and other educational programs through the International Union for the Conservation of Nature (IUCN) and the International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM) to "manage culture, nature and disasters." As part of the IUCN's World Heritage

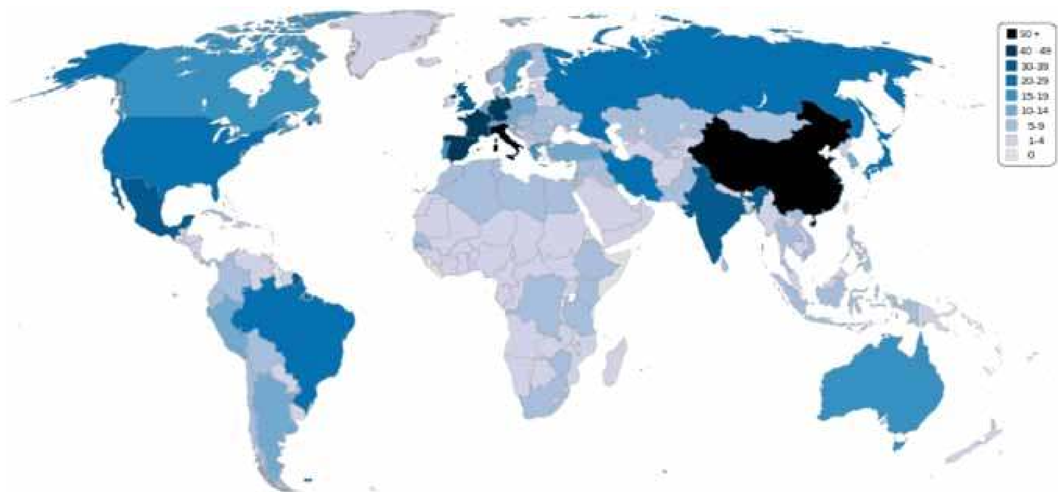

Fig. 3. Map of World Heritage Sites by Country. "World Heritage Sites by country gradient map (2018)" by Memnone di Rodi is licensed under CC-BY-SA-4.0.

network, it endorses a "holistic approach" and recognizes 100 resilience projects in 94 countries where climate change has become the most prominent threat. For example, its Culture for Sustainable Development initiative[32] specifies that it aims to support local culture to rebuild a sense of community after disasters and during rebuilding; and cites projects in Haiti and Kashmir. UNESCO also champions a IUCN program that combines biodiversity, ecological integrity, and cultural heritage to develop a climate disaster management cycle to focus on "red zones," primarily in South Asia.[33]

In addition, in September 2021, in partnership with PRAXIS at the University of Leeds (United Kingdom) and with support from the Arts and Humanities Research Council (AHRC), UNESCO launched a series of brief reports, *Heritage and our Sustainable Future*, with case studies of community-based projects.[34] A contributor to one of the reports, Dr. Loredana Polezzi, has observed that a localized community approach presents differently than the approaches of international and national funding bodies.[35] Currently, each of the reports is a few pages long, which may be a result of UNESCO's uncertainty concerning how to advance and integrate climate change into cultural heritage projects. Thus, it is not surprising that one symposium participant leveled the following withering criticism:

> Why isn't cultural heritage assessed in connection to zero hunger, affordable and clean energy, decent work, and economic growth? Why does culture require a tailored set of ethics? Maybe the current climate crisis cannot be assessed in light of culture? Culture cannot only be the pretty version of the past but also the terrible vision of the present – it must reflect who we are.[36]

In examining the initiatives, UNESCO's current presentation offers little acknowledgment of the status and roles of women in the Global South, many if not most of whom lack the freedom to make choices and/or articulate a sense of purpose under critical environmental conditions. Furthermore, it does not have in place policies that support women in the sustainable management of local resources, which is a key component of addressing climate change. Its *2030 Report* states that policies "will take into account the particular interests of women; for example, supporting cultural activities of particular interest to them." This seems to me to be a vague and unhelpful formulation because it characterizes women as a "disadvantaged group," and folds them into a general statement about equal opportunity:

> Whenever possible, data collection is disaggregated by sex [and] cultural facilities cater equally to the needs of both men and women … that the key determinants [of cultural practices] are the extent to which women and men are able to choose the lives they wish to lead, and to contribute to and benefit from their country's cultural, political, economic, and social development.[37]

To move toward a female-centered approach (discussed in Chapter One), in this chapter, I suggest that UNESCO develop policies to allow for the collection of in-depth oral histories and memories about rural women's life experiences. If it does so within the context of climate change initiatives, this type of documentation could provide much needed legitimacy to women's authority in demonstrating that their lives matter, as does the land upon which they live, both of which have changed dramatically due to environmental disasters.

Oral histories from women in the Global South could enrich transnational advocacy networks, which are essential to accessing financial resources to address climate crises and women's agency. UNESCO must redirect its resources to support oral history projects especially in places where women, and whole communities, have been forgotten. At this point in time, women often are tied to the land but everything else is changing. Many men have migrated away from home to find work elsewhere and climate-related disasters continue to ruin those who are left behind. Here, I suggest that urban areas are stressed because of male out-migration from rural settings and that, at some point, we (as a collective) could learn from the experiences of women who have acquired climate change adaptation strategies as the primary caretakers of family and resources in rural settings.

A sense of purpose needs to be acknowledged as an important part of rural women's lives. By becoming devoted to work outside of themselves (as part of documenting climate change through oral histories), women may become energized because they are utilizing their expertise to help others solve problems. New research by psychologist Scott Barry Kaufman expands upon Abraham Maslow's well-known hierarchy of needs theory to demonstrate that purpose is an essential human need as well as a major source of meaning in our lives; and that self-actualization can be integrated into other basic needs.[38] Thus, the need for food security may exist alongside the need for self-actualization. One of my students at Stony Brook University, Yasmeen Watad, disagrees with this formulation, as many readers may as well: "The idea that the need for food and self-actualization may exist side-by-side seems counterintuitive."[39] And yet, "survival" can include gaining great satisfaction from helping family members by speaking out, to let others know about their situation. Kaufman's point is that we are accustomed to thinking linearly – working up a ladder – when, in fact, survival is multilayered and interconnected. Rural women may be energized and feel empowered by participating in projects that help others understand how they have adapted to the reality of climate change.

Results from Field Studies

Current assessments of formal, institutional programs that aim to address women's sense of purpose in the most vulnerable areas of Africa and Asia suggest that the programs do not seem to provide a clear path forward. One comparative study of 20 UNFCCC forest loss programs, REDD+,[40]

demonstrates that, despite its intentions, the programs have not addressed gender differences: Disadvantaged women do not have a stable agricultural income, still need more government services, and seek greater opportunities to save money. To improve their well-being and self-worth, women expressed a desire for "conditional livelihood enhancements," such as being paid for the work that they do to improve the environment. The study also identified some contextual roadblocks: In Vietnam, women do not take on leadership roles or become involved in working groups; in Burkina Faso, the REDD+ programs perpetuate a gendered division of labor; and, in Nepal, despite attempts to include women, gender imbalances persisted.

As a result of these findings, researchers concluded that the planning and implementation of REDD+ programs need a complete reboot.[41] Another assessment that focused on a REDD+ pilot program in Nepal, which had received substantial support from the German Federal Ministry for the Environment along with other NGOs, had similar recommendations for improvement. These researchers noted that, to feel a sense of purpose, women had to have greater control over assets and be represented at all decision-making levels (i.e., not just at the local level) to safeguard their own rights.[42]

Others who analyzed projects affiliated with the UNFCCC, CARE, the World Wildlife Fund (WWF), and REDD+, agree that international programs fail because the programs emphasize women's vulnerabilities instead of recognizing their potential contributions to local environmental and ethnobotanical knowledge. For example, the Coral Reef Rescue Initiative (CRRI) – which has projects in Fiji, the Solomon Islands, Madagascar, the Philippines, and Tanzania – often do not give women a sense of purpose, including education, provisions for alternative livelihoods, increased participation in decision making, and addressing gender-based violence.[43] As "gender transformative" as these programs purport to be, most of the programs appear to be "gender accommodative" because existing gender norms within the societies women live restrict their options. To help change this situation, field experts recommend combining management, conservation, and adaptive capacity building.

Another insight comes from a CARE-sponsored program in Cuba, where women previously were unaware of the effects of the existing patriarchy on their ability to work alongside (rather than under) men and get paid for their work. The CARE program provided training using solid domestic and agricultural waste as climate change adaptation tools to cultivate fruits, vegetables, sugar cane, and livestock.[44] The question, addressed in this chapter, is whether women will continue to feel valued and be able to decide how they will use the money they earn. In other words, when the CARE program ends, will women have established a sense of purpose and commitment that will sustain them over the long term?

Another body of research published in 2018 by a group of eighteen researchers analyzed qualitative data gathered from interviews with women conservation leaders in seven Asian Pacific countries to determine best practices for

incorporating women into climate change adaptation policies.[45] This study indicated that traditional oral communication – where women passed down to their children survival techniques during droughts, including planting practices – weakened as climate change events increased and they were compelled to work longer hours in the fields while male family members traveled to other, larger farms to work as contract laborers. Women gained self-esteem and a sense of purpose when they were integrated into the decision-making policy process because, as is the case in many agricultural communities, they had greater knowledge of the land and the innovative capacity to modify existing practices to adapt to climate change. This study recommended enhancing women's sense of purpose by incorporating women's organizations into formal policy and decision-making processes at local levels.

An article published two years later in *Gender & Development* stated that most UNFCCC programs still characterize women as victims of climate change and passive recipients of aid.[46] Furthermore, in comparing official statements from individual countries' nationally determined contributions (NDCs) to their previous *intended* nationally determined contributions (INDCs), the report mentioned that there was only a slight increase in national commitments to gender equality;[47] and provided examples of member states (e.g., Uganda, Tanzania, and Nepal) that are coordinating climate committees across governmental departments and including women in national ministries and national organizations. Noting the high degree of complexity involved in enacting national-level gender equity and climate justice policies at local levels, the study also highlighted a training program in Guatemala (which has roughly half the population of Nepal and a third of the population of both Tanzania and Uganda) that involved 22 governmental organizations and NGOs at national and local levels.[48]

One can imagine the large number of organizations that will be involved in implementing gender equity policies in large agriculture-based economies that are continually threatened by climate-related disasters. This suggests that the mostly male-run governments pay lip service to gender equality and women's participation and empowerment because those are the goals articulated by United Nations' agencies or other external actors. And even the agencies working on site may lack much, if any, commitment to such goals.

Another field study examined United Nations programs through the Food and Agriculture Organization (FAO) in Africa and highlighted the success of gender-based training in Uganda and Tanzania; and the financial incentives provided through a Climate Change Agriculture and Food Security (CCAFS) program in Kenya and Nigeria.[49] The report concluded that climate change adaptation programs at grassroots levels had the greatest impact on women's self-esteem. However, to date, no follow up impact report has been issued to verify these conclusions.[50] A literature review of 25 qualitative case studies across Asia and Africa published in 2019 revealed that environmental stressors (including but not limited to rainfall variability, temperature extremes, and water scarcity) tend to negate women's agency.[51] The review stated that, in order to satisfy the requirements of the

UNFCCC's Gender Action Plan, the Paris Agreement, the Sendai Framework for Disaster Risk Reduction, and the United Nations' SDGs (please refer to the reference key at the beginning of this chapter for brief descriptions of these agreements), common conditions such as male migration and women's poor working conditions combined with institutional failure or poverty must be addressed to expand women's agency.

These findings deliver the same message as a field study that analyzed the efficacy of gender responsive climate change measures in Sub-Saharan Africa.[52] The four countries in that study – Mali, Nigeria, Rwanda, and South Africa – confirmed that although women were entirely capable of participating in climate adaptation strategies, they were not encouraged to become involved. In Mali and Nigeria, women were marginalized because they had no access to land rights or control over financial resources. In Rwanda, while 64% of lawmakers and 50% of the Cabinet were women, at the local levels, women could neither own land nor become financially independent. This suggests a significant disconnect between a relatively modernized and probably urban elite of educated women and their undereducated and overworked rural sisters bound by patriarchal cultural practices and legal norms, including the absence of property rights. In South Africa, women served as Parliamentarians but were excluded from most energy-related decisions. In essence, this study asserted that, to be successful, climate policy must be both "top-down and bottom-up."

In fact, the above field studies strongly suggest that if women could own land or have their own money, they would naturally acquire agency in financial and decision-making power. But Jeannette Gurung's conditions under which women become leaders, presented in Chapter One, reflect a much more nuanced picture of women's potential. She recognizes that women's self-actualization is an integral part of world betterment with respect to the issue of climate change. In fact, the *Bhungroo* program, also introduced in Chapter One, integrates these two elements – self-actualization and world betterment – into women's empowerment by connecting with women around the world. Biplab Paul, co-founder of *Bhungroo* states:

> I need documentation support and talking support. Through social media, I can talk to people sitting in the USA about my work. I don't need money from anyone. We need to identify good potential [for the *Bhungroo* program] in any part of the world for other woman climate leaders …. We have just been doing some work in Africa, too.

He notes that it is important to connect with women outside of the immediate context. For example, could it be the case that the most highly motivated, intelligent, and energetic women tend to leave the rural villages for towns for employment and career opportunities outside their immediate natal place, leaving their sisters in place in the villages? Also, does women's birth order figure into the

equation, for example, in families with multiple girls, who gets educated, who stays home, who gets married, etc.? To better understand how this is accomplished, the following section takes a deeper look into the *Bhungroo* program, to understand how this program was created; what the founders did to elicit government support; why their institutional learning was not linear; and how this program is used outside of India. I also discuss how outside support was crucial to the program's success not only in terms of empowering women in India but also in addressing the types of expertise needed to transfer technical and cultural knowledge to other countries and regions.

The *Bhungroo* Story

As a young woman from an urban, middle-class family, Trupti Jain was 22 years old when she first visited rural Gujarat. Three years earlier, she had graduated from college with a degree in environmental engineering and joined an NGO to do research on the economic impact of the environment. She then began to work for the state government of Gujarat in India and, within two decades, rose to a position in which she headed up national programs and managed a staff of between 70 and 180 people. She explained:

> I learned through that [job] the quality of the staff and how it is working is most important. I wasn't trained to be in management. I had to learn how to work with my team members and collaborate with those at the upper levels.

As part of her work, she became interested in improving women's living conditions as she traveled through the region and witnessed the effects of all the unpaid work that women did outside of the home. She found that fully 86% of the activities to maintain the farm were done only by women while men migrated to other, larger farms to find work. After carefully observing their work activities, she decided to incorporate women's activities as part of environmental management – to make their activities sustainable. She believed that women had to become empowered not only in Gujarat but also in other Indian states; and that, if women could get economic power, they would regain their dignity. *Economic power equates to power within the family as well as outside it and nourishes women's agency rather than dependence*.

Throughout her government career, Jain learned that at both upper and lower levels of management – at state or local levels – acceptance of women occupying positions of authority must be cultivated. This same struggle takes place in American academic institutions, government agencies, corporations, and everywhere else, a struggle that is ongoing in the face of entrenched old boy networks. In her position, she was not easily accepted because she was a woman. She elaborated as follows:

> I must put in extra effort for it. My life is easier now that I don't get angry. I was frustrated because I have the same capacity, educational degree, and so on.

Jain also discovered that she could not gain support from other women, even in her government position. (Sisterhood is supposed to be powerful but, in my experience, doesn't always operate in real world settings.) She also realized how women were treated at the local levels in the Penjyad. Jain stated:

> Our many women have been in contested elections at the local Penjyad (the village governing body) in the village of Mehtan. In India, in 1992, the 70th Amendment was passed in the constitution of India. So now the 70th Amendment is saying that at least 33% of the seats for the Penjyad are reserved for women only. What was happening was that the dummy candidates had been put on the Penjyad because men don't know that the seats were reserved for women; and, even if they did know, they don't know how to work it out and make the decisions. So, in the name of the women, only men were always working in the Penjyad.

Even though she had no experience in how to run a business, Jain decided to leave her government position and the political realm to establish a social enterprise. As she and her husband, Biplab Paul, formed Naireeta Services, they soon realized that they still had to work with governmental institutions to receive endorsements in many different regions. Jain knew that it was important to have a supportive male spouse (or father or brother) in facilitating women's acceptance into leadership positions in a male-dominated world. Men can (and do) act as brokers or intermediaries in figuratively opening doors to women as women seek to enter previously male domains of work and power.

By cultivating relationships, *Bhungroo* became officially recognized under the "National Rural Livelihood Government Program," in which every state in India can have an allocated budget to use the *Bhungroo* irrigation technology. In fact, some state governments – in particular, Uttar Pradesh, Andhra Pradesh, and Bihar – gained primary authority to institute programs. In essence, Jain's experience in the government – and acceptance that she needed her husband to gain acceptance – resulted in the *Bhungroo* irrigation project becoming a pilot for the government allocation of funds.

While Jain herself knew that women farmers also could be entrepreneurs, she recognized that farming sectors dominated by men usually don't acknowledge women's deep agricultural knowledge: "Women have years and years of experience, but people don't recognize it, not in terms of money and not in terms of appreciation." Thus, in pitching the program to farmers, Jain and Paul emphasized the fact that families could regain a sense of dignity, self-worth, and independence by working their own land and not having to work on other, wealthier, farms. In fact, once Naireeta Services implemented the *Bhungroo* irrigation system on their own land, farmers tripled their incomes.

In farming villages in Gujarat, Jain focused on giving equal opportunities to any woman who wanted to become a "climate leader" and would be effective in "selling" their knowledge to other local farmers. Naireeta Services pays women to learn about the irrigation technology products, including the price structures, methodologies, and applications – for drip irrigation, fertilizer application, seed selection, and so on. Their role is key because farmers must deal with lots of problems like cropping patterns and watering cycles and, while there are consultation services in the cities, small/poor farmers cannot afford them. At the local level in farming communities, she found that much of her work involved convincing women that they could learn the technical and planning aspect of *Bhungroo*. "No one has entrusted them in so many years. We had to go to the male farmers and ask them to convince the women." In the farming villages, she focused on cultivating women leaders by incorporating female staff and giving them leadership positions. Jain further added:

> I am trying to develop their capacities. Women have leadership qualities. Women must have self-respect and self-dignity. The second thing is that as a woman leader, I must make sure that I address the stakeholders and point out that they can learn from this (with women as leaders). It is hard, but we need to both understand it and project it in the right platform.

This suggests that forming women centered and women-led local organizations as parallel structures to existing male led ones may be one effective means of catalyzing rural change, including with respect to climate change. However, this may also elicit a patriarchal backlash among men who feel threatened by the emergence of non-subservient women. This is like racial and gender politics elsewhere, including countries in the Global North.

As she began to implement the program, Jain didn't know whether local women would support her and was surprised when they did: "They enhanced my knowledge and gave me moral support when I got frustrated." Furthermore, as *Bhungroo* and Naireeta Services became recognized internationally, Jain found a common purpose with others, including one Indian woman, who was a deputy director at the United Nations and had struggled for recognition. Jain was encouraged by many international feminist environmental leaders like Madhu Kishwar and Vana Sival, Sunita Narayal, and even her former boss, Rita A. Teaotia, who, after Jain left her government position, became the secretary of commerce and industry.

At the core of the *Bhungroo* program was a clear acknowledgment that Naireeta Services could not change the land rights system in India. They had to look for another way to help women farmers gain power over their lives. Jain described her challenges as follows:

> Within the government, I fought a lot. But I did not take an activist approach. In this position, I did a lot to try to give the land rights to the women because only 3% of women have land rights in our state [Gujarat]. Because they don't have the land rights,

> they must put up with a lot of domestic violence. They don't have anywhere to go and there is a lot of domestic violence. I couldn't change the government structure either. I thought that if I want to do something for the women, I had to be part of the government. But I realized that trying to change policies doesn't change things at the grass roots level. So why not devote time to *Bhungroo* to get irrigation water? We wanted the water rights to go to the women. If they did not have land rights, then why not give water rights to these women?

Again, this suggests the value of establishing a parallel power structure to the existing one. *Land is power, water is power*. Naireeta Services was the institutional mechanism Jain and Paul used to promote the *Bhungroo* program. One major challenge was that the state government assumed that they would be available, free-of-charge, to promote the project. The reality was that dealing with government bureaucracy required enormous time and energy, including making presentations and shadowing the trail of paperwork that required official Memoranda of Understanding (MOUs). At the same time, they experienced difficulties in overseeing the installation and maintenance of the irrigation technology in the field: While the state government allowed for the construction of 3,000 *Bhungroo* irrigation units, it turned out, as one might expect, that some units did not work for various reasons. Therefore, they needed people outside of the village structure to regularly monitor and oversee the units.

Initially, Jain and Paul didn't plan to establish a social enterprise.[53] Because Jain had worked for two decades in Gujarat implementing development programs for the national government and Paul had worked on accounting procedures for a local NGO, they did not know what it would take to establish a profit-making institution in the form of a social enterprise. At the same time, while they were establishing Naireeta Services, they became somewhat overwhelmed by the international awards they received (including an award in 2007 through the UNFCCC), and extensive media attention all over India that highlighted the way *Bhungroo* supported local communities.

They soon realized that they needed a steady flow of funds to sustain the program. It took four years to identify the best legal structure – to replicate, scale it up throughout India, and register it. It was challenging to identify the right legal structure to register as a social enterprise. They didn't know what kind of taxes they would need to pay or how to calculate startup costs; and tax and accounting liabilities initially were quite difficult to understand. They began to receive support in the form of mentorship from a variety of organizations, including the Indian Institute of Management in Ahmedabad, which has an information management program, and faculty members from Stanford University in California about legal liabilities and debts. Also, the Ashoka network, where Paul had received a fellowship, helped them understand the benefits of social enterprises.

In the meantime, farmers from other regions who were having problems irrigating their land asked Paul to help them combine his knowledge of hydrology with their traditional knowledge of the land. It took six or seven years of trial and

error before they came up with several different versions of the *Bhungroo* technology. [Presently there are 13 different versions.] According to Jain, "Now, the publicity is by word-of-mouth so that we get a key tool for marketing from that." In addition to local farmer interest, outside organizations provided monetary support and more publicity, including the World Bank's Department of Science and Technology,[54] which enabled them to form partnerships outside of India. As Jain described it: "We had never planned to work in Vietnam or Ghana, but the partners approached us, and we eventually got the right partners to help us."

In addressing all the parts of how to work through government channels, address farmers' needs, empower women, and gain support from outside of India, Jain and Paul were under a lot of pressure: An idea that began as a small endeavor was rapidly expanding. Still these additional interactions provided new motivation to have an impact in adapting to climate change disasters. For example, Jain's and Paul's in-country experiences with local and national government institutions enabled them to appreciate the intricacies of project management in other countries. In addition, they realized that the only way for women to sustain a sense of purpose within their families and communities is if the institutional channels were structured correctly.

The Possibility of *Bhungroo* in Turkana County, Kenya

Jain and Paul realized what many environmental sociologists have long noted – that the dangers of climate change are a reality in many areas of the world, especially in Asia and Africa (Barros et al., 2014); and that high temperatures, inconsistent precipitation, extreme weather events, and the rise of sea levels continue to displace and destroy the livelihoods of millions of people (McMichael et al., 2008). In their work, they observed firsthand what others have documented throughout the Global South – that populations are faced with food insecurity and unstable agricultural jobs (Kumar & Gautam, 2014). Jain and Paul had joined many international and local organizations to propose strategies for assisting vulnerable nations with limited resources under the rubric of climate change adaptation. Central to these programs was "gender mainstreaming" that involves both women and men in decision making (Aguilar et al., 2015). The combination of gender mainstreaming and climate change adaptation programs aimed to benefit both women and the natural environment (Palanisami, 2016). In addition, intergenerational mainstreaming – to involve older and younger generations – might result in long-term success of the projects. However, the problem that Jain and Paul were attempting to solve is whether such initiatives could increase the leadership and social status of local women in farming communities around the world.

I became especially interested in how *Bhungroo* could be used in other countries in the fall of 2019 when an eminent anthropologist and faculty member from the Turkana Basin Institute (TBI) in Kenya, Richard Leakey, met with a group of faculty members at Stony Brook University to hear more about their ideas and research plans. He became excited about my description of *Bhungroo* and the prospect of implementing it in the Turkana Basin region of East Africa. Apparently, the region has tried many water -filtration programs with very little

long-term success. According to another colleague who worked in the region for several years, Kamazima Lwiza, the men of Turkana County would not let the women be in a position of power. He stated: "Women have no power. It is a male-dominated society. Widows are married/inherited by the husband's brothers or paternal cousins."[55] There is also the factor of intertribal fights, and it is not clear whether *Bhungroo* would raise or ease those tensions.

Turkana County has an arid climate with little and undependable rainfall. Given that climate, agricultural production is not feasible on a large scale and most people who live in the basin are pastoralists. Most of the rain comes in April (approximately 50 mm), but very little comes in September (approximately 2 mm). While there is a large lake in the area, its water is alkaline and unusable. River water is one of the only sources of water for the over 50,000 km^2 that make up the area. A few of the pastoralists who do own land grow subsistence-based crops such as corn, cotton, okra, sorghum, and cowpeas. According to Lwiza, "[the farmers] usually have very small plots, in most cases an acre or less, but some go to 5 acres." Water scarcity dissuades residents from depending on farming, which is one of the reasons farmers comprise only a small portion of the population and pastoralists dominate.

Ever since the devastating 1973 drought, pastoralism has been characterized by a life of poverty and dependence due to an increasing process of proletarianization in the countryside (Hogg, 1986). Pastoralists are losing herding lands to farmers, ranchers, game parks, and urban growth (Fratkin & Elliot, 2001). This loss and resulting tensions of land use and access is magnified by "increased commoditization of the livestock economy, out-migration by poor pastoralists, and dislocations brought about by drought, famine, and civil war" (Fratkin & Elliot, 2001). As the Kenyan government pushes for privatization and individuation through international government programs, these problems intensify.

The utilization of *Bhungroo* technology could be beneficial in the Turkana Basin in two ways. First, it would help farmers, who are predominantly women, irrigate their land and, second, it would provide a stable water source for pastoralists, all of whom are men, and their livestock. Because *Bhungroo* is tailored to farming communities that need the technology for irrigation, it can be installed "as is" for their farmers. While the Kenyan government has tried teaching irrigation methods in the area since its colonial days, these initiatives have failed because of cost and lack of local support. Furthermore, those interventions prescribed solutions to pastoralists and farmers alike, "without involving the recipients they intended to serve" (Akabwai, 1992).

Because of the stress it would cause to social cohesion, and the community overall, it is not practical to consider the possibility of converting a pastoral community into a farming community. Instead, the *Bhungroo* technology would be adapted to suit the needs of a predominantly pastoralist society. For example, the *Bhungroo* technology could be implemented as a water filtration tank rather than as an irrigation system reservoir. This would allow the technology to adapt to the pastoralist lifestyle and provide a steady water source for families and livestock. The water tank may need to be modified with a better filtration system as the primary use of this would be drinking water. This would improve the quality

of life for the pastoralists. They could also trade or sell the water. This would help counter the notion that, "poverty and dependence is becoming a permanent way to life to many pastoralists" (Hogg, 1986). By having their own water source for the community, the pastoralists would become independent from "cowboys" (i.e., white Kenyan ranchers who consider themselves racially superior) and town-based elite to whom they are currently subordinate. They would also have healthier livestock, improving their price and the owner's income, and they could trade or sell the water itself, thus enhancing their economic resilience and alleviating their poverty. Although I recognize that this specific idea is novel, it could be extremely beneficial to the pastoralists of Turkana County.

In times of water scarcity, villagers in Turkana County would come to the women who are official leaders. Training women to manage the *Bhungroo* irrigation technology would increase their income as the water could be bartered for a share of crop, as most of these villages are bartering communities. This also earns them dignity and respect in the agricultural community and the village. Although the land women cultivate is in the name of their husband/brother/father-in-law, the women themselves gain credibility and become significant: The village understands that these women are sometimes the only means of water. For this reason, men listen to women's concerns and consider their opinions in decisions, where they would disregard them before. Women can use this to voice their opinions on the health hazards they endure due to climate change.

While the COVID pandemic restricted our ability to move forward on this project, at Stony Brook University in New York and at the TBI in Nairobi, Kenya, on a positive note, we had the time to form a cross-national team to develop a pilot study that is rooted in *Bhungroo*, and another UNFCCC-recognized program, the W+™ Standard, which was developed to pay women for using environmentally friendly technologies.[56] Several elements of our proposed pilot study are useful for illustrating how rural women in Turkana County could lead in improving the water, food, and income security conditions of their families; and demonstrating that climate change adaptation must be addressed through transnational initiatives.

In developing the plan for our pilot study, we noted that environmentalists already had determined the dire consequences of climate change for populations in India: Shifting rainfall patterns, increased rates of evaporation, and population growth are projected to result in an additional 1–4 billion individuals being exposed to drought by the end of the century (Watts et al., 2017). Accordingly, we cited a 2015 World Bank study, which estimated that 62% of urban communities while only 28% of rural communities have access to improved sanitation (World Bank Group, 2018a). To bring the point home to Turkana County, we made the point that, in general, women in rural areas are disproportionately vulnerable to contracting water-borne diseases: Traditionally, they provide water for the family; and this role is particularly hazardous when a woman is pregnant or menstruating, as an increased standard of hygiene is necessary at that time, especially because women are then more susceptible to diseases (Birch et al., 2012). When water is scarce, as is the case in the Turkana Basin region, WHO estimates that at least 30% of a woman's daily energy is spent on harvesting water (WHO, 2014), which is another reason for extending access to water. Moreover, the manual labor involved

in harvesting water can cause chronic skeletal pain from repeated damage to the neck and spine. This is exacerbated when, as is the case in some Indian states as well as in parts of Kenya, women need to travel long distances to obtain the water. This activity increases exposure to heat stress and heat stroke and increases women's exposure to violent crimes (Jalees, 2005).

We presented the *Bhungroo* program as a solution to water scarcity and sanitation issues, since *Bhungroo*'s irrigation technology filters, injects, and stores excess farm water or storm water underground for usage in lean periods. This is ideal for the Turkana region where rainfall is increasingly unpredictable, as up to 4 million liters of water can be stored during the monsoon season when there is excessive rainfall. The rainwater can then be saved for the drought season. (See the map below in Fig. 4.) Using *Bhungroo*, water stored from excessive rainfall allows farmland to become more arable and fertile during the dry season. While the *Bhungroo* irrigation technology is an investment, without additional funding on-site, the installation price may be unattainable for many farmers in the Turkana region.

With this revelation, I worked with a student at Stony Brook University, Kunika Chahal, to develop a proposal for integrating a financial incentive system for local women – the W+™ Standard.[57] The W+™ Standard endorses projects by women that create and increase social and economic benefits for women participating in economic development or environment projects, including those that provide renewable energy technologies, time and labor-saving devices, forest and agriculture activities, and employment opportunities. (Gurung, 2020)

These endorsements are sponsored by companies from around the world who are looking to combat climate change. The cost per W+ unit (which is the minimum donation) varies per project, as each project has a different cost for implementation; however, for current projects, it amounts to approximately three U.S. dollars (WOCAN, 2019). This financial arrangement gives local women both the resources they need to combat climate change and the capital to make a sustainable, long-lasting difference. In this program, women's empowerment is measured by the W+™ Standard in six domains: time, income and assets, health, leadership, education and knowledge, and food security.[58]

In talking with Jain and Paul, we realized that, while women could be trained and gain credibility within their communities, there was no mechanism for giving them financial incentives to sustain them over the long term. In fact, in the many "gender mainstreaming" international development programs that have been attempted over several years, it turned out that, because of social norms, women were unable to achieve a sense of purpose.[59] This is the reason Kunika and I integrated the W+™ Standard into the *Bhungroo* program because once the initial investment is made – even for a few years – and the technology is transferred outside of India, there needs to be a way to enhance women's credibility in their communities.

As discussed earlier in this chapter, it seems reasonable, as Scott Barry Kaufman's research on Maslow's hierarchy of needs theory suggests, that the need for "purpose" exists alongside other basic needs. As one of my students, Erin Byers, commented, "What better time to find purpose than helping to solve a global climate crisis, right?"[60] That is, women's self-actualization can be integrated into

Fig. 4. Map of the Proposed *Bhungroo* Site in Turkana County. Influence of Enclosure Management Systems on Rangeland Rehabilitation in Chepareria, West Pokot County, Kenya – Scientific Figure on ResearchGate. Available from: https://www.researchgate.net/figure/West-Pokot-County-Livelihood-Zones-Source-Adapted-from-the-National-Drought-Management_fig1_285131644 [accessed November 7, 2022].

other basic needs of food security, health and well-being, and financial independence; and that women can be energized when they are part of a project that extends beyond their immediate environment. For example, it is valuable for women to share experiences internationally in other countries where similar problems exist to show how they have adapted to the reality of climate change. That is why the initial investment in the *Bhungroo* program cannot stand alone.[61] While the *Bhungroo* irrigation technology empowers women by teaching them how to farm their own land, the W+™ Standard is necessary to work around

the patriarchy by endorsing projects by women that, according to the WOCAN's founder, Jeannette Gurung, "creates and increases social and economic benefits for women participating in economic development or environment projects."

My colleagues in Kenya determined that the best way to introduce *Bhungroo* was to carry out a baseline survey – to interview women farmers, their husbands, town officials, and other key informants – to determine individual members' knowledge, attitudes, and practices and the community's understanding of the technology and the irrigation process, together with other systems of water use.[62] They identified gender differences and the need for a husband and wife "team" to reach a similar understanding of the project. In short, they implement two criteria: First, husbands must support wives and, second, town officials cannot loot the families. These experts intended to focus on capacity-building in the two communities in West Pokot in Turkana County. (See the map in Fig. 4 above.)

While increasing temperatures, decreased air quality, and water scarcity are debilitating problems for all, the common thread for women who undergo the effects of climate change is experiencing pregnancy complications and negative cardiopulmonary health. They are at increased risk for water-borne diseases. Scientific studies indicate that "poverty, gender inequality, insecure land rights, heavy reliance on agriculture, less access to education and information are among the principal reasons for their [women's] vulnerability to climate change" (Yadev & Lal, 2018).

Conclusion

The project in West Pokot, which would commence as a pilot study, was to determine the extent to which the *Bhungroo* technology – as a water storage system that can only be owned by women and is primarily for irrigation purposes for water-stricken areas – will improve water security, food security, and income security for women with the goal of improving poverty and resilience of the communities that are using this technology. Below is a summary of the "team" that we determined would be needed to implement this policy to ensure long-term sustainability:

> *Transnational (and translational) advocates:* (a) a non-partisan expert to conduct field interviews with farmers to identify community dynamics and needs; (b) an expert in water resource engineering in rural communities; and (c) an expert in gaining support from international development organizations such as OXFAM, USAID, World Bank, and even national and international professional environmental organizations.
>
> *In-country actors*: (a) an expert to form consortiums with local and foreign institutions around food agriculture nutrition, energy, the environment, and water; (b) an expert to train local farmers to utilize technology; (c) a cultural informant on gender and youth activities in rural communities; (d) an expert to monitor and

> evaluate natural resource programs; (e) an expert in developing budgets and implementing timelines; (f) an expert who works with county, state, and national government agencies; (g) an expert in professional mentorship; and (h) an expert to develop the conceptual and practical framework for the project – based in country (connecting experts).

In sum, inching toward social change that promotes women's empowerment – which is required in the Turkana Basin to introduce and sustain an irrigation technology – requires different levels of expertise.

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Chapter Three

Reflexive Feminist Methodologies

In the previous chapters, I presented several unconventional methods women have used to exert influence in their communities and sustain a sense of purpose within institutions that generally are inhospitable to them. Beginning with the proposition that transnational advocacy networks (TANs) are an important means to achieve human rights and gender justice,[1] this chapter explains why collecting and disseminating oral histories from women in local communities increases the capacity of these networks to achieve their objectives. Second, it demonstrates that reflexive feminist methodologies are necessary to expand our world view of female empowerment. Finally, this chapter presents several features of female empowerment – with unique transnational and translational relationships – from Central America, Southeast Asia, Europe, and Africa.

Oral Histories in Transnational Advocacy

A number of studies published in scholarly journals assess the advantages and disadvantages of using transnational advocacy networks (TANs) to implement climate change adaptation strategies.[2] One study published in 2017 in the *Third World Quarterly* concluded that the most prominent characteristics of TANs – forming complex, flexible, and adaptable webs of connections – were not consistently effective in certain geographical regions.[3] In addition, its authors B. Arensman, M. van Wessel, and D. Hilhorst observed the specific ways representatives from different countries communicated their approaches to conflict prevention and peace-building in an international conference setting:

- Those from West Africa provided an "international-level voice" to "open doors."
- Those from the Middle East set out a "common platform" useful for connecting people.
- Those from Southeast Asia offered "clout, prestige and input."

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While the above approaches are complementary rather than mutually exclusive, it may be that they are all present to one degree or another in all three regions, but not in the same order of magnitude. The co-authors assert that different social considerations determine the effectiveness of transnational networks' norms and practices. It seems likely that these considerations can attract and/or deter international supporters, which would affect the success of TANs in addressing human rights and female empowerment.

As far as I know, field studies have not been conducted to determine whether women in different geographical regions are uniquely positioned to "open doors," "establish common platforms," and/or "exert authority." Nonetheless, it seems useful to reflect on how women exert influence in their communities and internationally in ways that help them sustain a sense of purpose in challenging patriarchal structures. In authoritarian countries where *all* autonomous grass roots political activity is proscribed, especially patriarchal ones like Saudi Arabia, Iran, Afghanistan under the Taliban, and so on, women take great risks in trying to exert influence of any kind, whether in their local communities or at a national level.

In 2018, a case study published by S. Osterhoudt in *Renewable Agriculture and Food Systems*, "Remembered resilience: Oral history narratives and community resilience in agroforestry systems," details the ways a community in northeastern Madagascar suffered tremendous losses from a category 3 cyclone in 2011.[4] Osterhoudt found that oral histories enabled communities to rebuild local agricultural systems through "collective memories;" and that this was the first time that men and women elders, who had experienced a cyclone in 1959, felt valued and integral to the relief efforts in their role as oral history tellers. Within their communities, they shared adaptive strategies from fifty years earlier when many traditional crops had been washed away, which included changing agricultural practices and finding new food sources. She concluded that village elders helped their communities overcome challenges by encouraging younger generations to rebuild. Incorporating into TANs the experiences of elders effectively enrich complex, flexible, and adaptable webs of connections.

In 2018, a study by C. C. Makondo and D. S. G. Thomas in *Environmental Science & Policy* focused on linkages between indigenous knowledge and western science in African societies regarding climate change adaptation.[5] They found that oral histories were useful in gathering information in local communities about strategies relating to migration, cultivating social networks, changing eating habits, spirituality, ecosystem services/resource utilization, and rainwater harvesting. However, they also found gaps between local communities and international networks in utilizing the knowledge indigenous African communities have cultivated over thousands of years. A key finding in their study is that local communities thrived when they were the ones coming up with the adaptation strategies, such as those mentioned above, but tended to struggle when inappropriate strategies were implemented from an external source such as a colonizing power. The sweet spot is when both indigenous knowledge and modern-day technology and funding are brought together in a synthesis of ideas and power. Otherwise, external, perhaps well-intended efforts, tended to alienate entire populations from their own communities by preaching high-level, niche scientific approaches to climate mitigation.

A 2018 study by J. Rosenberg in *The Journal of Environment and Development* links oral histories to TANs, pointing out that while these networks amplified the voices of local actors in Grenada who focused on saving the habitat for its indigenous dove population, they did not exert significant influence on elected political officials or transnational corporations in domestic policy-making arenas.[6] Instead, powerful politicians with foreign ties continue to enjoy strong electoral support and attract rapid infusions of capital to implement their projects without regard to the organized voices from below. Nevertheless, continuing their efforts, local activists utilized traditional media, town gatherings, and other information-sharing spaces to educate and inform the public about the history of the natural habitat and the vital role it plays in the Grenadian ecosystem. Rosenberg presented stories of survivors of Hurricane Ivan, which occurred in September 2004, to augment habitat rehabilitation and expansion efforts; and concluded that TANs were useful in two ways: (1) by spreading messages internationally to governments with interests in the project or ecosystem and (2) providing a forum for working out compromises between foreign direct investors in hotels and conservationists.

Yet another way TANs may operate was described in a 2021 study in *Capitalism Nature Socialism* in which R. Borde and B. Bluemling identify several transnational advocacy organizations that support domestic protests against the exploitation of the Dongaria Kondh people who live in the Niyamgiri forest in eastern India. In this context, oral histories document and promote indigenous spiritual and ecological beliefs.[7]

In their 2021 study published in the *International Review of Environmental History,* titled "Talking to water: Memory, gender and environment for Hazara refugees in Australia," H. Goodall and L. Hekmat make an even stronger case for documenting life histories by focusing on twelve Hazara women (displaced from Afghanistan from 2005 onward) who migrated to southeastern Australia.[8] They found that women were important in helping migrant communities adapt to the new environment by passing on knowledge and skills to their sons and daughters. Their oral histories documented the ways women adapted traditional Afghani rituals involving water to the new landscape in Australia.[9] Of note is the fact that widely scattered diasporas comprising refugees or other kinds of displaced persons, often are the result of wars, foreign and civil, natural disasters, revolutions, etc. Modern transportation facilitates the widespread resettlement in many countries of such displaced persons while the internet, cell phone networks, and social media enable these widely separated diasporic communities to maintain contact to a degree unprecedented in earlier world history.

In the study by Goodall and Hekmat, women maintained and perpetuated an international network of various Afghani groups, which gave them a sense of community. These researchers concluded that TANs exist on many different levels to link ethnic and religious communities that strive to maintain traditions. Community-based networks ensured the survival of the accumulated knowledge of older generations and allowed elders to pass down this vital knowledge to enable their communities to thrive.

A final example, a study published by P. Dauvergne and L. Shipton in *The Journal of Environment and Development*, titled "The Politics of Transnational

Advocacy Against Chinese, Indian, and Brazilian Extractive Projects in the Global South," posited that TANs effectively advocated for indigenous groups and against exploitative corporate extraction in politically repressive regions.[10] They found that interactions between non-governmental organizations (NGOs) in the Global South were more effective than interactions between the Global North and Global South in building solidarity and confronting exploitative practices; and recommended that those in Global North readjust their roles to function as "outward facing advocacy networks" and not act in paternalistic ways.

Though the above literature review is merely suggestive, and by no means exhaustive, it does reveal the range of contexts within which TANs operate and how oral histories enable communities to adapt to and mitigate environmental challenges. The examples suggest that oral histories collected from two groups – elders (both men and women) and middle-aged women who care for children and elderly family members – have the potential to change the socio-cultural environment. Thus far, however, these studies only describe women as *supporting* traditional ways rather than *promoting* new knowledge structures.

To be truly effective and maintain a sense of community among groups dispersed around the world, TANs also must include younger generations of males and females. Large-scale mass and/or social media campaigns usually attract a younger, millennial generation with dual interests in promoting both economically profitable enterprises and social justice. Instead of being beholden to a particular institution, mass social media campaigns aim to integrate the values of individual freedom/empowerment with a strong awareness of membership in a larger, global community to support women-led climate change initiatives.

In 2021, the United Nations' Paris Committee on Capacity Building (PCCB) indicated that universities in the Global North do not become involved in building collaborative networks in the Global South. This deficiency is manifested in programs that often exclude women and fail to build long-term capacities in education. Thus, to achieve more satisfactory results, it is important to compare environmental and gender equity strategies across organizational cultures. Such a comparison will almost certainly further illuminate the need for intercultural cooperation (Hofstede et al., 2010) in support of rural women entrepreneurs as change makers, the cohort that is the central focus of this book.

Reflexive Feminist Methodologies

Reflexive feminist methodologies help identify the various ways women and men act to improve their communities. I first became aware of these methodologies in the 1990s when I conducted biographical research on female community leaders in Chicago's Chinatown through a National Endowment for the Humanities project, *Women Building Chicago 1790–1990*. Before this project, no one had documented women's activities in, and contributions to, Chicago's Chinatown because, in the late-nineteenth and mid-twentieth centuries, Chinese women in the United States were virtually invisible: America's draconian immigration laws during the Chinese Exclusion era (1882–1943) had prevented many Chinese

women from living in the United States, and "Chinatowns" consisted mostly of single male laundry and restaurant workers. The few women and children who were there – families of merchants – did not leave their homes for fear of being questioned by immigration officials about their status. In the early 1990s, an octogenarian community leader in Chicago, G. H. Wang, decided to correct the historical record and help me identify women who had made significant contributions. My hundred plus oral history interviews with church members, medical professionals, lawyers, immigration service interpreters, and businesspeople, gave the community a reason to establish the first Chinese American museum in Chicago and the city to name two public parks to honor two of the women I wrote about.[11]

Twenty years later, in researching women in Asia who were active in climate change initiatives in the Global South, I used the same methods I had used in Chicago to learn about the lives of women in India, Indonesia, Thailand, and Vietnam. This involved interviewing program managers, journalists, heads of NGOs, scientists, and engineers. As with my previous research in Chinatown, my methodology included a combination of ethnographic, historical, and archival research. I developed open-ended questions, audio recorded the interviews, prepared detailed transcripts, used multiple sources to check facts, and integrated historical events to compose the final narratives.[12]

While the above steps seem straightforward, this methodology is slightly unconventional because I relied on oral interviews to guide me in collecting historical data. In the West, while oral history has become more accepted by the profession, historians still are encouraged to trust written records over oral narratives. We scrutinize stories that contain moral messages and visual imagery of historical events. And, in collecting data from interviews and aggregating and analyzing such data, anthropologists, political scientists, and sociologists follow mandates outlined in "human subjects research."

Much later in my career as a scholar and teacher, I realized how my research fit under the rubric of feminist methodologies that were introduced in the 1980s and have reemerged today. This methodology incorporates experiences, emotions, and ideas to learn about sociocultural contexts.[13] An American philosopher of feminist and postcolonial theory, Sandra Harding, explains this as follows:

> Introducing this "subjective" element into the analysis in fact increases the objectivity of the research and decreases the "objectivism" which hides this kind of evidence from the public. This kind of relationship between the researcher and the object of research is usually discussed under the heading of the "reflexivity of social science." I refer to it here as a new subject matter of inquiry to emphasize the unusual strength of this form of the reflexivity recommendation.[14]

Because women in disadvantaged communities of urban-based Chinatowns and in the Global South often are "invisible" to the outside world, I wanted to identify the interviewees by name, with their permission, and not treat them as

mere "objects" to be studied.[15] This is important because, otherwise, the women could be targeted for abuse or violence in communities dominated by hostile males or local officials enforcing patriarchal norms and regulations. I hoped to validate their experiences and honor the dignity of those who have endured significant climate change events. As part of a digital collection, identifying interviewees formally by name also may elicit more information than would otherwise be forthcoming. Thus, my co-researcher, Jamie Sommer, posted an essay as part of our digital oral history collection for a general audience, which included the following statement:

> […] We hope to inspire visitors to formulate their own research projects – and incorporate global dimensions of environmental social justice. In the *Bhungroo* case study, everyone involved came to recognize the power of practical solutions to inequality; and that the context within which solutions can be achieved requires a different lens. "Mirroring Hope" means that you not only need good translators to get it right, but you also need to be aware of your particular frames, confront the geopolitics of knowledge, and unlearn hegemonic ideology.[16]

Our "hope" was to inspire others – laypeople as well as scholars – to understand their frames of reference and learn from those who continually adapt to climate-related disasters. In interviewing the women in Gujarat, India, we explored many meanings that helped us understand climate change tragedies and strategies. One simple example is that rural farmers never used the abstract terms "climate change" or "food insecurity" to describe their daily challenges but, instead, talked about how they felt when their crops were ruined by droughts or floods, when moneylenders charged exorbitant interest rates, and when, for weeks on end, they did not have food to eat.

Jamie and I believed that understanding farmers' struggles and ways forward – as a sequential part of their lives – would help outsiders (including ourselves and our readers) perceive elements of meaning that might otherwise be overlooked. In fact, the women-led irrigation technology in India, *Bhungroo*, became a universal and relatable symbol of water and the ability to survive. It cannot be overemphasized that empathy is an essential part of the social science researcher's toolkit rather than the pose of detached clinical "objectivity," which treats human beings as specimens. Social science should not be neutral. It should be engaged in promoting the survival and welfare of people, particularly those disadvantaged by hierarchical and patriarchal power structures, whether feudal, capitalist, or socialist.

One tricky question, however, is how humans interact with the natural world. Public intellectual Amitav Ghosh notes that the "great derangement" of climate change makes it difficult for humans to situate themselves in a world in which they are not central authorities or authors. To answer this, feminist methodologies do give the roles assumed by women (and girls) authority over their own lives within the context of climate crises:[17] In essence, females,

especially in rural communities, become a bridge between the "situated" patriarchal social structure and the natural world.[18] As a result, their stories are relevant because they are integral to a world concerned about the environment and "our" relation to it.

I found Ruth Bottigheimer's work on the ethical framework of medieval fairy tales, which are among the earliest recorded Western narratives of fairy tales, useful in helping me understand the nuances of feminist methodologies.[19] Bottigheimer noted that fairy tales changed over time. By tracing their trajectories, she was able to determine when women lost control over their own fertility; and she found a correlation between women's loss of reproductive rights and their exclusion from the moneyed economy, which restricted their chances for pursuing an independent livelihood. Hers was a significant insight into my understanding of the value of a mosaic of multiple oral histories. Oral histories, too, can reveal these changes – the relationships between women and how they navigate changes in socio-cultural and political systems of the time – and are important for understanding female empowerment.

Because fairy tales were passed down over several generations, Bottigheimer notes, *shared knowledge* made it possible for listeners and readers to understand and relate to the brief tales. She states: "The narratives are open texts that lack internal explanations such as subordinate clauses and backstories for what happens."[20] Similarly, as one aspect of feminist methodology, those who conduct oral history interviews with women in the present-day are recording one slice of a larger story. In these "open texts," the interviewer needs to follow ethical principles by ensuring that the interviewee understands the purpose of the interview and consents to being interviewed. Furthermore, the interviewer has an ethical responsibility to listen empathetically to what is being said, to capture experiences, emotions, and ideas, and to interview multiple people – men and women – to identify common and divergent threads.

For example, in our oral history research, Jamie and I used a Gujarati interpreter to explain our purpose to the farmers and obtain their consent to record the interview. Those who did not know how to write their name used a thumbprint stamp. Before conducting the interview, we worked closely with a local "cultural informant" to develop questions that would make sense in context and ensure that the interviewees understood our intentions – that we were researchers from an American university who wanted to learn about how their lives had been affected by climate-related disasters. When their stories were tragic, Harding's concept of "reflexivity" meant that we could freely express empathy to our interviewees without feeling like we were being biased. Within a week, we had conducted 42 interviews, evenly divided between men and women. Our follow-up questions, photos, and audio recordings helped us identify nuances relating to women's roles as mothers, their inclusion in the "moneyed economy," and chances of making independent financial decisions.

Ten oral history projects that I and several graduate and undergraduate students conducted between 2016 and 2022 feature entrepreneurs in Central America, Southeast Asia, Europe, and Africa who created and/or managed programs to empower women.[21] To understand how these entrepreneurs connected climate

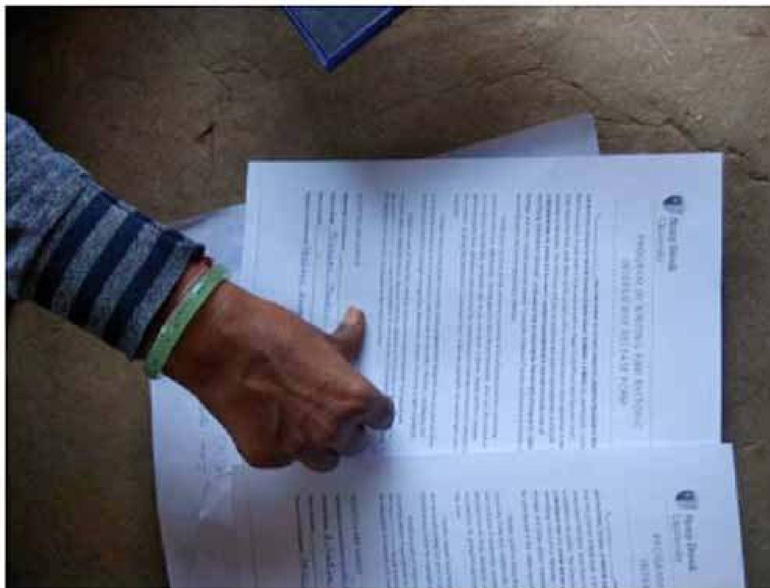

Fig. 5. Thumbprint Signing the Release Form. Copyright © 2019 Courtesy of Peggy Ann Spitzer.

Fig. 6. Program Officer Explaining Interviews to a *Bhungroo* Farmer. Copyright © 2019 Courtesy of Peggy Ann Spitzer.

Fig. 7. Preparing for Field Interviews. Copyright © 2019 Courtesy of Peggy Ann Spitzer.

Fig. 8. Map of Central America (Including the Countries of Belize, Guatemala, and Colombia). "Map of Central America" by Cacahuate (amendments by Joelf) is licensed under CC-BY-SA-4.0.

change adaptation to female empowerment, we posed six open-ended discussion questions to learn about their activities:

- How did you become involved in women-led climate change projects?
- How did you integrate women's empowerment in the climate change projects?
- Did you acknowledge or in any way challenge existing patriarchal attitudes?
- In what ways did your project uplift women within rural communities?
- In what ways did you aim to inspire future generations?
- How did you assess the results of your project?

Fig. 9. Map of Southeast Asia, Including Vietnam and Thailand. "Mainland Southeast Asia" in the public domain through the Library of Congress.

Fig. 10. Map of EUROPE, Including Italy and Turkey (Renamed Türkiye in 2022). “Europe Countries Map” by San Jose is licensed under CC-BY-SA-3.0.

In all 10 projects, we found that those who made connections outside of their communities gained the attention of scientists, policy makers, and other constituencies who study the effects of climate change on vulnerable populations around the world.

In Belize, *Fragments of Hope* focuses on restoring endangered coral reefs and helping local women gain community recognition, monetary compensation, and cooperation from male peers.[22] In Guatemala, the *Meal Flour Project* in the western highlands trains women to cultivate mealworm farms to provide a source of protein for indigenous Mam communities;[23] and the *Foundation for Ecodevelopment and Conservation* (Fundación Para El Ecodesarrollo Y La Conservación) establishes healthcare centers and midwife training in protected areas among indigenous and non-indigenous people who are outside of the court system to address domestic violence.[24] The fourth case study in Latin America, *ENDA Colombia* in Bogotá, organizes women’s recycling collectives to protect local lands and “deconstruct patriarchal frames.” (See the map in Fig. 8.)[25]

In Southeast Asia, an international program initiative through the Vietnamese Women’s Union facilitated the dissemination and use of environmentally friendly cookstoves; and in Thailand, women reportedly use multiple strategies to gain acceptance and rally public opinion to address environmental degradation in rural spiritual and cultural centers that were affected by male migration to urban areas. (See the map in Fig. 9.)[26]

Fig. 11. Map of Africa (with Tunisia and Uganda). "Africa-political-map" by Maps world is licensed under CC-BY-SA-4.0.

In Europe, activists focus on segments of female populations who are socially isolated and cultural outcasts: *Progetto Quid,* a social enterprise in Verona, Italy, provides job opportunities for poor and disenfranchised women who learn to recycle waste created by the fashion industry;[27] and in Türkiye, *Imece Inisifiyati* trains women in refugee camps to assemble and sell solar batteries outside of the camps and provide their children with educational opportunities. (See the map in Fig. 10.)[28]

Finally, in Africa, the *Women's Empowerment for Resilience and Adaptation Against Climate Change* in Uganda provides financial support for women farmers, who are uniformly marginalized, to implement farming methods to reduce carbon emissions and upgrade their social status;[29] and a women-led community education initiative in Tunisia through the *Association of Environmental Education for Future Generations (AEEFG)* helps local communities influence decision makers to get rid of dangerous chemicals such as lead in paint, amalgam in dentistry, pesticides, and hazardous chemicals in makeup products. (See the map in Fig. 11.)[30]

Features of Female Empowerment

Each of the above-mentioned projects pursued female agency by connecting local communities with national/governmental organizations and international NGOs. In addition, all the interviewees focused on gender equity and climate justice by challenging existing leadership structures. In discussing their networks and relationships, the interviewees reflected on the needs of their local communities, national and international environments, available resources, political structures, social practices, and funding opportunities – all variables that can change over time and induce individual leaders or organizations to adapt and change their focus and strategy.

An examination of transnational networks reveals that female agency takes on many different forms; and that individuals who developed the projects have different reasons for pursuing relationships that depended upon their personal dispositions, the socio-political-cultural contexts, and targeted spheres of influence (i.e., local, national, and international). Below is a word cloud that illustrates some common concerns. Following that are statements that relate transnational networks that were designed to support female empowerment and climate justice for each of the ten projects.

1. In restoring endangered coral reefs, an American female environmentalist (under the pseudonym, Amelia) found ways to develop complex networks between nations, through international environmental organizations headed by women, to support regional projects in the Caribbean, and gain support from the Belizean government and private entrepreneurs (Belize – Fragments of Hope).

2. In addressing food insecurity especially among indigenous communities, Andrea Monzón Juárez develops simple and focused relationships outside of her immediate community to empower women to run the mealworm farms and collect plant species in their villages (Guatemala – The Meal Flour Project).
3. In directing projects on female health and nutrition, Karen Aleida DuBois Recinos develops relationships with those who both challenged international "imperialistic" institutions and empowered women and girls to become educated about health and nutrition (Guatemala – Foundation for Ecodevelopment and Conservation).
4. To gather support for urban camps and rural villages and address the gap between rich and poor in Central America, María Victoria Bojacá Penagos and Graciela Quintero Medina develop networks for women's rights and climate change adaptation (Colombia – ENDA).
5. Working for the US Agency for International Development, Kalpana Giri engaged with women from the Vietnam Women's Union to introduce an experimental technology and assess its effectiveness (Vietnam – Improved Cookstoves).
6. Working as a journalist for *The Bangkok Post,* Karnjana Karnjanatawe wrote feature stories on several women environmental activists and identified large national and international networks that potentially could challenge unresponsive political leaders to become involved in international climate change initiatives (Thailand – Female Activists in the mass media).
7. In the creative entrepreneurial project to "redesign people and fabrics," Valeria Valotto helps develop jobs for disenfranchised women – including migrants, and former sex workers and drug addicts – to uplift and integrate them into the Italian economy with minimal international aid (Italy – Progetto Quid).
8. In the midst of crisis management with a large influx of Syrian refugees, as a French citizen working in Türkiye, Lucie Gamond Rius works with some local organizations, recognizing the need for international support to provide food, clothing, and eco-friendly jobs for women (Türkiye – Imece Inisifiyati).
9. Because the international community often does not acknowledge the success of women's programs in Africa, Mazumira Menya continues to challenge perceptions by emphasizing the marked, gradual improvements on-the-ground in Uganda (Uganda – Women's Empowerment for Resilience and Adaptation Against Climate Change).
10. To raise awareness of environmental challenges in the Middle East and North Africa and to counter unstable leadership in Tunisia, Semia Gharbi works in a regional hub and through international organizations to educate and empower women and youth (Tunisia – AEEFG).

Conclusion

In oral history interviews, reflexive feminist methodologies acknowledge the contributions of both interviewers and interviewees. In this book, I hope to inspire readers to conduct their own oral history interviews. To provide examples, the next chapter details each of above-mentioned oral history projects – with quotes and passages from the interviewees and interviewers. Using feminist reflexive methodology, I add a note of encouragement for your narratives – short or long – which also can facilitate an accurate representation of women's lives, nurture trust, and build support. Interviews capture varied responses to the perils of climate-related disasters; and oral history interviewers, including students, scholars, policymakers, and practitioners, can educate local actors on the importance of women's life stories in informing the outside world and obtaining external support for community projects.

The aggregation of oral histories from diverse settings contributes to creating an intricate mosaic of experiences to be a foundation for civil society and the work of women's international and domestic NGOs. In TANs, the web of connections fostered by the dissemination of oral histories facilitates and energizes social change directed toward climate change adaptation and community survival in the face of new challenges. Furthermore, stories constructed from oral histories enter the mainstream through mass media campaigns designed to influence public opinion and secure support from policy makers and power brokers.

As Bottigheimer's work suggests, these narratives (from modern oral histories to medieval fairy tales) are embraced by successive generations and change over time, especially as the effects of climate change become increasingly traumatic. In my case, I first became sensitized to these issues from my research into the lives of immigrant Chinese women in Chicago's Chinatown. In the early 1990s, I was appalled by the effects of racism when I learned from members of the community about the circumscribed lives of women who were invisible actors. Those oral history interviews set me on a course to research, empathize with, and recognize the injustices endured by women in the Global South who are challenged by the ravages brought about by climate change. For the very reason that individuals have different learning curves and perspectives, reflexive feminist methodologies are vital – especially in highly politically charged environments that are unlikely to offer relief or reasonable solutions.

Chapter Four

Oral Histories from Around the World

Oral history narratives feature complex and inspiring views of female empowerment. Between 2016 and 2022, several graduate and undergraduate students and I interviewed activists who had developed local projects that relate climate change to food insecurity, domestic violence, financial instability, gender inequity, inadequate healthcare and education, and environmental degradation. As the previous chapter indicated, to achieve maximum effectiveness, local projects must be integrated into transnational advocacy networks (TANs). To demonstrate the many ways this occurs, this chapter features ten cases of oral history interviews – four from Central America, two from Southeast Asia, two from Europe, and two from Africa.

The chapter is not, nor can it be, a conventional narrative because it presents ten different cases, each of which, in themselves, encompasses numerous actors – interviewers, interviewees, auxiliary figures, and me as author – the integrating voice so to speak. As a result, the names of organizations that the focal organization is networked into may be overwhelming. As you are reading, perhaps you could imagine how climate change entrepreneurs developed networks of connections to help them address female empowerment. It is precisely these networks that sustain the organizations for whom they worked. Naturally they used different strategic approaches. As you become engaged in learning about each set of experiences, I hope the names and acronyms contained in the stories – as part of the activists' voices – are not be too difficult to follow. As a guide, please refer to the Appendix for a breakdown, by case study, of actors and affiliations.

The reflexive (i.e., two-way) narratives for each of the ten case studies are below. To properly represent these exchanges, the names of the interviewees are in **bold** type, and the names of the interviewers are in ALL CAPS. As for naming conventions, I use the interviewers' first names after initially identifying their first and last names. The names of the interviewees (one of which is a pseudonym) vary, depending on how they were referenced in the actual interviews.

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1. *Fragments of Hope* (*FOH*)/Belize

After a category four hurricane, Iris, hit Belize on October 8, 2001, scientists and conservationists began to focus on coral reef restoration. As a young girl growing up in California, **Amelia** (a pseudonym) had developed a fascination with sea life. She swam with dolphins in Southern Belize and eventually made a permanent move to Belize. At first, she was a volunteer and then became a tour guide and dive master instructor. She had attended college in California and, 20 years later, after she had relocated to Belize, continued her graduate studies in biodiversity conservation in her adopted country.

JAMIE SOMMER (who at the time was a postdoctoral student and my co-author of several scholarly publications) and AIDEE SAUCEDO DAVILA, an international relations specialist from Mexico, learned about Amelia's work through the United Nations Framework Convention for Climate Change's (UNFCCC's) *Women for Results* awards program. Amelia's project focused on coral reef restoration (Fig. 12). In the fall of 2018, when they were fellows at the United Nations Center for Constitutional Research in Brussels, Jamie and Aidee interviewed Amelia via Skype. She explained her initial activities as follows:

> Working with others, I wanted to begin [coral reef] restoration trials in 2002 but it took four years to convince people that it might work or that it was necessary. So, we didn't get our first research grant until 2006. We first did transplant trials and, in 2013, formed and registered *Fragments of Hope* as a non-profit in Belize. In 2015, we formed a partner non-profit in the United States.

It is interesting to note that, while coral reef restoration is popular today, when Amelia and her colleagues first began their work, many Belizeans didn't

Fig. 12. Photo of *FOH*. Copyright © Courtesy of *FOH*.

understand the threat of losing coral reefs until the United States declared the *Caribbean Acroporidae* an endangered species. It was then that local funders gave them money for a trial transplant program. She said:

> There was a delay because most people thought that either it wasn't necessary not realizing that the corals were in danger, that we still had a lot of corals, or they thought that it wouldn't work because the corals had died from diseases and things like this. So, they thought that the corals would just die again, and it would be a waste of time. Since then, we still have many skeptics about, oh, you know, can we really restore, reach the scale of it, you know, all these kinds of things. So, there has been roadblocks along the way and that is why we were unable to receive funds for four years.

Prior to forming *FOH*, Amelia and her colleagues wrote many small grants for the Placencia Tour Guide Association and for the (mostly male) fisher's cooperative. At the time, jobs in marine tourism paid well and Amelia had expanded her role in this male-dominated field through grant writing for tour guide and dive master training programs. By 2013, the number of female dive masters and instructors increased to about ten and many women scientists began to serve on the FOH's advisory board. In the interview, Amelia provided several examples:

> We also collaborate with a lot of women scientists; for example, Iliana Baums who was a geneticist at Penn State. Claire Paris did the larvae spawning modeling at the University of Miami. Maya Trotz who is an environmental engineer at University of South Florida, and, in Belize itself, Beverly Wade was the Fisheries Administrator. We've had a super great relationship with the Belize Fisheries Department since day one. There used to be a woman as Minister of Environment. There are women in Belize who are heading other NGOs: The Southern Environmental Association is run by a woman, The Audubon Society is run by a woman, and TIDE (the Toledo Institute for Development and Environment in Belize) is run by a woman. So, we have a lot of females in marine conservation who are associated with FOH researchers.

From the beginning, it appears that women were a bridge between male-dominated fishery and tourism organizations and the natural sea world. Amelia and her associates continued to develop transnational advocacy relationships with institutions in the Global North and, in Belize, maintained contact with organizations that were directed by women. She and her colleagues also found ways to train local women to expand operations and "build capacity" through female empowerment, as described below:

> Well, I don't know if we've helped women become leaders, but we certainly helped them get capacity building and training. And

> one of the motivations for that as well is that many Belizeans cannot afford formal, higher tertiary level education. And so for that reason, we focused on community members for sort of community research or training because people who grew up in the sea are more familiar with all the marine organisms and it's easier to train them on simple survey protocols than it is, for example, we've had many, you know, Master's level interns even from inland Belize or other parts of the world and they may have a fancy degree but they don't have that actual experience. So, we've been focused on building capacity for coastal community stakeholders who live here and then we pay them after they train. It's not full time, but at least it is a supplementary income.

One important feature of FOH is that it nurtured at least one generation of women who pursued advanced degrees to learn how to raise public awareness in schools and other educational forums. From Amelia, Jamie and Aidee learned how women used their advanced degrees to educate the public. She provided several examples:

> There are a few women who have been inspired to go on to get their degrees. So, for example, we've just hired Monique Vernon, she lives in Placencia, and has a bachelor's degree in Natural Resources Management from the University of Belize. She was inspired by our work as a high school student participant and now she's our Outreach Officer. We also have a woman, Ruth Gutierrez, who was in the same high school project with us with the coral restoration and she has just completed her master's program overseas and is involved in marine conservation. And then we have another woman, Abigail Parham-Garbutt, from Independence, who did her master's program when I did, and she is currently new to our programs in primary schools here and she's a junior college instructor. We have a few other women who are exemplary leaders. For example, Abigail is leading this program called *Sandwatch* – a UNESCO program that we've been running in primary schools here for several years. Last year she was able to attend the train-the-trainers workshop in Trinidad and is now implementing the *Sandwatch* program with us under a GEF/SGP/Oak Foundation grant. So, I think there are [a] few other women that have gone on to get higher education and become some sort of leaders themselves.

FOH sought to increase the public's awareness of climate change under the guise of tourism. And, in 2008, it encouraged junior college students or mentees to seek jobs in the Belizean government and integrate their new knowledge into the tourism industry. She stated:

> Now people hopefully know about the EIA's – environmental impact assessments – people are familiar with that now since the

> cruise ship port that was built here; they're familiar with the gaps that are not addressed and they're also aware of issues with dredging permits, and mangrove regulations, things like that … people's knowledge is much better. They have better understanding about our existing regulations and where there may be shortfalls.

Fragments of Hope continued to write grants for physical exchanges to strengthen ties between people within the Global South, particularly in Jamaica and Mexico, and to support female empowerment through South–South exchanges. Amelia described the process as follows:

> We did an exchange with Jamaicans this year and with Mexican reef restoration practitioners and multiple scientists. Even Ken Nedimyer who founded Coral Restoration Foundation [and is globally recognized as a father of reef restoration] was on the trip, so that just finished … we post all of our trips on *Facebook* because it's easier than updating our website. We do have some articles, from external journalists. We had an article in the *Guardian* and an independent photojournalist who did his first article on a lionfish roundup, sponsored with private donated money, and became interested in the women angle.

Fragments of Hope also tapped into an emerging business initiative to help improve the environment. For example, it worked with a private entrepreneur, Luis Garcia, and his company, *Eco Friendly Solutions*, to introduce the first ever recycling campaign in Belize. Amelia talked about how her organization supported local initiatives, as follows:

> He has come up with a machine that can crush plastic and glass and make construction bricks or pavers for your driveway out of the crushed plastic and glass. So, we've been sponsoring semi-regular recycle pick-ups, so that he can use them. And he also collects used cooking oil to run his truck for recycling pickups. And so, we've been trying to run a campaign where we don't use plastics, for example, on our field trips. We either use the biodegradable products or we've also invested in reusable plates and cups that we can just wash, reuse for lunch and for meetings on our Caye trips. So that is just another small side campaign about trying to eliminate plastics, which is directly related to climate change in the sense that they are made from fossil products, right?

Other board members worked with women in local communities to assess water quality and with women scientists from the United States – for example, Dr. Maya Trotz and Christy Prouty from the University of South Florida – to design wastewater treatment programs. At the time, it was unusual for women scientists as well as women in poor communities to become involved. Over the years, Fragments of Hope advocated for both, despite significant challenges. For example, it was difficult to involve women in conservation projects who needed

childcare and a living wage. From the beginning, the program established a policy not to use international volunteers but instead to train and pay members of the coastal community. Still, Amelia noted several existing challenges:

> There are sometimes jealousy issues or lack of cooperation issues from other women in power or seeking power. Also, there is a real struggle because many of the women we target and work with are single mothers who often have trouble getting appropriate childcare when we have extended trips. For example, we went to Jamaica to do an overnight trip out to the cays; but we don't have options for childcare. We have not addressed this issue and we're not quite sure how to overcome it because, even if we began to budget additional money for childcare, as you probably know, it's not a problem you can just throw money at. You must find the appropriate caretaker. We've noticed this for a while now and we're not quite sure how to address it, especially for a single mother that doesn't have a partner to assist her.

In her interview with Jamie and Aidee, Amelia stated that she decided to devote her life to this work. She began her career in Belize as a tour guide/diver because she loved the sea and attended graduate school to find solutions to climate-related biodiversity losses. In the process, she helped establish Global North–North and Global South–South connections and promoted women and the environment through social media. The challenges were: (1) giving educated women a chance to develop careers, (2) providing a way for disadvantaged women in coastal communities to earn money, (3) alerting and educating the public about the disastrous effects of climate change, (4) linking her coral reef project to other environmental eco-friendly projects, and (5) working with like-minded social entrepreneurs as well as government institutions.[1]

As the program developed, Amelia stated that she stopped attending international climate change conferences, preferring to work at home (pre-COVID), because Fragments of Hope already had developed the partnerships it needed to continue work in Belize:

> I mean – look at the numbers: Twenty-four international meetings with a crazy climate carbon footprint and what has really changed after these meetings? … I've worked really hard to build my home and my life here, so I don't like to be away for more than four days, but I have caveats: for example, I'm taking *Fragments of Hope* members with me to the Gulf and Caribbean Fisheries Institute in San Andres, Colombia in November. And the reason is to help develop informal exchanges. We've been to San Andres three times already, for restoration work and now there's a larger group, so we'll have an informal exchange opportunity. Things like that.

> Like the Jamaican exchange, we make exceptions, but these giant meetings, you know, we just don't do them anymore.

Postscript: In 2023, Amelia lamented that coral reef restoration had become trendy: "It's the new yoga." She worries that the field has become overcrowded. Still, she noted, her colleague, Monique Vernon, established an internationally recognized recycling project, *Mr. Goby and Friends*; continues to support Luis Garcia's recycling initiative; and works with another women-led organization, the *Crocodile Research Coalition*. Also, in Placencia, Mariko Wallen established the *Women's Seaweed Farming Association* and, to promote government-led environmental projects, her colleague, Beverly Wade, now works in the Office of the Prime Minister.

2. *Todos Juntos MealFlour* Project/Guatemala

In 2021, **Andrea Monzón Juárez**, the director of the *o Todos Juntos* ("all together") *MealFlour* project,[2] received a Gender Just Climate Solutions (GJCS) award through the United Nations Framework Convention for Climate Change (UNFCCC). I interviewed her about the project to learn about her role and the entrepreneurs who started it. Prior to the interview, I found several articles that described the founders of the project: In 2016, three students at the University of Chicago had created the *MealFlour* project concept.[3] In 2019, Monzón became the co-director with one of the University of Chicago students as the other co-founder of a non-profit organization to implement the project in local communities and promote better nutrition through the sustainable farming of protein-rich mealworms. During our interview in the fall of 2021, Monzón discussed the various ways empowering communities could prevent the serious health problems related to protein deficiency and addressed the interconnected issues of low income and environmental impact.

It is interesting to note that Monzón became the field director after the *MealFlour* concept was developed in the United States.[4] In the summer of 2015, an undergraduate student from the University of Chicago, Joyce Lu, researched and taught nutrition and reproductive health in Quetzaltenango, Guatemala. While working at *Primeros Pasos*, a local clinic, Lu took part in a nutritional supplement initiative to use different types of protein-enriched flours for baked goods and learned that most of the flours had to be shipped into the region, which turned out to be financially unsustainable. Nine months later, in May 2016, Lu and two other graduating seniors who also had worked as summer interns on international development projects, Gabby Wimer and Elizabeth Frank, developed a social enterprise back in the United States, which they called *MealFlour*.[5] The trio combined their experiences and selected Quetzaltenango as the site for the pilot program where Lu had developed local contacts (see Fig. 13).

Lu had learned that indigenous populations of Guatemala had a high rate of chronic malnutrition and that roughly 70% of kids under the age of five were

malnourished. [According to the World Food Program, Guatemala also is one of the ten countries most vulnerable to natural disasters and the effects of climate change.] Thus, the three women decided to develop a social enterprise to improve nutrition and increase food security in ways that are environmentally sustainable and adaptable to climate change. They noted that the growing edible insect movement helped their project gain acceptance as an affordable, and environmentally sustainable solution. In essence, raising insects was cheap, and required minimal space, food, and water. To jumpstart the pilot project, the trio entered competitions in the fall of 2016 and raised $20,000 in seed funding for *MealFlour*. They won the Bay Area Global Health Innovation Challenge,[6] the University of Chicago's College New Venture Challenge,[7] and the Clinton Global Initiative University Resolution Project Fellowship.[8]

In developing their vision of using mealworms to address the problem of malnutrition, the students aimed to situate food production onsite to reduce transportation costs. In addition, they integrated protein-rich mealworms into their own diets, noting that health-food markets in the United States had begun to sell mealworms, which had been used by pet owners to feed reptiles, birds, and fish. Lu was aware that most people in the West are averse to entomophagy (i.e., the practice of eating insects). However, Lu noted that flying ants are considered a delicacy in Guatemala and she believed that the population would accept mealworms as part of their diet.

Fig. 13. Map of Quetzaltenango in Guatemala the Site of the *MealFlour* Project. (Quetzaltenango is due west of Guatemala City.) *Source*: Wikimedia Commons. Licensed under the Creative Commons Attribution 3.0 Unported License.

While mealworms[9] (*Tenebrious molitor*) are not indigenous to the Quetzaltenango region, the trio found that constructing mealworm farms would be relatively easy because the farms don't take up a lot of space – they are vertical structures one square foot around, in which two to six-tiered compartments separate the insects at different stages of the life cycle – and would be inexpensive to maintain. It takes about a month for mealworm "cells" to be harvested, roasted, and ground to produce one pound of flour per week. The *MealFlour* team developed a cookie recipe, and Wimer experimented with using mealworms in tortillas and oatmeal. They also identified a local bakery to help make new mealworm dishes and offer product tastings.

To introduce a microfranchise model, they devised a plan for local families to pay a fee (or receive a loan) to learn how to build space-efficient mealworm farms from recycled materials, which they believed would be key to the program's success. An article in *Lancet* described the reasons other nutrition schemes had failed:

> Programmes that focus on providing families with nutritional supplements are not financially sustainable because communities become dependent on aid. Furthermore, supplements are not environmentally sustainable because of the packaging waste associated with processing, along with greenhouse gas emissions from the transportation required to deliver them to beneficiaries. Attempts to avoid supplement disbursements by helping families maintain livestock as a source of protein are costly.

Aware that economists were skeptical about the efficacy of microfinance in reducing poverty, the students' solution was to tailor *MealFlour* to specific community needs and style of communication. They believed that poor communication with loan recipients was the primary reason microloans failed in the past. According to Wimer, they aimed to "really talk to the community and make sure that [the business] is structured in a way that makes sense for them."

Therefore, Andrea Monzón Juárez was crucial to *Todos Juntos* ("all together"), which was registered as a non-profit organization in Guatemala and the United States. In many ways, her education reflected climate-related challenges in the region. She stated:

> I studied six years at the university to get the degree of Zootecnia, in the Veterinary Faculty in San Carlos University. I am a type of geneticist and animal nutritionist. Then I studied two more years to formulate and design projects for social development. I have training in the field of gender, sexual and reproductive rights, heritage conservation in museums, popular education, community organizing, conservation projects; and this year I began to study for a master's degree in Food and Nutrition Security, but I could not continue because of the cost of payments and tuition, so maybe wait for the next year.

When raising animals became difficult for Candelária communities in Quetzaltenango, Monzón focused on teaching women how to raise mealworms to

provide them with an affordable and environmentally sustainable source of protein. [Roasted mealworms are 55% protein, release no methane (in contrast to cows, which are responsible for 30% of global methane emissions), and require little water (2,000 times less than cows). The farms reduce waste because they can be built from upcycled materials such as jerry cans or water containers, and mealworms eat organic waste such as banana peels. [For a video of the process, see https://youtu.be/JhmnzoKt6bc.]

The University of Chicago students knew that they needed to appeal to women in local communities. According to Frank:

> One of our biggest concerns was finding out where to start. Insects are eaten in 80% of countries around the world, including parts of Guatemala, but raising mealworms in this way is something new. When we pitched the concept to the group of women from a community in Candelaria and gave them samples of the mealworm products, they were excited to learn more and wanted to try out farming themselves.

As the pilot project proceeded, they recruited five women from a nutrition program at *Primeros Pasos*, the local clinic/NGO where Lu had worked in 2015. The partnership with *Primeros Pasos* gave the *MealFlour* team a venue for their 6-week training course on how to build mealworm farms in which multiple units can be combined to increase production, how to take care of the mealworms, and how to process the mealworms into a powder.

In 2018, exit surveys showed that all five of the local women farmers who were recruited for the pilot projects had maintained their farms and steadily improved their mealworm farming skills; and that four of the women who had increased their production began preparing mealworm dishes for their families. To the extent possible, the women involved their children – mostly girls – in the mealworm farming projects. In this geographical region, although male members of the community migrated to other places to find work, those who remained embraced the project because it provided a vital source of protein and because they were accustomed to ingesting insects as part of their diet. The women who led the project were young to middle-aged mothers who stayed at home to raise their children and farm the mealworms with the help of all members of their families (Fig. 14).

One challenge was to keep the temperature of the mealworm farms between 25.5°C and 27°C, which required adapting the process to the colder climate of Candelaria. The team formed monthly focus groups to share ideas about how to warm the farm by keeping it in the kitchen and insulating it with blankets. Monzón has continued to find long-term local partners and expand a network for information sharing on best practices for mealworm farming. She described methods for gaining acceptance within the community that included local resources as follows:

> We work alongside indigenous women in Guatemala to improve food security and nutrition while also addressing the interrelated problems of environmental sustainability and poverty. We have

Fig. 14. Photograph of Local Families Learning About Mealworm Farms. Copyright © 2021 Courtesy of the Women and Gender Constituency.

> two projects: *MealFlour*, which helps women set up mealworm farms to ensure that they have access to an affordable and environmentally sustainable source of protein, and *Bienes Forestales*, which works to catalog local food sources to preserve indigenous knowledge that can improve food security. Together, these programs are tracked to reduce rates of malnutrition in indigenous communities and improve food sovereignty [i.e., in which the people who produce, distribute, and consume food also control the mechanisms and policies of food production and distribution] despite the growing challenges caused by climate change.

Monzón clarified that women, children, and the elderly were the majority population in the village of Huehuetenango and that male family members had migrated to other regions, including the United States, to find work. While women, children, and the elderly were unlikely to be involved in migration, still they were capable of mealworm farming, which does not require great strength or endurance. Monzón is the only professional in the field, although she talks with Wimer regularly and, as of this writing, works with two volunteers/interns, a sophomore majoring in anthropology and biology from the University of Wisconsin and a senior majoring in biology from the University of San Carlos. In my interview with her, she described how she introduced the idea of a diet rich in protein from mealworms to local families. As a result of climate change, Huehuetenango had become increasingly dry, and it was no longer possible to raise animals or any other forms of protein. At one point, she described how the project desperately needed help to develop a local campaign (with educational materials), find clients to help fund the program, and obtain more support from the local government.

The founders had organized a system for tracking the numbers of families engaged in mealworm farming and those who used the mealworm flour in daily meals. They used open-ended questions to learn more about community attitudes toward the program; and to refine and improve nutrition and income for the farmers. They analyzed anthropometric data, conducted regular focus groups and surveys, and monitored flour production and income. From March to October in 2019, *MealFlour* began its first Train-the-Trainer program in Huehuetenango with a partner organization, *Fuyndacion Contra el Hambre* (FH) [Anti-Hunger Foundation], which recruited 15 adult women and one of the women's daughters.

In 2020, Monzón managed the internship program (including two students from the University of Chicago and six students from the Universidad de San Carlos in Guatemala) and a traditional ecological knowledge (TEK) project in collaboration with the Grenadillo community.[10] During the COVID pandemic, the TEK project cataloged information for 114 indigenous edible plants, five fungi, and other endemic insects. Because food insecurity was rampant and the government instituted national curfews, lockdowns, and social distancing, Monzón was solely responsible for managing the *MealFlour* program, which produced and processed mealworm for families (as a protein alternative for women and children) and provided technical assistance. During the pandemic, she used WhatsApp, phone calls, and photographs to keep in touch with Wimer in the United States. Interns produced training videos and recorded them in indigenous Mam language and Spanish. As a result, the program in Candeleria quadrupled production in two of the mealworm farms.

In November 2021, after winning the GJCS award and attending the UNFCCC climate change conference in Glasgow, Monzón could foresee a time when I would be able to interview women farmers in Candeleria. However, at present, her focus is on developing the program with mentors from the GJCS program. She said:

> I have seen the support for some of the [GJCS] winners to grow. They have new experiences and tools to generate transformative changes for their context and lives. I know that the work is hard and many times generating opportunities for all is complicated and some issues around climate change are considered relevant in taking decisions or importance with which it will be addressed in each winners work area. I have been reflecting on this situation and am writing to you to show my interest in managing tools, experiences, and opportunities to strengthen *Todos Juntos* – that it can generate tangible changes around the theme in which we develop, which is applied research for construction of common, resilient, and fair futures for all.

It is easy to imagine that mealworm farms could address food insecurity in other regions of the world. In 2016, the founders had hoped to promote *MealFlour* in Kenya. In checking on the status of the project with Monzón in the summer of

2022, it was clear that implementing *Todos Juntos* has progressed within Guatemala and attracted attention from other international organizations. The project expanded from 10 to 22 mealworm farms and, as she predicted, received a cash infusion to develop a direct-to-consumer business plan and marketing strategy through the Women's Environment and Development Organization (WEDO).[11] In addition, she is in the process of looking for better equipment for grinding the flour and reconfiguring storage spaces.

In addition, another UN affiliated organization, the Climate Technology Centre and Network (CTCN)[12] is negotiating on behalf of *Todos Juntos* with the Guatemalan government to get a contract to sell the meal flour. Finally, and equally important, Monzón is working with women farmers in their communities to introduce ways to reconfigure their lives and income. In my last interview with her in 2022, with MARTHA MARIA CHAVEZ MEGRETE, a doctoral student from Ecuador in Hispanic Languages and Literature Department (also at Stony Brook University) translating from Spanish into English, I learned more about how *Todos Juntos* differed from past models: In the 1960s, NGOs throughout Latin America set up Christian-based charities (e.g., Children International) to sponsor a child or a family through public appeals for monetary donations. But in the present day, *Todos Juntos* aims to empower women to learn skills and gain financial independence so that they can move away from working long hours for low wages in coffee plantations that are killing forests. However, Monzón stressed, it takes time to change the community's mindset that, for decades, believed that they needed charitable donations. And, of course, it will take time to scale up to a level where the project will have significant impact on more lives; and whether there will be any local opposition to it and if so, from whom or what interests (Fig. 15).

Fig. 15. Photograph of a Mentoring Group at the Glasgow Climate Change Conference in 2021. Andrea Monzón is Second from the Right in the Front Row. Copyright © 2021 Courtesy of Annabelle Avril, Photographer for the Women and Gender Constituency.

3. *FUNDAECO*/Guatemala

In the spring of 2021, one of my students at Stony Brook University, ERIN BYERS, asked if she could help me research women's empowerment and climate change. [While her plan had been to secure a summer internship abroad, the COVID pandemic had limited her options.] Thus, we developed an "internship" experience that included conducting *Zoom* interviews with program directors who had received UNFCCC awards. One of the projects she selected was *FUNDAECO* in Guatemala, which received the GJCS award in 2019. Searching the internet, Erin found a story about **Karen Dubois** (aka **Karen Aleida DuBois Recinos**)[13] a director for one of the *FUNDAECO* programs, "Women and Girl, Healthy and Empowered" (*Mujer y Niña, Sanas y Empoderadas*; Fig. 16). She initially emailed Karen to learn more about how *FUNDAECO* empowered indigenous women to take ownership of their health and the community's well-being and educated and empowered young girls in the community; and then sent Karen the interview questions in advance of the *Zoom* appointment. The following, in italics, is Erin's account of the interview:

Karen grew up in Guatemala City, Guatemala and attended a high school there where she hoped to one day to become a teacher. Her training as a teacher included working with NGOs, which is where she first contacted FUNDAECO and had her first interest in working with rural communities. She went to college for social work, then shifted to focus on community organizing and community project development. In college, she focused on the discussion, analysis, and reflection of how to maintain preservation of protected areas.

She noted that these "protected areas" are different than an American person would think, as most of their protected areas are highly inhabited, and people interact closely with the nature they are working to preserve. The American

Fig. 16. Photographs of Karen Aleida DuBois Recinos and the "I See the Opportunity" *FUNDAECO* Game. Copyright © 2020 Courtesy of *FUNDAECO*.

model, as she put it, was a challenge to overcome and required a reframing of the approach to protected areas in Guatemala. She then refocused the approach to amplify community groups – which included both indigenous and non-indigenous groups. A main problem was that funding was coming from international organizations, and that funding was unequal between men and women when it did come in.

To re-center herself, she asked what the basic needs of the community were. The answer was: healthcare, first and foremost. Women's access to healthcare centers ranged from traveling anywhere from 0 to 60 kilometers to get to basic health services. A priority going forward was women's health, especially reproductive health. Initially, the group wanted to establish 20 healthcare centers, but started more realistically with three. The community welcomed the centers, but faced issues with patriarchal norms in leadership structures, which manifested in the form of wanting services of doctors but not being as interested in family planning services. This is when the group began to work to coordinate local members to employ the health centers, with an emphasis on midwife training. Importantly, community members who were educated (sometimes just elementary education level), those with language abilities worked as translators between staff and indigenous community members. An important distinction Karen made was between maternal/infant deaths, which, when this happened without a midwife, would be blamed on the mother entirely, but when it happened with a midwife present, would be more understood.

The midwives are integral and respected community members who have received training in traditional midwifery. Some of the midwife training included works to increase hygiene, administer vaccines, identify infections, etc. Further, an emphasis was put on creating a network of connection between the midwives so they could use each other as systems of support. Ancestral practices and approaches to delivering were used by the midwives and have been passed down through generations.

On a more technical level, she has worked to coordinate international funding which has since come from the European Union. Now, they have increased their presence from three to thirty-three healthcare centers. Subsidies from international organizations help keep the price of supplies and medicine low. FUNDAECO encourages the community health centers to become self-sufficient and will typically provide start-up costs but hope to one day leave the center to be run by local community members.

The centers are also important for domestic violence training. At first, Karen said there was a desire to take every case of domestic violence to court, but they soon found that this could easily put the woman at a greater threat than she faced before. They shifted their priorities to a more holistic approach and empowered women with simple language they could use to fight domestic violence.

Many young people today may identify with Karen's desire to help vulnerable populations, which is why her story is so powerful: After receiving a college degree in an urban environment, she focused on applying her education in

social work to "community organizing" in rural areas. In addition to Karen's motivation to help make the world a better place, Erin learned about "goodwill" efforts outside of the United States as well as cultural differences in which indigenous people in Guatemala's Catholic and patriarchal society are isolated in government-controlled nature preserves. It is significant that Karen initially had focused on educating indigenous populations about reproductive health with support of an international organization. Then, as she became more involved, she re-focused on the social and structural issues that result in gender-based violence. In Guatemala, it was reported that every day, 1,500 underage girls are forced to marry and denied educational opportunities.[14] While this figure may not be too reliable –as it would amount to half-a-million a year in a country with a population of just 18.5 million – still, it is not surprising that the subject of gender-based violence inspired Erin and her classmates to learn more about this in other regions of the world, including Africa. She and four other students developed a website to raise awareness among her cohort.[15]

4. *ENDA*/Colombia

In addition to the interview with Karen in Guatemala, Erin chose to learn more about the *ENDA* (an acronym for "Environment and Development Action,") project based in Colombia, which had received a GJCS award in 2019. She first contacted **María Victoria Bojacá Penagos (Vicky)**, the General Director of Sustainability, Equity, and Environmental Rights and, with Martha Maria Chavez Megrete, a doctoral student from Ecuador in Hispanic Languages and Literature Department (also at Stony Brook University), conducted an oral history interview in Spanish and English.

In reviewing Martha's English translation, I found some words – such as "collectives," "cooperatives," "political awareness," "pillars of human rights," "solidarity," and "communal social fabric" – difficult to understand the full scope of their meaning in the context of Colombian culture. In Latin America, perhaps Jesuit institutions incorporated these words into "liberation theology," which had influenced Vicky's commitment to women's rights in climate change adaptation. Significantly, Martha and Erin first interviewed Vicky and then, to provide more perspective, interviewed an older community activist who remained in her neighborhood for 30 years, **Graciela Quintero Medina**. Below is my synopsis of these two interviews.

(A) María Victoria Bojacá Penagos (Vicky)

Vicky grew up in a small town in rural Colombia and majored in industrial engineering and public policy at the Technical and Pedagogical University of Colombia. In the 1980s, she became an active member of student movements and was particularly interested in "the collectives." She wanted to address the tremendous gap between rich and poor because many of her classmates grew up poor – without much food or education.

After graduation, she began to work with a Jesuit group to help underserved communities in areas near Bogotá. She focused on teaching women the fundamentals of financial management so that they could become independent and establish community restaurants and workshops for textiles and handicrafts. Vicky then became involved in the feminist movement in Colombia where she met the director of *ENDA* Colombia who hired her to work with women's groups on environmental and social issues. Her first job was with a women's cooperative, financed by *Geneva Third World*, in which she organized teams to construct houses, and manage organic (compost) and inorganic (plastics which they transformed into irrigation hoses and granular pieces) recycling projects. While it is not clear how many women were involved, we do know that, after six years, the women Vicky worked with had become financially independent and she moved to another region.

Her next job was working with families whose sole livelihood was recycling. She taught them how to form collectives and fight for women's and human rights. The networks spanned Latin America through literacy programs and political awareness campaigns. It took 20 years for the Colombian government to recognize the women's collective and pay a set rate per kilo for recycled material. From Martha's translation below, it seems to me that Vicky had well-developed political sensibilities:

> This was a big bridge from being invisible to be seen as a formal actor. The collective continues to advocate for public policies that increase health and education, especially relating to solid waste management. This was an end to one of the biggest cycles of her [Vicky's] life. Her work with ENDA encompassed three main pillars – rights, sustainability, and gender awareness.

Vicky often used slogans in her advocacy work. Throughout her career at *ENDA*, she worked with victims of armed conflict, including "peasants, youth, and women from underprivileged areas." She continued to challenge public policy to advance basic human rights for women – for better education and access to water, housing, and food sovereignty – through political education campaigns. For example, *ENDA* began to work with a women's collective from one of the most densely populated areas of Bogotá, Colombia (~1.6 million people) that also has one of the most visible and drastic wealth gaps in the country. The common denominators were that all the people they worked with built their own houses and were inspired by the Jesuit liberation theological principles of IAP (i.e., research, action, and participation). Their aim was to link the IAP women in Bogotá with the *Women of the World*, a Paris-based group that works on projects such as public policy awareness with young people.

Vicky also works with women in the *Hunsuhua* indigenous group who inhabited the land in the pre-colonial Spanish era. This group consists of nine local organizations, in total 131 women and 21 men, and is organized by

functional areas – recycling, food safety (based on home terrace gardening), early child development assistance for the neighborhood, cultural activities (such as organizing festivals especially for youth and preparing potluck meals with traditional dishes), women's handicrafts from recycled materials, and youth groups advocating for political rights.

Vicky and the women with whom she worked were not subject to threats and/or actual violence from right-wing forces. In fact, many of the *Hunsuhua* women had been displaced years before, as they were essentially "dumped" (my wording) into urban poverty belts in Bogotá where they built their own homes and were the sole providers for their young children and extended family members. To help them, Vicky worked with *ENDA* on a microcredit project called the *Communal Bank*, which had been established in Venezuela under the pillars, "trust and solidarity." *Communal Bank* was the group that won the GJCS award in Colombia.

Vicky spoke about how these women had been displaced for generations and were forced by necessity to organize in the "middle-of-nowhere." They developed a strong sense of belonging and community, while struggling for basic rights such as "water and life," long before they connected with international groups interested in environmental impacts and climate change. Before the COVID pandemic, these women had survived for generations – through grandparents and great-grandparents – in an informal economy: Their managerial leadership formed the communal social fabric that existed as small, entrepreneurial businesses. In their interview write up, Erin and Martha noted:

> Oral history is important, or else the sense of belonging, knowledge of appropriation, and the importance of collective advocacy would've been lost. The recovering of historical memory can involve several activities such as grandparents narrating to their grandchildren, mural painting and within the communal tourism, a focus on explaining the social construction of the neighborhood as a collective.

When Erin and Martha interviewed Vicky, the GJCS project had ended and it was in its third round of funding from the French Development Agency, which runs *Women of the World*. *ENDA* continued to improve the livelihoods of the *Hunsuhua* community through a sustainable development model with a gender focus on empowering women economically, socially, and politically. Financial independence and the effective management of resources feature women preserving the environment and contributing to climate change mitigation.

Like the *Fragments of Hope* project in Belize, tourism was an important source of income. Vicky described the *Hunsuhua* region as located on a mountain peak with a panoramic view of the city. The ongoing environmental projects provided an ideal vantage point and a clean environment. *ENDA*'s next stage was to construct a social and solidarity-based economy with a gender focus through the *Women of the World*'s international network, with members from Mali, Senegal, and Bolivia – all groups with whom *ENDA* seeks to create partnerships. In addition, they have connected with groups in other countries where *ENDA* operates as well as an association called *Neighborhoods of the World*.

In contrast to the work in Belize, which did not benefit from large international conferences, *ENDA*-Colombia thrived on international activities by taking two or three female leaders from the *Hunsuhua* community to the annual *Women of the World* conference to enable them to exchange ideas and receive training. Obviously, each regional organization makes choices on how best to support the women, which may include local and/or global initiatives. Through the international "Solidarity Market" event, indigenous women sell products including dehydrated, medicinal herbs and creams from their communal gardens (that often are cultivated on the rooftops of their dwellings) and handicrafts. In fact, Vicky learned about the GJCS award at the "Solidarity Market" through the French chapter of the *WECF* (Women Engaged for a Common Future). At the same time, *ENDA* continued to build strong local networks to advocate for women's rights, including women's groups from city hall, urban agriculturists, youth culture networks, and recyclers from Vicky's community.

In their interview, Erin and Martha noted that they learned about how patriarchal, chauvinistic societal norms existed throughout Latin America, which included domestic violence against women – especially targeting women who choose to work outside of the home. As part of its mission, *ENDA* works with children and parents to educate them on gender equity to get rid of "toxic mindsets" as the children get older. Vicky acknowledged that older women are not likely to change, and that *ENDA* needs to make better use of social media to reach younger audiences and create strategic international alliances: "You cannot stay isolated and achieve a social, political, and cultural transformation." It is quite possible that more interviews could be conducted to ascertain how decision-making occurs in communities like Vicky's. A mosaic of oral histories could answer the question of whether, in communities or collectives, there are individual charismatic women who emerge as leaders to whom the others look to for guidance and inspiration (Fig. 17).

Fig. 17. Photographs of María Victoria Bojacá Penagos (Vicky) and Recycling in Bogotá. Copyright © 2020 Photographs Courtesy of *ENDA*.

(B) Graciela Quintero Medina

Vicky introduced Erin and Martha to a local *ENDA* community leader, Graciela Quintero Medina, who founded and has worked in her neighborhood recycling collective for over 37 years. In fact, she may be one of the charismatic leaders mentioned above. Graciela attended Catholic school and received an advanced education in program administration. It is not clear if there were key role models in the Catholic church who inspired her. Like Vicky, she mentioned her allegiance to liberation theology as a fourth-generation follower of self-management and independence outside of traditional structures and government bureaucracies. Graciela explained that the collective in Bogotá established a community preschool in the neighborhood to lessen the child-care burden for working women – certainly something Belizean women in the *Fragments of Hope* project would have welcomed – with about 275 children in the program. In addition, the collective established an arts and cultural center to link economic development to environmental activism. Fourteen of these self-sufficient communities – with women in leadership positions – hold their own elections that are separate from traditional state-run elections. The community decides which candidate best represents "the spirit of collectivism and community benefit." Graciela emphasized that women are more sensitive to "the defense of life and land" and, as elected officials, are devoted to their communities.

In terms of environmental activism, Erin's and Martha's interview revealed how community groups protected a local preserve from becoming an urban center, defended water marshes, stopped construction on a low mountain range, and preserved the legacy of seeds. The indigenous women pass down the knowledge of crop cultivation through generations. Graciela wanted Martha and Erin to know that the women she works with are committed to "deconstructing rigid, patriarchal frames that dominate Colombia." Rather than promoting women to higher positions than men, Graciela advocates for equality between sexes where men and women work side-by-side to make progressive strides toward a better future.

While Andrea Monzón Juárez in Guatemala doesn't use the same slogans as Vicky and Graciela in Colombia, both *Todos Juntos* and *ENDA* have created programs to empower females in indigenous communities in regions that were affected by climate change: In Guatemala, women cultivated mealworms on land that could no longer be farmed and where men had left the region to find work elsewhere; in Colombia, women used recycled goods to earn money to support communities of family members. In both cases, they were uplifted for being "keepers of the seeds" through innovative programs that provided financial incentives to improve their lives. As previously mentioned, we don't know of any religious leaders – in Catholic, Protestant, or indigenous folk religions – who may have guided these communities. While Graciela mentioned her allegiance to liberation theology, she didn't mention by name any actual clerics – priests, nuns, etc. – as participants or leaders.

5. *Improved Cookstoves (ICS)*/Vietnam

When I first began to research Asian women's political participation in climate change adaptation in the summer of 2016, I identified Vietnam as a country of interest because international organizations established "gender mainstreaming" in programs as a strategy for lowering emissions in Asia's forests.[16] These programs used the only women's organization in Vietnam, the Vietnam Women's Union (WU), as a base to reach women who gathered firewood to cook for their families. The WU has 13 million members in 10,472 local women's unions in communes and towns throughout the country and is part of the communist party–state power structure. It is known to be effective in organizing women and interacting with policymakers and members of the National Assembly. In learning about the forestry program, I wondered if women in Vietnam were unique because, throughout Southeast Asia, cultural traditions often prevent women from participating in public life. I also wondered if elite women in family-run enterprises were less-restricted than non-elite women who had fewer resources and suffered the most in terms of coping with seasonal and periodic weather changes and natural disasters.

To answer this question, I had planned to determine how Vietnamese women's participation in climate change programs was influenced by reinforced traditional roles, diverse livelihoods, and income-generating jobs.[17] To develop my research questions, I interviewed a program manager, **Kalpana Giri**, who was involved in introducing the improved cookstoves to women in a rural district in the North Central Coast region of Vietnam in the Con Cuông District on contract through the USAID.[18] At the time of our interview, Kalpana had completed her field work and was a fellow at the Stockholm Environment Institute.[19]

Kalpana had received a PhD in forestry from the University of Natural Resources and Applied Life Sciences, in Vienna, Austria, and was working with marginalized women to address environmental issues. While she was trained in the male-dominated field of forestry, she shifted her focus to promote gender mainstreaming and social equity.[20] Like the three women from the University of Chicago's *MealFlour* project, Kalpana did not live in the community. To help women who suffer from climate change, she used her advanced education to evaluate international projects. One key difference between Kalpana and the three *MealFlour* women relates to the stages of their careers: Kalpana had a doctorate with years of work experience in international organizations, whereas the *MealFlour* team had just completed their undergraduate studies and were interested in entrepreneurial social enterprises.[21] Through her field experiences in the field of forestry, Kalpana recalled how she began to understand the importance of outsider actors in developing programs. She shared her field observations to assist me in framing my research as follows:

> So, in most of the cases, men are actually leading the work. There must be people from outside the community who introduce that idea. Perhaps [you should] start from that point – who got

> the idea, was there any apprehension about involving women, why did they decide to get in, and then what happened after women became involved.

Kalpana was devoted to developing connections with the WU – a politically powerful "stakeholder" – and engaging in what she referred to as "cultural diplomacy." As outsiders, her team approached both men and women to "ask" for their thoughts on whether women should be involved: Would it make sense to develop programs for women who cook and gather wood and herbs for fuel? Once everyone agreed that women must be involved to implement a solution that would ease their workload, the gender mainstreaming program (to ensure the participation of men and women) could then proceed. Kalpana referred to this as a "process of engagement" to alleviate resistance from women's families. She explained:

> I think that the trick was involving them to work on the technical aspect (that is, using improved cook stoves instead of traditional cookstoves or plants that yield growth in a short span of time for uses of fuel.) Plus, we [facilitators] helped groom their presentation skills, negotiations skills, and leadership skills so that they could address the technical issues. We wanted to get rid of the sense of silos.

The facilitation team focused on evaluating the whole "intervention" – a term that has become standard lingo for ensuring that an entire community is involved in changing widely accepted practices. This was especially important because women usually were tasked with organizing campaigns on gender awareness and not allowed to give input on the type of cookstove that would be the most useful for them – or anything that would expand their traditional roles. According to Kalpana, her team sought to place women at the center of the technical intervention; and hoped that communities would respect women for their technical expertise and not just their organizational and communication skills. Their project in the Con Cuông district involved about 300 women – about 40% of the community.

Her team worked with women who had the equivalent of a middle-school education and were politically astute and informed about government programs and priorities: "They are educated by experience." In framing my research questions, I wondered whether the women already were respected in their communities or if they held positions that would easily allow them to lead the cookstove project. Kalpana's team was focused on enriching women's knowledge base and not on assessing their social positions. Kalpana stated that "leadership" didn't focus on increasing the women's social status. She explains:

> It's more about how the group functions in society. After working in Vietnam, I realized that the women are very strong and vocal. The society still favors the son. If you look at practice, the divisions are not that bad. When you go into the communities, you do

> not get the sense that the women are poor – like in the sense that they are deprived of a presence in public spheres/meetings. When we go into the community, we encounter women who are very enthusiastic. My sense is that engagement is the thing that mobilized women even in the traditional sectors. They're not fearful at all. They only feel deprived when they have to talk about technical issues. They don't know the sectors enough. Knowing about climate change and information about disasters actually helps them position themselves better within the technical meetings.

I wonder if the legacy of war in which several million Vietnamese died – proportionately more men – created an opening for generations of more confident and assertive women's leadership. Or if the rhetorical gender equality of communist societies – belied, to be sure, by continuing patriarchal practices – played a role.

Kalpana's team worked with the WU to convince people in the community to negotiate with those who do the cooking (mostly women) to use fuel-efficient biomass cookstoves (See Fig. 18.). While still using wood for fuel, biomass cookstoves purportedly decreased acute and chronic health risks and alleviated time burdens on women and children. The team trained women to demonstrate how the cookstoves worked in individual households. Some of the women also learned how to maintain and repair the cookstoves and, according to Kalpana, this increased their status in eyes of the state. For example, local male government leaders invited them to attend forestry or climate change meetings to provide "legitimate input" into the forest management decisions that were being made in Nghe Province. She observed the following:

> Suddenly, they felt that they were important. You know like sometimes you may feel like what you know is marginalized. So, when they bridged that gap, it was an acknowledgment of the skills that they had learned. It was more about legitimating that they know about these issues … recognition that they should be involved because of the roles they performed or skills they developed.

Most of the women who were involved in the program were middle-aged with children and elders to take care of. As a result, Kalpana acknowledged, they did have challenges in "juggling" their public and private lives. When husbands complained, the women responded that the new cookstoves saved time. Still, women struggled because they were solely responsible for managing the entire household.

I found it interesting that, while Kalpana described herself as a forester who wanted to work on gender issues, she hoped to capture stories of women who were empowered because of their newly acquired technical expertise. The testimonials that appeared in her final evaluation report mostly lauded the benefits of the new cookstoves. However, one quote from the report revealed the precarious nature of changing family roles and responsibilities:

> Before, my husband did not support me joining any local WU activities because we do not receive any benefits from that. For example, we have not received loans from WU or saplings or rice except some fish from before. My husband said: "If you don't benefit from the meetings, why do you keep going to them?" This time it was a big honor for me to get the stove and this was a proof to my husband that this is the benefit I received from attending the local WU meeting. But it turned into this bad result [because the stove cracked], so my husband is still unhappy about me joining the local WU meetings.[22]

In our interview, Kalpana stated that this project did not include "rigorous calculations," which is different from the present day when both governmental and non-governmental oversight (and ongoing funding) must be accompanied by quantitative analysis. In talking about how women were engaged and "loved" the new work when they witnessed how the "intervention" benefited them, I wondered if Kalpana truly assessed the effectiveness of the intervention: "That's what they said to us. They enhanced their positions in the eyes of the decision makers, so that was pretty good." I interviewed her when she – and many mainstream international organizations with whom she worked – were just figuring out how to link gender issues and social change issues to climate change. Kalpana's original 2014 report on this project discussed the fact that, with a 37% poverty rate, people's main motivation for acquiring the cookstove was for economic gain and not environmental benefits – which the authors noted was very common in the international development field.[23] After the project ended, Kalpana then designed a leadership program in Vietnam for "gender champions," hoping that the program would last for at least two years.[24] At the time, she had been working in the field for six or seven years, was interested in developing "concept models or proposals," and seemed to be moving away from field work.

Kalpana's following reflection on her own career trajectory, below, revealed the ways some highly educated professionals pursue international development work in large organizations:

> When I first began work as a forester, I wasn't focused on gender issues until I took a course on gender and social issues. After that, it was pretty easy for me to have that lens and understand why foresters often don't see the social issues inside the forestry work that they do. It's quite challenging for me to convince them but I enjoy doing that because it's more about opening perspectives and giving spaces for alternative wisdom as well.

Another layer, however, is that technological advancements are still evolving, which was the case with the biomass cookstoves Kalpana's team was promoting.[25] It turned out that these cookstoves needed vast improvements to effectively alleviate harm to the environment.

Fig. 18. Photographs of the *ICS* and Kalpana Giri. Copyright © 2016 Courtesy of USAID.

In reflecting upon Kalpana's work in Vietnam, I wondered if Joyce Lu, Gabby Wimer, and Elizabeth Frank (from the *MealFlour* project) eventually would pursue a similar path (of working within international organizations) *or* if they would continue as entrepreneurs in creating social enterprises to uplift women and address climate change. As the literature suggests, those in the Global North – such as Lu, Wimer, Frank, and Giri – are in the best position to bolster "outward facing advocacy networks." And, for feminists in the Global South, there are a range of interesting career paths (such as those pursued by Andrea Monzón Juárez and Karen Aleida DuBois Recinos in Guatemala; Graciela Quintero Medina and María Victoria Bojacá Penagos (Vicky) in Colombia; and in early stages of the *Fragments of Hope* project in Belize) that make use of women's abilities to be grounded in local communities, relate to other initiatives in the Global South, and become empowered by transcending national boundaries.

6. Female Activists/Thailand

Kalpana mentioned one renowned female entrepreneur in Thailand, Wandee Khunchornyakong, who founded a solar energy business and provided jobs for women across Thailand. "Dr. Wandee" had received a doctorate from Suan Dusit Rajabhat University, a graduate degree from Naresuan University, and a graduate degree from Kasem Bundit University in Thailand. Even though she had worked for years as a solar power management executive, banks initially would not loan her money because it was too risky to invest in a woman-owned company. Thus, she used her own house and land as collateral and eventually secured loans from multilateral banks to begin her first solar farm in 2010.[26] In 2013, Dr. Wandee was named *Women Entrepreneur of the Year* in the Asia Pacific Entrepreneurship Awards and, in 2014, received the Momentum for Change (MfC) *Women for*

Results award through the UNFCCC. She gained a reputation for empowering women especially in rural areas in several Southeast Asian nations who managed solar energy farms. Dr. Wandee established over 30 solar farm projects in over 10 (out of 76) provinces across Thailand, mostly in the rural northeast.

While Kalpana had tried to implement gender mainstreaming programs in Thailand, she simply could not find an institution comparable to that of the Vietnamese Women's Union. She stated:

> One of the good things about Thailand is that there are many women who work in businesses. If we can tap them and sensitize them, I think there's a lot of potential to do that. But in our project, we had to get state approval. The state institutions in Thailand clearly told us that gender is not an issue. We can't mention gender.

One reason gender mainstreaming is controversial in Thailand is related to the 2014 ousting of Thailand's first female prime minister, Yingluck Shinawatra, who was charged with using her position to help her family's business deals. (To avoid a five-year prison sentence, she fled Thailand in 2017 and continues as chairwoman and legal representative of Shantou International Container Terminals Ltd located in southern China.) Even more controversial is the current monarchy of Thailand under King Vajiralongkorn who succeeded his highly respected father, King Bhumibol Adulyadej (r. 1946–2016). Vajiralongkorn is a misogynist playboy who often lives in Germany. In 2020, widespread protests throughout the country erupted against his reign.

Thailand's Intended Nationally Determined Contribution (INDC) through the UNFCCC did not include a commitment to gender equality and, instead, focused on the religious and ritualized connection between the Thai monarchy and the environment, and the importance of family and community. Ironically, in 2020, Thailand had the worst drought in four decades; Chiang Mai became known as the "most polluted city in the world" due to its growing smog problems; and central Thailand, particularly Bangkok, was threatened by rising sea levels. Clearly, the Thai government needs to respond to the effects of climate change, but it has not identified women as equal partners with men in finding solutions.

Because the kingdom of Thailand did not embrace women's rights in the UNFCCC's Nationally Determined Contribution (NDC) declaration, I was surprised that between 2014 and 2015, the *Life, Social and Lifestyle* section of *The Bangkok Post* published ten stories, all written by one reporter, KARNJANA KARNJANATAWE, on female climate change activists.[27] Among them were women who stood up against coal-fired power stations, dam projects, wastewater plant projects, excessive logging, and gold mines that had destroyed the fishing industry. These women were not high-profile public figures like Dr. Wandee. In fact, Karnjanatawe described a few of them as "housewives turned activists." Because *The Bangkok Post* is published in English, it mostly captures readers who are well-educated, urban, and middle-class; and appeals to an international audience.

In researching the newspaper's archives up to 2022, I did not find any other feature stories on female activists before or since 2014–2015. In fact, the only other human-interest story about a woman environmentalist was in 2020, which featured a renowned Harvard-educated female architect, Korchakorn Voraakhom, in an article filed by *Agence France-Presse* (a private international news agency headquartered in Paris) aptly titled "Meet Thailand's Secret Weapon in [the] Climate Change Battle." Thus, it is probably true that narratives on less prominent women who champion the environment (and criticize the government) are rarely part of public discourse. Thus, I use the ten stories written and published by the *Bangkok Post* via Karnjana Karnjanatawe, to make the point that there may be many women, currently invisible, from different socioeconomic and educational backgrounds who clearly expressed emotional connections to the land, confronted entrenched "patriarchal" attitudes especially in rural communities, and recognized the importance of the work they were doing for future generations.

In a research study published in 2018, a colleague, Jamie Sommer, and I focused on the extent to which the women featured in the *Bangkok Post* stories interacted with (and were supported by) local and international organizations to improve the environment and adapt to the negative effects of climate change.[28] This was our only way of tapping into women's roles in Thailand. It seems that a single journalist, Karnjana Karnjanatawe, with the support of a sympathetic editor, published a number of stories in a newspaper that most literate Thai would not be able to read in any case. The stories themselves are interesting, to be sure, but don't tell us the extent of such activism throughout the country as a whole. Moreover, the feature articles are so brief: They tell us only the barest outlines of these activist women, what they sought to do and what they accomplished.

The *Bangkok Post* stories seem to be intended to demonstrate that, despite significant hardships, women have a "moral responsibility" to improve Thailand's rural environment.[29] Below are brief descriptions of Karnjanatawe's human interest stories that illustrate the range of women's experiences, emotions, and ideas. To put it another way, the "fluff" stories seem to be the only way to understand how women's roles *could be* expanded in the future. The map in Fig. 19 shows where the women in the feature stories were located.

Nantarika Chansue was inspired by her father to pursue a scientific education at one of Thailand's most prestigious universities, Chulalongkorn University. She received financial support for her research from a prestigious international organization, the International Union for the Conservation of Nature (IUCN), and the University of Salzburg in Austria. Based near Bangkok, she advocated for the Zoo and Wildlife Society of Thailand, which apparently receives minimal financial support from the Thai government. It was clear that without international networks, Chansue would not have been able to advocate for the environment.

In responding to environmental degradation in their local communities, **Korn-uma Pongnoi** and **Maliwan Nakwirot** led protests against national governmental agencies and private companies that had prioritized economic

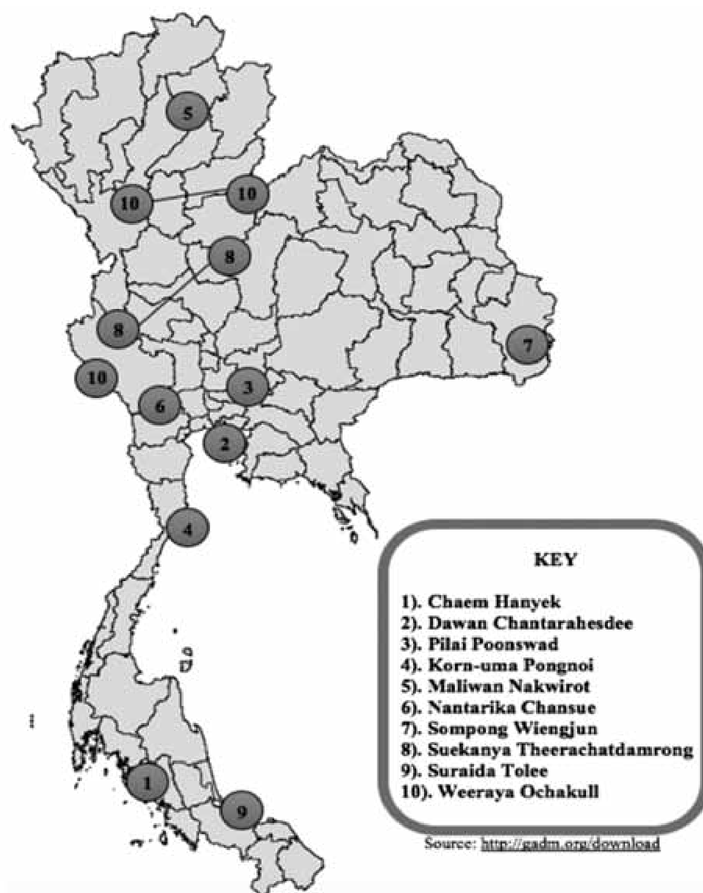

Fig. 19. Map of Location of Female Activists in Thailand. *Source*: Christoff and Sommer (2018, p. 276).

development over the health and welfare of the people. Pongnoi's husband had been murdered for his environmental activism, and she carried on his legacy; and Nakwirot protested against coal-fired power plants after she, her son, and many members of her community developed breathing problems. *The Bangkok Post* described them as "timid housewives" who became empowered community leaders.

In the male-dominated field of forestry, **Weeraya Ochakull** became a forest ranger and patrolled national territories in protected land areas to prevent farmers from engaging in illegal logging. As a government employee, Ochakull could not become involved in helping poor communities because "protecting our forests" meant that the farmers inevitably would suffer from not being able to expand the boundaries of their communities. On the other hand, **Suekanya Theerachatdamrong** had a different reason for becoming active: her family suffered from water polluted by toxins, which motivated her to join a network that connected 480 communities nationwide (titled "The Community of Networks on Social and Political Reform") and support Rangsut University's Central Institute of Forensic Science to push back against politicians and government bureaucrats.

Pilai Poonswad was the only one of the ten women who developed networks that included domestic *and* international non-governmental organizations. She was a scientific researcher who devoted her life to preserving the ancient hornbill species; and developed close connections with international environmental organizations through the Rolex award and with colleagues at Meijo University in Japan. She traveled throughout Asia and Africa, including the Wildlife Sanctuary in Malaysia. At the national level and within Thailand, Poonswad worked with Mahidol University, the Thailand Hornbill Project, KhaoYai National Park, the National Center for Genetic Engineering and Biotechnology, and the PTTE (a national energy company that promotes sustainability). Poonswad focused her attention at the national level and purposely remained distant from local officials who offered some protection to poachers and illegal loggers.

On the other hand, **Sompong Wiengjun**, a fisherwoman, did not ally with international organizations. Although the World Commission on Dams recognized her activism and commitment, Wiengjun stayed in her rural community and, from there, worked with national level organizations (such as the Assembly of the Poor, the People's Movement for a Just Society, the Four Regions Slums Network, and the Northern Farmers Federation). She remained neutral about foreign involvement in national development. In fact, the work Wiengjun pursued required challenging politicians and institutions, including the Electricity Generating Authority of Thailand. In this case, the Thai government had blocked environmental protection strategies.

Finally, **Chaem Hanyek**, **Dawan Chantarahesdee**, and **Suraida Tolee** were keenly aware of the need to connect local communities to national and international environmental organizations. Hanyek's objectives coalesced around preserving the community forest, respecting the ancestral homeland, and attracting tourism. Chantarahesdee also focused on the "centuries-old community" and had a keen sense of how to negotiate between opposing interest groups at the national level and effectively challenge international organizations such as the Asian Development Bank and Japan's Overseas Economic Cooperation Fund. (It's not surprising that Chantarahesdee majored in political science at Ramkhamhaeng University.)

Suraida Tolee had a transnational religious affiliation: As a Muslim, she expressed her commitment to "Allah [who] gives us natural resources." While her life is extremely difficult – her son was beaten unconscious by the police, and she was forced to live in a forest to avoid arrest – Tolee developed important alliances against the Thai-Malaysian gas pipeline and gas-based industries. Originally, she worked for the governmental Tambon Administrative Organization (TAO) and subsequently became vice president of the Sea Conservation Association of Chana.

In sum, the *Bangkok Post*'s featured stories represent forms of political activism that are not reflected in women's narratives in Belize, Guatemala, Colombia, and Vietnam where our oral history narratives focused on how women worked at local levels to address problems that were made worse by weather-related disasters. However, these countries all confront colonialism and patrilinear power structures. On the other hand, glimpses of these few women environmentalists

in Thailand demonstrate that transnational advocacy networks exist to support social change and challenge the status quo: In-person interviews about social, economic, and political disparities do exist … even though they are buried in the "lifestyle" section.

7. *Progetto Quid* [Project Quid]/Italy

In the middle of the spring 2020 semester, my university – Stony Brook University – transitioned from in-person to online learning. COVID had sickened students who had families in Queens, a borough in New York City, which had one of the highest fatality rates in the United States. One of my first-year students, LEIO KOGA, who lived in the New York suburbs near our deserted campus, was supposed to help me organize a seminar on the *Bhungroo* irrigation project. Instead, we responded to the pandemic by devising a project that would enable her to research women's roles in climate change adaptation and conduct *Zoom* interviews with a few professors at our university and previous awardees in Italy and Uganda through the UNFCCC's *Women for Results* program. One of those interviews was with **Valeria Valotto**, in Verona, Italy, then Vice President of *Progetto Quid*.

As a first-year student exploring different majors, Leio wanted to learn about "how individuals 'at the top' impact the way an organization runs." To develop her interview questions for the UNFCCC awardees, she first talked to two professors, one in history and the other in sociology and reported the following:

> If Dr. Hinely (a historian) and Dr. Sommer (a sociologist) were looking at the same issue of women's leadership roles, Dr. Hinely would study past cases to try and find parallels between the time frames of the past and present, whereas Dr. Sommer would look at the current family and societal dynamic that influences a woman's ability to have power.

With this information, Leio proceeded to develop interview questions to learn more about the "digital divide and lack of recognition from the global community." Her interview with Valeria Valotto focused on how *Quid* became a women-led non-profit organization to create a fashion brand, *Progetto Quid*, and provide stable employment in the fashion industry for disadvantaged and vulnerable populations, which included women who had suffered domestic abuse, those who had completed prison terms for drug and alcohol-related crimes, and migrant sex workers from Nigeria and the Ivory Coast. Before the interview, Leio learned how *Quid* used discarded designer fabric to make fashionable clothing. In her TED talk, the original creator, Anna Fiscale, stated that she chose to become an entrepreneur at 25-years old instead of "joining the world of international organizations." Obviously, her career path was quite different from, for example, Kalpana Giri, who worked in Vietnam implementing gender mainstreaming programs for USAID. In her TED talk,[30] "The Fragility Factor: from societal challenge to social wealth," Fiscale presented her vision of "redesigning people

and fabrics" to redefine fragility not as an individual weakness, but as a universal strength. In 2013, Fiscale registered *Quid* under Italian law as a social enterprise.[31]

Leio investigated several sources to learn about *Quid*'s production and design process, described below:

In 2012, Quid created clothes for their own brand. While the original idea was to re-style unsold pieces of clothing, the team soon discovered that fashion companies actually had a surplus of leftover cloth. Furthermore, this cloth was for top fashion brands, which guaranteed high-quality, which allowed Progetto Quid to create high-quality pieces as well (Komatsu 6). Fiscale and her team then created two types of products using the leftover scrap: the first was clothing branded only Progetto Quid, and the second was co-branded clothing made in collaboration with partner companies (Progetto Quid 3). Currently, Quid produces their own Progetto Quid collections which are sold in the 6 stores located across Italy, on their online store, and in over 90 multi brand stores. In addition, Quid creates "co-branded products for other brands that then distribute [the products] in their own distribution channels." (Houston 3)

Although Quid focuses on providing women who struggle with disabilities or who are inmates, ex-convicts, or recovering addicts, Quid is willing to hire anyone who strives for a new beginning and is categorized as a disadvantaged or vulnerable worker under Italian law ("About Quid 2019"). This includes "victims of human trafficking, victims of domestic violence, migrants, refugees and asylum seekers, people who are not in employment, education, or training (known as NEETs), and long-term unemployed individuals" ("About Quid 2019"). As of 2019, Quid employs 130 people from ages 19-65 and from 14 different countries. ("About Quid 2019")

Leio's *Zoom* interview with Ms. Valotto, who was based in Verona, revealed how important it was for *Quid* to (1) understand the social and economic landscape of the geographical region where they operate, (2) develop an expertise in the legal aspects of hiring migrants from the Global South – both men and women who support their families, and (3) develop jobs in the fashion industry, an industry that unfortunately generally indulges in unethical labor practices. Ms. Valotto's work strikes me as a kind of Human Relations part of the project – like HR offices in universities, corporations, government, etc. Below is Leio's analysis of her interview with Ms. Valotto, and her brief assessment of the long-term success of *Quid*'s business model:

According to Ms. Valotto, demographic challenges in the Verona region in Italy have changed over time. The first change is the increasing number of migrants and asylum seekers. In general, Verona is one of the most diverse areas along with the Lombardy region. With diversity comes tension and resistance to diversity in the form of politics and discrimination, such as workplace discrimination. Migrant workers have less upward mobility opportunities, but this depends on education and language proficiency. Migrant families, and especially migrant children often struggle with their education because their parents may not be able to support them without proper skills or language fluency. The social divide is also apparent, not just between social classes, but within families and specifically the gender divide. In migrant families, the man is considered the breadwinner, which leaves the woman to stay at home and take care of the children. This setup is tough for women, who

have little money of their own, little independence, and barely any free time to fulfill their own dreams. This is one of the reasons why Quid targets women as their main employees, in order to give them a chance to make their own money and pursue the things they truly want to. These challenges also reflect the demand for more work integration social enterprises such as Quid.

Ms. Valotto pointed out that Quid has been very responsive to the change in demographics, specifically regarding the influx of migrants in the Verona region in recent years. Under Italian law, Quid is a Type B social cooperative, which means that at least 30% of their employees must be categorized as "protected." Currently, 34% of Quid's employees are considered part of the protected category of workers, and 37% of their employees are considered disadvantaged workers. The rest of their workers are people who have a regular history of employment (Fig. 20).

The first change they made to their employment team was extending opportunities to young men, mostly asylum seekers, after realizing how many migrants were

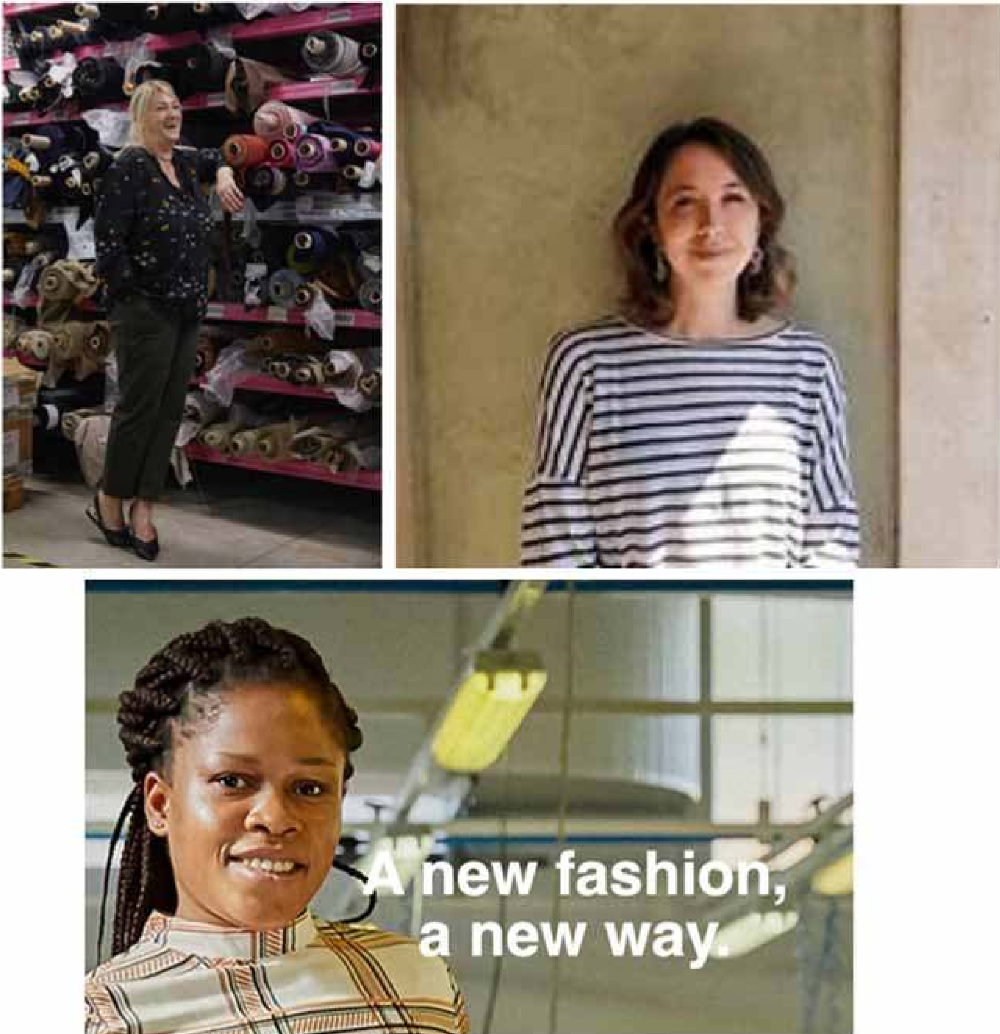

Fig. 20. Photos of Progetto Quid – Valeria Valotto (Middle). Copyright © 2020 Courtesy of Progetto Quid.

coming into the Verona region. In general, Quid has created more work opportunities and apprenticeship opportunities in collaboration with the refugee welcome center to respond to the new demand for job opportunities. In addition to this effort, last February, Quid decided to launch their own welfare program to help their employees in a number of areas. This is part of a new strategy Quid developed in recent years, after they realized that connecting their employees to services or support that helps them realize what makes them happy is more important than just financial empowerment, and also has increased the likelihood of their employees to continue to work for Quid. Some of their services within their welfare program includes digital literacy support, where employees can access online procedures for subsidies, a welfare officer that helps with housing and paperwork, and a social counselor.

Within Italy, it is possible for Quid to expand its organization to Milan and the region around Milan, another fashion hub with similar demographic issues to the Verona region. After speaking with Ms. Valotto, it is clear that in order for the social enterprise to succeed, the area of implementation must be known for and already have a thriving fashion industry. Quid's main clients are small to medium social enterprises and multinational companies, as the leftover fabric that Quid uses comes from these groups. Therefore, without a solid developed fashion industry dominating the region and the guarantee of leftover fabric, Quid's business model may not succeed. On an EU scale, Portugal, Spain, and Greece have strong manufacturing companies, and therefore it could be possible to replicate Quid's business model in these countries. These three countries also have similar demographic issues related to socioeconomics, as well as migrants seeking asylum and work.

In developing her research paper, Leio and I talked about whether Quid's business model could be transferred to countries in the Global South. A chunk of the Global South population is migrating – or seeks to migrate – to the Global North. In other words, would the founder and creator, Anna Fiscale, be able to address the "fragility of human life as part of our ecosystem" in regions that are most vulnerable to climate change disasters? Leio provided the following assessment of Ms. Valotto's reflection on the possibility of setting up operations in Bangladesh:

Without a reputation for fashion and a strong industrial society, it is likely that Quid's business model would falter in the global south. However, in posing this question to Ms. Valotto, she said that if it were possible for Quid to maintain a substantial amount of leftover fabric and ship it to and from a country such [as] Bangladesh, it would be possible to extend beyond Europe. The fast fashion industry creates a significant amount of waste and causes serious environmental problems such as water pollution. It is known to be an unregulated industry in terms of the environmental consequences. In Bangladesh, there is also an intersection between the fast fashion industry and disadvantaged women as there is in Verona. Economically, Bangladesh is considered a developing region, with 10.4% of the employed population below $1.90 PPP a day ("Basic Statistics, Asia and the Pacific"). In such a situation, women especially are left in a predicament; they have no choice but to find jobs in unethical industries, such as the fast fashion industry, to make money. These workers are forced to work in terrible conditions; wages paid to workers in the industry are insufficient to live on, factories typically violate building, safety, and sanitation laws (Hayashi

201), and workers are not guaranteed a long-term working contract (Stafford). If Quid created a factory based in Bangladesh, this could have a powerful impact on the lives of the women, and even men currently working in clothing factories.

Quid will have access to unused fabric that could be used to create the same unique, sustainable, and ethical collections that are currently being made in Italy if there is a demand for high quality clothing and designer brands. Their two-tier model of redesigning vulnerable women's access to the job market while redesigning fashion – could be integrated into Bangladesh using the same or similar units: production and packaging, logistics, finance and administration, styles, retails, and communication (Valotto 3). Of course, there are many factors that must be taken into consideration, such as the lack of demand for designer clothes in Bangladesh. Therefore, the clothes should be sold in small quantities in Bangladesh, and the majority of the collections sold in Verona or directly online. Not only would this allow the workers to earn their fair wages, but it would allow them to also gain recognition for their work, and for the changes in workers' rights that should be made in the entire nation.

At the end of the spring semester, Leio decided to look for a program at a university that would allow her to study labor law. She had learned that part of a university education is to explore beyond the classroom, just as Erin Byers did in Guatemala and Colombia. Erin and Leio formulated their own projects, which I believe led them to consider the ways young people respond to challenges in today's world. Leio wrote:

> I would like to say that I am interested in inspiring those of my generation to follow their dreams in terms of making the world a better place, especially for those who are underserved. Also, I want my readers to know that, after my freshman year at Stony Brook University, where I originally intended to major in political science, I realized that I want to study legal issues pertaining to human rights – in the hopes that I will be able to work as a litigator. Taking steps into what I believe is the right direction for me in order to make the world a better place, I decided to transfer to Cornell University and begin my sophomore year studying industrial and labor relations, which would allow me to learn about labor law and workers' rights as "human rights," and address the challenges of disadvantaged groups such as women and immigrants.

Postscript: As it turned out, after working as an undergraduate research assistant for the Gender Justice Clinic at Cornell Law School – and authoring several legal memoranda on violations of human rights by the United States Peace Corps in collaboration with the American Council of Civil Liberties Union (ACLU) – Leio decided to pursue a Master in Human Rights and Humanitarian Affairs at Sciences Po in Paris beginning in the fall of 2023. She continues to explore ways to combine law, investigative journalism, international human rights, sustainable development, and women and security. Clearly, career paths are not linear and we all need to be open and flexible to empower women and ameliorate the effects of climate change.

8. Solar Age Project/Türkiye

In 2021, the same year that Andrea Monzón Juárez won the GJCS award for *Todos Juntos* to set up mealworm farms in Guatemala, **Lucie Gamond Rius**, accepted the GJCS's technical solutions award for the non-profit, *Imece*, who established the *Solar Age Project* in Türkiye to help refugee women from Syria produce and use solar batteries. Her project established a 10-day theoretical and practical training course in solar energy and trained 20 refugee women to build EFE (*Energy For Everyone*) solar batteries that were sold on the local market. In addition, the EFE batteries were intended to equip refugees "on the move" with flashlights to send SOS signals and charge mobile phones to facilitate communication. This was a significant initiative because, as of 2019, there were over four million displaced persons in Türkiye and only 5% in official settlement camps. Also, to provide a sense of community within the unofficial settlements, the *Solar Age Project* offered education and language classes for refugee children.

Having studied in Istanbul for several years and after graduating from the Sorbonne with a graduate degree in International Humanitarian Law, Lucie established a chapter of *Imece Inisifiyati* in France to support projects in Türkiye. *Imece Inisifiyati* (translated as "solidarity and initiative") is a small non-profit organization based in Izmir "to support, educate, and empower displaced people in the forgotten settlements of Türkiye." It had expanded its operations in France and Germany to coordinate a network of a few hundred volunteers from Japan, Argentina, and Brazil who help distribute food, teach basic language skills and health care to refugee children, and train refugee women in technical skills to enable them to make a living in the historic coastal town of Çeşme in Izmir Province. The *Solar Age Project* was inspired by The Barefoot College in India, a community-based organization that has been providing basic services and solutions to problems in rural communities since 1972 – to help communities become self-sufficient and sustainable. Most recently, it focuses on solar energy, water, education, health care, rural handicrafts, people's action, communication, women's empowerment, and wasteland development.[32] Similarly, the *Solar Age Project* in Türkiye is only one of eight programs within *Imece Inisifiyati* that addresses climate change and women's financial independence.[33]

My interview with Lucie is the first of potentially many oral history interviews to understand how this project evolves to nurture trust and build support within refugee camps that are not officially recognized by the Turkish government. In fact, another one of the eight *Imece Inisifiyati* programs, the "Online Solidarity Seminars" offered in the summer of 2022, includes social entrepreneurs, storytellers, and filmmakers who may document the experiences of those who contribute to and benefit from the *Solar Age Project*. Collecting oral histories from refugee women in camps near the historic coastal town of Çeşme in Izmir Province (in the Çiftlikköy neighborhood) in Türkiye and from the numerous volunteers who support Imece's ideal, "Empathy Makes Us Human," is in line with the reflexive feminist methodologies I introduced in the previous chapter. *Imece's* programs are a significant departure from the Christian-based organizations Andrea Monzón Juárez refers to in Guatemala because *Imece* brings together the stories

of those who volunteer to work in the programs and those who receive assistance. Furthermore, *Imece*'s principles of empathy seem to align with that of *Quid* in Italy, as Anna Fiscale describes herself as an environmental and social "fragility entrepreneur."

In our interview, Lucie discussed the many moving parts within *Imece* and how this has affected the *Solar Age Project*. As a small-scale project that employs at most a dozen full-time staff, *Imece* responds to emergencies within the refugee population who live in shelters without electricity, water, food, and warm clothing. In the following passage, Lucie elaborated:

> It really depends on which program we are talking about because we are currently doing a lot of [winter] distributions in the settlements and so it's thousands of women and children it's approximately like 8,000 families.
>
> In the livelihood program, approximately 200 women participated and that included the first aid program on how to access Turkish health services and the basic vocabulary women need to know when they go into the emergency room and don't know how to say that they are pregnant or this kind of things.
>
> […] The Solar Age Project also has different steps. I think it was 150 women who did the first step but really less women in the second step also because we introduced two different solar batteries – the old version and new one and for the new one there's maybe 10 or 15 women who did it.

While Lucie and her colleagues wanted to teach the women about solar energy in places where they could bring their children and learn how to assemble the solar batteries, they also had to find them alternative sources of work. She described the workflow as follows:

> Our workshop is divided in two parts – one for the solar batteries and the other where we do work for enterprises in Izmir who need small electrical things to be built. They give loads of material, the women build it, and then they pay us. So, one part of our operation is for the solar batteries and the other part is for more independent and constant work. The ladies who come to work already have the technical training and we have a workspace for them.

To develop their operation, Lucie and other full-time staff in *Imece* participated in a six-month incubator training program through a French non-profit, *Singa*,[34] that provides support for building a business specifically for projects that serve migrants. At the same time, *Imece* maintains a distance from the Turkish government because most migrants are not formally registered. *Imece* is careful about the organizations it works with and, except for *Doctors without Borders*,[35] it eschews connections with well-known international organizations while

maintaining contacts with small local doctors and businesses. At times, the Coast Guard asks *Imece* to donate food and supplies but, in general, the UN Refugee Agency (UNHCR)[36] provides those services. Like *Quid*, the *Solar Age Project* does not target large-scale international organizations for funding, even though they obviously need cash infusions to support their programs (Fig. 21).

Lucie also expanded her description of the work she does to include other invisible populations such as the historically nomadic Dom communities that face a great deal of discrimination in Türkiye today. *Imece* is committed to providing food and health services outside of the Turkish government. She stated:

> They were already having a nomadic lifestyle in Syria and were already living in quite a precarious situation but now, even more, they are refugees in another country and a marginalized population … so they're not registered. Because they are agricultural workers, they go "under shield" [underground] and they are working but with very low salaries and then they go to another place for a month and then they move on. The registration in Türkiye is blocked for the Dom people so it's difficult to go to a hospital. They don't know how to read or write.

A GOOD INCOME FOR THE SOLAR LADIES

The vast majority of refugees in Turkey are women and children. For single mothers in particular, economic independence is a daily struggle. After graduating from the Solar Age programme, our trainees can choose to work with us and build EFE solar power banks. 10% of the profits go directly to the women building it and the entire remainder goes to finance the Solar Age program and other educational activities of Imece.

Fig. 21. Photographs of Lucie (second from the left) at the Gender Just Climate Solutions Awards (2021); to the Right, Solar-powered Banks. Copyright © 2021 Courtesy of Annabelle Avril, Photographer for the Women and Gender Constituency.

The reason this is important is because it is consistent with *Imece*'s approach of responding to individuals who need emergency relief. In contrast to the UNHCR and *Doctors without Borders*, which have larger scale operations, *Imece* seeks to build a communal "village" near Çeşme for staff, volunteers, and a few migrant families. According to Lucie:

> [We figure out] which family needs more help … as we are small and we are in close contact with the people we are working with, we are really adapting the situation we could have people calling to tell to say OK my child has a handicap, and she needs to access school and we would work on her specific situation.

Finally, it is worth noting that spanning out in many different directions to help different types of Syrian refugees takes a great deal of energy. My interview with Lucie revealed how much she loves her work and that she (and others) are overextended and exhausted. She stated:

> I have so much energy but, right now, we are just so tired – I mean the whole permanent team is so tired that we decided to have volunteers stay more six months … we're trying to provide them with accommodations. Right now, people stay between three and six months. We provide them with the accommodation and ask them to pay for their food because we cannot pay.

Postscript: Lucie updated the numbers in another interview with me in December, 2022. It turns out that the *Solar Age Project* shifted focus away from Syrian refugees and toward refugee women from the Congo and Cameroon who also were living in camps in Türkiye. A total of 48 of these women participated in the project and 30 have completed the entire training program and earn a living helping to assemble the solar batteries and doing other types of electronics piecework. She and other staff members continue to work with nomadic Dom families: With funding from a German foundation, they are converting a bus into a schoolhouse so that Dom children have a warm and secure place to learn. The *Solar Age Project* also received funding to establish a woodworking shop where women learn to build frames for the solar batteries. As of December 2022, to provide aid to earthquake victims, *Imece* has distributed 320 batteries, free-of-charge, to women in Türkiye, Bosnia, and Ukraine. And it continues to find ways to help migrant women who are victims of violence. Instead of staying in Türkiye full-time, Lucie splits her work into three-month increments in Türkiye and France, which allows her to identify women's needs in various geographical regions. I imagine that this helps her (and others) rejuvenate after working on "the front lines."

The remaining two case studies, in Africa, one in Uganda and the other in Tunisia, furthers our understanding of how other diverse settings create an intricate mosaic of experiences that do not provide a direct line to women's empowerment. Nevertheless, the web of connections in the oral history interviews may energize social change for communities to survive in the face of new challenges.

9. RUCODE/Uganda

In the spring semester of 2020, LEIO KOGA structured her independent study research to learn about the way women's empowerment in climate change adaptation programs differed in the Global North and the Global South. For the Global North, her case study, previously discussed, was *Progetto Quid* in Italy. After examining approximately one hundred projects on the Women and Gender Constituency's (WGC's) listserv and thirteen other projects promoted by the UNFCCC's *Women for Results* program – she selected a project from the Rural Country Development Organization (*RUCODE*) in Uganda, "Women's Empowerment for Resilience and Adaptation Against Climate Change." One of the reasons she selected it was that, like *Quid* in Italy, RUCODE aimed to develop a two-tiered business model – to support women's empowerment and environmental sustainability.

Leio interviewed **Mazumira Menya**, who had helped establish RUCODE in the local districts of Kamuli, Buyende, Iganga, Kaliro, and Jinja in 2004. Prior to that, Mr. Menya had worked as a field officer with the United Nations' World Food Program (WFP) between 1998 and 2000 and graduated from Makerere University with a master's degree in computer science and information management while working as a project manager for VEDCO (Volunteer Efforts for Development Concerns) between 2001 and 2004. With other students and colleagues who lived in the region, he started RUCODE to introduce modern organic farming methods and a microcredit lending system and, to address social problems, implement programs to eliminate domestic violence. By 2016, RUCODE had received international recognition from the UNFCCC and a small grant from the United Nations Development Program (UNDP)[37] to:

> […]support resource-poor women communities in the rural areas in the river Nile Basin in Busoga, build a sustainable model to combat land degradation, protect and preserve natural resources in wetlands in order to mitigate climate change over a long period of time and also improve on their livelihoods through value-chain production and marketing of wetland products, increased commercial competitiveness, maximizing profit benefits, increasing household incomes and attracting communities away from wetland crop production in order to preserve and protect the wetlands.[38]

From her interview, Leio learned that, in Uganda, paradoxically perhaps, women's empowerment could only occur when men took the lead, as Mr. Menya described, to alter women's roles and enable them to become financial managers rather than continue solely as rural laborers. This was a radical departure from the male-dominated framework throughout Africa. In essence, these new programs gained international recognition via transnational advocacy networks: RUCODE's "Women's Empowerment for Resilience and Adaptation Against Climate Change" program garnered the financial support of international development organizations, including the UNDP-GEF, CARE International, Plan

International, CORDAID Netherlands, and USAID. (See the glossary for more information.)

In the oral history interview, Leio noted Mr. Menya's frustration – that the developed world didn't recognize RUCODE's groundbreaking achievements, which would lead to more research to better understand the social impact of environmental programs that involve women in Sub-Saharan Africa. In her final report, Leio cited the following statistics on the program:

[… that it was] a women-led association, representing more than 250,000 women, who pooled together their individual savings to generate a fund of USD 2,875,752 … women involved in this initiative borrow from this pool of savings to invest in innovative, scalable and replicable activities that catalyze action toward a low-carbon and highly resilient future"[39] *As a significant departure from traditional roles, women gain control over the land that they are using and can own property by generating their own income … during the past five years, more than 1,800 hectares of wetland has been conserved … more than 34,000 energy-saving stoves have been constructed in thousands of households, reducing deforestation by 8%.*

She also described Mr. Menya's reflection on obstacles that were not in official reports or documents, which included the struggles women faced in gaining financial freedom – that the Ugandan government did not enforce anti-corruption laws that could help women get training and assume higher-order responsibilities to become involved in all aspects of the business. He also noted the revolving door created by donors and how this affected female independence. Mr. Menya wanted Leio to know that international partnerships had to have strategies that could effectively measure success and, as a result, provide more financial support. Here is that part of Leio's analysis:

Women and children are most affected by these changes, and rural women especially have less financial freedom. Policy changes at the district level are another issue. Even though the government in Uganda is responsive to the agenda of the social enterprise, the lack of government enforcement of policies at the local level severely hinders the ability of rural women to participate in business sales and marketing. Essentially, women have the cutting edge in agricultural output and production, but when it comes to marketing, the percentage of women involved is very minimal, and policies tend to correspond more toward men. The financial difficulty for women lies in the fact that for women to have a profit margin, they must participate in all parts of the value chain: production, marketing, and export. Women are only involved in production; and RUCODE is working to change that to include women in all three parts of the value chain.

Another challenge is the lack of institutional capacity. As important as donors are to implement RUCODE's project, they usually come with their own goals that may not align with RUCODE's, or the donor after them. For example, one donor comes to help RUCODE develop 3–4 yards of land for output, but they come with their own goals that they want out of the project. When that donor leaves, another donor comes with its own agenda, and the previous project cannot be continued. Therefore, it is very difficult to simultaneously promote RUCODE's vision and connect the projects with a donor.

The money which women borrow from their pool of funds, about $5–$10 per week, is not enough for investing in enterprises. It's not enough to attract

Fig. 22. RUCODE in Uganda: Women's Empowerment for Resilience and Adaptation Against Climate Change. Mr. Menya is in the audience to the left. Copyright © 2020 Courtesy of RUCODE.

external financial institutions and banks. Furthermore, the lack of connection between women who are involved in climate change adaptation and mitigation across the world is a barrier that RUCODE hopes to break by continuing to expand their project and gaining worldwide recognition through international competitions (Fig. 22).

In the interview with Mr. Menya, Leio gathered some basic information on how RUCODE decided to work with a prestigious American-based non-profit and policy organization, Innovations for Poverty Action (IPA),[40] which has helped over twenty countries in the Global South assess the effectiveness (or impact) of programs that aim to reduce poverty. Further interviews with Mr. Menya may yield more information on the actual measures used – especially in IPA's expertise in conducting randomized controlled trials (RCT). However, what is important here is that IPA's assessments have led RUCODE to establish a track record of data collection that helped Mr. Menya gain external support to finance their projects and more recognition on a global scale. It is likely that conducting oral history interviews with Ugandan women involved in these projects would help the public learn more about how women became empowered by taking on leadership roles. Perhaps the oral histories would demonstrate RUCODE's objectives. Leio provided the following analysis:

With greater financial stability, RUCODE can be upfront with their potential collaborators about their own social mission and what they want from a partnership: an organization that will connect green energy and the protection of the environment to women's empowerment, help to measure the reduction of carbon emissions, and would be willing to publish or share information about RUCODE to the public. With these components, RUCODE can be recognized for the efforts they are taking, because currently, many of their achievements are failing to be acknowledged by groups outside of Uganda.

Leio also asked Mr. Menya whether RUCODE's strategies could be used in other developing countries in the Global South. As noted early in this chapter, Dauvergne and Shipton's study of transnational advocacy suggests that South–South NGOs are more effective than North–South NGOs in building solidarity and confronting exploitative practices. Here is Leio's analysis:

After speaking with Mr. Menya, it was clear that RUCODE could be replicated in the East African region beyond Uganda, including countries such as Ethiopia and Somalia. This is a region where women need support – financially and socially – and with this demand, there is a great possibility to take on the challenge through RUCODE's efforts. Additionally, the culture across East Africa is relatively similar, allowing an easy integration of methods such as agro-market development for small farm holders. With very similar socio-economic challenges spread across the East African region, expanding RUCODE into this region is an achievable goal. However, this would require even more funding from external institutions, as well as a long-term partnership with an organization that has the tools to measure RUCODE's impact on carbon emission reductions.

Mr. Menya also mentioned that RUCODE's strategy could be replicated in India. This effort would also require a significant amount of funding and guidance, but there are parallels in the climate change vision in both Uganda and India,[41] *as well as the need for financial support for women in local villages. With the large gap in socio-economic status between its citizens, India has some regions struck by poverty.*[42] *Climate change poses a particularly larger threat to these regions, and is especially dangerous for women, who are more likely to have less access to resources. There is also a heavy reliance on agricultural output to provide household income, similar to Uganda, and these factors create a gap that can be filled by RUCODE's initiatives. There is already some evidence of this in India; social enterprises and NGOs are being created that utilize almost identical methods to take on climate change while simultaneously empowering local women. Another factor that should be taken into consideration is the impact of European colonialism on both Uganda and India that has shaped these regions in different ways. While there are overlaps in the culture of both regions because of the European foundation, these regions have formed their own unique cultures which must be taken into consideration when implementing organization outside of the original location. From a general perspective, the presence of a patriarchal system and society, which creates marginalization of women in many aspects, is a problem that is found in both regions, and can be resisted in corresponding ways. Thus, it appears to be likely that RUCODE will be able to expand into this region and improve the lives of local villagers, including men, women, and children.*

Leio's oral history interview supports Dauvergne and Shipton's thesis that Global North NGOs must adjust their roles to function as "outward facing advocacy networks" rather than presenting as paternalistic authorities. Furthermore, it provides a present-day example of the ethical framework that Bottigheimer discusses in her work on medieval fairy tales – that women's narratives *do* change over time, and that there *is* a correlation between women's loss of reproductive rights and their exclusion from the moneyed economy, which restricts their chances of pursuing an independent livelihood. Finally, as a student embarking on a career in labor law, it is significant that Leio's oral history interview on women's social and environmental vulnerabilities brings fresh perspectives that I have no doubt she will fully develop in the future.

10. AEEFG/Tunisia

The last oral history interview, conducted by YASMEEN WATAD, an undergraduate at Stony Brook University, focuses on an initiative that began in Tunisia in 2011 after the Tunisian Revolution in which environmental science expert, **Semia Gharbi**, established the Association for Environmental Education for Future Generations (AEEFG) as a regional hub for the International Pollutants Elimination Network (IPEN). In the fall of 2021, Yasmeen became particularly interested in Semia's work because of her family roots in the Arab world. Originally interested in irrigation projects in Gaza, Yasmeen's extensive research, with the help of a seasoned reference librarian, didn't turn up any climate change projects that dealt with women's empowerment.[43] It turned out that coming up empty handed was indicative of the state of the field. In fact, the Middle East and North African (MENA) region had been underrepresented in the UNFCCC.

Several months after Yasmeen conducted her research, in June 2022, I was asked to be a keynote speaker at a conference co-sponsored by Oxfam International and Kvinna till Kvinna [Woman to Woman] (a Swedish foundation that promotes women's rights in more than 20 war- and conflict-affected countries in the Middle East, Africa, Europe, and the South Caucasus) titled "The Common Agenda: Understanding the link between Gender Equality and Climate Justice." In preparing my speech, I recognized that MENA programs were just beginning to emerge on the international stage: I had been asked to present a definition of climate justice, which I explained it as including four components: (1) an equitable sharing of burdens and benefits, (2) dismantling systems and practices, (3) respecting intergenerational equity, and (4) including underrepresented groups. I also quoted the internationally recognized Bangladeshi environmental scientist and researcher at Syracuse University, Dr. Farhana Sultana: "Climate justice fundamentally is about paying attention to how climate change impacts people differently, unevenly, and disproportionately, as well as redressing the resultant injustices in fair and equitable ways."[44]

In her sophomore year at Stony Brook University, Yasmeen was studying Catharine MacKinnon's work on radical feminism and how laws and policies that enable men, and thus govern women, could be rewritten.[45] She concluded that the only way to liberate women was to acknowledge their role in reproduction and grant them compensation and accommodation in the workplace.[46] As she moved toward declaring a major in political science and considering law school, Yasmeen signed up to take courses on "Gender issues and the Law," "Women, Islam and Political Change," and "Racism and Ethnic Relations." Her *Zoom* interview with Semia Gharbi was part of an independent study research project in the fall of 2021 in which she hoped to assess the potential of gender and climate change initiatives to change the lives of women in Tunisia and, more broadly, the Global South.

Yasmeen's oral history of Semia offered candid reflections on women's empowerment that one would not otherwise find in scholarly research studies

or official reports from international organizations. Semia focused on figuring out the best way to educate women and youth in Tunisia and complement the United Nations' "sustainable development goals." To influence policy makers, she worked with the help of the Tunisian Ministry of Education to restructure curriculum – from grade schools through universities – in the life sciences, environmental studies, and geology to show the value of eliminating lead in paint, amalgam in dentistry, pesticides, and hazardous chemicals in makeup products. In addition, Yasmeen found that, in 2018, Semia began working with the Women Environmental Programme (WEP) that is supported by the European Union through the Women2030 project. She reflected on why climate change programs are fragmented and do not provide long-term solutions to those who need the most help. Below is Yasmeen's analysis:

Semia Gharbi, originally from Tunis, Tunisia, is an environmental science expert and educator. She has a strong multidisciplinary background in education and the environment: she has received a bachelor's degree in life sciences and geology, as well as a master's degree in environmental science from Faculty of Sciences in Tunis in 1996. Her interest stemmed from 1993, when her university launched its first environment program, and she found it different from other programs in terms of the deep analysis and knowledge set needed. As a result, she started an environmental internship position, which began her career. Focusing as an educator, a long-standing goal Semia has is to implement education for the youth and future generations. In an interview with her, she stressed that education is a key platform to change the minds and attitudes to change behaviors of citizens. Formal education is a key vector to change students' vision toward environmental issues.

She is the president and founder of the AEEFG, established in 2011 after the Tunisian Revolution. The AEEFG is IPEN's Regional Hub for the MENA region. IPEN is a global network of NGOs and public interest organizations. The AEEFG aims to use the teachings of life science, environment, and geology to raise students' awareness of sustainable development goals. The AEEFG's main impact is on the elaboration of projects and to influence decision makers. The most prominent projects include working on eliminating lead in paint, amalgam in dentistry, pesticides, and hazardous chemicals in makeup products.

Semia is a teacher-consultant and has personally spurred several projects working toward a better, environmentally healthy life for women and youth. Prior to the AEEFG's founding, she taught geology and was called for consulting positions. The AEEFG is partnered with the Ministry of Education of Tunisia, which lets them work in schools with college students to spread awareness on hazardous chemicals through university programs [and] changing school curriculums.

Firsthand, she explains that she links her work to gender issues by focusing on initiatives to bring a toxic free future for women. Her worldview maintains that women and men complement each other in all aspects of life. They exist in different frameworks and have their own roles in the workplace. Executing a gender-just approach to solving environmental problems, Semia worked with the WEP as part of the Women 2030 project[47] *to train 40 women in Tunisia on gender for 2.5 years since 2018. By changing the approach to environmental problems, good practices can be instilled in communities.*

These initiatives are supposed to contribute to a greater understanding of the global environment, but it could be argued that these instances show us just how vast and difficult to grasp the global environment is. While Semia does some work on an international scale, the majority of her efforts are centered toward national change. Her initiatives show the tiny aspects of change that contribute to the well-being of the planet.

Semia says repeatedly that climate change is transverse and stretches across many integrated sectors. In her experience, she has seen the issue of climate change approached as a fragmented piece, rather than integrated. She insists that education is the focal point of it all: learning from people on the ground and their stories, so in turn the "experts" learn more about them. Sending out grants and donations to communities struggling from the effects of the environmental crisis isn't an effective method to send a message and teach them. When you show people that the problem is related and detrimental to their human health and economic/financial situations, better practices become instilled. What can be taken away from this is that the global environment is an interconnected topic that places a bigger burden on women of color in the Global South (Fig. 23).

In Yasmeen's oral history analysis, the transnational advocacy network that Semia is involved in links Tunisia to climate change programs in which women play a substantial role but do not focus on empowering women. Instead, Semia aims to involve young Tunisians to promote basic changes and raise awareness about, for example, the detrimental effects of lead-based paint through the Ministry of Health. (The literacy rate in those from 15 to 24 years old is 97%.) However, with a failing economy under Tunisia's autocratic president, Kais Saied, chaos likely will ensue. Ironically, in the not-too-distant past, analysts at the Carnegie Endowment for International Peace asserted that the United States could learn from Tunisia, which instituted electoral gender quotas into law and, in 2017, passed landmark legislation to prohibit violence against women.[48] (In 2014, Tunisia passed gender parity laws in which women were guaranteed equal rights

Fig. 23. Photograph of Semia Gharbi (*AEEFG*). Copyright © 2020 Courtesy of the AEEFG.

under the Constitution.) However, Saied's appointment of Tunisia's and the Arab world's first female prime minister, Najla Bouden Romdhane, was intended to legitimize Saied's repressive rule. One wonders how deep this ruse goes: In 2022, three Tunisian ecofeminists had established three different organizations to introduce innovative ways to support women and promote environmentalism – *BlueTN* (Mayssa Sandli), *She is the Goal* (Soumaya Razgallah), and *Chai Kbir* (Mayssem Marzouki).[49] Though these women's organizations are promoted through *UN Women Arab States*, their initiatives do not extend to other countries and regions of the world. Given the country's political instability, it is not surprising that Semia continues to focus on educating young Tunisians.

Chapter Five

Environmental Social Justice in Rural Indian Communities

The previous four chapters examined women's empowerment and climate change programs from the perspectives of social entrepreneurs who worked with rural communities in the Global South. Now it's time to hear from farmers themselves in those rural communities. This chapter first presents a literature review of several oral history projects that feature traditions practiced by women and elder members of rural indigenous communities. Then, it profiles an oral history project emanating from the work of two social entrepreneurs, Trupti Jain and Biplab Paul, who introduced a new women-owned and operated irrigation technology, *Bhungroo*, to help farmers in Gujarat, India, adapt to extreme weather-related events.

Literature Review on Traditional Practices in Women's Oral Histories

In 2016, a cross-disciplinary team of six researchers in the South Pacific in the fields of linguistics, applied sciences, arts, and cultural studies published their research in *Ecology and Society* on oral history interviews they conducted with male and female elders in approximately 30 rural villages throughout Fiji.[1] Though the exact numbers of interviewees were not reported, the authors – S. Z. Janif, P. D. Nunn, P. Geraghty, W. Aalbersberg, F. R. Thomas, and M. Camailakeba – mentioned that the largest cohort (42%) was in the 70–79 age range and that most of the interviewees (58%) were men. They included quotes from the interviews to illustrate how elders observed changes in the environment. Here is one such example:

Empowering Female Climate Change Activists in the Global South: The Path Toward Environmental Social Justice, 105–121

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> My grandmother always said that if someone goes out fishing and catches a fish called Na Ki [Upeneus vittatus, the bandedtail goatfish] and brings it to the village without noticing, there will be a large wave (tsunami) coming soon afterwards. (Female, 69 years, Viti Levu Island)

Quotes like this reflect the elders' observations about perceived linkages between social events and changes in weather patterns the significance of which has not been fully integrated or considered in today's climate change adaptation programs. They may be tracking fish migration or associations with tidal events that, of course, are valid observations. Zanif and her colleagues discuss the fact that conventional approaches to climate change do not incorporate the elders' experiential wisdom and fail to recognize the validity of alternatives to western scientific methods.[2]

The dual purpose of their research study in Fiji was to honor the elders and provide examples of how traditional wisdom could help track and record extreme weather events such as cyclones, tsunamis, intense winds, and droughts. They included the elders' practical advice about how they had harvested crops and determined which "cyclone foods" would fare best in the event of a major threat. One elder reflected on how he knew when an extreme weather event was coming by local observations of nature, including how the central leaves of the native plant, *vudi*, unfurled rather than curling down; when hornets started building their nests closer to the ground than usual; and when breadfruit and mandarin trees began to fruit excessively. From these and other examples, Zanif and her colleagues demonstrate that elders knew how to adapt to severe weather events by relocating and migrating to safer areas. They also point out that their practical advice (what is referred to as TEK – 'traditional ecological knowledge') often has been viewed as primitive and even embarrassing to local government authorities who seek financial aid from the Global North. In the present day, however, TEK has become more visible and has elicited much support among feminist and climate change activists who seek to defend and promote the contributions of indigenous people.

The role of memory and identity in climate change narratives also was evident in a 2017 essay in *Research in Drama Education: The Journal of Applied Theatre and Performance*, in which the scholar/playwright W. J. Wang from Taiwan analyzed a play she herself wrote and directed, titled "If We Still Have Tomorrow." [3] This play and subsequent community theater production integrated traditional Asian water rituals, myths, and legends into a story about how the increasing number of natural disasters created conflict between economic development and local environmental protection. It features three water Goddesses who help indigenous people rebel against Asian men from Taiwan, the Philippines, and Japan who were investing in a tourist hotel and cultural park being constructed on a sacred site. One theme was that mere mortals are unable to protect the environment, as evidenced by the government's inept response to the devastation caused by Typhoon Morakot in 2009 – a landslide (and subsequent flood) that destroyed the entire town of Siaolin in Southern Taiwan.

Wang's goal was to highlight the constant exploitation of the forest and mountains: Her article/play includes the premise that a huge water tunnel construction project would destroy the local water and land ecosystems. By weaving traditional dances and local stories into "If We Still Have Tomorrow," Wang celebrates women as instigators of resistance to harmful development projects. Their vibrant and tenacious voices champion indigenous knowledge and help raise public awareness of environmental traumas. Perhaps this artistic format could be employed in other regions in the Global South to highlight women's connections to the natural world they seek to protect.[4]

In 2019, the *Jàmbá Journal of Disaster Risk Studies* published an article by a researcher/scholar, T. M. Mashizha, who interviewed farmers in 40 households (including 23 women and 17 men) in the Mashonaland West Province of Zimbabwe about their observations of the effects of climate change, their indigenous knowledge of the environment, and their community's response to crises.[5] He provided examples of indigenous knowledge that included farmers' observations of increased rainfall, and, prior to an extreme weather event, unusual bird behaviors and unseasonal flowering patterns of specific native/local trees. Like Zanif and her colleagues in Fiji, Mashizha notes that the private sector and international non-governmental organizations (NGOs) entered these regions with little interest in understanding the farmers' observations or the tradition of *Zunde Ramambo* (the communal gathering and storing of food in anticipation of shortages), which had been passed down for generations and proved useful for farmers in adapting to environmental crises.

Mashizha recommends that external organizations learn from the communities as they seek to introduce educational climate change programs – in particular, to complement the way agriculturalists have developed adaptation strategies through *Zunde Ramambo*'s social safety net for community cohesion and survival. He briefly mentions women as disadvantaged because they are not involved in family decision making and recommends that they become engaged in new planning projects. I wonder, though, if it would be possible for women to be accepted by the dominant males in the community in that new role, because their roles in the household already give them unofficial and typically unrecognized positions of power. That question suggests the importance of empowering women in adapting to climate changes that are of a greater magnitude than anything previously experienced for a very long time.

A 2019 study by C. Hatfield and S. K. Hong in the *Journal of Marine and Island Cultures*, titled "Mermaids of South Korea: Haenyeo (Women Divers) Traditional Ecological Knowledge, and Climate Change Impacts" provides an interesting perspective on female free divers as "ecological knowledge bearers."[6] For generations, Haenyeo have monitored changing ecosystems off the coast of South Korea in the Jeju strait and are known to be "natural stewards of seascapes and landscapes" because they have a "reciprocal relationship with their environments" that integrate economic and ecological welfare into Korean culture (including stories about indigenous groups, their traditional foods, and their adaptive capacities). The researchers note that because of their highly developed environmental acuity, Haenyeo noticed a steady decline in ocean resources. Individual interviews

with seven divers and three focus groups (including 25 additional divers) revealed that Haenyeo have increased their efforts to sustain the seascapes and connect their activities to Korean cultural traditions through music and storytelling.[7] This is like Wang's dramatic performances in Taiwan in terms of using music and art to raise the public's awareness.

Haenyeo gained Traditional Ecological Knowledge through aquatic phenology – in this case, noticing relationships between tides and weather patterns and rapid environmental changes through currents and warming trends. Like Zanif and her colleagues' studies in the South Pacific, Hatfield and Hong lament that, because the female divers don't use western scientific methods, their work is often undervalued. To date, local communities primarily acknowledge and support their work, but regional climate change programs do not.

In 2020, *Ecology and Society* published a research article that used oral history as the main method for gathering information about smallholder organic farmers in Southern Brazil who cultivate and harvest *yerba mate*, a traditional caffeinated beverage using local plants that is popular throughout Latin America. In forest conservation, small family farms are concerned with maintaining forest cover: yerba mate is grown on these farms and integrated with a variety of food crops, including fruits, corn, beans, rice, and vegetables where forest cover is crucial. To learn about traditional agroecological practices, E. R. Nimmo formed a multidisciplinary team (including forest engineers, historians, and rural outreach workers) to conduct 33 interviews with men and women farmers. Their article, "Oral History and Traditional Ecological Knowledge in Social Innovation and Smallholder Sovereignty: A Case study of Erva-mate in Southern Brazil," discussed the high levels of insecurity farmers face in maintaining traditional and agroecological practices.[8] The oral history interviews included questions about environmental memory and traditional knowledge; labor practices and technologies; and food security, climate, and cultural change. In the following passage, Nimmo and her colleagues distill ways food security, social justice, and gender equity are connected:

> Food systems can be vehicles to care for the environment and foster greater social justice through the transformation of production, distribution, and consumption of technologies and practices (Blay-Palmer et al., 2016). They can contribute to the diversification and strengthening of local economies through new trade patterns and can promote the dignity, empowerment, and well-being of the community by creating opportunities for transformational learning, relationship building, and collective action (Blay-Palmer et al., 2013). Also noteworthy are the ways in which food systems can serve as a catalyst to transform the relationship between humans and natural resources, re-evaluating traditional knowledge and challenging gender inequalities.

This study introduces the possibility that new technologies can complement traditional practices to facilitate social change. It is significant that gender roles

could become balanced by introducing new ways for men and women to work together. The oral history interviews conducted by Nimmo and her colleagues reveal a particular roadblock – that government regulations and laws support large farming operations that control prices and disadvantage small farmers who have cultivated *yerba mate* for generations. This is a familiar phenomenon, in the United States, too, in that federal farm policy and subsidies go overwhelmingly to agribusiness rather than smallholder and medium farmers. Nimmo and her colleagues' finding coincides with studies, cited above, in Fiji, Zimbabwe, and Taiwan.

The Brazilian team also emphasized that small-scale farmers were stewards of an environment who harbor a deep understanding of a forest, which provides the environmental services and products that are necessary for the country to thrive. Possessing this deep understanding, they confront changing climates, food insecurity, and a range of other issues. The study team lamented that the farmers have been unable to sustain a livelihood under these conditions, which continues to threaten the forest's ecosystem. This is a living nightmare of broken souls and increasingly desperate families.

A final research initiative to be reviewed here is titled "Our Grandmother Used to Sing Whilst Weeding: Oral histories, millet food culture, and farming rituals among women smallholders in Ramanagara district, Karnataka."[9] It was published in *Modern Asian Studies* in 2021 by Sandip Hazareesingh, a professor at The Open University in the United Kingdom. Prior to a career in academia, Hazareesingh worked for a decade for the *Save the Children Fund*. In this article, he describes how audiovisual oral history interviews with 17 rural women in their 70s and 80s helped him learn about the ways drastic changes in rainfall and drought patterns over a few decades affected women who were losing confidence in their ability to predict weather patterns. He discussed the startling fact that women struggle to survive because 70% of the trees, vegetation, and water bodies in their communities have disappeared.

Hazareesingh included an account by women who stopped growing rice for their families because of increasing attacks by elephants and wild boars. These women had been taught by their elders to predict the coming of rain based on the behavior of frogs and ants; and Hazareesingh compared that knowledge to the negative consequences of the Green Revolution in the 1960s in which the government replaced traditional practices with modern technology and manufactured seeds: "the Green Revolution model of food security implied an erasure of memory and history." As a result of the neglect of local knowledge, women became depressed and unmotivated.

Hazareesingh recommends that international development agencies and NGOs "take seriously, recognize, and value the source of [the] knowledge … which views humans, plants, seeds, and other non-human entities as interconnected and interdependent," which is a common research theme throughout the Global South. A change like this would empower local women to use their knowledge to ensure the survival of their communities, and stage an effort to dismantle patriarchal norms. This could involve making modern scientific knowledge and traditional folk knowledge complementary rather than antagonistic.[10]

Furthermore, it is certainly possible that younger women in rural communities can be sufficiently educated in citizen science so as to be able to function within their communities as agents of change, perhaps as a coalition of grandmothers and granddaughters.

Exercise: Bridging Experiences Across Communities

Before moving to the second part of this chapter, which delves into an oral history project in Gujarat, India, let us reflect upon the situations that many women in the Global South face and how their lives have changed because of climate change. Imagine yourself as one such woman who has lost her land, family members, and/or home because of a flood or drought. In order to bridge knowledge and experiences, as an informal exercise, consider the following questions and rate your response on a scale of "1" as "bad" and "5" as "great." How would you rate the following questions beginning with: *How would I feel when …?*

1. I could no longer trust nature or weather patterns? ___
2. I and the women among me are not respected for the homes we all made and the traditions we honor? ___
3. Those outside of my community want to intervene, to "help" me? ___
4. All my knowledge (and experience) is summarily disregarded? ___
5. I am told that, because I am illiterate, I cannot possibly understand the world around me? ___
6. Animals started stealing from my garden and I couldn't feed my family? ___
7. I and those among me are no longer motivated to work? ___
8. My community has fallen apart (i.e., we are no longer interconnected)? ___
9. My memories of the past – of what life was like – are gone (erased)? ___
10. The stories I grew up with (and those I told my children) no longer bring joy? __

Most likely, the sum of your points from your answers to the above questions is quite low – because they all depict sad situations. Here is a second set of questions. Again, consider how you would answer these questions as a woman who has experienced climate-related disasters and using the same scale of one to five ("1" as "bad" and "5" as "great,") again, with this beginning … *How would I feel when …?*

1. The voices of my community are preserved and elevated? ___
2. My voice (and the voices of those around me) are so loud that riots erupt? ___
3. I speak out against laws that restrict my chances of making a living? ___
4. I and the women around me reject social (patriarchal) norms? ___
5. Everyone in my community works together? ___
6. I become known as a person with great tenacity? ___

7. I become known as a person who is acutely aware of nature and my surroundings? ___
8. The women among me worship nature and their ancestors? ___
9. I am included in village plans to grow and harvest better crops? ___
10. I recognize that no one around me understands the forest the way I do? ___

These scenarios (from the review of field studies in this chapter) highlight some of the complexities of female empowerment and the difficulties women may have in challenging the status quo. On a personal level, consider the last time you raised your voice to speak out against an injustice. Was it a positive experience? Why or why not? I am sure that your multiple, different stories will illustrate this point. I would be honored to receive your answers. Please use this QR Code to send me your story.

Oral Histories in Gujarat, India

In February of 2019, a colleague, Jamie Sommer, and I traveled from New York to Gujarat, India, to learn about the farmers' experiences with climate change and their interest in using a women-owned and operated irrigation technology, *Bhungroo* ("straw" in Hindi). Interpreters who spoke Gujarati helped us interview, record, and transcribe the oral histories of 48 farmers (27 females and 21 males) from three Gujarat villages located about 65 miles north of Ahmedabad.[11]

As husband-and-wife social entrepreneurs with engineering backgrounds, Trupti Jain and Biplab Paul created *Bhungroo* in the early 2000s specifically to uplift women farmers from impoverished families – women whom they had recognized were severely disadvantaged in India's patriarchal society.[12] Their plan was to give women legal ownership of the technology to enable them to feel proud of what they could accomplish by managing *Bhungroo* on their farms. Ownership fees were assessed on a sliding scale depending on how much the families could afford. Below are two photos of what an installed irrigation system looks like (Fig. 24).

During the monsoon season, *Bhungroo* injects run-off rainwater into an underground reservoir. This prevents salt deposits on topsoil, which is caused by standing water after heavy rainfall. During the dry season, the underground reservoir enables communities to continue farming for several months.

Fig. 24. Photos of *Bhungroo* Water Storage Opening (Left) and Water Pump (Right). Copyright © 2019 Courtesy of Peggy Ann Spitzer.

In my experience in working with climate change activists in the Global South, gender equity projects take at least two years to implement. For example, in Biplab's interactions with technicians in the field who were helping him collect soil samples and install the irrigation equipment, he noticed young adolescent boys who had dropped out of school idly hanging around the village. To help them feel useful, he and Trupti readjusted the *Bhungroo* program to train the boys to collect data on soil salinity and help install the irrigation equipment. At the same time, Trupti worked on a corollary project to address the rise in domestic violence against rural women, which also had increased as male farmers had become frustrated with not finding gainful employment. Traveling from their home base in the city of Ahmedabad and observing climate change challenges throughout India and in the neighboring countries of Pakistan, Bangladesh, and Afghanistan, the couple began to see that modest gains toward female empowerment included creating opportunities to engage the whole community.

At the beginning, they also learned that some farmers were unsuccessful in using *Bhungroo*.[13] For example, **Shashikalaben** described how her family had paid 10,000 *rupees* (approximately $125) for the technology but couldn't get it to work. She said, "To install it, we had to make a hole in the ground ourselves, which was very hard." And, after installing it, she said, "I didn't notice that many benefits: It cost more to install it than the money it brings in." Also, during our interviews, another farmer, **Neeshbhai**, briefly mentioned that he and his brother were unsuccessful in using *Bhungroo* to grow crops of wheat, alfalfa, and cumin seeds.

Other farmers hesitated to invest in *Bhungroo* because of the debts they had already accrued. For example, **Vrishtiben** knew that her family had to do something different because rainfall was consistently decreasing, and they couldn't farm their land; but they already had substantial government loans to pay off

and were afraid to try *Bhungroo*. She talked about how it took a full two and a half years of working with *Bhungroo* before they saw any benefits. She told us that it cost 20,000 *rupees* (approximately $250) to install; but eventually they got it to work: "We used to have to walk three kilometers to get water, but now we don't have to leave the farm." In another case, **Praveenbhai**, a 38-year-old farmer who supports 12 family members, had substantially more land holdings than many of his neighbors. He easily earned a sizeable annual income of 1.5 lakhs (150,000 rupees or $2,000). But when he first heard about *Bhungroo* from other farmers, he was skeptical: "We were scared that the water would remain sour and that the land might not adapt to *Bhungroo*." (Perhaps he was wondering if the ph of water stored in *Bhungroo* would change or if there would be nitrogen buildup from fertilizers.) Fortunately, he got positive results and was able to expand his landholdings to other fields in neighboring villages.

It would be worthwhile to conduct another study to compare why *Bhungroo* worked for some and not for others. (I believe this already has been done but Jamie and I did not collect that data.) Biplab mentioned that before installing the irrigation technology, he tests soil and water quality. Another factor is related to social behavior and decisions. One ideal success story, in terms of achieving Biplab and Trupti's vision of helping women, was from **Samtaben**. She talked about how she learned to use *Bhungroo* out of necessity: a neighbor with whom she shared a water well moved away and she no longer had access to water. *Bhungroo* worked so well that she even had to install a larger unit. And **Ravinandanbhai** talked about how *Bhungroo* enabled him to work on his farm rather than for other farmers: "I don't have to do manual work. I saved a lot of money, paid off a tractor loan, and have a much better life."[14]

Trupti and Biplab also learned how most smallholder farmers continued to suffer. For example, three women from the village of Aritha described losing their homes to recent floods: In her mid-20s, **Kevnaben** talked about how her family's mud hut was destroyed and how her husband had to barter with neighbors to grow food for them and their two young sons; **Inikaben**, also a young mother with two daughters, described how, after the floods, she and her husband had to work as contract laborers six days a week and borrow money from relatives to rebuild their home; and **Kaviaben**, in her mid-50s, described how difficult it was for her family to shelter in a nearby high school after their house washed away. Three other farmers told stories about how the floods had decimated their crops. The floods washed away all the nutrients in **Neeljaben**'s fields; **Prakatbhai** recalled how his entire property was destroyed; and **Pranabhai**, who once had plentiful crops of cotton, wheat, and cumin, also lost everything. Such stories could be multiplied by the tens or hundreds of thousands to represent the drastic effects of climate change-related disasters.

Biplab and Trupti realized that the farmers' lives would never be the same because of climate change. Six farmers talked about how they dealt with long periods of drought, which occurred after the floods receded. **Havyaben** described the seasonal cyclical challenges of climate change: "If there is water, we work on other people's farms. Everyone is struggling. Some men find work by migrating to the city six months out of the year." Of the floods, she says:

> All the crops were destroyed in the fields. There was no money in the house, and everyone was sad. Then, in the winter, we got water from the canals. But it's getting worse as the days go by. Water is getting less and less.

Visiting the farmers in the center of the village after the farmers returned home from a long day of manual labor, Trupti and Biplab heard men and women worry about how they would survive. For example, **Odotiben** mentioned that because her family didn't have enough water for their small plots of land, they all had no choice but to become contract laborers on large-scale farms. **Nippubhai** recalled how he had migrated from one village to another with his three daughters and an infant son to find work. And **Praviben** expressed feelings that she and many of her neighbors shared: "Everything is a problem," she exclaimed. "We don't have money, or water, or a job. We can't grow anything on the farm without water. If there is rain, we try to plant crops."

Those who couldn't work in the fields found other types of menial labor. For example, **Pratulbhai** and his wife began to upsell vegetables grown by other farmers in the village. Although he had livestock, including twenty goats and two buffaloes, and owned a small piece of land, he was unable to grow crops due to the lack of water. His daughter stayed at home to tend the animals and take care of her brothers when they returned home from school. In despair, **Preritbhai** said: "When there is no water, I can't do anything on my farm." To make a living, he sells toys in Ahmedabad at fairs (which is the closest major city, about three hours away by car).

Trupti and Biplab learned that many of the farmers were particularly disheartened by the realization they would never be able to own land. **Pravanbhai** and Preritbhai abandoned that dream and turned to manual labor as their sole source of income. When **Jigishubhai** accepted that he would never own land again, he made arrangements to work on several different farms in nearby villages. While one of his sons attends college, his two younger children (a son and a daughter who graduated from high school) traveled with him. In other words, Jigishubhai prioritized keeping his family together while ensuring that one of his children would be able to go to college and that his wife could stay home with the elders.

Many of the farmers' stories did not mention the importance of women's contributions. For example, **Pramukhbhai** talked about how he used *Bhungroo* to plant cotton, castor, cumin, and grass for the cattle; but never mentioned that his wife was the one who owned and operated the irrigation system. In fact, none of the male farmers Jamie and I interviewed mentioned their wives' contributions. There's no way to know whether this was from shame or that they simply took for granted women's work as their patriarchal due.

Despite these omissions, Trupti and Biplab were successful in uplifting the status of some of the women farmers. For example, one of the *Bhungroo* women, **Viraliben**, was excited about her new responsibilities. She stated: "I feel more empowered after installing *Bhungroo*. My husband even gifted me gold." While her comment doesn't seem like "women's empowerment," she obviously was proud that she could make an important contribution to the family. **Romilben**'s story is a little more powerful. She talked about how she decides how to use the

money she earns from *Bhungroo*, which in the future may include getting electricity. She said:

> For now, we get enough water for bathing – our bucket is full. We don't need bathrooms and we have enough money. Before I used to walk miles to get water; but now I have more time to do my work and help others.

Clearly, she was satisfied with incremental improvements to her family's lifestyle; and excited that she had the resources to help others in the village. She even plans to start her own small business to knit and sell clothes.

While Viraliben and Romilben can work at home, women who do not have *Bhungroo* cannot. Preritbhai talked about how his wife must leave the house every day to pick lemons and fruits for neighboring farmers to make money for the family. Another woman, **Vritikaben**, grows a modest amount of wheat on her land and works on a neighbor's farm 15 days a month. She recalled how, before the floods and droughts, her family was self-sufficient, and she didn't need to leave her home.

One particularly perceptive aspect of Trupti and Biplab's social enterprise was that it acknowledged women's preferences to stay at home. In rural Indian culture, Biplab told us that it is considered taboo for women to be seen by men, which often precludes them from going to school. **Iditriben**, a 26-year-old mother (who, along with many women, were illiterate and could not even write her name), told us that neither she nor her 12-year-old daughter were allowed to attend school beyond the sixth grade. She said,

> Because of love affairs as they grow up, we're scared. We sent our daughter to school in the village, which was up to the sixth grade. After that, grandfather said no to leaving the village to study.

In another case, Pratulbhai's daughter dropped out of school to take care of the household while her parents were away at work. This lack of schooling and fear of leaving the house can be disastrous, especially during massive floods. For example, this was the reason for a higher mortality rate among rural women during the 1992 flood in Bangladesh.[15]

When Jamie and I recorded the oral histories in 2019 in Gujarat, women insisted on covering their faces whenever men were present. (In fact, Biplab had to send the male farmers away so that we could interview the women.) Also, a somewhat appalling (for us) "sign of respect" was that women insisted on sitting below us on the floor. In noticing our reaction, our interpreters encouraged them to sit at eye level, which was a revealing detail of social hierarchy (Fig. 25).

Trupti and Biplab also recognized that, because family farms were destroyed during severe weather-related events, many more women had to leave home with their husbands to work as manual laborers. As a result, some families were unable to send their children to school. For example, **Henishbhai** and his wife work long hours on someone else's farm and leave their children at home. However, after the floods, Kaviaben, a middle-aged woman with six grown children, talked about how her entire family lives a hand-to-mouth existence as day laborers, hoping

Fig. 25. Photo of Jamie and the Field Interpreters. Copyright © 2019 Courtesy of Peggy Ann Spitzer.

for two or three days of work a week. None of her children went to school. In another case, Pratulbhai sent his two sons to school and let his daughter stay home. In one case, a middle-aged farmer, Pranabhai, sent both of his daughters to college.[16] Unfortunately, when they returned home after graduation and got married, Pranabhai realized that this had not helped the family prosper.

Finally, elders in the family often are unable to fulfill their traditional roles as decision makers on account of climate change-induced disasters that overwhelmed their capacity to perform their customary duties as elders. For example, **Jignaanben** talked about how, even though her in-laws were alive, they had become so traumatized by the water crisis that she and her husband reluctantly took over managing the family's finances as well as their children's education. In another case, Havyaben talked about how her family now collectively decides who will leave the house to find work. With six people in her household – including two sons and their wives – this arrangement, while not honoring the elders, seems necessary for survival.

One important question is whether, as families adapt to climate change by using *Bhungroo*, the patriarchal system would re-emerge even stronger, thereby undermining the goal of empowering women. As the "elder" in his family, **Prinitbhai**, 51, now has enough money to provide for his 10-person extended family, including four grandchildren who attend pre-kindergarten. Before *Bhungroo,* he

said, "We didn't have anything. Now, I have a tractor and two vehicles (bikes), and some gold and money saved." He plants four crops in three different seasons and has ample access to clean drinking water for his family and their cattle. He is obviously proud to have regained control of the family finances and manage the farm. Unstated, however, is that he has somehow altered the ownership of *Bhungroo* which was supposed to be in the possession of women in the family.

In another case, Nippubhai became so successful thanks to *Bhungroo* that his father was elected to be the head of the village. Participating in local government generally is not a role that women assume. In fact, Trupti learned early in her career that when the Indian government tried to enforce a law requiring local Panchayat governing bodies to allocate a certain number of seats for women, men occupied them instead.

Farmers obviously experienced a collective trauma during and after severe droughts and floods when the Indian national and state governments didn't help them. The only "relief" they received was in the form of interest-bearing loans from the government and private money lenders. Both of Pranabhai's loans – half from the government and half from private moneylenders –accrued annual interest rates of 36%! Kaviaben's family also borrowed money from a private moneylender who charged 36% annual interest. In another case, even though Praviben's family took out loans, they realized that they still couldn't repay their debts just by farming and resorted to manual labor about 10–20 days a month. A final example was **Jigarbhai** who depleted his entire life savings to pay off the government loan of 1.5 lakhs ($2,000) he took out to pay for the *Bhungroo* irrigation system. Now he sits at the vegetable market to sell what he sows for nine months, and farms only for three months a year.

Instead of accruing debt, **Narshimhabhai** and other farmers pooled their resources when the floods came. This also led them to decide not to use *Bhungroo*. Narshimhabhai said:

> There was too much water. But it was good for us because we have 25 bhigas (roughly 16 acres) of land that were watered, and we worked together to plant on it after the flood.

On the other hand, **Vishvabhai** expressed frustration in dealing with criminal behavior during the floods: "The government didn't help us at all. Because of that, people started robbing each other." He spoke about the unfortunate conditions of those who didn't have enough food or water and, in desperation, "raided the houses of those who did have money." Finally, there were those who maintained their distance from others but still wanted to help: Once **Swaraben**'s family recovered financially using *Bhungroo*, she said: "We donate money to the temple and pray for our family's wealth and happiness." As **Yakshitbhai**, whose family also used *Bhungroo*, said: "They [the villagers] know that I have money, so they all talk to me nicely and respect me." Ironically, the introduction of *Bhungroo* solidified a male-based social hierarchy within the village, which was an inadvertent subversion of *Bhungroo*'s original intent.

In developing the *Bhungroo* irrigation project Trupti and Biplab knew that many small farmers in Gujarat were poor even before the increase of weather-related disasters in the 1990s. Nine such farmers whom Jamie and I interviewed talked about the poverty trap that has persisted across generations in the absence of outside intervention. Trupti knew about this firsthand because she had worked for 20 years for the government of Gujarat, traveling around the state, and directing national programs on the economic impact of the environment. In fact, that was the context which inspired her and Biplab to create a social enterprise to offer *Bhungroo* to the poorest farmers. Even today, they are flooded with applications from across India and work with the government to expand their operations.

One reason agriculturalists sign on to the program is because they learn new skills that enable them to become more successful as farmers on their own land. They do not want "charity." For example, **Virikaben** talked about how families strive to maintain dignity: Working on "someone else's farm" 15 days a month, she says:

> I would never ask for money from anyone. During the flood, I had to sell some of my personal belongings, like jewelry, and even one small sheep. I use the money for household items, for medicine for the kids when they get sick, and for groceries, little by little.

Trupti and Biplab set up *Bhungroo* to increase the farmers' self-esteem. They strive to address the dwindling opportunities for employment and uplift women who are at the bottom of the social hierarchy. But, as just noted, that social hierarchy is resistant to change. No single technological innovation can transform it, but can provide an opportunity for community change agents, hopefully women in the first instance, to work for changes that will recognize and valorize their vital contributions to their families and communities.

With no work and huge debts incurred during the water crisis, Kaviaben recognized the poverty trap: "If we have food, we eat; otherwise, we don't eat." **Jaiminiben** also talked about her family's difficulties. She mentioned that, because they don't own property, she resorts to buying vegetables from the market and upselling them to others. She says, "There are a lot of financial difficulties. It's all we can do to earn and spend money. There is barely any savings."

Preritbhai talked about how his family barely survives by selling toys at the village fair and doing odd jobs. And Neeljaben expressed her frustration at not having a sense of stability or a path to get steady work: "Before the water problem, we migrated from one place to another to find fertile land. Now even that is gone." Her family had just begun to accept a life as migrants; but then with climate change even that option disappeared.

Odotiben reflected upon why her family had lost hope: She talked about how they just had to wait for opportunities to arise. With climate crises, they didn't have enough water to farm and everyone in her family became contract laborers. She said: "When someone who has a borewell[17] calls us, we go to work. And if

we get work, we eat; otherwise, we sit at home." She takes her two grandchildren with her to work on the farms.

The above glimpses of endemic poverty are common throughout the Global South, an endemic poverty that has worsened over time with an increase in climate-related disasters. One response to this is increasing family size, which instead of mitigating the problem has dramatically increased food insecurity. Overpopulation is one of the key problems in the Global South that development/aid projects habitually fail to address. For example, in 1947, the population of India was circa 340 million. It is now almost 1.4 billion, quadrupling in 75 years. Remember Pranabhai, who sent both of his daughters to college to receive an advanced education? He had hoped to break the poverty cycle. Before the massive floods, he was able to grow several crops and his family prospered. Now he gets one harvest of black gram lentils during the rainy season. For the remaining roughly six months, his family works on someone else's land. He says: "If we don't get work, we have to starve." His family assumed that their financial situation would improve – but then climate change happened.

Trupti and Biplab focused on making life better for these poor farm laborers. In fact, Ravinandanbhai's situation has become the norm: At 32 years old, he has worked as a manual laborer for 5–6 years. He talked about what his life was like before *Bhungroo* when he could not find work. He recalled: "We didn't have enough food. Even for the animals, we had to go to other places to get grass/plants for them to eat." Fortunately, he joined his brethren and signed up for *Bhungroo*.

Conclusion

Recent field studies have demonstrated that even though poor farmers struggle to maintain traditional and agroecological practices, the knowledge of the land held by women and the elderly has not been integrated into present day climate change programs. This chapter proposed that, to address the needs of small farmers, modern scientific knowledge and traditional folk knowledge should be considered complementary rather than antagonistic. Furthermore, if younger women in rural communities become sufficiently educated in basic science, they would be able to function within their communities as agents of social change and build coalitions between grandmothers and granddaughters.

Oral history research with farmers in Gujarat indicate that, despite *Bhungroo's* potential to uplift women farmers from impoverished families, it has not been a panacea for the problems of endemic poverty and female subordination any more than the Green Revolution from the 1960s. The oral histories from Gujarat reveal that climate change leads to unstable family structures; and thus requires intergenerational cooperation between females and males – to make incremental improvements. Furthermore, while no single technological innovation can transform the social hierarchy, it can provide opportunities for females to work for changes that recognize and valorize their vital contributions to their families and communities (See Table 1 for basic information about the farmers represented in this chapter.)

Table 1. Basic Information about Gujarati Farmers (with Pseudonyms and Their Associated Meanings).

Pseudonym	**Meaning**	**Gender**	**Literate?**	***Bhungroo*** **User?**
Havyaben	To be invoked	F	Yes	No
Henishbhai	God of weather	M	Yes	No
Iditriben	One who praises	F	No	Yes
Inikaben	Little earth	F	No	No
Jaiminiben	One who was a born victor	F	No	No
Jigarbhai	The beloved one (heart)	M	Yes	Yes
Jigishubhai	A sign of victory	M	–	–
Jignaanben	Intellectual girl who is always curious for everything and wants to discover the whole world	F	No	No
Kaviaben	Poetry in motion	F	No	No
Kevnaben	Wish	F	No	No
Narshimhabhai	A lion among men	M	Yes	Yes
Neeljaben	Bright blue color	F	No	No
Neeshbhai	The one who is quiet and calm	M	Yes	Yes
Nippubhai	Producing in abundance	M	Yes	Yes
Odotiben	Dawn	F	No	No
Prakatbhai	A manifested, demonstrated, revealed person	M	Yes	No
Pramukhbhai	One with the qualities of a chief or a leader	M	Yes	Yes
Pranabhai	He who is full of spirit	M	Yes	No
Pratulbhai	One who owns plenty	M	No	No
Pravanbhai	A modest person	M	Yes	No
Praveenbhai	A person who is an expert in something	M	Yes	Yes
Praviben	An incredible, affectionate person	F	Yes	No
Preritbhai	A person who is deeply inspired by something	M	No	No

(*Continued*)

Table 1. (*Continued*)

Pseudonym	**Meaning**	**Gender**	**Literate?**	***Bhungroo* User?**
Prinitbhai	A very pleased and gratified person	M	No	Yes
Ravinandanbhai	One who is the child of the Sun	M	No	No
Romilben	One who is renowned in the lands	F	Yes	Yes
Samtaben	Equality	F	–	–
Shashikalaben	Phases of the moon, crescent, moon's arc	F	Yes	Yes
Swaraben	Self-shining	F	No	Yes
Viraliben	One who is priceless, rare	F	No	Yes
Virikaben	A brave woman	F	No	No
Vishvabhai	Earth, universe	M	No	No
Vrishtiben	Rain	F	Yes	Yes
Vritikaben	Success in life or thought	F	No	No
Yakshitbhai	One who is made forever, permanent	M	Yes	Yes

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Chapter Six

Supporting Female Empowerment Through Visual Arts and Social Media

Where do we go from here? Now that we have learned that social entrepreneurs in the Global South recognize the monumental problems of endemic rural poverty that is made worse by climate change, is there anything we can do to help? As a college professor, I have noticed students and colleagues alike struggle to answer this question. In a climate-changed world that appears to be beyond our control, how can we contribute our time and talent (in the arts, business, computer science, education, health sciences, law, journalism, and so forth) to make a palpable difference? While having gainful employment obviously is important, it is also true that we want work and other activities that are emotionally, psychologically, and intellectually stimulating as well as worthwhile in remediating the problems that concern us.

It was heartening to hear Trupti Jain reveal that the poor and impoverished rural women she sought to help cared deeply about her success and happiness. She noted: "They enhanced my knowledge and gave me moral support when I got frustrated." I believe that the personal decisions you make to help others are celebrated by others. Have you noticed, too, that social movements, including but not limited to *Black Lives Matter* and *#MeToo*, gain strength by connecting globally diverse audiences? For these movements to be credible, they had to extend beyond the immediate environment in which they germinated, beyond the states, beyond the nations and enter the consciousness and concerns of people around the world.

This chapter, conversational in tone, suggests several ways you might reach out to others in your fields of interest using visual arts and social media – to help change the status quo about climate change and women's empowerment. I present ten initiatives from India, Indonesia, Malaysia, Saudi Arabia, South Africa, and Türkiye; and pose questions about how you might contribute to women's

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empowerment by using, for example, digital social media and networking, e-businesses, communication and technology, film production and arts and crafts. As someone who has enjoyed advising students and mentoring colleagues over the past four decades, I thought it was time to pass on some ideas. To be sure, the pandemic and several international conflicts have affected all of us emotionally, economically, socially, and politically. Even the world of work and styles of living have changed. Now we can reflect on what we have learned and, depending upon your personal disposition and skill set(s), some of the ideas I propose might further spark your imagination.

1. Digital Feminist Movements

In recent years, women in Türkiye have experienced a rise in online misogynism, political repression, and surveillance. Despite this, Gülüm Şener (an academic who has taught communication and media studies for over 15 years in various European universities) takes significant risks by interviewing social activists on digital feminism in Türkiye. Her most recent work, in 2021, has been published in the *Media@LSE Working Paper Series* by the London School of Economics. In reviewing her commitment to helping women in authoritarian societies, I wonder if you would be inclined to participate in a counterculture digital platform. It's certainly not for everyone: As Şener notes, feminists take great risks to reinforce female solidarity and raise awareness in patriarchal cultures. She interviewed anonymous "moderators" from nine feminist movements to identify the benefits and limitations of global and local digital platforms. Below are her key findings for you to consider in deciding if this type of activism is right for you.

Şener's analysis describes the ways different types of social media are used to promote feminist causes. She notes that, in Tűrkiye, there has been a dramatic increase in research on digital activism in which feminists challenge patriarchy through hashtag campaigns, disclosure of sexual harassment or abuse on social media, agenda-setting, online feminist call-out culture, video activism, digital archiving, data activism, and so on. Şener identifies blogs, newspaper and magazine sites, social media profiles on Facebook, Twitter, Instagram, and Youtube profiles as "alternative media" in which women build relationships with mainstream media and construct their own "languages" (using abbreviations and new combinations of words) for their followers. Using the hashtag format (e.g., #endgenderbasedviolence), women begin to share their sexual harassment stories with others. She notes that hashtag activism has become the most popular form of activism today, especially among teenage girls who are beginning to learn about patriarchy, male domination, and sexism. Furthermore, "digital natives," especially among urban-based university students who have not joined feminist groups (or affiliated organizations) use social networks to support women's struggles; and girls who do not identify themselves as feminists have now become part of feminist causes.

In terms of everyday decision making among those who actively participate in a movement or cause, WhatsApp groups are the most frequently used digital

communication platforms precisely because they cannot be traced to an office or a physical space. As volunteers, users often experience secondary trauma and burnout because of the intense interaction within WhatsApp groups. If you are considering joining this type of social media group, I think it is important, as Şener indicates, to set limits for yourself. You don't have to use all your "digital native" skills – website design, video shooting, editing, and so on – to help support activist groups. In fact, social media groups are not interactive enough to be sustainable over long periods of time. Şener pointed out four negative consequences of the social media platforms that you should be aware of before becoming involved:

(1) Even in neoliberal societies, individualization and privatization of politics have not led to collective resistance. In fact, feminists also use advertising and marketing strategies to manage their presence and activity on the web.
(2) Hashtag activism can be both liberating and oppressive in creating solidarity and empowering victims/survivors. It can also lead to re-victimization, reinforcement of dominant discourses including victim blaming, and placement of the responsibility on the individual rather than on structural dynamics.
(3) For groups with fewer resources (including working classes), digital technologies may be used as new tools of surveillance and domination to control and restrict women's social relationships and technology use and result in new forms of hegemonic masculinity.
(4) Digital media may lead to the normalization of sexist and homophobic hate speech and the reproduction of everyday sexism; and could cause self-censoring or writing anonymously under pseudonyms.

Şener also notes that while Twitter, Instagram, and Facebook are three main platforms that feminist activists/dissidents use to distribute their messages as alternative public spheres, these platforms may be restricted by the government (in her case, it was the ruling political party in Türkiye). In addition, since the 1990s, many groups – including socialist, Kurdish, Alevi,[1] Islamist conservative, and other feminist groups – use these platforms. Today, the once revolutionary, Facebook (now Meta) now is considered a "traditional social media" and only useful for reaching, for example, older women living in Asian Minor in Anatolia. In contrast, YouTube is popular among younger people who focus on podcasting collective reactions and hashtag campaigns to exert public pressure on legal processes and court decisions.

Among the recent successes in Türkiye were using a hashtag campaign to prevent a forced marriage and creating a public forum to monitor law enforcement activities related to an increase in violence against women. Şener acknowledges that repressive policies against women also contribute to the development of advocacy groups (in her case, *Kadın Cinayetlerini Durduracağız Platformu* – Platform to Stop the Murders of Women). She notes that, between 2008 and 2019, 3,185 women have been killed by men in Türkiye, and most of the perpetrators are former spouses or partners. That is the reason feminist digital platforms focus

on stopping femicide and violence against women; and misogynist discourses produced by Turkish politicians and mainstream media, formal education, promotion of Islam including the wearing of headscarves, abortion, political participation of women, and labor rights. Also on social media, beginning in 1996, *Uçan Süpürge* (Flying Broom) created a network of local women reporters to support "call-out" culture by women on digital platforms.

As mentioned, there are significant downsides that you should be aware of before deciding to use social media to promote feminist causes, regardless of the format. Şener notes that women's issues are complex and, as a result, difficult to discuss on social media, including LGBT rights, economic violence, gender-based discrimination in the workplace, equal pay for equal work, psychological violence, sexuality, abortion, working-class women's rights, women's strike, women's political participation, domestic labor, and feminist movements' activities. While the relatively short posts preclude complex discussion of such issues, it is possible to expand or stretch the framework to facilitate longer discussions. Within this, though, is the fact that several countries ruled by authoritarian regimes still consider feminism taboo; and feminist activists are stigmatized and criminalized by the State, the media, and other social actors. Outside of Türkiye, Şener references Hou's study on feminism in China as an example of how the State surveilles and silences feminist activists in online spaces, and how the mainstream media still endorses "feminist phobia" (Hou, 2020, p. 342).

In addition, digital platforms often are, as Şener states "one-dimensional, superficial, tabloid, post truth politics." In essence, while digital platforms create counter public spheres and raise awareness to pressure politicians, mobilize citizens, and maintain solidarity, they do not serve as fora for debating and critiquing ideas.[2] On the other hand, the digital platforms provide space for a kind of "tabloid" dissemination in simplified form of ideas debated and worked out in more traditional media venues, conferences, etc. that in most cases might be beyond the intellectual grasp, patience, and understanding of the majority of women – or of men, for that matter, were these platforms for men discussing complex issues. Young people who are, understandably, drawn to social media need places to work through their ideas experientially.

Thus, I wonder if you would be interested in interacting with others in real time to help rural women in the Global South, who may not have access to social media, become empowered and address climate change. As discussed in previous chapters in this book, you could help rural women tell their stories in the form of digital narratives. Şener presents an even more direct (and hands-on) activity, which she sees as important for seasoned feminists, to expose sexist and misogynist discourses while interacting with multiple audiences to build long-lasting domestic and international communities: Constructing a digital platform to replace official institutions to be a "hotline" for survivors of violence. In Türkiye, a 24/7 social media service helps women who have experienced violence, and directs them to experts (lawyers, psychologists, social workers, etc.).

While Şener reports that Turkish attitudes toward violence against women have changed due to digital feminist activism, she also notes that "the transformation of masculinity is very slow and occurs in small steps." Social media often

becomes a place for people to voice their anger; and feminist groups continue to struggle online (and offline) against the normalization of gender-based violence (GBV). In fact, in Gujarat, Trupti Jain also strives to combat GBV in rural communities. The research in Türkiye seems to indicate that victim blaming can be decreased as women learn different tactics from each other. If you are drawn to participate in counterculture digital platforms, you might find the above initiatives rewarding.

2. Social Action

Another related type of work/contribution for you to consider is one that would allow you to focus on one specific initiative. For example, you might be interested in the joint work of A. Khalili from Zayed University in the United Arab Emirates (who formerly worked as a journalist covering Middle East news) and L. K. Storie at Lund University in Sweden (who studied public diplomacy). Their collaboration and expertise in journalism and public diplomacy apparently allowed them to together learn more about the way local and international digital media platforms advocated for Saudi women's right to drive.[3] It certainly is instructive that Khalil and Storie examine "collective" and "connective" actions through digital media platforms, both of which empowered Saudi women to challenge the status quo. Their discussion also could relate to issues women are facing in Iran today.

Though Saudi women still struggle to gain many freedoms, I wonder if you would be inclined to help change a particular set of laws. One concrete initiative, particularly if successful, may lead you eventually to pursue a career as a human rights attorney or lobbyist. Below is a summary of Khalil's and Storie's research that outlines the basic problem that Saudi women hoped to solve, the historical context, and the ways they rebelled using social media. While this case study does not focus on rural women in the Global South, but rather on otherwise privileged women in urban Saudi Arabia, it does introduce new uses of social media to help empower rural women in, for example, India, Guatemala, Vietnam, and other parts of the Global South. (See Chapter Three and Chapter Four for women-led climate change projects in these countries.)

In Saudi Arabia, the basic problem is that conservative cultural traditions, which were backed by the country's powerful clergy, banned women from driving. Women had gained the right to attend school and work in offices, but they had to rely on men for transportation. Reacting to this subjugating inconvenience, on November 6, 1990, a group of 47 Saudi women took to the street in cars and demanded the right to drive. At the time, the authorities jailed them but, by 2011, the media scene had changed with the Arab Spring uprisings across the Middle East, which generated much international attention. While a great deal was going on with respect to this issue, in September of 2017, the Saudi government announced, and the de facto ruler, Crown Prince Mohammed Bin Salman (aka "MBS"), approved the reform to allow women to drive beginning in June of 2018.

Saudi Arabia became an urbanized wealthy oil nation in the 1930s and maintained Islamic law as the primary source of legislation. Vast oil wealth made education available to both sexes; and families sent their daughters abroad to study. Those who attended college in the 1990s had become internet users: Khalil and Storie determined that 96% of young people used social networking sites and spent an average of 2.9 hours per day online.

With these online influences, a recent college graduate from King Abdelaziz University with a Bachelor of Science in computing and a Cisco Career Certification, Manal al-Sharif, was the first woman to capitalize on the wide reach of YouTube and post a video of herself driving in eastern Saudi Arabia in May 2011. Within a few days, al-Sharif's video received more than 120,000 views and the video she posted on May 19 driving on public roads was viewed by more than 700,000 people. While she was arrested, the campaign accelerated on social media platforms and inspired more women to post their own videos driving in Saudi Arabia.

The issue became a topic for public debate on social media (and through word of mouth) in a country which, according to BBC News, in 2015, had the highest per-capita YouTube use in the world. Several online campaigns were initiated by various individuals seeking to contribute to the movement, officially launched on October 26, 2013, including a Facebook page called *Women2Drive* and the *#oct26Driving* hashtag campaign. Two components challenged the law – one that involved a small group of activists coordinating and sharing information through WhatsApp (called connective action) and the other in which large numbers of participants voiced their support via Telegram (called collective action). To effectively use social media, Khalil and Storie assert that both connective and collective actions are necessary and that a social media movement cannot depend on one leader or even a group of leaders.

This above campaign provides several ways that you could use social media to support women's empowerment and climate justice. You would need to answer the question of whether you would gain a sense of satisfaction, emotional or otherwise, and/or whether this would be a useful learning experience for the future. Perhaps you are fluent in the country's language (in this case, Arabic and English) and could help translate. Perhaps you have data coding skills and could help keep track of the thousands of tweets in a social movement. Are you surprised to learn that social movements need skilled data analysts to identify security concerns and protect the identities of activists, which could include devising "secret" code words?

Whether you are interested in becoming (or already are) a lawyer, journalist, diplomat, or data scientist, you also would want to decide if you would feel comfortable with anonymity and preserving the identities of women activists. Authentic and legitimate movements need to balance anonymity with careful revealing of some identities. In conservative/patriarchal cultures, even in rural communities, you would have to be cautious in provoking authorities. In the present day, very little social change occurs off-line. On the other hand, social media sources may be shut down either by their creators (once they outlive their usefulness) or the host government. It would be interesting to know whether social media in Pakistan, which has horrendous violence against women, as does India, too, of course, play a useful and/or noticeable role in women's rights movements and would extend to concerns about climate change.

3. Computer Science

At present, many college students and professionals are interested in Applied Math and Statistics and Computer Science. Careers in data science and geographic information systems (GIS) mapping apparently have burgeoned, especially in the areas of national security and global climate change.[4] In a brief review of the scholarly literature, I was surprised to learn that this has been building for years: The Association for Computing Engineering (ACM) was founded in 1947 "at the dawn of the computing age," and now has over 100,000 members outside of the United States, in Europe, and Asia. The ACM focuses on raising awareness about computing social issues around the world. For example, in 2019, Indian sociologists M. Tharu and R. G. Yadav published a position paper through the ACM on the empowerment of women in electronic communication technologies, which included information on the social and economic barriers women confront in responding and adapting to weather-related disasters.[5]

Tharu and Yadav state that reliable data, collected and analyzed at the national level, is necessary in gender equity policies:

> We just hope that women become empowered at one hundred per cent and become equal to men so that both of them work side by side for a better world of today.

They aim to eliminate male domination over women and ensure that women gain equal access to and control over resources. Furthermore, they note that women often are not engaged in the "knowledge society:"

> Women face barriers in real life that hinders them from participating in social media and seeing the impact it could have on their lives. One of the barriers is ICT [information and communication technology] literacy, which is the ability to use digital technology, communication tools and/or networks to define access, manage, integrate, evaluate, create, and communicate information ethically and legally to function in a knowledge society. Lack of education can be overcome by training.

They recognize that women's empowerment is dependent on geographic location (urban and rural), educational status, social status (caste, class, and religion), household responsibilities (including childcare and eldercare), and age; and that many women in rural communities do not have access to information about healthcare, economic opportunities, and gender-based violence. In the past, radio and television programs were sources of information, but they were not interactive, nor were they successful in promoting social change or gender equity. Tharu and Yadav believe that the gender gap in technological advancement (including social media) prohibits women from "the fundamental right to information in addition to keep[ing] women in the dark regarding the misuse of the female and the distortion of the truth."

Empowering women means increasing their control over the decisions that affect their lives both within and outside the household. In many countries in the Global South, women are not even listed in citizen registration databases perhaps because they are not literate and do not vote. But if you are interested in a career as a government analyst in international development, you might help gather and analyze data that would account for women's citizenship, voting rights, and further support female-led climate change initiatives – especially in the Global South where weather-related disasters are integral to impeding socio-economic development and often impact women more than men as household and smallholder managers. Because patriarchal systems often require women to stay at home, women often are unable to travel to community learning centers to acquire new skills. Furthermore, while the cost of mobile phones is low in most countries, many women do not have access to them either because they lack their own funds to buy them, or male family members decide that they don't need them.

Tharu and Yadav believe that women who are engaged in agriculture and its "allied activities" (such as selling their goods in the city) need wider communication with others: If they are trained to use social media, they may be able to create content for websites and interact with potential customers. As a result, they could become part of a demographic that uses technology, gains self-confidence, and expands both their intellectual and economic growth. From my own experience in reviewing hundreds of gender equity and climate justice projects in the Global South, it is clear to me that many women would like access to any number and types of technological tools (e.g., community radio, video, television, tele/video conferencing, telephone, mobile phone, voice mail, blue tooth, digital cameras, and computers with the internet) because they need better information on healthcare, legal rights, economic and educational opportunities, social problems, governance, and collectivism.

While rural women often have multiple roles and responsibilities as well as heavy workloads, improved technology could reduce their working hours and increase their participation in a knowledge-based labor market. On this point, Tharu and Yadav challenge the government to develop appropriate programs:

> The various social problems faced by women in Indian society must be addressed. If the violence against women, dowry, eve-teasing [i.e., unwanted sexual remarks or advances by a man to a woman in a public place], and feminization of poverty is reduced, it may offer a conducive atmosphere for women to have further new learning. [However,] the government has yet to extend ICT policies to pro-rural poor women.

While the government has formulated policies to help rural women establish their own small business ventures and savings accounts, these programs need to do a better job of collecting and analyzing data to assess success rates.[6] For example, the Indian Ministry of Women and Child Development has established Self Help Groups (SHGs) for women to engage in "action-oriented literacy," but it is unclear whether the SHGs are uniformally effective. The government needs data on how women develop small businesses and advocate for their legal rights.

Tharu and Yadav state that present-day policies are not effective in helping rural women in their local communities because the women are not introduced to modern technology and social media. Remember Trupti Jain's experience with the *Bhungroo* irrigation technology in Gujarat? She left her government job of 20 years to establish a social enterprise. Significantly, she recognized the value of pushing the government and still partnered with national and state government agencies to empower rural women. While Tharu and Yadav describe the situation in India, it should be obvious to those of you who have data analytic skills that there are many opportunities in your home country – even in government agencies. In fact, international organizations use country data generated by national governments to establish eco-friendly programs for women.

4. Small Business Development

Two mass communication and journalism scholars studied rural women in the Indian state of Kerala who use social media to earn money through microcredit enterprises. E. P. Andra and J. R. Jenitha focused on *Kudumbashree*, a partially state-funded poverty eradication and women's empowerment program.[7] Beginning in the 1990s, *Kudumbashree* (meaning "prosperity of the family" in the Indian Malayam language) established local community networks to lend money to small business enterprises and to teach rural women how to use social media and manage their finances.

If you are interested in a career that combines finance and social media – and you enjoy teaching – maybe this project will spark your imagination. The description, below, focuses on how *Kudumbashree*'s mission was defined; what the program has accomplished to date; and what seems to be missing. I wonder if you would want to identify a community of women who need online training in financial management and/or if you would want to teach "in the field."

Kudumbashree was established to help rural women improve health and nutrition in their communities. Partially supported by the state of Kerala through the Ministry of Rural Development, it also promotes women's economic empowerment to help impoverished communities. Through local self-governing institutions, women are encouraged to start micro-enterprises. The basic premise in *Kudumbashree* is that SHGs will facilitate a creative exchange of ideas.

The program has a three-tiered structure where between 20 and 60 women form individual neighborhood groups (NHGs) and send representatives to 8–10 designated wards called "development societies" (ADSs), which then send representatives to the village community development society (CDS). The CDS acts as a bank for the poor and encourages thrift and investment through a credit system. This system provides several layers of review to help ensure that funds are well spent.

Andra and Jenitha cite a project in Assam in which micro-finance programs "had a profound influence on the economic status, decision making power, knowledge, and self-worthiness of women participants [with] SHG linkages." They describe how families contributed and pooled their savings, which are then used to obtain credit from banks. Pooled family resources serve as a "subsystem" for formal banks:

> The different needs of NHGs [are] shaped and presented to the ADS and they are transformed into mini plans at [the] ADS level and finally into [an] action plan at [the] CDS level.

The NHGs hold weekly meetings on a day when rural women (most of whom are day laborers) are not working. In addition, women use social media – mostly WhatsApp – to share messages with family and friends.

To find out more about the program, Andra and Jenitha distributed questionnaires, which were completed by 60 women in a rural village in Kerala, Nanmanda. Their findings indicated, first, that women (and their families) joined *Kudumbashree* to gain easy access to loans, which resulted in an increase in their incomes. Second, they found that women's decision-making power and self-confidence improved, partly because they learned how to use social media (WhatsApp and Facebook) to share information and work out the distribution of financial resources among those in their network. Finally, to educate the next generation, the program also includes groups of children from the poorest families to learn how to earn money.

The *Kudumbashree* program also has some missing pieces that I imagine would be challenging (and interesting) for those who want to pursue a career in finance to empower women to be climate-change activists. For example, Andra and Jenitha state that the program needs software programmers to design financial management platforms that could be tailored for different businesses. While they do not identify the types of businesses women establish, it seems logical to assume that they mostly sell handicrafts and farm produce. Second, I wonder whether social media could help identify new customers and markets – and not just provide communication channels between farmers and family members who are, for example, setting up their stands at the fairs. Third, should we assume that the only way women become empowered is through collectivization? Is networking a key aspect of women's equality? Is there room, too, for individual entrepreneurship? Andra and Jenitha state: "Personal empowerment usually fails to comprehend intellectual empowerment." Perhaps asking a woman if she feels empowered because she earns more money for her family may not tap into her ability to think of new ways to use her time and talents to ameliorate the effects of climate change.

5. International Development

In 2019, the International Conference on Business, Law, and Pedagogy (ICBLP) featured a study from Indonesia by L. Nurwahidah, C. Julianto, and Z. Sulaiman that explored various ways rural women used social media to grow their businesses.[8] For over 20 years, international development specialists have recognized that rural women must identify target audiences (and presumably customers) through newspapers, magazines, television, radio, and the internet. They use a methodology called "participatory action research" (PAR), in which rural women "undertake their own appraisals through research, come to their own conclusions, and act."[9] I wonder if you would have an interest in using your skills in

social media to help women sketch out and co-identify their interests and needs. Below is, first, a brief description of PAR, and then Nurwahidah's, Julianto's, and Sulaiman's "solution" as to how creative thinking in Indonesia helped rural women establish their own small business enterprises.

International development specialists began to use PAR techniques in the early 2000s to acknowledge the rights of indigenous people and help them manage and control natural resources. They acted as "facilitators" to increase social awareness, communication, and relationships to reduce gender violence, increase self-esteem among women and girls, and reconfigure the division of labor in rural households. Also in the early 2000s, international development specialists attempted to find new ways to address food and water insecurity; and recognized the futility of past programs that used rigid top-down instruction guides with one-size-fits all solutions to rural poverty. Their switch to a PAR methodology also was motivated by practical considerations: To attract donors, for example, international development agencies like ActionAid, they needed to demonstrate that their programs were successful. Thus, they began to develop "participatory" methodologies in which local communities identified their biggest challenges, provided details, cross-checked data, and proposed solutions.

International development specialists help poor, often illiterate, farmers develop methods for keeping their own records by using pictorial diaries with symbols, objects, and diagrams; and encourage them to work together to draw maps and diagrams to pinpoint difficult aspects of agro-ecosystems and sustainable livelihoods. The specialists introduced new technologies such as GIS mapping to further define and chart the environmental terrain and cultural context of poverty.

The 2019 project published by Indonesian researchers Nurwahidah, Julianto, and Sulaiman references aspects of the PAR method that presumably increased women's creativity within their own cultural traditions. They studied the ways mothers, who had part time jobs as traditional food makers in a village in Garut, Indonesia, used social media to increase their own knowledge and technical expertise and learn how to increase the quality of the shape, taste, and color of their food products. The women produced *rengginang*, a traditional rice cracker that is made from dried leftover sticky rice seasoned with spices, flattened, and shaped into a circle, then sun-dried and deep-fried in oil; and used social media to perfect their cooking techniques, experiment with different flavors and forms, and identify markets and cooperatives to sell *rengginang* in Panawuan, Jawa Barat (i.e., a city in Indonesia about 123 mi (or 197 km) east of Jakarta, the country's capital).

Nurwahidah, Julianto, and Sulaiman found that the *rengginang* business enterprise was far more successful than government programs, which often tried to introduce "foreign" small and medium enterprises. Also, with the *rengginang* business, women (who have complex roles as wives, mothers, and day laborers) learned to utilize local resources and community organizations to increase their knowledge and technical expertise. According to Nurwahidah, Julianto, and Sulaiman, social media enhanced "collectivity, connectivity, completeness, clarity,

and collaboration." They concluded that rural women's empowerment must take place within the context of *community empowerment* – to raise human dignity, encourage individuals to participate in activities with technical and practical inputs, and support the emergence of local leaders. Because one of the causes of women's powerlessness in society is gender inequality (which drives the decline of women's roles and positions in society), they asserted that whole communities not only must acknowledge women's rights but also propose ways to support those rights. One important question is how to convince men, who are dominant in these rural societies, to accept women's empowerment – a situation that may denigrate men's social status even though it may well improve the family's economic situation.

I wonder if you are interested in international development field work and would be interested in teaching women in the Global South how to use social media in local communities to introduce gender just climate solutions. Nurwahidah, Julianto, and Sulaiman believe that women are apt to become tenacious, patient, diligent, willing to take risks to increase production and income, participate, good at reading market situations, and using time efficiently when they have a positive mentality towards work.

Don't we all? It appears that both traditional and modern social media are useful for transmitting messages to appropriate target audiences; and women are better able to plan, manage, seek opportunities to build networks of collaboration, and feel optimistic about the future. Essentially, they develop businesses in accordance with their abilities and have greater potential to overcome poverty. I would like to acknowledge here that my readers (i.e., referred to as "you" throughout this chapter) are not entirely female; and that men who believe in climate justice and women's empowerment may take part in the kinds of activities I showcase. This is also true for LGBTQ+ persons as potential instructors with social media skills: There is a place for everyone.

6. Environmental and Health Sciences

The *International Journal of Business and Economic Affairs* (IJBEA) recognizes international networks of scholars who develop models and share knowledge from a variety of fields. They have been referred to as "global illuminators" in using their research skills to convey something new – like the four scholars from Malaysia (N. H. Ali, S. Muhamad, M. M. A. Jalil, and M. Man) who devised a model to explain how rural women entrepreneurs could use social media in the Setiu Wetlands.[10] Located in the East Coast region of Peninsular Malaysia, the 23,000-hectare Setiu Wetlands is a mixture of riverbank riparian forest, peat swamp, mangroves, brackish lagoons with vegetation and sand islands, seagrass beds, and sandy beaches.

Ali, Muhamad, Jalil, and Man focus on helping rural women in this region who have low literacy skills and poor nutrition by proposing a model that they hope the Malaysian government will use. If you are interested in a career in health care or environmental science, you might be drawn to Ali's, Muhamad's, Jalil's,

and, Man's social innovation model. Many of the rural women they strive to help are single mothers: In a rural conservative Muslim society, they need new ways of thinking about, frankly, how to make money. E-businesses seem to offer a viable alternative, particularly because the Malaysian government has invested in information and communications technology (ICT) literacy in rural areas. The underlying premise is that everyone needs to know how to use social media effectively and efficiently.

The Malaysian government has encouraged ICT, particularly in social media, to help rural women overcome low levels of education and training, poor health and nutritional status, and limited access to resources. Women transform their small home businesses into e-businesses and have become actively involved in marketing online. It is interesting to reflect upon what we might learn from this model: Will women's experiences provide different perspectives on inventing new ways of dealing with climate-related disasters worldwide and help us introduce innovations in our relationship with the environment?

If you were interested in using social media to improve women's nutrition and healthcare in climate-challenged regions, you might want to identify a region or country that has great potential. In the above case, the Malaysian government made substantial investments in developing a communication infrastructure to link urban and rural regions to ICT.[11] You could help address the needs of women who live in ecosystems that are vulnerable to weather-related disasters. For example, the Setiu Wetlands, approximately 50 km north of Kuala Teren, with all its coastlines bordering the South China Sea, are affected by altered hydrology and rising sea temperatures. It has nine interconnected ecosystems – sea, beach, mudflat, lagoon, estuary, river, island, coastal forests, and mangrove forests.

Between 2008 and 2011, the land was stripped of 20% of its vegetation (especially swamps and mangroves) to make way for new industries. Fortunately, local lobbyists persuaded the state government of Terengganu to establish a state park, which means that, at this level, the government was responsive, at least in areas that have economic value. Setiu is famous for its cottage industries, many of which are run by women that include fish farms, *budu* (fermented fish sauce), fish crackers, *belacan* (shrimp paste), and handicrafts made from *kercut* and *nipah* (long-stemmed grasses that grow wild in swampy areas).

If you were interested in women's healthcare and nutrition, this region (or those like it) could use your skills and expertise. To date, the conditions of rural women receive little attention. Ali, Muhamad, Jalil, and Man point out that, in contrast to urban areas that provide health services through local governments, community clinics, private sector and various NGOs/charity organizations, rural women are isolated and deprived. In rural areas, women have poor nutrition, and lack basic education.

With its emphasis on ICT, the Malaysian government helps rural women who are engaged in small-to-medium-sized businesses to support their families. The authors also point out that private enterprises or other non-governmental organizations could work with rural women "entrepreneurs:" Since there is a solid ICT foundation in the Setiu Wetlands, why not use this platform to educate and

improve women's healthcare and nutrition? Digital technologies could support rural women's economic, educational, ecological, and social development – by reducing isolation, bridging the digital divide, promoting health issues, creating economic opportunities, and reaching out to youth.

Ali, Muhamad, Jalil, and Man assert that a social innovation model could help rural women by raising awareness and providing basic computer skills, including the use of the internet. Most of the women are first time users of computers. Why not take the skills needed to start an e-business and use them to connect to healthcare programs and practices in, for example, community centers? Social media platforms such as blogs, micro-blogs, social networks, text messages, and posted status or shared photos such as Facebook, Twitter, YouTube, Telegram, and Instagram all could be employed to raise awareness and even connect to women in other countries.

If you are, or aspire to be, a health care professional, you might think of other ways to improve the health and welfare of rural women. The reason I thought to connect ICT with healthcare was because of a student-led initiative at my university to educate poor communities about hepatitis-B, which is the leading cause of liver cancer among Asians and Pacific Islanders. The students joined a collegiate chapter (and received a weekend of training at Harvard University) to learn how to educate local communities about hepatitis-B. The students developed a website in English and Chinese and contacted several different at-risk Asian populations to provide information about the transmission of hepatitis-B, statistics, treatment, myths, and resources.[12] They even published audio interviews with medical professionals. My point here is that creativity abounds and is much needed to achieve women's empowerment and climate justice!

7. Journalism and Mass Communication

In 2019, the International Conference on Advanced Research in Social Sciences and Humanities (ICARSH) held inaugural conferences in Prague, Munich, Stockholm, and Amsterdam for academia and non-profit, public, and private sector members on the latest research initiatives.[13] A research scholar from Faridabad, India, S. K. Md Afsar, presented her research on rural women journalists who published stories in India's first feminist newspaper, *Khabar Lahariya* (*News Wave*) to address sexual violence and other crimes against women and girls.[14] To learn about how this entirely digital news service gained traction domestically and internationally, read about Asfar's research below.[15] I wonder if you could imagine yourself writing an article or an editorial in this newspaper or other publications with a similar mission.[16]

In India, traditional news sources, including print and TV news channels, place women's contributions far below those of men. It is for this very reason that *Khabar Lahariya* was established in 2002. One of Afsar's interviewees, a female journalist, talked about the resistance she encountered when trying to break into the field. "People around me said: You are a woman. How can you possibly do the job of a man?" Traditionally, women who begin a career in journalism are expected to leave their jobs after they get married and, even in

the job, are seen as ornamental fixtures and incapable of gathering and reporting the news: "They are viewed as unsound capital." Afsar noted that because male journalists are revered in Indian society – as "gods" – women were unable to develop professionally.

Interestingly, because traditional journalists perceive rural issues and climate change to have a lower "profit interest" than issues arising from powerful economic centers, women journalists began to develop their careers in farming communities! They focused on rural concerns and began to report on women's difficult living conditions. In the largely rural state of Andhra Pradesh, fifteen women were among the first to be trained as journalists with the goal of championing the state's anti-poverty campaign. Coincidentally, the Internet and Mobile Association of India (IAMAI) learned that, over the past decade, India's rural mobile internet users had increased by more than 90%. By using a non-traditional format (i.e., social media and the internet), for the first time, women journalists began to write stories to raise awareness of government initiatives to confront crimes against women, offer prenatal care and proper nutrition, and provide literacy education and job training to poor women.[17]

Afsar found that rural women journalists used technology and social media to broadcast stories, record audio/visual interviews, establish Twitter feeds and websites, and so on. Sadly, she also found that even these female journalists – who were not reporting from urban centers – received death threats, their phones were tapped, and their email accounts were hacked. Considering this danger as part of the journalist's job, *Khabar Lahariya* continued to "give larger entree to the media outlets and allow the concerns of marginalized groups to be addressed [in terms of their own experiences], specifically women from rural areas." The tremendous growth of the internet served to raise rural women's voices and help female reporters develop journalistic skills.

Afsar noted that these journalistic reports finally helped rural women improve their social and economic standing and become part of an informed citizenry. The female reporters' stories concentrated on the states of Madhya Pradesh, Uttar Pradesh, Bihar, and Rajasthan, which are adversely affected by weather-related events such as cyclones, floods, and droughts. By using WhatsApp, Facebook, and YouTube, the news reports reached a wider audience in rural areas. *Khabar Lahariya* created a fully online presence in 2013 and produced and posted videos in several regional dialects on social media. By 2017, *Khabar Lahariya* received one million monthly page views on its website. Two years earlier, *Internet Saathi* had begun to provide information about the internet to women living in the rural villages of Rajasthan, Jharkhand, and Gujarat; and internet training provided on smart phones helped women journalists become digitally literate and train other women in their villages.

Presently, rural women journalists use independent (i.e., digital) media to support sustainable development and gender equality in India. The format combines traditional customs with modern concerns. For example, those who live in poor areas in the district of Chittoor in the Indian state of Andhra Pradesh file news stories about cultural dances, songs, *as well as* women's poor living conditions. Apparently, the stories are so effective that the state government established

policies to improve rural women's lives; and women journalists established their credibility, which eroded the thinking that news media only can be run by male reporters. *Khabar Lahariya* was launched in 2002 in the district of Bundelkhand (an historic region of central India, now included in northern Madhya Pradesh state) where 60% of the population are farmers. Afsar states:

> It [*Khabar Lahariya*] created a new wave across the bleak landscape, where survival is the subject of life and areas such as education, civil rights, and gender equality have taken a backseat.

Despite their lack of formal journalism training, with some local initiatives, rural female reporters became experts in conducting interviews and filing news reports. In solidarity, *Khabar Lahariya* plainly asserts a feminist agenda – "that females must be free to determine their own social roles and be able to compete on an equal footing with men." The editors maintain that the controversial stories by female journalists (e.g., illegal dowries, incest, mental trauma, child sexual abuse, etc.) are nuanced and sensitive rather than sensationalized. Perhaps not surprisingly, Afsar found that, over the past few years, there has been a significant rise in the percentage of women journalists in rural areas who use digital technology; and that that technology has played an important role in women farmers' empowerment. If you are a writer or journalist, can you imagine how satisfying it might be to support rural women with traditional ecological knowledge (TEK) who long have been ignored? Rural women journalists have become aware of their impact, especially in using different kinds of digital platforms to counter rigid stereotypes, both in the personal and social spheres, and to put into practice "lived, engaged citizenship."

Perhaps journalists in the Global North could learn from Indian women journalists how to better represent marginalized communities: To date, *Khabar Lahariya*, has a million plus viewers on YouTube and has become a regular syndicated news partner for digital English media with 232K+ YouTube subscribers worldwide.[18] Afsar makes the point that, in the present day, both print and digital media often is highly commercial, ideological, political, and "filthy." But rural women journalists have become familiar with how to navigate this arena, how to make their place in it, and how to question its norms.

8. Cross-cultural Communication

Digital and social media have the potential to provide emotional support to women in the Global South who are dealing with climate change. In 2020, researchers from the Department of Communication and Applied Language Studies at the University of Venda surveyed 100 young rural females to investigate connections between rural female empowerment and digital media use in Thohoyandou, a small city in Limpopo province in the northern part of South Africa.[19] While their study does not address climate change per se, it does reveal two factors that are integral to female empowerment: (1) access to digital technology in the

Global South and (2) the accuracy of information on social media and other internet websites.

The researchers, F. O. Makanaise and S. E. Madima, found that many rural women who answered their questionnaire belonged to at least one social media site (91%), logged into the sites daily (85%), and had easy access to a variety of digital media technologies, from computers to mobile phones (78%). As a result, the women engaged in networking, participated in social and political activities, and advocated for social change. The researchers identified several ways young women challenged the status quo:

> With recent killings experienced by female youth in South Africa, [the] majority of youth have Twitter handles with #MeToo #AmINext #stopkillingus movement to voice their concerns on issues …. This suggests that the access to digital media gives [the] majority of rural based female youth an opportunity to stand against societal oppressions they had endured for years in silent [*sic*.] which could contribute to freedom gain and socio-economic empowerment in [the] South African context.

The authors predict that, within the next decade, the massive growth of smartphone and internet use will extend access to all rural communities throughout the Global South – and that Twitter, Facebook, and WhatsApp could bridge the digital divide between the haves and have-nots and increase gender equality. Their study revealed that, currently, 74% of the rural females they surveyed believed that digital media and ICT empowered them to tackle or debate socio-economic issues such as sexual abuse, gender-based violence, and education.

However, the use of digital and social media may not empower many women in rural communities who suffer the most from the effects of climate change. For example, the authors note that the government of Bangladesh, which has many climate-change challenges, severely restricts rural women's access to the internet. Perhaps the government has determined that the women are not adequately trained to use the internet, or that the national budget does not allow for widespread dissemination of information and communication technology. The point here is that the rise in media usage accentuates the digital divide and leads to greater inequality, discrimination, and marginalization within the Global South.

The South African study also found that 70% of rural females trusted the information they found on the internet. As it is relatively easy to encounter "fake news" and misinformation, rural women (and all of us, frankly) need to learn how to discern fact from fiction. Misinformation can have a profound impact, especially on women who receive vicious social media messages from unknown sources. If not understood and discussed openly with others, these messages can be isolating and emotionally damaging. If you have an interest or expertise in navigating social media websites, you might investigate the types of workshops and training seminars currently offered, for example, by the Ife Centre for Psychological Studies & Services in Johannesburg.[20]

Fig. 26. Photo of Environmental Defenders. Photo of "Defensoras Ambianales" Provided by the Fundacion Plurales (Plural Foundation) in Argentina Copyright © 2021.

Some women climate change leaders recognize the power of digital technology. For example, "Defensoras Ambianales" (Environmental Defenders) has linked over 1,000 indigenous people and local groups in Argentina, Bolivia, and Paraguay through a mobile phone application to empower feminist environmental rights defenders to communicate, inform, and protect territories that have deteriorated because of extractivism and agrochemical contamination (Fig. 26).

Also, the Women and Gender Constituency's social media toolkit provides policy briefs on its positions within the United Nations Framework Convention for Climate Change (UNFCCC). It explains how to use – and supplies – hashtags, graphics, videos, and tweets to connect members to each other and promote public campaigns.[21] To support these efforts, the Women's Environment and Development Organization offers a 12-session training course on how to participate.[22] This training is open to anyone who is interested in women's empowerment and climate change and provides numerous ways for you to become informed and involved at an international level.

9. Visual Arts

At the COP26 climate change conference in Glasgow in 2021, in a burst of amazing creativity, there were many opportunities to participate in songs and dance and view arts and crafts from indigenous women. Perhaps the most prominent "display" was a 12-foot-tall puppet, Little Amal, dressed as a young Syrian refugee girl who strode around the venue as women danced around her to remind the attendees of the many persons displaced by climate change. In the present day, Little Amal appears in street protests around the world. I have learned that the many spontaneous dances and songs are expressions of empowerment-through-movement. Also, at COP26, to reinforce arts and crafts themes, there was a

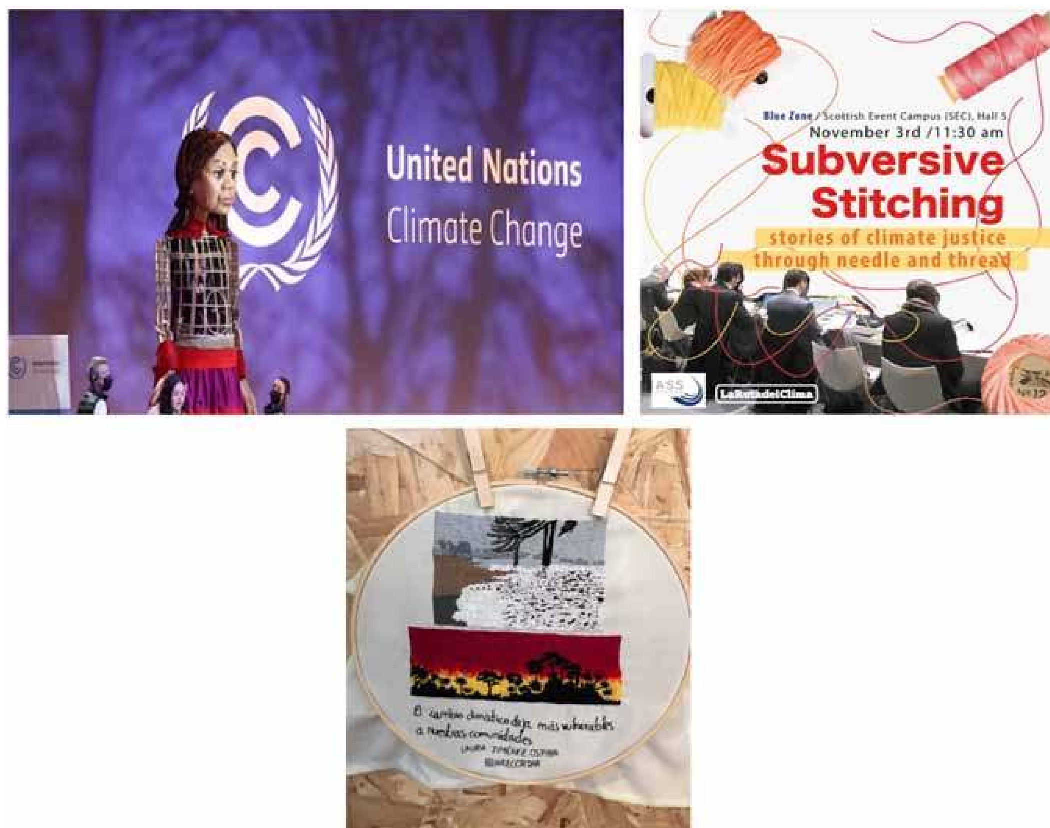

Fig. 27. Three of Arts and Crafts at Photos at COP26. Copyright © 2021 Courtesy of the Women and Gender Constituency COP26 Archive.

special event titled "Subversive Stitching: Stories of Climate Justice through Needle and Thread" as well as several displays of small, embroidered pieces from Latin America (Fig. 27).

Within the past decade, a substantial body of literature from scholars, researchers, and practitioners proves that arts and crafts define "spaces for the empowerment of women."[23] From South Africa, D. R. Malema and S. Naidoo published research on community-based arts and crafts projects that helped women achieve economic independence, increase their public visibility, and establish networks outside of the home.[24] Their study was based in Limpopo, a South African province that is 95% rural and where women on small farms have difficulty growing food for their families due to lack of water. As a result, the province's climate change plan calls for a thorough investigation of the best ways to empower women in their communities.[25]

For those interested in arts and crafts, there is much to reflect upon – and even possible projects to engage in – that can change social attitudes about women's work, bring economic benefits to augment women's modest incomes, and allow women in community-based projects to release stress and gain a sense of "empowerment," a term that I will explicate below.

At an international level, the United Nations' Sustainable Development Goal #5 seeks to achieve gender equality and end violence against women.

Correspondingly, in 2015, the South African Department of Women developed measures to promote social changes in attitudes and support women's leisure activities. One challenge was that men behaved *as if* women were unable to make good decisions for the household: Women often had to choose between spending money to feed their children or being beaten by their husbands for spending money.

Encouraging women to share their knowledge and skills in arts and crafts has become a "generative activity" (also referred to as "evidence-based learning" – summarizing, mapping, drawing, imagining, self-testing, self-explaining, teaching, and enacting). Within this framework, women teach young people how to make things for themselves and preserve their African identity (e.g., rites of passage and mourning rituals). Story cloths, which depict women's lives, are sold around the world. One aspect for further study would be to determine whether the programs include family planning to limit family size, which places immense burdens on individual families, women, as well as on social services, natural resources, food supplies, etc.

In South Africa, craft making is an essential part of rural living and provides some income for women who otherwise spend most of their time toiling as underpaid agricultural laborers. Often their only other source of survival is the income they receive from welfare programs ("social grants") that are intended to support their children. As a legacy of the apartheid era, women in Limpopo (and other rural areas) have limited schooling. Bombarded with the responsibilities of taking care of children and others in the household, women find relief in easily accessible, community-based rural arts and crafts projects. According to Malema and Naidoo, the projects "heal the mind" because the women share knowledge, experiences, and appreciation of their art and craftwork and form support networks:

> […] they engage in women-talk. This kind of talk is powerful enough for the formation of friendship, construction of identities and maintaining gender divisions. This talk is also arguably one of the most satisfying and sustaining kind and is also key within a leisure setting.

From this study, female empowerment is a sense of self-worth in which women take control of situations in their lives, their communities, and their societies. Leisure activities are necessary because they provide a platform for women to experience positive emotions and, the authors assert, "serve as a mediator for the improvement of self-definition, self-actualization, and a sense of empowerment."

Remember the "sense of purpose" I discussed in Chapter Two? The study of leisure fits comfortably into that paradigm because, as previously noted, women benefit greatly by contributing positively toward bettering the lives of others. Malema and Naidoo include in their study the benefits accrued by older women who tend to become depressed without some form of productive work: "Late adulthood is often characterized as a period of increased dependency on others resulting from debilitating physical and cognitive abilities … and a drop in self-esteem."

After COP26, I received an email from a woman who asked me to interview Samira Kitman, a young woman from Afghanistan who sought to bring color into the lives of children living in war-torn and climate-ravaged areas of Afghanistan. Now a political refugee in the United Kingdom, Kitman sends backpacks filled with art supplies to Afghan children, which her family members distribute. This showed me, and I hope you, that there are many ways to help, depending on your skills and interests.

10. Film Production

Finally, film production has been used to raise political awareness about underserved communities. Scholars based in Norway, the Netherlands, and the Czech Republic published their research on how an international advocacy group, Survival International, used a blockbuster movie produced by James Cameron, *Avatar*, to raise public awareness about the Niyamgiri Movement in India, which protested a British mining company's incursion on the Dongaria Kondhs indigenous site.[26] When *Time Magazine* published an article on the Dongaria Kondhs as a "real life Avatar tribe," the formerly apathetic Indian Supreme Court suddenly became supportive of the Dongarias. Based upon Cameron's film, Survival International also produced a YouTube video to further explain "to a mainstream audience" the Dongaria Kondhs' religious beliefs. Can you imagine yourself becoming part of a film production team to advocate for indigenous women's empowerment in climate change? Or, if this is too big of a project, could you write short reviews of movies and documentaries? I have another idea – from a student – that I present at the very end of this chapter.

To spark your interest, here are some key elements of the process :(1) defining the problem, (2) strategizing ways to use media to represent the interests of indigenous people, (3) simplifying and dramatizing the message for the audience, and (4) gaining support from local and transnational organizations. If you are interested in using your skills to produce a short, well-researched low-budget film to support a social/political cause, you also might be interested in the story below of how intentions and messages evolve.

Before discussing *Avatar* and to emphasize the power of music and song, I want to mention a Puerto Rican feminist singer/political activist from a US "territory" which, although geographically is in the Global North, is otherwise in the Global South in many ways.[27] Songs and music are effective ways to promote gender equity and climate change consciousness because these can be broadcast in newer forms of transmission online, through local stations, etc. to mobilize, inspire, and organize rural women (and men, too), There may well be career opportunities, internships, volunteer opportunities, etc. in this area. Many people who now reflect on their own political activism as young people in the anti-Vietnam War and civil rights movements recognize music as an important part of the ethos that helped build community and solidarity as well as bolster courage in the face of danger and adversity. The anthem of the civil rights movement, "We Shall Overcome" is just one of many such examples. Music, drama, dance, etc.

have always been integral parts of social and political movements and will remain so in the digital age. For example, songs were very important in the Water Movement in Hong Kong – 2019–2020 – that challenged the Hong Kong authorities who were controlled from Beijing.

To prevent bauxite extraction on sacred sites, the indigenous Dongaria Kondhs claimed that the whole Niyamgiri mountain range, which extended 115 km^2 (ca. 71.5 mi^2), was sacred: They traced their ancestry to Niyamraja, a mythical god-king who is believed to have created the Niyamgiri range of hills and to have charged his descendants with their stewardship. The problem was that, in 1997, the Odisha state[28] in India, which has the third largest population of Scheduled Tribes,[29] signed a land rights agreement with the British mining company, Vedanta Resources, to construct an aluminum refinery at the foot of Niyamgiri mountain in 2002. In the past, most anti-mining movements in India have been unsuccessful because the Indian government and companies simply have waited until the protests subsided and then proceeded with their original projects. Banning the extraction of one of the world's richest bauxite reserves in the Niyamgiri range of hills would prove to be costly for the Indian government. Amazingly, with the help of residents in the surrounding community and champions within the Indian political leadership, the Dongaria Kondhs were able to assert their subaltern ecological beliefs and religiosity, and the government canceled the Vedanta Resources project. (A similar struggle is going on in Arizona now over copper mining on land Native Americans deem sacred.)

Scholars conducted 19 oral history interviews with residents in Hindi, English, or Odiya (depending on the interviewees preferences). G. Spivak and J. Baudrillard found that local activists who live in areas surrounding the indigenous communities also become spokespersons for marginalized groups and, in some cases, overshadow their voices: In fact, activists who lived in regions surrounding the Dongaria Kondhs community used myths to stir emotions and create an "enchanted representation of indigenous people."

Correspondingly, filmmakers created an image to generate popular support for indigenous peoples' causes and environmental conservation. According to Borde and Bluemling, there have been several documented instances of indigenous people entering into conflicts with mining companies. And they noted that the *Avatar* film intended to spur audiences to reflect and act. They cited another study in which several viewers were converted to more ecological ways of thinking, incited emotions, and questioned "capitalistic logic."

The job of the filmmaker is to translate the story for a mainstream audience, as Borde and Blueming state: "Translation can actually 'elevate' the original, and the task of the translator is to 'echo' the original in a way that helps illuminate the intended meaning." In the case of *Avatar*, the enchanted and fantastic representation of the Dongaria Kondhs helped reverse the Indian government's decision and ban mining. The film did this by capturing and condensing the problem for a mainstream audience but did not delineate the complexities. The self-described environmentalist/filmmaker, James Cameron, stated that he used Biblical undertones so that his audience in the Global North could relate to the Dongaria Kondhs.[30]

It is also true that local grassroots-level activists from small urban centers surrounding Niyamgiri helped resolve this conflict. This "second-tier activism" led the villagers to vote unanimously against the mining project, which was then ratified by the Indian Ministry of the Environment and Forests over a decade later, in 2014. In fact, those who have studied this case make the point that the exposure from *Avatar* (and a YouTube video produced by a transnational advocacy group, Survival International) were crucial to the outcome. In both cases, the filmmakers modified the Dongaria Kondhs' religiosity by, for example, cleverly switching goats in sacrificial ceremonies, which are an accepted part of mainstream Hindu culture instead of buffaloes, which the subaltern Dongaria Kondhs usually sacrifice.

From the example above, it clear that – for those who are interested in producing a film or even a short YouTube video – altering details to appeal to a broader audience can raise public awareness of female empowerment in the Global South. In addition, to be effective, the film would need to reach both local and international groups. While the messages may be simplified, that is the prerogative and sometimes the imperative of artistic creation. Film production is a worthwhile endeavor because it helps change the public's views on climate change and can reach broad audiences across regions and continents. Indeed, the many examples provided in this book demonstrate that "we" are not short on solutions that focus on acting with empathy and humanity.

On the one hand, film projects may seem too big and writing short reviews of movies and documentaries may seem to be too small. But I have another idea – from a student who majored in film studies – that may inspire you. Lucie Caputo's senior project, "Globalization through Networked Audiences: How online Communities Facilitate Cultural Flow," was a brilliant analysis of how a Norwegian web series, *SKAM* ("shame" in English), produced four seasons of video clips that encouraged audience participation and engagement and created a community around translating languages and understanding cultures in Brazil, Denmark, France, Hungary, Italy, Norway, Russia, Ukraine, and the United States.[31] According to Caputo:

> The communities formed by networked audiences not only start new conversations between members living across the globe, but they also can have real impacts on politics and activism. Fandom Forward [which turns fans into heroes] formerly known as the Harry Potter Alliance, is an organization that was formed in 2005 by fans of JK Rowling's *Harry Potter* series that has initiated numerous global activism campaigns … [including] Immigrant Justice, LGBTIA+ Equality, Education & Libraries, Gender Equity, Climate Crisis, Media Reform, and Youth Advocacy.

I hope that you have found something in this chapter that sparks your interest in using visual arts and social media to help rural women and social entrepreneurs in the Global South deal with seemingly insurmountable problems of endemic poverty that are made worse by climate change. You may have other ideas as well to use your skills and share your interests with others.

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Conclusion

At the climate change conference in Glasgow in 2021 (COP26), I witnessed politicians, students, teachers, scientists, international development specialists, journalists, and others enthusiastically supporting female empowerment as a significant factor in the formula to achieve environmental social justice. By 2022, at COP27 in Sharm El Sheikh, Egypt, similar displays of support led to a modest breakthrough: Under the heading of "loss and damage," United Nations' member states from the Global North promised monetary compensation to countries in the Global South that were severely affected by climate change disasters. Events, panels, forums, and public demonstrations at COP27 aimed to raise awareness about women, youth, farmers, and climate migrants/refugees. Feminist activists used digital technology and discussed culture heritage projects to challenge the status quo patriarchy and identify benchmarks to chart improvements over time. Connecting this to the themes presented in this book, I highlight below nine topics that were promoted at COP27 and, should they be successful, I believe will be key determinants of future progress.

1. Focus on Africa

Several programs urged improvements in human health, economic well-being, women's social status, and the environment in Africa. Literature reviews and field studies in the first half of this book indicate that past government programs in Africa overall have not supported women leading climate change initiatives nor have they encouraged women to become involved in decisions relating to energy consumption and climate policy. One positive trend is that several international organizations affiliated with the United Nations include women in rebuilding local agricultural systems. In this book, one oral history from Uganda, from the *Women's Empowerment for Resilience and Adaptation Against Climate Change*, indicated that working with women to implement farming methods that reduce

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carbon emissions has effectively upgraded their social status. One publicized initiative at COP27 was promoting climate-friendly solar cooking in Africa to address the challenges of about 2.4 billion people (mostly women) who cook with polluting fuels. A key point was that promoting these cookstoves reduces health hazards relating to sexual and reproductive health and are critical elements of inclusive, human rights-based climate action.

2. Develop Climate Finance

As previously noted, women are hindered by limited access to capital and thus experience financial instability and dependence. However, because they do not want to be passive recipients of aid, women are actively engaged in acquiring and learning how to apply financial management skills, become part of information networks, and distribute financial resources throughout their communities. At COP27, climate finance and feminist activism merged into a series of "lightning talks" to illuminate the ways climate finance can achieve both environmental and gender equality goals, with a focus on funding feminist organizations and movements.

A major argument of this book is that climate finance must address just and sustainable solutions to the climate crisis throughout the Global South. To address severe loss and damage resulting from climate-related disasters in developing countries, COP27 culminated in a commitment to secure long-term funding from developed countries who are, in fact, the largest polluters. One event byline sums up the key concern: "Delivering the promise: How to ensure future adaptation needs are addressed."

3. Encourage Youth

To be truly effective and maintain a sense of community among groups throughout the world, several constituency groups at COP27 emphasized the need to involve the younger generation in economically profitable enterprises and social justice. Events and forums promoted intergenerational dialogue to showcase education programs that encourage youth participation, particularly in Africa and SIDS (small island developing states), where young people are integrally involved in drafting Nationally Determined Contributions (NDCs) – that is, individual country's commitments to improve the environment. One example, in Chapter Four, included an interview with the director of the Association of Environmental Education for Future Generations (AEEFG) in Tunisia. That program aimed to raise student awareness about the United Nations' Sustainable Development Goals (SDGs) and encourage youth to work with decision makers in local communities to eliminate environmental hazards, including dangerous chemicals. Another example was the journalist in Thailand who wrote about several female environmental activists from different socio-economic and educational backgrounds to enable future generations to challenge entrenched "patriarchal" attitudes especially in rural communities.

4. Involve Women Farmers

A consistent theme for climate justice activists at COP27 was recognizing the difficulty rural women farmers in Asia and Africa face in building climate resilience at grass-roots levels. One panel focused on how indigenous women exchange ideas to promote ancestral knowledge. Another panel specified that rural women are disadvantaged because they lack stable incomes. Moreover, when their unemployed male counterparts become frustrated, women often become victims of domestic violence. In other words, the effects of climate change are woven into a social fabric that can be stretched only so far before it rips apart.

Farmers continue to struggle with long periods of drought, which frequently occur after severely damaging floods recede. Chapter Five pointed out that, because of their daily chores on the farm, women are well positioned to observe changes in weather patterns. If given the opportunity and training, they could track and record extreme weather events such as cyclones, tsunamis, intense winds, and droughts. Chapter Six contained several field studies by international development specialists that encouraged women farmers to work together to draw maps and diagrams to pinpoint difficult aspects of agroecosystems and sustainable livelihoods.

At COP27, the co-founder of the rural-based *Bhungroo* program, Trupti Jain, was recognized as one of the 75 most influential women in India. Her program attracted engineers in Israel and Germany who wanted to introduce *Bhungroo* to women farmers in Africa. As an extension, *Bhungroo* became part of the Indian government's south-south technology transfer program with partnerships in Kenya, Uganda, Namibia, and Nigeria. It was adopted by the Women's Climate Leadership program in the Association for Southeast Asian Nations (ASEAN); and is now part of the Asian Development Bank's Mekong Delta "South-South Technology and Profit Acceleration Program." Trupti's story will continue to be a vital resource for rural women.

5. Include Climate Migrants

As weather related events become more severe, "informed and innovative solutions are needed to ensure full protection of climate migrants regardless of status." Feminists focused on three questions: (1) How can the risk of climate-induced human mobility be reduced, and the rights of migrants be protected? (2) What role should local and international stakeholders play? (3) How can migrants become part of the decision-making?

Chapter Three and Chapter Four provided several examples of climate-related migration. It described how Hazara women were displaced from Afghanistan and migrated to southeastern Australia; undocumented Syrian families settled in refugee camps in Türkiye and received technical training to earn an income; historically nomadic Dom communities in Türkiye continued to be marginalized without government support; and women in rural Guatemalan villages became sole providers for their families after their husbands migrated to other countries

for work. Chapter Four also mentioned programs created by a French non-profit, Singa, which also supports projects to serve migrants and address feminists' concerns.

6. Use Digital Technology

Though not as prominent in its proceedings as some of the preceding topics, climate justice activists at COP27 acknowledged the crucial role of digital technology in connecting vulnerable populations, especially across the Central African subregion. One such initiative, *Launch of African Women's and Girls' Demands for COP27,* specifically addressed the advantages of using digital technology to help communities adapt to climate change. Chapter Six discussed various ways digital technology may be used. Several studies indicated that social media and other forms of digital technology help rural women gain confidence and expand their economic and intellectual growth.

To raise human dignity, the act of encouraging all individuals to participate in activities with technical and practical inputs supports the emergence of local leaders. For example, rural women entrepreneurs use social media in the Setiu Wetlands in Malaysia as part of a program in environmental science. More broadly, in most climate change initiatives, reliable data (collected digitally and analyzed at the national level) are necessary to create gender equity policies. At COP27, participants from the Global South noted that rural women have low levels of ICT – information and communication technology – literacy and lack adequate access to digital technology. Studies note that, for example, when women overcome that barrier, they can transform their small home businesses into e-businesses and become actively involved in marketing their eco-friendly products online.

7. Transform the Arts and Heritage Culture

Cultural events always are prominent at global climate change conferences, perhaps because they are visual representations of how women maintain oral traditions and heritages across generations. One public forum at COP27 used the following pitch:

> Art, culture, and heritage drive gender inclusive climate resilient pathways for adaptation and mitigation. The session will focus on three concepts under the framework of resilience – (a) the role of women as custodians of culture (tangible and intangible) (b) women as key agents of change in climate action, adaptation, and mitigation (c) women using art and culture as a transformative tool to bring about awareness and climate action.

Chapter Two indicated that the United Nations Education, Scientific, and Cultural Organization (UNESCO) must make a greater effort to integrate gender into its climate change programming. As recognized above, music, drama,

dance, etc. are integral to social and political movements and will remain so in the digital age. Supporting arts and crafts programs can help change social attitudes about women's work. Arts and culture are best represented in reflexive oral histories because the oral histories can include audiovisual and other media.

Since the early 2000s, international development specialists have used cultural heritage activities to acknowledge the rights of indigenous people and help them manage and control natural resources. Also, in popular culture, the film, *Avatar*, raised awareness about the exploitation of the Dongaria Kondh people who live in the Nimaigeri forest in eastern India. In addition, several climate change projects catalog Traditional Ecological Knowledge (TEK) as part of its food security programs in Central America. Several projects celebrate ancestral practices and approaches, including those used by midwives that have been passed down through generations.

8. Listen to Latin America

In addition to Africa, climate justice activists highlighted initiatives taking place in Latin America. At its core is the following description of one discussion panel:

> Gender-just climate solutions ensure the exercise of womxn's rights while contributing to biodiversity conservation, climate change adaptation and mitigation. Their point is that community-based and democratic local solutions have developed unique models that strengthen local and regional capacities to advance the SDGs as well as the UNFCCC Gender Plan of Action. The event aims to emphasize that gender is not an isolated issue but is connected transversally to the effective implementation of national climate policies on circular economy, mitigation technologies, adaptation and loss and damage.

Chapter Three and Chapter Four discussed several programs in Latin America that provide achievable solutions for other parts of the world. Among them are: (1) *Fragments of Hope* (in Belize), which restores endangered coral reefs and helps local women gain community recognition, monetary compensation, and cooperation from male peers; (2) The *Meal Flour* Project in the western highlands of Guatemala, which trains women to cultivate mealworm farms to provide a source of protein for indigenous Mam communities; (3) *FUNDAECO*, also in Guatemala, which establishes healthcare centers and midwife training in protected areas; and (4) *ENDA Colombia* in Bogotá, which organizes women's recycling collectives to protect local lands.

9. Implement a Global Stocktaking

Finally, emerging from COP27 is a focus on global stocktaking, which includes feminists in the Global South who promote climate policy and mainstream

gender programming to "decolonize climate action." One main idea is to build local initiatives that can be upscaled and applied to other geographical regions:

> To build bridges and open new spaces for exchanging experiences and views among local practitioners, researchers, and policy-makers around the cross-cutting benefits of locally owned and gender-responsive climate mitigation and adaptation actions.

In this book, I have identified several international programs that recognize women's contributions and the methods they used to manage, conserve, and adapt to the realities of climate change. Implementing global stocktaking measures require climate change policies that recognize the continuum of women's agency and institutional poverty. Here are a few examples of how local initiatives were upscaled:

- Through the European Union, an Italian clothing manufacturing company, *Quid*, created ways to replicate its business model in Portugal, Spain, and Greece to provide work to climate migrants seeking work. Furthermore, it is exploring the possibility of setting up similar operations in Bangladesh.
- The *Solar Age Project* now implemented in Türkiye was inspired by The Barefoot College in India, a community-based organization that has provided basic services and solutions to problems in rural communities in the developing world since 1972.
- The United States' Agency for International Development's (USAID's) Improved Cookstoves (ICS) program, introduced to women in a rural district in the North Central Coast region of Vietnam in 2014, has expanded through the *Global Alliance for Clean Cookstoves* throughout Africa.

Conclusion

To upscale female empowerment programs, policymakers must learn from detailed testimonials and oral histories. A report issued by one prominent organization, Women Engage for a Common Future (WECF), uses case studies to promote female empowerment in the context of climate change policies.[1] The WECF report proposed alternatives to the dominant patriarchal development model including shifts toward a care economy with community-owned energy technologies. One of the report's authors, Gina Cortés Valderrama, emphasized that individuals as well as grass roots organizations, civil society, governments and policymakers, and funding organizations must recognize two "living concepts:" (1) Womxn – that women are not one homogeneous group and (2) Extractivism – that underlying structures support "a persistent mechanism of colonial plunder and oppression over time." The most difficult challenge ahead is whether policymakers will have the courage and fortitude to draft, implement, and enforce agreements that conserve resources and pressure companies and countries to change their entrenched practices and, over the long term, change the systems that have created and perpetuated inequality – reminding us of our complicity.

Reflexive oral histories (i.e., oral histories that represent multiple viewpoints) can document the pathways. Through the contributions, outlined herein, of students, colleagues, and feminist climate change activists, I hope that this book inspires others to create paths toward environmental social justice and female empowerment in the Global South. There are many ways to enrich your life and those of others! To further spark your creativity and further reflection, here are the latest 2022 winners of the Gender Just Climate Solutions awards (Fig. 28).

- In Togo, Yokoumi revolutionizes the shea butter sector (shea butter is a fat extracted from the nut of the African shea tree) and strengthens women's economic autonomy. This organization supports 50 producers of shea butter in the village of Kelizio village to form a woman-led cooperative for high quality and natural shea butter. It will install a photovoltaic solar plant to power its mill; and provide electricity to 1,600 inhabitants of this isolated and underserved rural area. To further reduce their dependence on fossil fuels and biomass, shea butter producers have invested in individual improved stoves.
- In Pakistan, the Sindh Community Foundation applies a "Feminist Participatory Action Research" approach to gather data on the priorities, needs, and demands of women agriculture workers to improve working conditions and health services in response to rising temperatures and extreme events. It establishes a training program for 100 women agricultural workers on climate awareness, climate justice, and labor rights protection; with the goal of pressuring policymakers to implement the Sindh Agriculture Women's Protection Act of 2020.
- In India, the Keystone Foundation brings together ancestral knowledge and modern science by supporting 20 indigenous women from Tamil Nādu and Kerala, named Women Barefoot Ecologists, as they observe, and monitor climate impacts on their forests, rivers, and farms. They have launched forest nurseries, community kitchen gardens, water source protection initiatives, and soon to come – a seed keeping social enterprise.

Fig. 28. Photo of 2022 Winners of the Gender Just Climate Solutions Awards (left to right) from Togo, Pakistan, and India. Copyright © 2022 Courtesy of Annabelle Avril, Photographer for the Women and Gender Constituency.

In addition, three of the five *Earthshot* 2022 Prize winners, created by Prince William, will provide £1m ($1.2m) to each of the following projects that may have the effect of uplifting women in Kenya, India, and Australia. To date, the projects do not appear to explicitly acknowledge the fabric of social justice that must be woven into climate change. The three projects are:

- Kenya's Mukuru Clean Stoves, which is a female-founded business with mostly female staff. This company produces stoves that are fired by processed biomass made from charcoal, wood, and sugarcane instead of solid fuels, which can lead to air pollution and accidents that claim four million lives each year.[2]
- India's Kaushik Kappagantulu's Greenhouse-in-a-Box helps smallholders protect their crops from extreme weather and pests, in a country that has been severely impacted by climate change.
- Australia's Indigenous Women of the Great Barrier Reef has trained over 60 women in both traditional and digital ocean conservation methods.

The problems we face are enormous and the challenges formidable. But grounds for hope exist in creativity, energy, dedication, and the will-to-cooperate among hundreds of millions of rural women in the Global South. Their solicitude for their families and their communities are a beacon of hope for all of us. Their work is ongoing. For example, in mid-March, 2023, Trupti Jain (of the *Bhungroo* irrigation project in India) was a featured speaker – and mentor – at the United Nations water conference (see Fig. 29).

Fig. 29. Invitation to an Event Organized by the WECF to Advocate for Gender Just Policies at the United Nations 67th Session of the Commission on the Status of Women. Featuring Trupti Jain (*Bhungroo* Irrigation Project).

Appendix: Actors and Affiliations

Cases	Topics	Names of Actors/Affiliations
1. Belize – Fragments of Hope	Restoring endangered coral reefs using women in power and members of the local community	<u>Nation-to-nation</u>: University of California Santa Cruz, University of West Indies, University of Belize; Penn State University of Miami, USF <u>Independent Actors</u>: Women scientists Journalists (e.g., *the Guardian*) <u>International</u>: UNFCCC Women for Results; Audubon Society; Sandwatch (UNESCO); GEF/SGP/Oak Foundation; Coral Restoration Foundation <u>Regional</u>: Trinidad, Jamaica, Mexico, Gulf and Caribbean Fisheries Institute in San Andres, Colombia <u>Local NGOs/interests</u>: Non-profits in Belize; local funders and community members; Plascencia Tour Guide Association; fisher's coop; Fisheries Administrator; Belize Fisheries Department; Minister of the Environment; Southern Environmental Association; TIDE; private entrepreneurs
2. Guatemala – The Meal Flour Project	Introducing new dietary supplement to poor families (women-run) (indigenous)	<u>Nation-to-nation</u>: University of Chicago, the Bay Area Global Health Innovation Challenge, the University of Chicago's College New Venture Challenge, and the Clinton Global Initiative University Resolution Project Fellowship, University of Wisconsin <u>Local NGOs/interests</u>: A local clinic in Quetzaltenango, Guatemala (Primeros Pasos); San Carlos University; Candelária communities; village of Huehuetenango; Fuyndacion Contra el Hambre [Anti-Hunger Foundation], Grenadillo community (Mam indigenous communities) <u>International</u>: UNFCCC GJCS; expand to Kenya; WEDO; CTCN

(*Continued*)

(*Continued*)

Cases	Topics	Names of Actors/Affiliations
3. Guatemala – Foundation for Ecodevelopment and Conservation	Organized healthcare for indigenous women	Local NGOs/interests: Guatemala City; surrounding rural communities; national NGOs; healthcare centers; staff and indigenous communities; midwives; legal system Nation-to-nation: Regional Central American Organizations International: UNFCCC; EU funding
4. Colombia – ENDA	Organized women's recycling collectives to protect local lands and deconstruct patriarchal frames	Local NGOs/interests: Jesuit institutions (IAP – research action, and participation), including Catholic schools; rural Colombia; Technical and Pedagogical University of Colombia; underserved communities in areas near Bogotá; feminist movement in Colombia; recycling families; Colombian government; Hunsuhua indigenous group International: Geneva Third World; Women of the World (French Development Agency) with contacts in Mali, Senegal, and Bolivia; ENDA's Communal Bank in Venezuela; Neighborhoods of the World; international "Solidarity Market"; WECF (French chapter)
5. Vietnam – Improved Cookstoves	Disseminated environmentally friendly cookstoves	Local NGOs/interests: Vietnam Women's Union (The WU has 13 million members in 10,472 local women's unions in communes and towns throughout the country); Con Cuông district involved about 300 women; Nghe Province: Nation-to-nation: USAID International: Stockholm Environment Institute; University of Natural Resources and Applied Life Sciences, in Vienna, Austria
6. Thailand – Women Conservationists and the Media	Showcased women activists in the mass media	Local NGOs/interests: All universities in Thailand – Suan Dusit Rajabhat University, a graduate degree from Naresuan University, and a graduate degree from Kasem Bundit University; 10 (out of 76) provinces for her solar farms; problems with politicians using positions to enrich family businesses (Yingluck Shinawatra – Thailand first female prime minister)

Independent actors: Role of one female journalist for the *Bangkok Post*, who did publish on female climate change activists Karnjana Karnjanatawe; and another female architect (Thailand's secret climate change weapon)

International: Momentum for Change Women for Results award through the UNFCCC; no commitment to Intended Nationally Determined Contribution

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Independent actors: Chulalongkorn University; Zoo and Wildlife Society of Thailand; University's Central Institute of Forensic Science to push back against politicians and government bureaucrats; with Mahidol University, the Thailand Hornbill Project, KhaoYai National Park, the National Center for Genetic Engineering and Biotechnology, and the PTTE (a national energy company that promotes sustainability); Tambon Administrative Organization and subsequently became vice president of the Sea Conservation Association of Chana

Local NGOs/interests: Protests against the Thai government; and hesitancy to help poor communities; network that connected 480 communities nationwide (titled "The Community of Networks on Social and Political Reform"); Assembly of the Poor, the People's Movement for a Just Society, the Four Regions Slums Network, and the Northern Farmers Federation; negotiate between opposing interest groups at the national level and effectively challenge international organizations such as International: the Asian Development Bank and Japan's Overseas Economic Cooperation Fund; IUCN; University of Salzburg (Austria); domestic and international scientific NGOs; Rolex award and with colleagues at Meijo University in Japan. Wildlife Sanctuary in Malaysia; World Commission on Dams

(*Continued*)

(*Continued*)

Cases	Topics	Names of Actors/Affiliations
7. Italy – Progetto Quid	Provides job opportunities for poor and disenfranchised women who learned to recycle waste created by the fashion industry	Local NGOs/interests: women who had suffered domestic abuse, those who had completed prison terms for drug and alcohol-related crimes, and migrant sex workers from Nigeria and the Ivory Coast. Based in Verona and Milan International: UNFCCC's Women for Results; for the future, an EU scale, Portugal, Spain, and Greece; possibility of setting up operations in Bangladesh
8. Türkiye – Imece Inisifiyati	Trains women in Syrian refugee camps to assemble and sell solar batteries	Local NGOs/interests: Izmir, Türkiye, Syrian refugee women; invisible populations such as the historically nomadic Dom communities that face a great deal of discrimination in Türkiye today; over four million displaced persons in Türkiye and only 5% in official settlement camps (of Çeşme in Izmir Province, forming communal villages) – not recognized by the Turkish government; contacts with small local doctors and businesses; at times, the Coast Guard; Raja Foundation and Eurofins Foundation (for funding) International: a network of a few hundred volunteers from Japan, Argentina, and Brazil; The Barefoot College in India, Doctors without Borders, UN Refugee Agency; Paris Sorbonne; French non-profit, Singa

9. Uganda – Women's Empowerment for Resilience and Adaptation Against Climate Change	Structures financial support for women farmers, who are uniformly marginalized, to implement farming methods that reduced carbon emissions and upgraded their social status	Local NGOs/interests: In Uganda's local districts of local districts of Kamuli, Buyende, Iganga, Kaliro, and Jinja; Makerere University with a master's degree in computer science and information management while working as a project manager for VEDCO (Volunteer Efforts for Development Concerns); 250,000 women pooled their resources; Unresponsive Ugandan government; lack of government enforcement of gender equity policies; try to extend to Ethiopia and Somalia, and India Nation-to-nation In the United States, Innovations for Poverty Action, which has helped over 20 countries in the Global South International: UNFCCC Women for Results Program; United Nations World Food Program; United Nations Development Program (UNDP); UNDP-GEF, CARE International, Plan International, CORDAID Netherlands, and USAID
10. Tunisia – Association of Environmental Education for Future Generations	Targeted local communities to influence decision makers and get rid of dangerous chemicals	Local NGOs/interests: Trained 40 women in Tunisia – centered toward national change; educate young Tunisians; works to influence decision makers; national Ministry of Health; 2022, three Tunisian ecofeminists had established three different organizations to introduce innovative ways to support women and promote environmentalism – BlueTN (Mayssa Sandli). She is the Goal (Soumaya Razgallah), and Chai Kbir (Mayssem Marzouki) Regional: regional hub for the International Pollutants Elimination Network. International: UN Women Arab States; also has worked with the Women Environmental Programme that is supported by the European Union through the Women2030 project. sponsored by Oxfam International and Kvinna till Kvinna [Woman to Woman] (a Swedish foundation) that promotes women's rights in more than 20 war- and conflict-affected countries in the Middle East, Africa, Europe, and the South Caucasus

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Notes

Chapter One

1. The WGC was established in 2009. As of 2011, they have been present at every UNFCCC meeting and intersessional to work alongside the UNFCCC Secretariat, governments, civil society observers, and other stakeholders to ensure that women's rights and gender justice are core elements of the UNFCCC. The 33 organizations that WGC represents are as follows: All India Women's Conference (AIWC); All India Women's Education Fund Association (AIWEFA); Asia-Pacific Forum on Women Law and Development (APWLD); Asian-Pacific Resource & Research Centre for Women (ARROW); Association Démocratique des Femmes du Maroc (ADFM); Association Jeunesse Verte du Cameroun (AJVC); Centre for 21st Century Issues (C21st); CliMates; Danish Family Planning Association (DFPA); ENERGIA International Network on Gender and Sustainable Energy; FAWCO; Gana Unnayan Kendra (GUK); LIFE – Education Sustainability Equality; GenderCC – Women for Climate Justice; Global Forest Coalition; Huairou Commission; International Council for Adult Education (ICAE); International Institute for Sustainable Development (IISD); Italian Climate Network; Landesa; LAYA; Margaret Pyke Trust; NGO CSW/NY; Practical Action; Rural Women Energy Security (RUWES) Initiative; Solar Cookers International; Support for Women in Agriculture and Environment (SWAGEN); Watershed Organisation Trust (WOTR); Women Environmental Programme (WEP); Women Engage for a Common Future (WECF); Women Organizing for Change in Agriculture and Natural Resource Management (WOCAN); Women's Environment & Development Organization (WEDO); and Youth Action for Development (AJED-CONGO). See "Women & Gender Constituency," Women & Gender Constituency, accessed October 4, 2021, https://womengenderclimate.org/.
2. *Gender Just Climate Solutions*. Women & Gender Constituency, September 26, 2021, https://womengenderclimate.org/gender-just-climate-solutions-2/. For more information on past awardees, see the database.
3. Bearak (2022).
4. This issue of inclusivity is of primary importance to the WGC. On the first day of COP26, a member of the Mexican delegation, Emilia Reyes, sent out the following message to the WGC: "I'm at a meeting with the EIG (the negotiation group). Yesterday the presidency announced that the rooms for negotiations were too small, and therefore not even all parties will be allowed in. So, there will only be tickets for negotiating groups and not for all the parties, inviting those without any ticket to attend the meeting virtually. It's outrageous, because many developing countries spent public resources to attend because the presidency refused to organize a hybrid conference and everybody was forced to come, to pay obscene costs for staying, and now individual voices won't be heard, despite the fact that different agendas have different champions."
5. https://sdgs.un.org/goals
6. For information about the UNFCCC program, see https://unfccc.int/climate-action/un-global-climate-action-awards/women-for-results; and for Gurung's award, see https://unfccc.int/climate-action/momentum-for-change/women-for-results/the-w-standard.
7. *Women Organizing for Change in Agriculture and Natural Resource Management*. WOCAN, September 23, 2021, https://www.wocan.org/.
8. Christoff and Sommer (2019).

9. Special thanks to Erin Byers for finding and annotating current bibliographic references for this and subsequent chapters. She was assisted by Christine Fena, Academic Success Librarian, Stonybrook University Libraries.
10. Ngigi et al. (2017).
11. Gonda (2017).
12. Balehey et al. (2018).
13. Kerr et al. (2018).
14. Lai (2010) summarizes these points.
15. In *The Creation of Patriarchy*, Gerda Lerner (1987) first traced the roots of patriarchal dominance through historical, archeological, literary, and artistic evidence, to show that patriarchy is both an ideological and cultural construct.
16. According to the environmental sociologist, Jamie Sommer, there is a women's workplace and equality index: https://www.cfr.org/legal-barriers/country-rankings/. She also identified a short statistical take on women's equality: https://www.statista.com/statistics/1221060/most-gender-equal-countries-in-the-world/. There is also the women's peace and security index: https://giwps.georgetown.edu/the-index/. And there is an article that has some measurement of patriarchy in Europe: https://www.tandfonline.com/doi/full/10.1080/1081602X.2014.1001769. If one were to construct a patriarchy index, the *Varieties of Democracy* dataset has many variables that measure women's rights and participation across time and many countries. Here is an article describing some of these data: https://www.v-dem.net/media/filer_public/27/ef/27efa648-e81e-475a-b2df-8391dc7c840b/v-dem_working_paper_2015_19.pdf.
17. Rao et al. (2017).
18. Jordan (2018).
19. Adzawla et al. (2019).
20. Goli et al. (2020).
21. Patnaik (2021).
22. The interview outline and the required release forms for the women's oral history collection were adapted from the Library of Congress's Veterans' Oral History project. See https://www.loc.gov/vets/kit.html.
23. The oral histories are in a digital collection at Stony Brook University under the title, "Women in US–Asian Relations." See https://library.stonybrook.edu/digital-projects/women-in-us-asian-relations-oral-history-project/. They include accounts of women who pursued careers as artists, business executives, diplomats, human rights advocates, immigrants, journalists/social media specialists, lawyers, medical professionals, philanthropists, policy analysts, scholars, and scientists. To date, this is the only systematic collection of oral histories that I am aware of in which women specifically discuss the challenges they faced in their careers in male-dominated, hierarchical organizations.
24. Winters and Ozdal (2021).
25. Antonio and Begum (2021).
26. Phillips (2021).
27. Gurler and Schieda (2021).
28. Feinberg and Robinson (2021).
29. Pollard and Hernandez (2021).
30. Chahal (2021, p. 8).
31. Gomez et al. (2021).
32. Kuruvilla (2021) and Chen et al. (2021).
33. N. Ahmed et al. (2021).
34. Kuruvilla et al. (2021), Chen et al. (2021), and Norzin (2021).
35. Decicco et al. (2021).
36. N. Ahmed et al. (2021).
37. Decicco et al. (2021).
38. Tavares et al. (2021).

39. Gurler and Schieda (2021).
40. Winters and Ozdal (2021).
41. Rubab et al. (2021).
42. Bem (1981).
43. Ahn et al. (2021).
44. Nurlaily et al. (2021).
45. Hegarty and Sarter (2021).
46. Ng'ong'a (2021).
47. Rauf and Saputra (2021).
48. Massawe (2021).
49. Hall (2021).
50. Hasti et al. (2021).
51. Shohel (2021).
52. Afolabi (2021).
53. Flavelle et al. (2021).
54. Yasmeen Watad's comments were in the context of an independent study project on women and climate change, fall 2021.
55. For more information on negotiations, competition, and collaboration among women, see Grant (2016).
56. Peggy Ann Spitzer, interview with Biplab Paul, April 19, 2019. Because of the conversational tone of the interview and uneven sound recording, I paraphrased Paul's comments (Voice Recording (VR) 36:21:00–37:29:00).
57. Spitzer (2019) (VR 22:29:00).
58. Spitzer (2019) (VR 19:19:00, 30:23:00, and 30:49:00).
59. Spitzer (2019) (VR 11:23:00–11:30:00).
60. Spitzer (2019) (VR 11:53:00–12:06:00 and 13:22:00–13:27:00).
61. Spitzer (2019) (VR 31:43:00, 32:26:00, 33:01:00, and 34:54:00).
62. Spitzer (2019) (VR 17:03:00).
63. Antonio and Begum (2021).
64. Torres and Cheung (2021).
65. Gomez et al. (2021), Antonio and Begum (2021), and Choi and Park (2021).
66. Chen et al. (2021).

Chapter Two

1. Women Engaged for a Common Future (WECF) also has a cheat sheet (https://www.wecf.org/cop27-cheat-sheet-your-guide-for-relevant-cop-terms/) specially designed for those who attending the 2022 UNFCCC's climate change conference (COP27). It contains many useful links to documents that explain the history and status of terms and treaties.
2. https://www.unesco.org/en
3. https://sdgs.un.org/goals
4. https://www.gov.uk/government/organisations/department-for-digital-culture-media-sport
5. https://whc.unesco.org/en/list/
6. https://www.gov.uk/government/organisations/arts-and-humanities-research-council
7. https://www.theoryofchange.org/what-is-theory-of-change/
8. https://awhf.net/
9. https://www.climateheritage.org/
10. https://www.iccrom.org/programmes/world-heritage-leadership-whl
11. https://www.iucn.org/
12. https://www.iccrom.org/
13. https://en.unesco.org/culture-development
14. https://changingthestory.leeds.ac.uk/praxis/

15. https://www.unesco.org/en/articles/unesco-world-2030-survey-report-highlights-climate-change-top-challenge-over-next-decade?TSPD_101_R0=080713870fab2000d9d0189cba5651eeb3951d4
16. https://redd.unfccc.int/
17. https://unfccc.int/
18. https://www.care-international.org/
19. https://unfccc.int/climate-action/momentum-for-change/women-for-results/more-corals-more-fish
20. https://www.un.org/en/academic-impact/capacity-building
21. https://www.un.org/en/climatechange/all-about-ndcs
22. https://unfccc.int/process-and-meetings/the-paris-agreement/nationally-determined-contributions-ndcs/indcs
23. http://www.ccafs-climate.org/about/
24. http://www.ccafs-climate.org/
25. https://unfccc.int/topics/gender/workstreams/the-gender-action-plan
26. https://www.un.org/en/climatechange/paris-agreement
27. http://ngos.org/what-is-an-ngo/
28. The conference, titled "Heritage and our Sustainable Future: Research, Practice, Policy, and Impact" took place in February and March in 2021. Five panels focused on various aspects of climate change and gender equity: (1) cultural heritage and climate change; (2) evaluating the impact of cultural heritage for sustainable development; (3) heritage, disaster response, and resilience; (4) reducing inequality: people-centered approaches; and (5) rethinking capacities. One of the approximately 60 presenters advocated for the creativity of women and small farmers (Dr. Sandip Hazareesingh in the history department at The Open University). One participant supported social justice and gender equality and sustainable development (Sophia Labadi, Professor of Heritage, University of Kent). Six other presenters worked on climate change – one from African World Heritage Fund, one from the Climate Heritage Network Secretariat (www.climateheritage.org), one from the IUCN on ecosystem-based adaptation, one from ICCROM's Urban Heritage, Climate Change and Disaster Risk Management Programme Unit, one from the Open University, and one from the Institute of Conservation (ICON).
29. As a member of the United Nations Sustainable Development Group, a coalition of United Nation's agencies and organizations, UNESCO is focused fitting its activities into the United Nations' 17 SDGs, which are: (1) no poverty, (2) zero hunger, (3) good health and well-being, (4) quality education, (5) gender equality, (6) clean water and sanitation, (7) affordable and clean energy, (8) decent work and economic growth, (9) industry, innovation and infrastructure, (10) reducing inequality, (11) sustainable cities and communities, (12) responsible consumption and production, (13) climate action, (14) life below water, (15) life on land, (16) peace, justice, and strong institutions, and (17) partnerships for the goals.
30. Two different comments from attendees, opposite in content but equally arrogant in tone because of its general assumptions about the Global South, indicate a lack of sensitivity to those who are suffering:

    - "Having worked in emergency response for many years, I can tell you that many people prefer being hungry rather than not rebuilding their temple or cherished cultural center."
    - "Coming from a conflict region, I can tell you that no one in these regions prefers rebuilding their cherished cultural heritage instead of having food for their hungry children … most post-conflict reconstruction comes from international and private donors who decide what to rebuild!!!"

31. Larsen and Logan (2018).

32. See https://en.unesco.org/futurewewant
33. By far, the largest number of projects (34%) are in Asia and 22% of those are in coastal and marine areas.
34. https://unesco.org.uk/conference/heritage-and-our-sustainable-future/research-practice-policy-and-impact/#HOSFSeries
35. Comment at UNESCO's "Heritage and Our Sustainable Future: Research, Practice, Policy, and Impact" in February and March in 2021.
36. Comment by Carlos Jaramillo at UNESCO's "Heritage and Our Sustainable Future: Research, Practice, Policy, and Impact" in February and March in 2021.
37. Only one presenter offered a glimmer of hope when he posed the question of how UNESCO's practices could support gender and wider equalities and human rights, promote inclusion and accessibility, addressing inequalities and poverty, or deepening existing inequalities.
38. Kaufman (2021).
39. Yasmeen Watad's comments were in the context of an independent study project on women and climate change, fall 2021.
40. REDD+ is a framework created by the UNFCCC Conference of the Parties (COP) to guide activities in the forest sector that reduces emissions from deforestation and forest degradation, as well as the sustainable management of forests and the conservation and enhancement of forest carbon stocks in developing countries. The Women and Gender Constituency (WGC) has criticized REDD+ programs as "false solutions."
41. Larson et al. (2018).
42. Bhandari et al. (2019).
43. Lau and Ruano-Chamorro (2021).
44. CARE Climate Change (2020).
45. Mcleod et al. (2018).
46. Huyer et al. (2020).
47. For more information on INDCs, NDCs and gender equality, see https://www.climatechangenews.com/2020/12/11/time-gender-equality-leadership-new-ndcs/.
48. Here are the population statistics as of 2020: Guatemala with 17.9 million, Nepal with 31 million, Uganda with 45.7 million, and Tanzania with 59.7 million.
49. Freeman and Mulema (2021).
50. In an email exchange (on September 9, 2021) Professor David Sperling, Research Professor at the Institute for Public Policy and Governance at Strathmore University in Nairobi explained: "One of the problems of learning about such projects locally is that the funding goes to the national government in Nairobi, not directly to the County Government. There is still ongoing "financial tension," if we can call it that, between the national government and the sub-national County governments."
51. Rao et al. (2019).
52. Hughes (2021).
53. A social enterprise does not have one single, solidified definition, but rather, it can be interpreted and used to describe several different situations. The term must be contextualized and understood with flexibility because the structure, types of partnerships, and various functions of a social enterprise are complex. However, there are shared characteristics of social enterprises, outlined by Ana Maria Peredo and Murdith McLean (2006) in their critical review of social entrepreneurships.

    [They all] (1) aim(s) at creating social value, either exclusively or at least in some prominent way; (2) show(s) capacity to recognize and take advantage of opportunities to create that value; (3) employs(s) innovation, ranging from outright invention to adapting someone else's novelty, in creating and/or distributing social value; (4) is/are willing to accept an

above-average degree of risk in creating and disseminating social value; and (5) is/are unusually resourceful in being relatively undaunted by scare assets in pursuing their social venture (Peredo & McLean, 2006, p. 64).

Additionally, "[social enterprises] connect two different aspects, which means they attract those who are interested in the social mission and those in making profits" (Ferrarini 13). In essence, it is important to understand the complexities surrounding this term.

54. As their connections with other organizations and funders grew, so did the scale and scope of Trupti and Biplab's creation. For instance, their *Bhungroo* technology and services have received several awards including the national DST Lockhead Martin India Innovation Growth Programme Innovation Award; regional recognition from Syngenta Agriculture Social Enterprise Award; the DBS-NUS Social Venture Challenge Asia Award; international acknowledgment from UNFCCC Momentum for Change's "Women for Results" Award, the Cartier Women's Initiative Award, Buckminster Fuller Challenge, among many others – from our Sustainability article.
55. Lwiza interview with Kunika Chahal (April 24, 2020).
56. https://www.wocan.org/the-w-standard/
57. To access Kunika's research paper on this topic, see https://exhibits.library.stonybrook.edu/s/mirroring-hope-bhungroo-oral-history-project/item/6525
58. Because our model combines Naireeta Service's *Bhungroo* irrigation technology with WOCAN's W+™ Standard, we hoped to find sponsoring companies. We found that WOCAN's Solafrica Bokpoort SCP Programme in South Africa may be an important reference point relevant because it also focuses on water supply systems. In fact, Solafrica Bokpoort is in the process of implementing, "a series of activities benefiting women, including water supply systems, solar lightning, soup kitchens and feeding groups, training and counseling on primary healthcare, substance abuse, gender-based violence and reproductive health, and an incubator for women-owned SMEs" (WOCAN, 2019). This project, which is like the one proposed for Turkana County, becomes certified after the *Bhungroo* technology is implemented and trained project developer certifies its efficacy.
59. According to colleagues in Kenya, gender mainstreaming is a globally accepted strategy for promoting gender equality. It is a means to achieve the goal of gender equality; and involves ensuring that gender perspectives and attention to the goal of gender equality are central to all activities in policy development, research, advocacy/dialogue, legislation, resource allocation, planning, implementation and monitoring of policies, programs, and projects. In July 1997, the United Nations Economic and Social Council defined the concept of gender mainstreaming as follows:

> […] the process of assessing the implications for women and men of any planned action, including legislation, policies or programmes, in all areas and at all levels. It is a strategy for making women's as well as men's concerns and experiences an integral dimension of the design, implementation, monitoring and evaluation of policies and programmes in all political, economic and societal spheres so that women and men benefit equally and inequality is not perpetuated. The ultimate goal is to achieve gender equality. (United Nations Economic and Social Council Report, 1997)

In a field study such as this one, gender mainstreaming usually involves undertaking a gender analysis – with a view toward identifying inequalities between men and women, which need to be addressed in the process of technology development uptake and upscaling – and providing equal opportunities to all and carrying out gender-specific actions wherever inequalities are pronounced in the process of technology development uptake and upscaling. On example is the Harvard Gender Analytical Framework, which focuses on answering such questions as: (a) Who does what activity? (b) Who has access to what productive resources?

(c) Who has control over what productive resources? (d) Who benefits from what resource? This is in addition to analyzing the so-called "influencing factors" (e.g., norms, institutional structures, and socio-economic and political hierarchies).

60. Erin Byers comment was in the context of an independent study project on women and climate change, fall 2021.
61. There is a cost to become a part of the W+™ Standard network, but the organization pays that cost, not the people in need. To ensure optimal success, a main project developer (for each W+ endorsed project) prepares regular reports on the ongoing results of the initiative.
62. In addition to myself, the team members included one other person at Stony Brook University and four other scientists in Kenya. All were dedicated participants. To understand more about the team composition, here are the members' names and areas of expertise:

- An Assistant Professor in the Department of Civil Engineering at Stony Brook University, **Ali Khosronejad** has worked on water resources engineering issues in Iran, Canada, and the United States. Among his numerous publications, with NSF-funding, are articles related to simulation based in-stream structure designs. He has actively participated in developing the Virtual Flow Simulator (VFS-Geophysics) of computational fluid dynamic codes; and has begun work in rural communities around the Turkana Basin in Kenya where our research takes place.
- A Research Professor who has worked on food and water issues in Kenya for 20 years, **Michael Maero Wawire**, has formed a research consortium involving local and foreign institutions specifically to conduct collaborative research in roughly 15 projects around food agriculture nutrition, energy, the environment, and water – including novel desalination and irrigation techniques for poor rural communities in arid and semi-arid lands. His expertise in climate change mitigation and adaptation, and experience in training farmers to utilize the technology to enhance food production, led him to develop the work plan for this project.
- A Senior Research Scientist who, over the past decade, has published 15 scientific and technical articles on livestock, cropping, land use, and housing in Turkana County, **Jesse Omondi Owino**, brings to this project an expertise in climate change adaptation and gender conscious and youth activities in rural communities.
- **David Sperling** has taught in Kenyan universities for over 30 years, first at the University of Nairobi and most recently as Research Professor in the Institute of Public Policy and Governance of Strathmore University. He is the Founder of the Utawala Applied Research Institute, which has worked closely with the Council of Governors of Kenya and which has been working with the Turkana County Government for the past three years since March 2018. The main work of Utawala in Turkana County is to provide support to the communities and the management committees of the numerous agricultural irrigation schemes in the County, He has received support from Oxfam and USAID for this work. His Utawala Research Institute has been chosen by USAID to participate in the co-creation of a Local Development Organization (LDO) for the County-driven Sustainability Project of Turkana County.
- As a Board Member of several national professional environmental organizations, **Fabian Kabura**, has utilized his engineering expertise in agriculture, livestock, and land and water management to develop national and international partnerships that has included environmental impact assessments and audits. Among his numerous professional activities, the World Bank has named him as the national monitoring and evaluation officer in charge of irrigation infrastructure.
- The Technical Initiatives Manager for the Turkana Basin Institute, **Acacia Leakey** has facilitated research in remote areas of northern Kenya and has served as the lead engineering and project manager for Off-grid Solutions for African Economic Development (SOSAED).

Chapter Three

1. Keck and Sikkink (2014).
2. For a further assessment, see also Evans and Rodríguez-Garavito's (2018) edited volume.
3. Arensman et al. (2017).
4. Osterhoudt (2018).
5. Makondo and Thomas (2018).
6. Rosenberg (2018).
7. Borde and Bluemling (2021).
8. Goodall and Hekmat (2021).
9. In fact, these women focused on the traumas they endured when they were forced to abandon their livelihoods to escape the Taliban and move to urban slums and minimized their struggles in migrating to Australia to escape climate-related disasters.
10. Dauvergne and Shipton (2021).
11. In the early 2000s, my research had been published in a general interest magazine through the Chicago Historical Society, in an international scholarly publication, *The Journal of Women's History,* and was part of a scholarly monograph I wrote, *Tracking the Yellow Peril: The INS and Chinese Immigrants in the Midwest*. See Christoff (1998a, 1998b, 2001a, 2001b, 2001c, 2001d, 2001e).
12. Ritchie (2003). I had worked with Ritchie and the Indian historian, Romila Thapar, to develop a symposium, "Stories of our Nations, Footprints of our Souls" at the Library of Congress (May 2004).
13. The New School for Social Research's New University in Exile course titled "Feminist Research Methodologies and Digital Feminist Research," challenged the commonly accepted (and male constructed) "scientific method." Thousands of students and scholars from around the world attended this seminar, taught by Asli Kotaman and Pelin Yalçinoğlu Kaplan, political exiles from Türkiye, in the fall of 2021.
14. Harding (1987, p. 9).
15. The randomized anonymous protocol is commonly used in, for example, the US Agency for International Development, which seeks to protect "Personally Identifiable Information" as a standard in social science research.
16. For the full essay, see http://stonybrook.schemacms.com/#/.
17. A scholar of Asian American philosophy, Gary Mar, points out that universal meanings in stories depend on recording details; and that is why they are completely different from bursts of ideas in social media. According to Mar, "Multiple disconnected images in social media distract us from ourselves, the lives we live, and the history we make." He uses Charles Dicken's reflection at the beginning of *David Copperfield* to emphasize the importance of first-person stories: "Whether I shall turn out to be the hero of my own life, or whether that station will be held by anybody else, these pages must show."
18. In translating classical Chinese poetry, David Hinton also observed that women are the ones who focus on the immediate physical experience, which is deeply ecological.
19. For more information about this, see Bottigheimer (2009).
20. See Ruth Bottigheimer (2000). It is possible to hypothesize that when economic power is gendered – and dominated by men – women are excluded; and their voices are silenced.
21. The following students worked on the oral interviews: Jamie Sommer and Aidee Sauceda Davila (Belize), Erin Byers and Martha Maria Chavez Negrete (Guatemala and Colombia), Leio Koga (Italy and Uganda), and Yasmeen Watad (Tunisia).
22. https://unfccc.int/climate-action/momentum-for-change/women-for-results/more-corals-more-fish
23. http://www.mealflour.org/
24. https://fundaeco.org.gt/fe/
25. http://www.endacol.org/
26. Christoff and Sommer (2018).

27. https://unfccc.int/climate-action/momentum-for-change/women-for-results/from-waste-to-wow
28. https://www.imeceinitiative.com/
29. https://unfccc.int/climate-action/momentum-for-change/women-for-results/womens-empowerment-for-resilience-and-adaptation-against-climate-change
30. https://sdgs.un.org/partnerships/association-environmental-education-future-generations-aeefg

Chapter Four

1. FOH's social framework confirms Bottigheimer's historical research that there was a correlation between a woman's loss of reproductive rights (whether by choice or social pressure) and her exclusion from the money economy, which would restrict the possibility pursuing an independent livelihood.
2. As of 2020, *MealFlour* became registered as a non-profit in Guatemala under the name *Asociación Todos Juntos por la Resiliencia Comunitaria (Todos Juntos)*.
3. See Frank and Wimer (2018); Leslie (2016); Hadavvas (2016); Pezzato, L. Three girls fighting malnutrition in Guatemala (*21 Bites* 2019); MealFlour (*Youth Solutions Report* 2018 Edition, p. 73); *MealFlour: 2020 Annual Report* (www.mealflour.org).
4. As a member of the 20 member UNFCCC jury, I interviewed Monzón over *Zoom*. It turned out that *MealFlour* was one of three projects the entire jury selected to receive the GJCS award and recognize Monzón as the driving force behind this initiative. The *GJCS* jury committee received over 150 submissions in 2021. As for Monzón's specific role, she is the director of Todos Juntos – as the legal representative, finance manager, and field director. She also has the title of co-director of programs because, according to legal requirements, Todos Juntos must have a foreign partner.
5. In previous summers, Wimer had worked to improve sexual and reproductive health education in Rwanda, and Frank performed clinical research on household air pollution in Nigeria.
6. https://scopeblog.stanford.edu/2016/04/15/mealworms-win-top-prize-in-bay-area-global-health-innovation-challenge/
7. https://polsky.uchicago.edu/2019/04/19/three-college-new-venture-challenge-alums-aim-to-solve-global-health-issues-with-edible-worms/
8. https://mag.uchicago.edu/education-social-service/diet-worms
9. Mealworms are the larval form of the mealworm beetle. From a diet of organic food waste, the worms grow to be about one inch long with 55.4% protein – more than twice as protein efficient as beef.
10. The students, all but one female, majored in social work, veterinary medicine, biology, and anthropology.
11. https://wedo.org
12. https://www.ctc-n.org
13. https://www.wecf.org/herstoryofchange-karens-story/
14. The Summit Foundation in Washington, DC has provided substantial financial support to FUNDAECO. None of its trustees and staff appear to have an affiliation with the Catholic Church, and are affiliated with such organizations as the Smithsonian Institution, the Wildlife Conservation Society, and the United Nations.
15. https://you.stonybrook.edu/fgmproject/
16. Among these international organizations are Winrock International, the Netherlands Development Organization, Climate Focus, The Center for People and Forests, and the US Agency for International Development (USAID).
17. Brady et al. (1994).
18. USAID/LEAF (2014).

19. Giri (2017).
20. Years later, she became a senior manager in the Global Restoration Initiative on equity-integrated programming for the World Resources Institute (WRI) in Washington, DC.
21. These organizations are: Winrock International (WI), SNV, Netherlands Development Organization, Climate Focus (CF), The Center for People and Forests (RECOFTC), and USAID LEAF Vietnam.
22. USAID/LEAF (2014, p. 28).
23. USAID/LEAF (2014, p. 9).
24. After our interview, I sent Kalpana the transcript of our interview to review, and she provided comments on a draft of one of my articles for a scholarly publication.
25. For more information on this, see the Global Alliance for Clean Cookstoves, a public–private partnership endorsed by the UN Foundation (https://cleancookstoves.org).
26. Among the organizations with whom she worked were the World Bank's International Finance Corporation, the Clean Energy Fund, the Thai government's ESCO fund, and local lenders Kasikorn Bank, Bank of Ayudhya, and Thanachart Bank.
27. The *Bangkok Post* stories are as follows: Karnjana Karnjanatawe, "All Fired Up" (February 17, 2014); "Struggle for her Homeland" (March 15, 2014); "The River of Dreams" (March 31, 2014); "Slippery Customers" (June 2, 2014); "A Legacy Lives On" (June 23, 2014); "Mother Nature" (December 2, 2014); "Encroaching on Male Territory" (February 2, 2015); "All the Glitters …" (April 29, 2015); "Under Mother Nature's Watch" (August 3, 2015); and "The Good Fight" (August 18, 2015).
28. Christoff and Sommer (2018).
29. I have observed this "moral responsibility" theme in twentieth century American history when Francis Willard, an American educator, temperance reformer, and women's suffragist, famously stated "The world wants women's very best and will smite them if they do not hand it over."
30. https://youtu.be/KLfF-GjwQyo
31. Leio found that social enterprises in Europe target specific problems – like the waste created by the fashion industry in Italy – to combat larger problems like climate change. She also did extensive research to learn about the range of social enterprises around the world. For her complete project report, see https://exhibits.library.stonybrook.edu/s/mirroring-hope-bhungroo-oral-history-project/item/6526.
32. For more information, see https://barefootcollegetilonia.org.
33. For a description of all eight programs, see https://www.imeceinitiative.com/en/projects.
34. https://singafrance.com/en/about/
35. https://www.doctorswithoutborders.org
36. https://www.unhcr.org
37. https://www.undp.org
38. https://www.sgp.undp.org/spacial-itemid-projects-landing-page/spacial-itemid-project-search-results/spacial-itemid-project-detailpage.html?view=projectdetail&id=20453
39. unfccc.int/mfc2016/project.html?p=uganda-women-as-important-agents-of-change-and-innovation
40. https://www.poverty-action.org/about
41. There were many Indians living in Uganda, a relic of British Empire, I suppose, until Dictator Idi Amin expelled them in 1972 in an effort at "ethnic cleansing."
42. In Chapter One, Biplab mentioned at least seven states in India that could benefit from RUCODE's initiatives: Andhra Pradesh, Uttar Pradesh, Maharashtra, Bihar, Karnataka, Gujarat, and Jharkhand.
43. During COVID, Yasmeen conducted intensive research on NGOs – to conduct informational interviews – involved learning how to search databases and develop annotated bibliographies. That term, she attended six online training programs offered by our library to learn how to fully explore databases, which included learning how to use a citation management

tool, *Zotero,* learning about digital privacy, and working one-on-one with the undergraduate reference librarian, Christine Fena, to choose her own "research journey adventure."

44. Sultana (2022).
45. MacKinnon (1983).
46. For further information about her WRT102 personal essay, contact her at ywatad@gmail.com
47. https://www.women2030.org
48. Yerkes and McKeown (2018).
49. UN Women Arab States (2022).

Chapter Five

1. Janif et al. (2016).
2. I had a similar experience in the early 1980s when I was doing field research in China about how traditional Chinese scientists collected data throughout rural villages to chart the efficacy of acupuncture, animal behavior during earthquakes, and dietary patterns among those who contracted esophageal cancer. After returning to the United States and interviewing American scientists who were engaged in research exchanges in these areas with Chinese scientists, I learned that western-trained scientists generally disregarded the Chinese research, believing that controlled experiments in the laboratory were more reliable than observations in the field.
3. Wang (2017).
4. It is noteworthy that Wang is Dean of Office of International Affairs and Professor of the Department of Drama Creation and Application, National University of Tainan (Taiwan) and that she uses oral history in her research in the field of applied theater.
5. Mashizha (2019).
6. Free diving refers to not using oxygen masks or other breathing equipment (Chisholm Hatfield & Hong, 2019).
7. The numbers were not in the original article but were provided through email correspondence with Professor Hatfield on July 21, 2022. The interviews took place in Cheongsando, Jeju, and Wando.
8. Nimmo et al. (2020).
9. Hazareesingh (2021).
10. Environmental anthropologists refer to this as "translational knowledge," that is, creating shared knowledge on climate change that is actionable and relevant, and incorporates both scientific and local traditional knowledge on climate change.
11. The villages are Nani Chandoori, Dudhkha, and Aritha in the Patan District.
12. For a simple description of *Bhungroo*, see https://unfccc.int/mfc2014/lighthouse-activities/women-for-results/bhungroo/
13. Note: the farmers' names, in bold type, are pseudonyms. To identify gender, I have kept the naming convention from the Gujarati language as follows: "ben" at the end of a woman's name, is an honorific term and means "sister"; and "bhai," which is often but not always at the end of a man's name, means "brother." I selected Gujarati names as pseudonyms that have uplifting meanings and positive qualities. See Table 1 in this chapter for their associated meanings.
14. To learn more about the farmers and peruse through their oral histories, visit https://exhibits.library.stonybrook.edu/s/mirroring-hope-bhungroo-oral-history-project/page/welcome
15. One recent news article that explains this situation in Bangladesh is C. Davison (2022).
16. "College" in the context of rural Gujarat is probably not what we, in the Global North, would think of. It may be more like a community college or a girls-only enhanced high school.
17. A borewell is a deep, narrow well for water that is drilled into the ground and has a pipe fitted as a casing in the upper part of the borehole, typically equipped with a pump to draw the water to the surface.

Chapter Six

1. Alevi is the largest religious minority in Türkiye. They fall under the Shi'a denomination of Islam.
2. Though not feminist in nature, one well-known example of the difference between public figures and intellectual force was the Solidarity Movement in Poland, in which a shipyard electrician by trade who later became president of Poland, Lech Walesa, was the well-known international figure but the actual architect of democratic freedom was the intellectual/philosopher, Leszek Kołakowski.
3. Published by Sage in *New Media & Society*, an international journal that was established over 20 years ago to provide a forum on the social dynamics of media and information change, this journal announces that it belongs to the Committee on Publication Ethics (COPE).
4. See https://doc.arcgis.com/en/what-is-gis/showcase/.
5. Tharu and Yadav (2018, p. 9).
6. One program, Stree Shakti ("she leads") is an online training program to support women political leaders; Myrada ("building poor people's institutions") is a non-governmental organization (NGO) that apparently receives government support to establish self-help groups (SHGs) for poor rural women and influence national policy.
7. Andra and Jenitha (2020, p. 14).
8. Nurwahidah et al. (2019).
9. Many models in international development use self-empowering tools, including rapid rural appraisal (RRA), participatory rural appraisal (PRA), and participatory learning and action (PLA). These are sets of approaches, methods, behaviors, and relationships for finding out about local context and life. See Robert Chambers (2007).
10. Ali et al. (2018).
11. The government has established thousands of tele centers that include Pusat Internet Desa, Medan InfoDesa, Community Access Centers, and Computer Literacy Classes.
12. See https://you.stonybrook.edu/teamhbv/.
13. See https://www.icarsh.org/topics/. The committee includes scholars and practitioners primarily from Europe and Southeast Asia. See https://www.icarsh.org/committee/.
14. https://khabarlahariya.org/about-us/
15. Asfar and Kumari (2020, p. 10).
16. In one course I taught on international peacebuilding and conflict resolution, several students developed projects (and digital platforms) on GBV. Their projects might inspire you, too. (See https://you.stonybrook.edu/nepalese10yrwar/ and https://you.stonybrook.edu/womenfightingforwomen/.)
17. See Rashtriya Laabh Suraksha Yojana (Uttar Pradesh's government initiative to help poor families (https://aatmnirbharsena.org/blog/rashtriya-parivarik-labh-yojana/); Swarnajayanti Grameen Swarozgar Yojana (https://sarkariyojanaguide.com/what-is-the-swarnajayanti-gram-swarozgar-yojana/), and Baalika Sammridhi (through the Ministry of Women and Child Development). The national portal of India (https://www.india.gov.in) has several resources to help poor women.
18. In my brief internet search, I found a national organization in the United States that has been endorsed by former President Obama, *Rural Assembly*, that champions women journalists, including LGBT+ journalists, "to correct harmful stereotypes about rural America." See https://ruralassembly.org/about/.
19. Makananise and Madima (2020).
20. See http://www.ifepsychologia.org/node/2.
21. See https://bit.ly/FeministsAtCOP26.
22. One of WEDO's co-founders was Bella Abzug, a leading feminist politician from the 1960s and 1970s. For an example of WEDO training course, see https://wedotraining.thinkific.com/courses/wgc-advocacy-training-course-2021.

23. In particular, the Tourism & Leisure Studies Research Network, established in 2015, explores the economic, cultural, and organizational aspects of tourism and leisure: "We seek to build an epistemic community where we can make linkages across disciplinary, geographic, and cultural boundaries. As a Research Network, we are defined by our scope and concerns and motivated to build strategies for action framed by our shared themes and tensions."
24. Malema and Naidoo (2017).
25. *Limpopo climate change response strategy, 2016–2020* (p. 79). Department of Economic Development, Environment, and Tourism.
26. Borde and Bluemling (2021). *Capitalism Nature Socialism* is an academic journal that focuses on political ecology, with an eco-socialist perspective by Taylor and Francis Press.
27. See https://www.npr.org/2022/10/20/1129968108/ile-nacarile-third-album-puerto-rico-and-world-in-flux.
28. Odisha borders Jharkhand and West Bengal to the north, Chhattisgarh to the west, Andhra Pradesh, and Telangana to the south. Its coastline of 485 km (301 mi) is along the Bay of Bengal in the Indian Ocean.
29. Scheduled Tribes are officially designated groups of people (recognized in India's Constitution) and are among the most disadvantaged socio-economic groups in the nation.
30. James Francis Cameron CC (born August 16, 1954) first gained recognition for directing *The Terminator* (1984). He also directed and received Academy Awards for *Titanic* (1997). He filmed *Avatar* in 3D technology and was nominated for several Academy Awards.
31. See Lucie Caputo's amazing website, which describes her project in detail: https://you.stonybrook.edu/networkedaudiences/.

Conclusion

1. Women Engage for a Common Future (WECF 2022).
2. It is important to note that biomass conversions still are controversial. See Adane et al. (2021). As stated: "Household air pollution from biomass fuels burning in traditional cookstoves currently appears as one of the most serious threats to public health with a recent burden estimate of 2.6 million premature deaths every year worldwide, ranking highest among environmental risk factors and one of the major risk factors of any type globally. Improved cookstove interventions have been widely practiced as potential solutions. However, studies on the effect of improved cookstove interventions are limited and heterogeneous which suggested the need for further research."

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Glossary of Organizations and Terms

Terms/Organizations	Definitions/Information Links
ADS	Development Societies
AEEFG	Association for Environmental Education for Future Generations
AHRC	Arts and Humanities Research Council
ASEAN	Association for Southeast Asian Nations
Ashoka Foundation	https://www.ashoka.org/en-us
CCAFS	Climate Change Agriculture and Food Security
CDS	Community Development Societies
CF	Climate Focus
COP26	https://ukcop26.org
COP27	https://www.un.org/en/climatechange/cop27
COP	Conference of the Parties
CRRI	Coral Reef Rescue Initiative
CTCN	Climate Technology Center and Network
DCF	Decentralized Climate Finance
DCMS	Department for Culture, Media and Sport
EIAs	Environmental Impact Assessments
ENDA	Environment and Development Action
FAO	Food and Agriculture Organization
FH	Fuyndacion Contra el Hambre
FOH	Fragments of Hope
Fulbright Foundation	https://fulbrightscholars.org
FUNDAECO	Foundation for Eco-development and Conservation
GBV	Gender-based Violence
GIS	Geographic Information Systems
GCFI	Gulf and Caribbean Fisheries Institute
GJCS	Gender Just Climate Solutions
Global North	A widely accepted synonym for first world or developed countries, which are also the richest countries in the world
Global South	A term coined in 1969 to describe the world's developing and least developed countries

Terms/Organizations	Definitions/Information Links
IAP	Applied community-based programs that focus on research, action, and participation
ICCROM	International Centre for the Study of the Preservation and Restoration of Cultural Property
ICS	Improved Cookstoves
ICT	Information and Computer Technology
ICON	Institute of Conservation
INDC	Intended Nationally Determined Contributions
INGO	International Non-governmental Organizations
IPA	Innovations Poverty Action
IPEN	International Pollutants Elimination Network
IUCN	International Union for the Conservation of Nature
MENA	Middle East and North Africa
MfC	Momentum for Change
MOU	Memorandum of Understanding
MPA	Marine Protected Area
NDCs	Nationally Determined Contributions
NGO	Non-governmental Organization
NGH	Neighborhood Groups
PADI	Water Dive Master Training Program
PAR	Participatory Action Research
Paris Agreement	A United Nations agreement, also called the Paris Accords, from 2015 that is a legally binding treaty on climate change. Its goal is to limit global warming by 2 degrees Celsius max, preferably even 1.5 degrees.
PCCB	Paris Committee on Capacity-building
PLA	Participatory Learning and Action
PRA	Participatory Rural Appraisal
RCT	Randomized Controlled Trials
RRA	Rapid Rural Appraisal
RECOFTC	The Center for People and Forests
RUCODE	Rural Country Development Organization
SDGs	Sustainable Development Goals (SDGs)
SHG	Self-help Groups
SIDS	Small Island Developing States
SNV Netherlands	Netherlands Development Organization (https://snv.org)

Terms/Organizations	Definitions/Information Links
SOSAED	Sustainable Off-grid Solutions for African Economic Development
TANs	Transnational Advocacy Networks
TAO	Tambon Administrative Organization
TBI	Turkana Basin Institute
TEK	Traditional Ecological Knowledge
TIDE	Toledo Institute of Development and the Environment
UNDP	United Nations Development Program
UNESCO	UNESCO (United Nations Educational, Scientific, and Cultural Organization)
UNFCCC	United National Framework Convention for Climate Change
UNHCR	The United Nations Refugee Agency
USAID	United States Agency for International Development
VEDCO	Volunteer Efforts for Development Concerns
WECF	Women Engage for a Common Future
WEDO	Women's and Environment Development Organization
WEP	Women Environmental Program
WFC	Women for Change
WFP	World Food Program
WWF	World Wildlife Fund
WGC	Women and Gender Constituency
WHL	World Heritage Leadership
WI	Winrock International
WOCAN	Women Organizing for Change in Agriculture and Natural Resource Management
WU (VWU)	Vietnam Women's Union

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