PROVINCIALISING NATURE

multidisciplinary approaches to the politics of the environment in Latin America

edited by Michela Coletta and Malayna Raftopoulos

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SCHOOL OF ADVANCED STUDY UNIVERSITY OF LONDON

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The editors would like to dedicate this book to the memory of
Angela Simpatico Coletta.

'For everything is true: the noble
heart, the strength, the sweetness, the kindness.'

(Roland Barthes, *Journal de deuil*, 2009)

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Lesley Wylie is a senior lecturer in Latin American studies at the University of Leicester. Her books include: *Colonial Tropes and Postcolonial Tricks: Rewriting the Tropics in the* novela de la selva (Liverpool University Press, 2009); *Colombia's Forgotten Frontier: A Literary Geography of the Putumayo* (Liverpool University Press, 2013); and the collection *Surveying the American Tropics: A Literary Geography from New York to Rio* (Liverpool University Press, 2013), edited with Maria Cristina Fumagalli, Owen Robinson and Peter Hulme. Lesley works on Latin American literature and culture from

the late 19th century to the present, with a particular interest in the Amazon basin. She is currently writing a monograph on the role of plants in Latin American literature.

Graham Woodgate is a principal fellow in environmental sociology at the Institute of the Americas, University College London (UCL). In the 1970s and 1980s Graham trained and worked as a forester, before completing a BSc in rural environment studies and a PhD in political ecology. He continues to work as a forestry consultant and manages his own woodland smallholding. In the 1990s, while working at Wye College, University of London, Graham coordinated a British Council Higher Education Link Programme between UK and Mexican agricultural faculties, as well as serving as a member of the International Union for Conservation of Nature's Commission on Environmental Strategy and Planning. He is currently a member of the International Professoriat of a postgraduate programme in *Agroecología, un enfoque para la sustentabilidad rural*, convened jointly by the International University of Andalusia, the University of Cordoba and the University of Pablo Olavide, Seville. At UCL he teaches graduate modules on 'Globalisation and Latin American development' and 'Sustainable development in Latin America and the Caribbean', as well as an undergraduate module on 'Environmental Sociology', for the university's flagship Bachelor of Arts and Sciences programme. Graham has coedited a series of volumes tracing the emergence and development of environmental sociology, and is an editorial board member of *Agroecology and Sustainable Food Systems*. He is currently working on a manuscript for a short volume on eco-sociology.

List of acronyms and abbreviations

AAU	assigned amount unit
ADP	Durban Platform for Enhanced Action
BASIC group	Brazil, South Africa, India and China
CaC	campesino-a-campesino [farmer-to-farmer]
CCT	conditional cash transfer
CDM	Clean Development Mechanism
CGIAR	Consultative Group for International Agricultural Research
CICC	Central Indígena de Comunidades de Concepción
CIDOB	Barcelona Centre for International Affairs and also the Confederación de Pueblos Indígnas de Bolivia
CIFOR	Centre for International Forestry Research
CIMC	Casa Civil da Presidência da República
CLADES	Latin American Consortium on Agroecology and Development
Codenpe	Consejo de Desarrollo de las Nacionalidades y Pueblos del Ecuador (indigenous development council)
CONASUPO	Mexico's national basic product company
Confeniae	La Confederación de las Nacionalidades Indígenas de la Amazonia Ecuatoriana
Coniae	La Confederación de Nacionalidades Indígenas del Ecuador
COP	Conferences of the Parties (dealing with climate change)
EROEI	energy return on energy invested
FAO	Food and Agriculture Organization
FCPF	(World Bank's) Forest Carbon Partnership Facility
FONAFIFO	Fondo de Financiamiento Forestal de Costa Rica
FUNDHAMER	a church civil society organisation
GAP	growth acceleration plan
GCF	Governors' Climate and Forests Task Force
GEF	Global Environment Facility
GHG	greenhouse gases
GM	genetically modified

ICDP	integrated conservation and development projects
IFPRI	International Food Policy Research Institute
IPAM	Amazon environmental research institute
IPCC	Intergovernmental Panel on Climate Change
IPEA	Instituto de Pesquisa Económica Aplicada (Institute of Applied Economic Research)
IPES	Instituto de Permacultura de El Salvador (Permaculture Institute of El Salvador)
ISEC	Institute of Sociology and Peasant Studies
LAC	Latin America and the Caribbean
LVC	La Via Campesina
MAS	Movimiento al Socialismo
MST	Movimento dos Trabalhadores Sem-Terra (Brazil's landless workers' movement)
NAMA	Nationally Appropriate Mitigation Action
NAWE	Nacionalidad Waorani del Ecuador (Waorani Nation of Ecuador)
NGO/INGO	non-governmental organisations/international NGOs
OPEC	Organisation of the Petroleum Exporting Countries
PAC/PAC2	Programa de Aceleração do Crescimento (growth acceleration plans)
PES	payments for eco-system services
PNMC	Plano Nacional sobre Mudança do Clima (Brazil's national climate change policy)
PROALCOOL	Programa Nacional do Álcool (Brazil's national alcohol programme)
REDD	UN's Reduced Emissions from Deforestation and forest Degradation in Developing Countries
REDD+	the above + enhancing forest carbon stocks
REDD++	all the above + sustainable forest production
SENPLADES	Secretaría Nacional de Planificación y Desarrollo (planning secretariat)
TCO	Tierra Comunitaria de Origen (communal land of origin)
TIOC	Territorios Indigena Originario Campesinos
TIPNIS	Territorio Indígena Parque Nacional Isiboro Sécure
UNCED	UN Conference on Environment and Development (Earth Summit)
UNCTAD	UN Conference on Trade and Development
UNEP	UN Environment Programme
UNFCCC	UN Framework Convention on Climate Change

Preface

The chapters in this volume offer a timely analysis of some of the crucial challenges, contradictions and promises within current environmental discourses and practices in Latin America. This collective project arose from a symposium held in the spring of 2014 at the Institute of Latin American Studies, School of Advanced Study, University of London. Both the original event and the essays stemming from it have been envisaged as a space where scholars from different disciplines address and discuss interrelated aspects of the politics of the environment in the region. The issues and topics addressed include: conceptualisations of nature; indigeneity and environmental agendas; local and global agri-cultural[1] knowledges and food security; the national, regional and international contexts of deforestation and climate change. Through an approach that stresses the interconnectedness between the epistemological, ontological and socio-political dimensions, the book reveals original articulations of environmental concerns that have been produced in many Latin American countries over the last two decades.

This book reveals the challenging scenarios and original perspectives that have come to the fore in Latin America in relation to the globally urgent issues of climate change and the environmental crisis. New political spaces for alternative eco-nomies are grounded upon emerging epistemic places of alternative eco-logies which are informing policy in Latin America through a hybridisation of knowledge-production processes. Firstly, this has been taking place through the appearance of a multiplicity of epistemic centres that have challenged the expert-led democratic model. Secondly, the concept of indigeneity, particularly in its relation to ecological memory, is complicated by a plurality of levels of hybridisation, from local to transnational, which problematises the role of indigenous politics within environmental movements. Several of the chapters demonstrate the deeper complexities and limitations in the processes through which many social actors influence policy and challenge the hegemony of 'the lettered city'.[2] While these challenges to existing forms of citizenship modelled upon the nation-state and party-politics democracy are

1 The notion of 'agri-culture' encompasses ecologically-sound farming techniques and the reconnection of people, land and nature, as described in J. Pretty (2002).

2 See Á. Rama (1984).

stronger than ever before, the state's role in the management of natural resources remains dominant.

The discussions are guided by two interconnected analytical frameworks: the relationship between nature, knowledge and identity and their role in understanding recent and current practices of climate change and environmental policy. The chapters contribute to this debate by offering multidisciplinary perspectives on particular aspects of these two frameworks, and through a multidirectional outlook that links the local, national, regional and transnational levels of inquiry across a diverse geographical spectrum. Each contribution approaches questions concerned with the politics of the environment in Latin America from a specific geographic, thematic and methodological viewpoint, while also creating interconnections that raise new questions, potentially relevant well beyond a regional context. By looking at the creation of new environmental discourses and policies through the emergence of new centres of epistemic production in the region, this volume ultimately explores the possibility of reconceptualising socio-natures beyond existing political and economic paradigms. As a whole it raises further questions on the need for new governance architectures within post-neoliberal or post-development paradigms.

In the opening chapter, **Michela Coletta** and **Malayna Raftopoulos** set out to offer an overview of some of the major themes and questions that mark current environmental theories and practices in Latin America. They start by discussing how the epistemic and ontological turns have been incorporated into recent conceptualisations of the human/nature relationship with meaningful consequences for the modernist developmentalist paradigm. In introducing these debates, the chapter analyses them in the context of indigenous and land rights movements, participatory democracy and constitutional reform, neoextractivist policies and governance issues. By emphasising the relationship between environmental challenges and the new approaches that are emerging from a variety of epistemic communities, the authors consider the extent to which such a complex agency introduces different dynamics into national and regional environmental politics. Finally, these critical revisions of developmentalist socio-economic models are discussed in the face of the challenging divide between epistemological proposals and political realities. What ultimately is at stake is a reconceptualisation of nature within social, cultural and political structures.

In chapter 2, **Lesley Wylie** explores the wider significance of the cultural imaginations of nature in Latin America. Offering an analytical overview of nature's role in Latin American literary and cultural imaginations, she considers the importance of plants in the literature on tropical South America from the Conquest to the present. Her chapter demonstrates that, from

the writings of the first European travellers, plants have been central to the construction of 'New World' Otherness, an Otherness embraced by writers in the post-independence era as a source of literary originality. It begins with an examination of how early modern travellers represented tropical flora before continuing with the celebration of plant-life established in the foundational Latin American narrative, Andrés Bello's 'Silva a la agricultura de la zona tórrida', an attempt to forge a literary aesthetics able to convey the abundance and variety of tropical nature – one which, it will be shown, carried on well into the 20th century in traditions such as the *novela de la selva*. The chapter concludes with a consideration of the folktales and poetry of the Amazonian author Juan Carlos Galeano, which, informed by indigenous and ecological thinking, tends to present humans and plants – the human and the non-human worlds – as profoundly interconnected.

Naomi Millner explores understandings of indigenous knowledge within environmental politics in chapter 3. To do this, the author mobilises a 'multinaturalist' perspective, which goes beyond looking at different cultural approaches to one given nature (multiculturalism) in order to include a multitude of 'nature–cultures'. Analysing nature–cultures in transforming Global South contexts is complex, however, as rural life is constantly being reconfigured by globalising political economies and communication technologies. Focusing on a growing 'permaculture' movement in El Salvador, this discussion demonstrates the dangers of characterising non-dominant nature–cultures in terms of purity, localism or isolation. It proposes instead foregrounding the *hybridity,* always-already embedded into agricultural practices and ways of knowing, as a means of challenging material forms of enclosure which acquire legitimacy by situating indigenous knowledge in the past. Millner argues that this allows friction around universalising claims to 'nature' to be created, and thus to propose the valorisation of diverse forms of expertise within the production of future-oriented environmental knowledge.

Graham Woodgate takes up the discussion on agroecology as post-development discourse and practice in chapter 4, seeking to explore two distinct proposals, 'global food security' and 'food sovereignty', as possible strategies for confronting regional food insecurity and environmental degradation. Detractors criticise post-development discourse for not offering any viable alternatives. Since the 1980s, however, post-development processes have been building from the bottom-up. One of the clearest examples of post-development in action is agroecology, a field of endeavour that brings together agricultural practice, transformative agroecological science and agrarian social movements, and is set in motion through the politics of food sovereignty. As such, agroecology represents a clear and potent challenge to the corporate food regime and its neoliberal discourse of 'sustainable development' and

'food security'. The chapter begins by exploring the environmental impacts of different agricultural practices before moving on to consider the benefits associated with low-external input, biodiverse agriculture. Woodgate discusses agroecology's origins and development and the promotion of its practices constructed from local and ecological knowledge. The second half considers the outset of 21st-century food price spikes and the proposal for food security and sovereignty and ends by discussing key dimensions of Latin America's agroecology revolution.

In chapter 5, **Marieke Riethof** discusses Brazil's participation in international negotiations on issues such as climate change and sustainable development. It argues that environmental foreign policy is not simply rooted in material interests and ecological vulnerability but also reflects the ambition to increase international recognition of an emerging country's power and status. With Brazil emerging as an economic and political power that has global leadership ambitions, its commitment to environmental protection has come under increasing domestic and international scrutiny. Although the Brazilian government tends to stress national autonomy and sovereignty over natural resources, it has more recently committed itself to a unilateral and voluntary reduction of carbon emissions and has shifted its policies away from the traditional emphasis on developing countries' differentiated responsibilities. The chapter examines the significant discrepancies between Brazil's domestic and foreign environmental policy priorities. It outlines and explores examples of Brazil's conflicting commitments to economic and green development strategies, as well as its foreign policy agenda such as the expansion of hydro-electric power generation and rainforest protection.

Anthony Hall contemplates the promises and challenges of REDD+ in Latin America in chapter 6. Policies of encouraging 'Reduced Emissions from Deforestation and forest Degradation' (REDD+) have been hailed internationally as a major opportunity to mitigate global warming by discouraging deforestation, enhancing carbon stocks and persuading rural populations to pursue more environmentally friendly, sustainable activities. A major proportion of Latin America's greenhouse gas emissions are the result of agriculture and forestry. The chapter begins by examining REDD+ activities in Latin America and the region's emergence as a REDD+ pioneer, albeit on an experimental basis so far. In spite of its relatively modest scale, policymakers have high hopes that a scaled-up REDD+ strategy could have a positive impact in terms of encouraging a more socially and environmentally appropriate rural development model and help reduce carbon emissions and avert global warming. The second part focuses on the challenges that REDD+ faces in the future as it is developed and expanded. These include the introduction of economic incentives within a neoliberal logic, securing additional international

funding, creating appropriate governance structures, and dealing with potential conflicts over land and natural resources.

Katinka Weber reflects, in chapter 7, on the effects and limits of contemporary discourses of indigenous environmentalism in Bolivia and their seeming capacity to mask indigenous voices and realities and undermine indigenous sovereignty claims. Firstly, she addresses how this discourse operates in the Bolivian national indigenous project, which proposes that wisdom and leadership on global environmental issues could be provided by indigenous cultures and movements. The chapter reveals how these discourses are based on reductive images of indigenous-nature relations, clashing with the complex political and economic realities faced by the Movimiento al Socialismo (MAS) administration. Furthermore, it considers how this plays out in one particular Bolivian locality, the Monte Verde territory in the eastern Bolivian Santa Cruz department. In exploring the case of the Chiquitano people, Weber demonstrates how these national discourses intersect with environmental discourses, wielded by a host of non-governmental actors to create a situation where Chiquitano and their leaders must fulfil certain state-recognised and defined forms of organisation and administration. Finally, such environmentalist discourses have the capacity to obscure the complex livelihoods indigenous peoples engage in, or the plans for their future.

Finally, chapter 8 by **Sarah Radcliffe** discusses how environmental policy debates in post-neoliberal Ecuador position indigeneity and analyses the decolonial politics indigenous peoples have devised to both resignify indigeneity and recast the protection of environments. It begins by exploring how indigeneity is informing and positioning socio-natures in relation to 'all-too-human' subjects and the political, administrative and development contexts in which they operate. Drawing on in-depth collaborative work with Kichwa indigenous women, the chapter examines ongoing negotiations about the most appropriate agricultural development, the direction for policy and the meanings and salience of indigeneity. These dynamics provide a context in which to analyse ethnographically and theoretically the postcolonial framings of socio-natures in 'post-neoliberal' Ecuador, and to discuss how to decolonise the powerful association between agentive nature, environmental agendas and indigeneity. The chapter suggests that, notwithstanding a degree of policy openness to indigenous knowledges, indigeneity is figured in ways that tend to reproduce colonial relations. Radcliffe concludes by arguing for decolonising the debates around environment and indigeneity.

1. Whose natures? Whose knowledges? An introduction to epistemic politics and eco-ontologies in Latin America

Michela Coletta and Malayna Raftopoulos

In early 2014 Ecuador's National Electoral Council rejected a petition for a national referendum over government plans to allow oil explorations in protected areas of one of the world's most biodiverse areas – the Yasuní National Park in the Ecuadorian Amazon. While activists and campaigners invoked the conservation of nature and the protection of indigenous communities, President Rafael Correa appealed to the need for more revenue to support social welfare plans and poverty reduction. The dilemma between exploiting natural resources on the grounds of socio-economic development and defending environmental rights represents the major challenge that many Latin American countries will face over the coming decades. These conflicting scenarios are mirrored in the equally complex discrepancies between alternative visions that can seriously compete with modernist political and economic models and the implementation of socio-political reform. This opening chapter introduces some recent questions that have been widely discussed in scholarly debates and beyond, emphasising the recent emergence of epistemic and political centres which are bringing the region into the forefront of original visions and conceptualisations.

Shifting the focus from the colonialism paradigm which has shaped most of the region's environmental histories (Faber, 1992; Miller, 2007), the chapter sets the tone and scope for the rest of the book on new ways of conceptualising nature, territoriality and development in Latin America that have come to the fore especially in the social sciences (Carey, 2009) and to some extent also in eco-critical studies (Kane, 2010). The relationship between humans and their physical environment has been widely shown to have been crucial in understanding and constructing the New World (Pratt, 1992; Greenblatt, 1992). Historians have pointed out the extent to which Columbus's inability to recognise and name the American flora troubled him, and several readings have attempted to establish whether the admiral's frustration had a purely epistemological basis or rather was driven by economic motives, since it meant he could not establish the value of the newly acquired territories (Rivera-Barnes

and Hoeg, 2009). Not only was America's nature envisaged as a discrete set of resources to be possessed, categorised and exploited; the New World as such was imagined and objectified as nature (Gerbi, 1985; Cañizares-Esguerra, 2006).

The profound interrelations between the economic, the political and the cultural in consolidating a colonial system in the Americas have been widely discussed (Quijano and Wallerstein, 1992). In spite of this, Latin America hardly features in studies exploring the creation of the modern world from a global perspective (Bayly, 2004). This historiographical gap is all the more obvious when one considers the general lack of attention given to geographically and culturally specific articulations of economic, political and social structures in relation to their real and potential role in understanding and formulating human-nature relations. New categories such as 'environmentality' (Agrawal, 2005) have recently been introduced to both signify and comprehend how the emergence of new local identities around environmental agendas plays out with the state and other traditional actors. In Latin America, a cognitive and epistemic shift has been advocated over the last two decades or so in order to move away from modernist paradigms and to adopt original epistemological and ontological narratives in which rearticulating the natural environment's role must be paramount.

The continued reliance on the exploitation of natural resources, which has not been sufficient to overcome high levels of poverty and social injustice, combined with the high impact of climate change in post-colonial regions has made scholars question established historiographical paradigms. In a seminal article comprehensively introducing the 'Anthropocene' category, that is, a new human-engendered geological era, into history and social sciences debates, historian Dipesh Chakrabarty has argued that 'what scientists have said about climate change challenges not only ideas about the human […] but also the analytic strategies that post-imperial and post-colonial historians have deployed in the last two decades in response to […] decolonization and globalization' (2009, p. 198). Latin American authors' concern with similar questions has gradually and increasingly included debates on environmental sustainability and environmental governance in which intellectual and social actors from academia, social and indigenous movements, governmental and non-governmental institutions, have posed a challenge to the political and economic ontology of the development model through new relational ontologies coming from local and indigenous communities and cultures.

The category of 'decoloniality' evolved following the emergence of the 'epistemic turn' in both the methodology and practice of critical thought in Latin America since the late 1990s, when questions about the historical as well as the theoretical legacy of modernist categories started to be debated across disciplines (Dussel, 2000; Quijano, 2000). Latin American scholars started

calling for new ways of understanding and approaching the region's post-colonial status by asking whether it was possible to imagine Latin America's future within the modernist paradigm, while acknowledging the fact that 'Euro-modernity' would not have been possible without colonialism (Mignolo, 2002; 2007). In other words, '[c]oloniality and modernity constitute two sides of the same coin' (Grosfoguel, 2007, p. 218). So, whereas the 'post-colonialism' category indicates a chronological process encompassing political, economic and cultural structures, 'decoloniality' can be said to express a relational, non-linear and multidirectional structure which in itself does not respond to modernist patterns.

The dichotomy between subjectivity and objectivity, or the Cartesian distinction between a thinking subject and the object of the subject's thought, was reproduced in the European mind's objectification of the New World's nature. In the words of anthropologist Philippe Descola, '[o]ne does not have to be a great seer to predict that the relationship between humans and nature will, in all probability, be the most important question of the present century' (2013b, p. 81). Not only is this question especially compelling and urgent in Latin America, it is also in this region that new theoretical, political and economic conceptualisations of the relationship between humans and the natural environment are being formulated, assessed and challenged: 'What is knowledge in a context where the distinction between subject and object becomes moot?' (Blaser, 2014, p. 50). As new relational structures are turned into potential political and juridical entities, is it enough to consider difference as cultural, or, as some propose, is it necessary to engage with alterity in a new way and take into account different realities? This 'ontological turn' (Blaser, 2013; 2014) attempts to overcome classical critiques of modernity through categories such as 'tradition' – which still imply that 'modernity' is accepted as all-encompassing – and to open up new possibilities of incorporating a performative value into different ways of 'wording worlds'. New epistemic assemblages bear on the region's environmental politics in unprecedented ways, as the chapters in this volume clearly show.

Natures, knowledges and identities

The production and organisation of knowledge from multiple loci form the foundation of the decolonial option. Since the construction of Otherness starts from the epistemic field, the latter cannot be detached from its political and practical embodiments. In a *heterological* sense, the deconstruction of Otherness through pluralising places of knowledge must challenge first and foremost the separation between the theory and the practice, that is, the speculative fragmentation that has allowed the western European subject to be identified as the thinking subject informing and conquering the objectified Other (de Certeau, 1986). Some scholars have seen in this pluralisation-of-

knowledge process a challenge to the 'lettered city' (Rama, 1984), namely to the idea that knowledge is produced 'elsewhere' by 'expert institutions' without any connection to a given community and its social and physical environments: 'an important pattern in contemporary Latin American social mobilization [is] the ongoing challenge to the dominant regime of modern power/knowledge' (Aparicio and Blaser, 2008, p. 60). The creation of 'mixed spaces' of critical thought and action has been identified as an essential feature of the modernity/coloniality approach. Different agents or levels of border thinking (Mignolo, 2000) interact in creating alternative strategies that link the decoloniality of knowledge and power: social movements and subaltern actors, intellectual-activists, academic-intellectual agents and the state, thus challenging the normative conceptualisations of traditional spaces of knowledge/power (Escobar, 2007). Several chapters here bring to the fore the achievements and challenges of the socio-political practice of decolonial thinking in Latin America in relation to environmental discourses.

The decentring of euromodernist perspectives has further contributed to strengthening ethnic politics in the region in relation to ecology and environmentalism. Land rights and indigenous movements have increasingly mobilised around the crisis of the modernist paradigm which has failed to deliver sustainable societal and economic structures. The current environmental crisis has led to a further questioning of the epistemological frameworks based on a dialectic system of inclusion-exclusion upon which the developmentalist socio-economic model is based. The construction of the political agency of indigeneity in relation to environmental discourses is deeply ingrained in the idea of the possibility of a new political and social ecology based on alternative cosmologies other than the modern one. Scholars have replaced the multiculturalism category with one of interculturality (Walsh, 2003; 2009) based on the principle of relationality rather than on the dualistic principles that have produced racialised, gendered and ontologically discrete knowledge systems. One issue, for example, regards linguistic plurality and its socio-cultural value in determining both the significance of scientific interculturality and the effective role of new political agents (Walsh, 2002; Gustafson, 2009). It has become clear that, as the epistemic production loci have started to shift away from a centre-periphery axis, the political participation models are similarly moving away from the model of the nation-state and traditional party-politics democracy.

The contingencies of neoliberal reform opened up new political spaces for popular mobilisation by encouraging the rearticulation of politics from a class-based discourse to one of indigenous identity, allowing these new movements to mobilise around claims for cultural recognition, territorial sovereignty and environmental rights (Haarstad and Andersson, 2009). For example, in Cochabamba, Bolivia, during the struggle to regain control of water from the

Bechtel transnational corporation, it became clear that the labour movement had been significantly weakened under neoliberalism. In place of the traditional labour movement emerged the Coordinadora social movement, spearheaded by street vendors, peasant farmers, irrigators, local water committees and urban neighbourhood water cooperatives as well as those associated with the *fabriles* [factory workers] (Olivera, 2004). As Burbach et al. comment, these new social movements with their broad range of interests and demands have 'transcended the modernist meta-narratives of both capitalism and socialism' (2013, p. 19) and have gained both national and international prominence. Their demands for new forms of representation, political autonomy and multicultural recognition have 'engaged Latin America in a struggle over the kinds of democracies that will be built; the rights, responsibilities, and identities of citizens; and the ties that bind citizens to the state' (Yashar, 1999, p. 78). Furthermore, their transcendence as political actors has shifted the balance between global and local politics as spheres of social change (Martin and Wilmer, 2008).

Due to the racialisation and subsequent 'indigenisation' of Latin America's autochthonous populations, some commentators have emphasised the extent to which, far from simply being one more form of social movement, indigenous agency has an unequalled and unprecedented subversive potential in political, ethical, epistemic and aesthetic contexts (Quijano, 2012). The relationship between territoriality and indigeneity is largely defined through the existence of communal forms of living, based on relational ontologies in which, unlike in modern cosmologies, nature is not externalised. Literature on the tropics, for example, often dealing with the challenge explorers face in classifying the Amazon's overwhelming vegetation, clashes with indigenous relational thinking in which the sharp dichotomy between natural objects and social beings is absent (Descola, 2013a). Studies about indigenous ontologies have focused on alternative categories to exemplify the fluid relation between humans and non-humans in Amazonian indigenous cultures (Rival, 1998; Brightman et al., 2012). Wylie, in the next chapter, demonstrates how crucial tropical nature representations have been to discourses about cultural and political identities from colonial times up to the more recent significance of indigenous poetics of plants for new forms of ecological thinking.

The ways in which these ontologies are based on a different phenomenology which escapes the principle of nature's exteriority have been largely incorporated within the current constructions of indigeneity, particularly in relation to the ecological impact of environmental indigenous knowledge (Rival, 2009). It has been widely shown, for instance, how activists in the Andean region often weave both Aymara and Quechua traditional beliefs about the sacredness of places into discourses about communal lands and environmental protection (de la Cadena, 2010; García Linera, 2012). This scenario is further complicated

by more recent processes of 'hybridization of environmental and human rights discourses within a [Catholic] religious framework' (Arellano-Yanguas, 2014, p. 76), which stress the spirituality of the environment's well-being and that of all living beings. The multiple layers of indigenous epistemic politics are even more blurred according to scholars who see the relationship between modern and non-modern worlds as a fictional divide imposed through coloniality (Aparicio and Blaser, 2008). Indeed, as Millner shows in chapter 3, the edifice of indigenous knowledges goes far beyond the interrelations between memory and tradition and involves a hybridisation between the local and the global. This emergence of mixed spaces of epistemic politics has brought to the surface new aporias in the theory and practice of democratic values through the appearance not only of new social and political actors, but also of alternative ideological formulations (Escobar, 2010).

Social movements in Latin America have undoubtedly benefited from the shift in governance structures and the radical constitutional reforms which have taken place throughout the continent in the last two decades, placing greater emphasis on local participatory development and democracy. The creation of new rights for previously excluded groups has led to their political incorporation and heightened mobilisation. Argentina, Bolivia, Brazil, Ecuador, Chile, Colombia, Paraguay, Peru and Venezuela have all ratified the Convention on Indigenous and Tribal Peoples by the International Labour Organization, stipulating that indigenous peoples must be consulted with regard to extractive projects in their territories (Haarstad, 2012). These new constitutions and conventions have become a crucial weapon in the struggle against the old elites and also against the very same governments who supported constitutional reform (Burbach et al., 2013). The adoption of extractivism by pink-tide governments in the region to fund social programmes has resulted in repeated clashes with indigenous communities over the use and control of natural resources and land. One such incident was the violent confrontation between indigenous protesters from the lowland town of Trinidad and Bolivian police in 2011 over government plans to build a highway through the middle of the recognised Territorio Indígena y Parque Nacional Isiboro Sécure. Despite it being formally protected by Bolivian Law, the Morales government, like its predecessors, declared the project top priority and authorised the completion of designs to construct the highway. Although the conflict is linked to additional pressures on land and territory, it is embedded in the expansion of agriculture and hydrocarbon exploration and exploitation (Bebbington and Bebbington, 2012). Current governments' continued use of neoliberal developmental agendas, coupled with globalisation, has nonetheless opened up new political spaces in natural resource governance for transnational networks of indigenous movements and actors and provided them with a larger stage to promote their demands (Radcliffe et al., 2005).

Sustainability, post-development and beyond

The debate surrounding natural resources and the need for more equitable sustainable development is more prominent than ever before and high on the public policy agenda of national and international actors in Latin America. Although natural resources offer an opportunity for economic growth and development, their presence has also posed somewhat of a conundrum: curse or blessing? Latin America's relationship with its natural resources has historically been a source of conflicting political, social and economic dynamics. As Haarstad fittingly comments, 'natural resources have traditionally been considered a curse on Latin American societies, from the plundering of the colonial era to the ills of commodity dependency in later years' (2012, p. 1). Current research on development and natural resource extraction moves beyond the idea of the resource curse focusing increasingly on the good governance concept (Collier and Goderis, 2008; Dunning, 2008; Mehlum et al., 2006; Van de Ploeg, 2011). The question of why some countries benefit from their natural resources, while others lose out, has been at the forefront of this research with scholars such as Van de Ploeg (2011) arguing that low economic growth, political instability, poor institutions and an underdeveloped financial system are all contributing factors.

Widespread poverty and social injustice are often considered to be a direct consequence of the socio-economic conditions produced by extractivist-based economies in Latin American countries rich in natural resources. Ecuadorian economist Alberto Acosta has defined this seeming paradox as the 'curse of abundance', suggesting that extractivist economies have continued to create the preconditions for not just political but financial, commercial, social and energetic instability in countries such as Peru, Ecuador, Bolivia, Venezuela and Brazil (2009, pp. 30–2). He argues that this continued reliance on exploiting non-renewable resources not only perpetrates neocolonial power relations based on the export-led growth model, with incalculable environmental consequences, but it also further undermines democratic institutions by creating a 'paternalistic state', one 'whose political impact is a direct result of its ability to manage a higher or lower participation in the mining or oil revenues' (ibid., p. 136). According to many Latin American critics and analysts, Latin American progressive governments' neoextractivist policies, based on claims of equitable development, have failed to tackle this legacy. They have instead built on it further through the state's much more prominent and active role in the extractivist sector. For some, the crucial question revolves around the ways in which the concept of 'growth' as the basis for 'development' still remains at the core of debates about wealth redistribution (Gudynas, 2009, pp. 193–6, 213–16).

The region's changing political climate has fostered optimism that finally natural resource extraction could offer long-term, broad-based benefits to its local communities and national economies (Haarstad, 2012). The rise of left and centre-left governments in countries such as Bolivia, Brazil, Ecuador and Venezuela, has been accompanied by a shift towards new post-neoliberal and post-development agendas that seek to reinstate national sovereignty over the economy and the countries' natural resources, while managing their development in a sustainable manner. The alternative platforms put forward by new left governments in Latin America have looked to transcend traditional growth-centric economic models by offering radical alternatives to the way in which socio-economic development discourses are constructed. Offering an innovative response to the post-development concept, the *buen vivir* notion [live well] moves beyond traditional western development theory, based on a narrow set of indicators,[1] transforming the relationship between development policy and social wellbeing. The rise of the new left and indigenous social movements has opened up critical new political spaces allowing for the expression of indigenous knowledge, traditions and cultural identity which had previously been oppressed (Radcliffe et al., 2005; Gudynas, 2011). In the face of increasing human insecurity and socio-economic inequality, the Buen Vivir planning process has become synonymous with preserving human dignity and community solidarity in harmony with nature (Ruttenberg, 2013). Furthermore, as ecologist Eduardo Gudynas posits, 'Buen Vivir does not endorse the classical understanding of a unidirectional linear progression of history, following a precise path, as several directions are possible' (2001, p. 445).

The critique of the growth-based development model therefore extends so far as to entail a deeper and more comprehensive critique of Euro-modernity and modern ontology through Buen Vivir's relational ontology. As all the chapters here show, what is at stake in the challenging task underway is to produce clear alternative epistemological and political proposals. These decolonising processes must stem from understanding how Latin American nature was historically created as a pivotal element in how the modernist development category was imported. Indeed, within the developmental economic model, nature does not appear as such, but rather as a discrete system of 'resources' devoid of any intrinsic relational value (Gudynas, 1999). On the contrary, the theory and practice of Buen Vivir presupposes a new set of rights based on plurality and coexistence rather than on dialectical dualities and hierarchies. For Gudynas, Buen Vivir as a post-development model is also both post-capitalist and post-socialist (2011). Unlike degrowth movements (Latouche,

1 The Human Development Index (HDI) is based on three basic dimensions: a long and healthy life, access to knowledge and a decent standard of living.

2009), it implies a critique of modernisation while also incorporating strong environmental and intercultural components. Whereas, on the one hand, the state's role has been strengthened, on the other pluralising social and political stakeholders has also meant that new complex negotiations are taking place at different levels. In Grosfoguel's words, '[what] would the world-system look like if we move the locus of enunciation from the European man to an Indigenous woman in the Americas […]?' (2007, p. 216). Radcliffe's contribution (chapter 8) vividly brings to the fore the complex relation between indigeneity, gender and environmental politics in Ecuador.

The Buen Vivir paradigm has become an integral part of Latin America's post-neoliberal policy framework and socio-economic transition, driven and articulated by the region's leftist governments and indigenous social movements (Ruttenberg, 2013). In Bolivia and Ecuador the concept has gained broad social, cultural and political support. Both countries have redefined themselves as plurinational states in a post-colonial context, incorporating buen vivir principles into their national development plans and new constitutions (Fatheuer, 2011).[2] In Bolivia, Buen Vivir represents the state's basic principles and orientation, promoting a pluralistic society's ethical and moral principles. It refers to the Aymara concept of Suma Qamaña and to the Guaraní ideas of *ñandereko* [harmonious living], *teko kavi* [the good life], *ivi maraei* [the land without evil] and *qhapaj ñan* [the path to a noble life], emphasising in particular the protection of Pachamama [Mother Earth]. The Ecuadorian conceptual framework for Buen Vivir differs in that it refers to plural sets of rights based on the indigenous Quechua notion of *sumak kawsay*, which includes the rights to freedom, participation, health, shelter, education, food, as well as the rights of nature, rather than an ethical principle for the state as in the case of Bolivia (Gudynas, 2011, p. 443). As Gudynas has noted, by bringing together a 'Buen Vivir regime' with a 'development regime' the Ecuadorian constitution moves away from the 'classical approach where a classical development strategy determines and limits economic and social life' to rearticulating development through the Buen Vivir framework and objectives (ibid.). Although these approaches have existed for centuries, only recently have they been drawn into the post-development debate. Distinct from western forms of knowledge, which are grounded on lineal advancement notions, these buen vivir notions have emerged both as an expression of decolonial efforts and as an attempt to strengthen plural cultural identities (ibid., p. 444).

In Bolivia, the notion of Pachamama has been interwoven into the country's political rhetoric. In December 2010, President Evo Morales set a global precedent by adopting the Law on the Protection of the Earth, recognising the

2 The Buen Vivir concept was incorporated into the new constitutions of Ecuador in 2008 and of Bolivia in 2009.

rights of all living things and giving the natural world equal status to human beings. Morales has continually used the international arena to lobby for the protection of Mother Earth, successfully campaigning to have the United Nations (UN) declare 22 April as International Mother Earth Day and hosting the World People's Conference on Climate Change and the Rights of Mother Earth in Cochabamba in 2010. Attended by over 30,000 people, including non-governmental organisations (NGOs) and scientists, as well as union and government delegations, the conference called for the protection of indigenous rights, proposals to keep fossil fuels underground, and the rejection of carbon emission schemes such as the UN programme for Reducing Emissions from Deforestation and Degradation (REDD). Controversially, it also demanded that developed countries acknowledge and repay their 'climate debt' by transferring technology and funds to developing countries to help them adapt and mitigate against climate change challenges.

With climate change high on the UN political agenda, REDD has become a major policy instrument in the global discussion on how to reduce global warming (Hall, 2012). Although REDD is unique in that it has the potential to generate co-benefits such as poverty alleviation and biodiversity conservation for heavily forested countries like Bolivia, Brazil, Ecuador and Peru (Scriven, 2012), it has also proved highly controversial. Among the many challenges facing REDD is the rising concern regarding the potential threat it poses to indigenous rights and territories and the lack of safeguards in place to protect their interests (Lovera, 2008; Peskett et al., 2008; Wollenberg and Springate-Baginski, 2009). Indigenous communities are being targeted for involvement in REDD projects, often without their consent, and coerced into signing away their rights to land and carbon under terms that are highly favourable to commercial interests. The REDD programme has highlighted the intimate relationship between land tenure rights and indigenous peoples' demands for collective self-determination (MacKay, 2011) and the wider discussion of how to integrate human rights-based approaches to conservation (Campese and Borrini-Feyerabend, 2011). Hall further analyses the challenges and promises of REDD+ in Latin America in chapter 6.

In the last decade, Latin American countries have played a leading role in the global fight against climate change. Most countries in the region have adopted national mitigation and adaptation strategies at national and (sub) regional levels such as the Paraguayan National Climate Change Policy of 2011, the 2010 Uruguayan National Response Plan to Climate Change, the 2008 Bolivian National Mechanism for Adaptation to Climate Change and the 2012 Peruvian National Plan of Action on Adaptation and Mitigation Against Climate Change. The election of left and centre-left governments and the subsequent rise of the region's social movements, has provided a platform for

the world's most impoverished and vulnerable people to highlight grassroots socio-environmental struggles and climate change effects on Latin American societies. In November 2014, Venezuela hosted the Preparatory Meeting of the Social PreCOP on Climate Change, bringing together for the first time civil society and governments to discuss practical, viable and inclusive solutions within the framework of respect for nature's rights and human rights, and highlighting the importance of local governments and citizen participation in implementing public policies to address climate change. The meeting resulted in the drafting of the Margarita Declaration outlining the key demands of social movements. It called for more attention to be focused on the social dimensions of climate change, the transformation of the current model of consumption and the move away from the green economy. Importantly, Latin American countries have raised the profile of the ecological challenges of climate change, highlighting agriculture's role in natural resource management (deforestation, land degradation, loss of biodiversity and water scarcity), the impact of climate change on food systems worldwide and advocating the use of more sustainable forms of agricultural production. New approaches involving agroecological science and indigenous knowledge systems are increasingly being used by rural communities in Latin America. Recent studies show that these methods are enhancing food security while conserving natural resources and empowering peasant organisations (Altieri and Toledo, 2011, Rosett et al., 2011), as Woodgate demonstrates in chapter 4.

Despite their post-neoliberal rhetoric, certain countries have followed a neoextractivist path and have expanded their respective extractive industries, driven by the growing global demand for minerals, oil and natural resources and sustained price increases (Bebbington and Bebbington, 2011; 2012). Although the policy of extractivism under the new left governments of Latin America may be viewed as more progressive to previous forms of extraction in relation to the distribution of economic benefits, they still continue to support capitalist production modes through hydrocarbon expansion (Gudynas, 2009). As has been shown, for example, in the cases of both Ecuador and Bolivia, the contradictions inherent in the attempts to turn constitutional principles into policy are apparent first and foremost in the abundance of modernist linguistic concepts such as 'growth', 'productivity', 'efficiency' and 'market economy'. In other words, without a clear political project that implements it through effective policies, this new decolonial episteme may remain vague and often problematic (Escobar, 2010).

As the pursuit of extractive industry growth policies has run into local opposition, social movements have increasingly become engaged in the debate on biodiversity conservation and appropriation, and in redefining cultural and ethnic identities (Escobar, 1998, p. 53). Although the emergence of social

movements that explicitly appeal to biodiversity discourses is a relatively new phenomenon, it has, in countries such as Ecuador, Peru, Colombia, Bolivia and Brazil, originated from the broader struggles for territorial control (ibid., p. 61). The unique approach to biodiversity conservation applied by the region's social movements is 'couched in terms of cultural difference, territorial defense, and some measure of social and political autonomy' (ibid., p. 54). In linking biodiversity to cultural and territorial defence, these social movements have articulated an alternative political ecology framework that transforms the debates on biodiversity and places local communities at the centre of innovation and alternative worlds (ibid.). Indigenous environmental movements pose a challenge to policymakers by introducing new dynamics into processes of capitalist globalisation (Escobar, 2008). However, as shown by chapters 5, 7 and 8, by Riethof, Weber and Radcliffe respectively, forms of bottom-up decoloniality (Mignolo, 2007), based for example on the notions of plurinationality and interculturality (Walsh, 2009), are met with a challenging scenario where local communities try to assert themselves in the face of both national, regional and transnational actors. Although activists often use indigenous cosmologies and epistemologies to support environmental discourses, converting the decolonial turn into a political space remains a much more complex and challenging feat.

Arturo Escobar has highlighted two different projects which are underway in the region: the first, based on anti-neoliberal principles, is anchored to modernising and developmentalist models from the left, while the second attempts to propose alternatives to Euro-modernity (2007). In this second hypothesis, decoloniality is therefore taking place in three interlinked areas: epistemological, economic and political. This problematisation of recent and current attempts to include relationality into political and social structures is clearly exemplified by the chapters in this volume. As new discourses on Latin American nature are being created through ecological narratives based on reappropriating various forms of local knowledge, the interactions between local, national, regional and global dynamics have made them all the more complex. Although this scenario opens up new opportunities for managing existing structures as well as creating alternative ones in the conflicts over natural resources, it also reveals certain rhetorical, cultural and administrative continuities in colonial relations.

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2. The poetics of plants in Latin American literature

Lesley Wylie

Plants have played a significant role in the culture and society of Central and South America since pre-Columbian times. Agriculture began in South America some 10,000 years ago, yielding not only reliable sources of food, but as Kowtko argues, 'fundamental advancements in society, economics, culture, and politics' (2006, p. 50). Flora figured highly in pre-Columbian cosmologies and myths, as well as in Mesoamerican calendrical systems (Staller and Carrasco, 2010, p. 122) and pre-Columbian man's knowledge of and important relationship to plants is evidenced by detailed botanical illustrations, such as the Mexican codices, and on Mayan embroideries, Peruvian textiles and Colombian ceramic spindle whorls (McMeekin, 1992, pp. 171–2). John E. Staller shows that maize, in particular, 'was central to the mythological origins, ethnic identification and very existence of the Mesoamerican people' (2010, p. 59) – an importance captured in the title of Miguel Ángel Asturias' novel *Hombres de maiz* (1949).[1]

Flora continued to play a transcendent role in the colonial period, with botany and the prospecting of economic plants at the heart of Europe's earliest encounters with the Americas, and income largely dependent on the 'precise identification and effective cultivation of profitable plants' (Schiebinger and Swan, 2007, p. 2). Alfred W. Crosby's classic book, *The Columbian Exchange*, established the ecological as well as the cultural consequences of the Conquest (1972).[2] Non-native crops such as sugar and coffee, grown by African slaves, became staples of colonial agriculture while rubber, a native plant, was at the centre of a boom in the late 19th and early 20th centuries which dramatically altered the demography and topography of large areas of the Amazon. In the plantation culture of the American Tropics, especially in the Caribbean, there has long been, according to DeLoughrey, 'an entanglement with the environment', which precludes a simple division between humans and nature (2011, p. 265; see also Allewaert, 2013).

1 See Millner, chapter 3, for her discussion on plants and the politics of nature in El Salvador.

2 Londa Schiebinger (2007, p. 83), has coined the idea of 'biocontact zones', after Mary Louise Pratt, to refer to the 'exchange of plants and their cultural uses' between Europeans and non-Europeans, including in the Americas.

In Caribbean discourse, plants and trees have often been used to 'metaphorize heredity' (Alcocer, 2005, p. 81), providing 'organic metaphors for civilization, a means of naturalizing the nation and/or ethnicity through the grammar of "roots" and genealogical "branches"' (DeLoughrey, 2008).

The plant kingdom is not only fundamental to the history of the Americas more broadly, but closely tied to the place's literary identity. In the case of Latin America, flora has figured prominently in literature from the botanical considerations of early modern travelogues by colonial explorers such as Christopher Columbus to poems such as Gregorio Gutiérrez González's *Memoria sobre el cultivo del maíz en Antioquia* (1866). In the 18th and 19th centuries, poets enlisted tropical agriculture as a means to celebrate and explore regional and later post-independent identity. The Guatemalan-born Jesuit, Rafael Landívar, extolled American flora in his Latin poem 'Rusticatio Mexicana' (1781), and Andrés Bello's 'Silva a la agricultura de la zona tórrida' (1826), which will be discussed in more detail below, praises the fecundity of tropical nature and the superabundance of crops such as maize and sugarcane. In the 20th century, literary and national identity in Latin America continued to be intertwined with the botanical in traditions such as the *novela de la selva* [jungle novel], and more recently plants and trees have been central to the 'mythology-infused ecopoetics' of much literature from the Amazon basin (Wylie, 2014, p. 13). Indeed, a growing focus on the eco-critical dimensions of Latin American literature reveals the extent to which many literary texts register complex, non-exploitative relationships between humans and nature, especially between people and plants (see, for instance, Taylor Kane, 2010; DeVries, 2013; Nielson, 2014).

This chapter examines the poetics of plants in a number of texts from tropical South America from the 1500s to the present, all united by the writers' engagement with the botanical, both as subject matter and metaphor. Examining, in turn, Gonzalo Fernández de Oviedo y Valdés' *Sumario de la natural historia de las Indias* (1526) and *Historia general y natural de las Indias* (1535), and Andrés Bello's 'Silva a la agricultura de la zona tórrida', it explores how tropical plants and trees both challenged and defined literary form in the early modern and early independence eras, becoming a source of literary as well as geographical identity. The chapter concludes by considering the role of flora in the work of Juan Carlos Galeano, a contemporary writer from the Amazon, where issues of deforestation and plant extinction have produced a new tradition of phytocentric texts concerned with the preservation of the forest and the relationship between humans and the 'more-than-human world' (Abram, 1996).[3]

3 Although there is insufficient space here to explore more than three authors in detail, their concern with the botanical is echoed, as noted above, across many other Latin American works, from the use of floral discourse in Jorge Issacs' celebrated Romantic novel *María* to Pablo Neruda's frequent references to trees in the *Canto general*.

Marvellous nature

In the first years of the Conquest, many accounts of the Americas were proffered for consumption back in Spain, particularly aimed at the monarchs who funded the expeditions to the so-called 'New World'. Some of these provide enraptured descriptions of urban spaces, such as Bernal Díaz del Castillo's *Historia verdadera de la conquista de Nueva España* (1568), or ethnographically attentive accounts of the indigenous people, such as Fray Ramón Pané's *Relación acerca de las antigüedades de los Indios* (1498). But several works focus on flora and fauna, providing, as Columbus's 'Diario del primer viaje' (1492) did, an enthusiastic vision of nature's superabundance, abounding in 'birds so various and different from our birds that it is a marvel. And then there are trees of a thousand varieties, and they all fruit in their own way, and they are all marvellously scented [todos huelen que es maravilla]' (Colón, 2006, p. 110).[4] In this founding narrative of the Americas, its flora had already begun to be characterised as 'marvellous' – a discourse which permeated all areas of writing on the New World and, as Stephen Greenblatt has argued, denoted 'the presence … of a world of objects that exceed[ed] [the] understanding of the probable and the familiar' (1991, p. 75). This discourse of the marvellous persisted throughout many early modern accounts of the Americas, partly, certainly, in order to correspond to classical and Christian ideas of heroism (see ibid., p. 74) but also as a way of acknowledging the lacunae between the familiar flora and fauna of the Old World and the unfamiliar, emphatically 'Other' nature of the Americas.[5]

One writer in whose work the discourse of the marvellous is prominent is Gonzalo Fernández de Oviedo y Valdés, Charles V's official chronicler of the Indies and author of two major works on the Americas: the *Sumario de la natural historia de las Indias* (1526), considered by Stephanie Merrim to be the 'first natural history' of the New World (1989, p. 167), and the vast *Historia general y natural de las Indias*, the first part of which was published in 1535. Both works provide a taxonomy of the tropics, modelled after Pliny's *Natural History* (79 AD), including sections on a vast array of plant and animal life, as well as the culture and physical appearance of people from the Americas (see Gerbi, 1985, pp. 263–7). Although a study of flora is only one aspect of these works, it is notable that, as Kathleen Ann Myers has observed, of the 76 surviving illustrations Oviedo designed to accompany his *Historia general*, the majority are of American flora (2007, p. 70). Oviedo provided drawings not only as a way to help his early modern readers visualise the novelties of the

4 Unless otherwise indicated, translations from the original Spanish, here and elsewhere, are my own.

5 Coletta and Raftopoulos look at the political and economic implications of representing America as Europe's 'natural Other' in chapter 1.

Americas but, as Myers notes, to acknowledge the 'inadequacy of language to set forth what he had witnessed' (ibid., p. 69). This suggests that of all that was unfamiliar about the New World, it was the plants, trees and flowers that posed the greatest challenge to Oviedo's comprehension and his capabilities as a writer.[6]

For these early travellers, as today, language often failed to convey the diversity and richness of the natural world, leading Oviedo to resort to drawings, as noted above, as well as rhetorical strategies such as hyperbole, the superlative, exclamation and anaphora. The bewildered tone discernible in parts of the introduction to his *Historia general* would characterise much of his account:

> What mortal mind could comprehend such ... an indescribable [innarrable] multitude of trees, abundant in different types of fruits? How many medicinal plants and herbs of benefit for man? How many other innumerable [innumerables] plants unknown to him, and with so many different kinds of roses and flowers and sweet-smelling fragrances? (ed. José Amador de los Rios, 1851–4, I, p. 2).

Through a succession of rhetorical questions (this paragraph, only partially cited above, contains nine), Oviedo conveys the disconnection between both the pen and the mind (of any mortal at least) and the quantity and diversity of American flora. The negative prefix 'in' (un) (innarrable; innumerables), as well as the frequent evocation of 'tantas diferençias' [difference], produces a sort of *via negativa*, where nature is defined according to what it is not. And yet in both the *Historia general*, and earlier in his *Sumario*, Oviedo endeavours not only to find the means to make the unknowable knowable, but to render it vividly immediate for all those who were unable to see this nature first-hand.

One of the important strategies Oviedo employed was that of domesticating metaphors, where the flora of the New World is assimilated through its comparison to European vegetation. The expression 'como en Castilla' [like in Castile] and variations thereupon recur throughout his writings on the Americas, just as they did some 30 years earlier in Columbus's foundational journal, when he described hearing 'the nightingale and other birds like those of Castile' or seeing 'myrtle and other trees and plants like those of Castile' (Colón, 2006, p. 163). Such analogies, as Antonello Gerbi affirms, are part of a broader ideological exercise geared towards colonial expansion: 'it is not just a matter of the Old World casting itself upon the New: it is the home world taking peaceful possession of the overseas discoveries' (1985, p. 6). Oviedo frequently describes American flora as similar to or deviating from a European norm, as when he notes that papayas are 'figs as big as small melons' (ed. José

6 A consideration of flora also predominates in Columbus's 'Diario', an interest summed up by Gerbi (1985, pp. 15–17) as 'Meager fauna, exuberant flora'.

Miranda, 1950, p. 214) or that avocados grow on 'trees that they call pear trees' (ibid., p. 215).

Another method used by Oviedo in an attempt to render the flora of the Americas more familiar to his readers is to make analogies with the human form: the coconut is bigger than 'the large head of a man' (p. 207); the *mamey* [sapote] is 'like two clenched fists' (p. 204); large reeds are 'like the thigh of a stout man' (p. 230). These comparisons to humans are an example of the need among settlers in the Americas well beyond the 16th century to find a way to see the land '*in relation to man* before it could take on a meaningful shape' (Harrison, 1977, p. 28; italics in original). And yet so often these analogies between the region's plants and fruits and European flora or the human body emerge as inadequate before the superabundance of the tropics – what Humboldt would characterise in the 19th century as 'wild and gigantic nature'. On many occasions, the old world's fruits and trees simply cannot live up to their New World equivalents: the grapes of Tierra Firme are 'better and tastier' (Fernández de Oviedo, ed. José Miranda, 1950, p. 212) than those of Spain, and the pineapple, which Oviedo extols, is likened in taste and appearance to plants (peaches, apricots and thistles) familiar to a European readership (see ibid., p. 236) before the author finally gives up: 'it would be necessary to paint it, so that through sight one could understand that which language is lacking' (p. 237). Giganticism, which Candace Slater has observed to be central to discourses on the Amazon (2002, p. 39), is evoked through references to the enormity of trees – for instance in the section entitled, rather vaguely, 'Large trees' (Fernández de Oviedo, ed. José Miranda, 1950, pp. 225–30). Throughout much of his writing, nature in the New World is not only bigger, but more fertile, more beautiful and, at times, almost magical, as when he describes coconut milk in rapt terms as 'the most substantial, the most excellent and the most precious thing that you could either conceive of or drink' (ibid., p. 209).

Alexandre Coello de la Rosa has argued that an important strand of Oviedo's deeply Christian thought was his belief in the usefulness of all natural things (2012, p. 24). Coconuts, for instance, were valued by Oviedo not only for their taste but for the curative effects of their husks which were believed to alleviate 'dolientes de la ijada' (ed. José Miranda, 1950, p. 209), otherwise known as *iliaca passio* [iliac passion or crippling gut pains] (see Wear, 2000, p. 126). Oviedo was concerned to set out the medicinal value of many of the plants and trees he encountered in the Americas and although, as Merrim has pointed out, neither scientifically trained nor a theoriser of 'origins or causes' (1989, p. 172), he nevertheless combined indigenous botanical knowledge with his own first-hand experience to convey a vivid picture of many of the therapeutic qualities of New World plants and fruits. Although some of the physiological

effects are unwanted, as when Oviedo relates how, much to his consternation, eating prickly pears turned his urine bright pink (ed. José Miranda, 1950, p. 239), many of these plants are shown to have almost miraculous properties, including the *Palo Santo* tree which was believed to cure 'el mal de las búas' [syphilis] (ibid., p. 219), the balsam tree which stems bleeding and cures stab wounds (ed. José Amador de los Rios, 1851–4, I, pp. 366–8), or one supremely ugly thorny tree which nevertheless had the power to set broken bones (ed. José Miranda, 1950, p. 236). Even when certain plants or trees are revealed as poisonous to humans, as is the case with the *Manzanillo* [poison apple tree], they are still shown to serve a purpose, in this case as a source of poison for the arrows of indigenous peoples.

Antonio Barrera-Osorio has argued that Oviedo's observations sprang from a deeply-embedded empiricism, where nature was experienced through 'all of his senses' (2006, p. 110). Time and again the reader is introduced not only to the extraordinary sight of the tropical vegetation, but to its tastes, smells and textures. Yet this sensual evocation of American nature continues to employ the trope of wonder – the pineapple and coconut, for instance, seem almost magical and medicinal plants and trees are extolled for their 'maravillosos efetos' [marvellous effects] (ed. José Miranda, 1851–4, I, p. 361). Despite attempts to make the nature of the New World familiar for his readership, Oviedo seems in the end to revel in the non-assimilability of American flora, a domain where 'there is no need for fiction' (ibid.), and where the writer and artist must at times acknowledge that 'the life of man is very short to be able to see or come to understand [the Indies]' (ibid., p. 2).[7]

American nature

Although written some two hundred years after Oviedo's natural history of the New World, Andrés Bello's 1826 'Silva a la agricultura de la zona tórrida' continued to exalt the flora of tropical South America in terms not altogether dissimilar from his colonial predecessor. Bello was born in Caracas, Venezuela in 1781 and was one of the key figures of the Latin American independence movement alongside Simón Bolívar, although he did not share the latter's revolutionary zeal for the complete overthrow of the imperial order.[8] By the time Bello came to write his celebrated 'Silva', however, the Revolution was largely concluded, and in the poem Bello was concerned with establishing a model

7 Merrim notes that Pliny's *Natural History*, on which Oviedo's *Sumario* and *Historia general* were closely modelled, 'revels in the superlative and the curious' (1989, p. 174).

8 Jaksić (2002) has written a comprehensive intellectual biography of Bello which clearly sets out the poet and statesman's loyalty to the colonial regime; see chapter 2, in particular. Cussen cites a line from an article in the journal *El Censor Americano* which he argues was written by Bello: 'We are convinced that the South Americans cannot be good republicans' (1992, p. 88).

for peace and prosperity in Latin America, as well as, in the words of Pedro Henríquez Ureña, 'literary independence' (1952, p. 37).[9]

Bello conceived of the 'Silva a la agricultura de la zona tórrida' as one part of a longer foundational poem on the theme of America, although this project was never completed.[10] The poem opens with a celebration of the American landscape – 'Hail, fertile zone' (trans. López-Morillas ed. Jaksić,1997, p. 29). This, as almost every critic writing on the work has observed, closely imitates book two, line 173 of Virgil's the *Georgics* – ('Salve, magna parens frugum' [Hail, great mother of harvests] (trans. Day Lewis, 1951, p. 40).[11] As such, it immediately shifts the tone, as Cussen notes, from the epic mode of the 1823 'Alocución a la Poesía' to the georgic mode (1992, p. 118), which, as Mary A. Favret argues, celebrates the 'practical and everyday work of cultivation' over the glories of war or the pleasures of leisure (2010, p. 133). According to this form, farming was viewed, as Anthony Low explains is the case in Virgil, as 'a cultural and a civilizing activity, of building up the state and ensuring its peaceful prosperity' (1985, p. 8). Agriculture for Bello constituted 'the complete remaking of the landscape' with consequences political and beyond (Hoeg, 2009, p. 65).

Farming is certainly one of the central themes of Bello's poem. The second half of the 'Silva' calls on the citizens of the new Latin American republics to turn their backs on the vices of the city and go to the countryside where they would enjoy the 'solitary calm' and 'lovely peace' of rural life (1997, p. 32) – a peace contrasted both with the city's 'foolish revels' and the chaos of war (ibid., p. 30). Above all, it is here that they will be able to take nature in hand, and nurture the soil that has grown 'harsh and wild [bravo]' during the years of conflict (1997, p. 33; ed. Íñigo-Madrigal, 2001, p. 53). In a series of abrupt imperatives the poet calls on Latin Americans to domesticate their surroundings:

> let the axe break the matted trees
> and fire burn the forest; in its barren splendor
> let a long gash be cut.
> Give shelter in the valleys
> to thirsty sugarcane ...
> Make coffee trees adorn the slopes; ...
> Let gardens [*el vergel*] flourish, orchards [*la huerta*] laugh with joy.
> (1997, p. 35; 2001, p. 53)

9 Bello's poems, as Altschul has noted, have been 'enshrined by literary historiography as foundational' (2012, p. 167). Miranda (1992, p. 153), Gomes (1998, p. 181) and Meyer-Minnemann (2000) have also drawn attention to the importance of the 'Silva' for literary independence.

10 Apart from some draft verses, only the 'Silva a la agricultura de la zona tórrida' was completed. See Cussen (1992, pp. 117–18).

11 Throughout this section, translations will be drawn from the Oxford University Press edition of Bello (trans. López-Morillas, ed. I. Jaksić, 1997); in cases where the original Spanish is especially significant, I will also include page references for Bello (ed. Íñigo-Madrigal, 2001).

This vision is both one of destruction (the cutting down and burning of forests)[12] and of construction (tending orchards or vegetable gardens).[13] The metaphorical encoding of this shift seems straightforward enough: as the jungle is cut down, dark gives way to light and the landscapes are shaped into ordered, containable and economically prosperous spaces: 'thanks to the intervention of man, wild nature is transformed into cultivated land which fills the grain stores of the settler', notes Meyer-Minnemann (2000, p. 77). Nevertheless, there is something disturbing about all of this, for the land clearing in Bello's poem, far from evoking a sylvan scene of happy and productive farming corresponding to the georgic mode, is more akin to a military exercise, and therefore reminiscent of the recent wars of independence:

> now comes the servile crowd
> with curving sickles armed.
> It bursts into the dark wood's tangled growth.
> I hear voices and distant sounds, the axe's noise.
> Far off, echo repeats its blows; the ancient tree [*el ceibo anciano*]
> for long the challenge of the laboring crowd,
> groans, and trembles from a hundred axes,
> topples at last, and its tall summit falls.
>
> (1997, p. 34; 2001, p. 53)

Here a 'troop' of men 'armed' with farm tools 'invade' the forest like a belligerent army, and hack an ancient tree to the ground. The scene is one of complete devastation: the air is thick with smoke, and the animals living in the tree (including a bird tending its young) flee in terror. Such an encounter hardly accords with the rules of *jus de bello*: with a hundred axes the aged tree, personified as groaning and trembling under attack, is felled then burned, leaving 'only dead trunks, only ashes' where once there had been 'lovely green and freshness' (1997, p. 34). The tree in the poem is referred to as a '*ceibo*'; however, it is likely that Bello is referring not to the *Ceibo erythrina* or coral tree – also called the 'bucare' (mentioned a few lines earlier) which is not of large proportions – but the *Ceiba petandra* or silk-cotton tree which can reach heights of 70 metres and diameters of up to three.[14] The *Ceiba* is considered a cosmic tree in many parts of the American tropics (García-Goyco, 2007, p. 363). David Leeming notes that

12 Kaempfer describes this as a 'destrucción transformadora' [transformative destruction] which is necessary for the founding of a postcolonial nation (2007, p. 286).

13 'Huerta' can be translated as 'orchard, cultivated plot, vegetable patch, kitchen garden or parkland grounds next to a river bank'; see Samson (2012, p. 133). However, although in the poem's English version, 'vergel' is translated as 'orchard', it can also denote a 'pleasure garden'. Ortiz Lottman argues that the opposition between the terms *huerta* and *vergel* is equivalent to that between 'labor and leisure, between the […] practical orchard and the luxurious pleasure garden dedicated to the senses' (2010, p. 330).

14 The *ceibo* is a common name for the *ceiba*. See Salazar (2000, 1, p. 61). Incidentally, Oviedo's sketch of a 'tripod tree' may be the first drawing of a *ceiba* tree by a European. See Niell (2009, p. 92).

it appeared in Mayan mythology as the 'axle' that held the world – the heavens and earth – together (2005, p. 255) and the tree is also central to Caribbean folk culture, especially in Cuba (see Cabrera, 1968, p. 154; Niell, 2009). The way in which the tree is animated in Bello's poem not only invokes the reader's sympathy for a vanquished nature but for the unacknowledged indigenous forest inhabitants who are implicit in the image of the wild animals and birds being forced into exile to make way for agricultural progress.[15] In Spanish, the verb *desterrar* [to exile] derives from the Latin *terra*, [earth] (Roberts, 2014, I, p. 198). According to the *Diccionario de la lengua española*, as well as political or legal exile, the term has the senseof uprooting (as in the case of plants, for example; 1992, vol. 1, p. 732). The toppling of the *Ceiba* is suggestive, therefore, of a wider history of uprooting and exile precipitated by Bello's dream of agrarian development. And while the forest denizens are uprooted, the poet prays that 'libertad' [freedom] – the buzzword of the new political order – 'se arraigue y medre' [will root and thrive] (1997, p. 35; 2001, p. 55), an image which, as Rudyard J. Alcocer observes, 'metaphorically collapses the language of people and plants' (2005, p. 88).

By using a botanical metaphor to describe the political world, and attaching human characteristics to nature, Bello blurs the boundaries between the human and the non-human in a manner more consistent with the beliefs of Latin America's indigenous population than the georgic mode. Although forest clearing in the poem gives way, in time, to new shoots, the enduring image in this section is of 'dry ruins' (p. 34), of barrenness and ruination, reminiscent both of the Conquest and the recent wars of independence. This sterility contrasts sharply with the fecund nature of the opening lines of 'Silva':

> Hail, fertile zone, that circumscribes
> the errant course of your enamored sun,
> and, caressed by its light,
> brings forth all living things
> in each of your many climes!
> You weave the summer's wreath of golden grain,
> and offer grapes to the bubbling pail.
> (1997, p. 29)

Here Bello evokes a bountiful Golden Age where tropical nature requires no toil but gives its products freely – at least until the problematic reference to the 'slave's hand' (ibid., p. 30).[16] Much of this first section feels like a natural history and is reminiscent of Oviedo's tropical taxonomy in its use of classical

15 It is notable that the word 'conquered' is used in the English translation, although not in the original (1997, p. 34).

16 Meyer-Minnemann notes that the abundance of the tropics in Bello's poem is evocative of the classical Golden Age (2000, pp. 79, 81).

models and form to produce a very American scene.[17] Here the Ancient Greek and Roman taste for wine and sapphires is met with agave syrup and indigo; the 'ambrosia' of the tropics is the pineapple, and the cotton plant supplies 'golden roses' (1997, p. 30). Maize, personified like the *Ceiba*, is a 'proud chief' (ibid.) – the tropics' most important plant, just as it was for the Ancient Maya who had a Maize deity represented as a man embodying ideas of botanical and human fertility (Foster, 2001, p. 167). And throughout this opening stanza, like Oviedo, Bello appeals to the reader's senses through reference to the colours, tastes and 'thousand odors' of the tropics – like Columbus's 'trees of a thousand varieties' (1997, p. 29) – conveying a world of uncontainable vigour and fertility through repeated images of bubbling or spilling ('the bubbling pail', 'beans / that overflow the foaming chocolate cup', 'Living red teems on your cactus plants', 'the pierced agave / pours') (ibid., pp. 29–30).

The sense of tropical nature's uncontrollability is also augmented by the form of Bello's poem. His choice of the *silva* – which consists of hendecasyllables or heptasyllables, has no predictable rhyme scheme, and allows the poet to make 'strophic divisions at will – usually in unequal lengths', seems to be in opposition to the poem's themes (Clarke, 2013, p. 1306; see also De Bryan, 2001). While Bello's 'Silva' advocates the control of wild nature – the felling and burning of forests to give way to 'fruitful plantings, that display / their proud rows and orderly design' (1997, p. 34) – the lack of structure in the poetic form works against the ordered vision to create a work of prosodic unpredictability: what Marsha Suzan Collins has called a 'structureless structure' (2002, p. 54). And surely it can be no coincidence that Bello selected a form which draws its very name from the poem's subject matter – *selva* [the jungle] (Gomes, 1998, p. 189; see also Carreño, 1994, p. 228). Sections of Bello's poem dealing with the domesticated landscape notably show no more rhythmic or syllabic regularity than those describing the wilderness; as John Beverley has noted of Góngora's 'Soledades', the *silva* form thereby 'becomes on the page of the text the graphic embodiment of a confusion' (1980, p. 37). Bello's choice of the *silva* seems a prior admission that the superabundance of the tropics cannot be contained by language – something that Oviedo acknowledged some three hundred years before.

Bello's poem has been read by a number of critics as proposing Republican Rome as a model for Latin America, with agriculture at the centre of future prosperity (see Cussen, 1989, p. 126; Hoeg, 2009, pp. 63–4). Hoeg, for one, argues that in the poem:

> Man and Nature reverse their relative positions in terms of freedom and slavery. Initially, nature is free and supplies Man's needs without

17 Indeed, as Juan Duran Luzio (1987) has shown, Bello developed an interest in natural sciences from his acquaintance with Alexander von Humboldt. Hoeg points out that in the text's footnotes Bello gives his readers the Linnaean name for flora and place of origin (2009, p. 57).

> cultivation. It is Man who is a slave to Nature. But by the post-independence period, however, Nature has become a slave to Man who is now free thanks to his control over nature. (2009, p. 64)

Yet the apparent commitment to modernisation and order in the poem is undermined consistently, not only by the images of botanical uncontainability (the overflowing cups of chocolate and sagging banana plants) but the form of the poem itself, which is a literary reflection of the very thing that the poet wishes to suppress – the jungle. In the final lines Bello refers to 'people / on the ... path of immortality', achieved through the 'simple life, / [of] the farmer' (1997, p. 37). But references to 'ambrosia' and 'nectar' (*nectáreos globos*; 2001, p. 48 [that is 'sweet globes'; 1997, p. 30]), both suggesting eternal life, appear in the first stanza to evoke the pre-agricultural tropics. Rather than a sense of progression and development, or of man's control over nature, the poem closes with a sense of circularity, enhanced by the description of how 'the scythes do not suffice to cut the grain' (1997, p. 36). Far from proof of nature's productivity, this image confirms the futility of man's attempts to control tropical nature according to the agricultural models of classical Europe. In the 'Silva a la agricultura de la zona tórrida' what emerges is a nature uncontainable, which resists both the sickle and the pen.

Towards an indigenous poetics of plants

The trope of tropical nature as unassimilable and uncontrollable, recurrent in both Oviedo and Bello, continued in Latin American literature in the 20th century in the *novela de la selva*, a novelistic tradition spanning from the 1920s to mid century, with the Amazon rainforest as its subject and often its protagonist. These rainforest fictions were published across South America, and include the celebrated Colombian novel, *La vorágine* by José Eustasio Rivera (1924), *Canaima* by the Venezuelan statesman and author Rómulo Gallegos (1935), and *Los pasos perdidos* by the Cuban intellectual Alejo Carpentier (1953).[18] Although these novels, like Bello's poetry, were largely concerned with forging literary independence, echoes can also be seen of the early colonial *crónica* or natural history in their preoccupation with cataloguing Amazonian flora. These texts abound in references to native plants and trees, often described in some detail, and frequently included in a glossary at the end of the novel, which acts as a kind of field guide for the non-Amazonian reader.

There is also a move towards an indigenous poetics of nature in the *novela de la selva*, where the flora of tropical South America is regarded not only

18 Other important texts include *Green Mansions* by Anglo-Argentine writer W.H. Hudson (1904); *Toá* by the Colombian César Uribe Piedrahita (1933); *A selva* by Ferreira de Castro from Portugal (1930). For further discussion of the *novela de la selva* see León Hazera (1971), Rogers (2012), Sá (2004), Wylie (2009).

through the lenses of science or Romanticism, but through the eyes of native Amazonians. In particular, the view of the flora as alive – as well as references to supernatural forest entities like the *curupitá* (or *curupira*; see Wagley, 1964, p. 235) in W.H. Hudson's *Green Mansions* (1998, p. 31; n., p. 205), or the eponymous *canaima* in Gallegos's work (see Whitehead, 2002) – lay the foundations for an indigenous poetics of tropical nature.[19] In much of the *novela de la selva* the boundaries between the vegetal and the human are eroded through the use of anthropomorphism and supernatural belief – qualities that are already latent in Oviedo and Bello, respectively, and which are central to the work of many Amazonian writers in the early 21st century.

One prominent contemporary author from the Amazon, concerned with the relationship between man and plants, is Juan Carlos Galeano, who was born in Colombia's Caquetá department in 1958 and has published poetry, essays and folktales on Amazonian themes, as well as directing a documentary film, *The Trees have a Mother* (2008). Galeano's work, which is peopled by both human and non-human protagonists, is governed, as Michael Uzendoski has noted, by the concept of 'Perspectivism', which views all living things as sharing a common nature (2007, p. 8). The world of his tales and poems is one of shape-shifting and boundary crossing, corresponding to native Amazonian beliefs in the lack of distinction between nature and culture.[20]

Although many of Galeano's works deal with the fluidity of identity between people and animals, corresponding to Viveiros de Castro's observation that Amerindian myths, above all, 'inextricably mix human and animal attributes in a common context of intercommunicability' (1998, p. 471), the Amazonian flora remains an important touchstone and source of identity in his work. For instance, in his *Amazonia* poetry collection, 'Cedar' tells of a tree which weeps as it flees mankind and concludes with the line: 'The cedar ought to be more manly and stop crying / every night' (2003, p. 75). In another poem, 'Grass', the poet evokes the early modern trope of superabundant nature in his description of grass growing 'on houses, on bodies, out of our ears and pockets' (ibid., p. 65). Here and elsewhere in the collection Galeano questions the ontological distinction between humans

19 Although critics such as Suárez-Araúz (2004, p. 2) have argued that the *novela de la selva* should not be considered 'Amazonian', there is a strong case for doing so, as I contend here and elsewhere; see Wylie (2014).

20 Viveiros de Castro has led the discussion of perspectivism in anthropology (1998). More recently Descola has argued that in the Amazon 'The identities of human beings, both living and dead, and of plants, animals, and spirits are altogether relational and are therefore subject to mutations and metamorphoses.' (2013, pp. 10–11). Also see chapter 1 for a discussion of debates about the nature/culture divide and relational systems of knowledge, and chapter 8 for Radcliffe's analysis of the political significance of indigenous ontologies in Ecuador.

and plants and speaks in a deadpan and sometimes comic way of an animated flora which cries, talks and has its hair brushed.

As with the *novela de la selva*, Galeano's *Cuentos amazónicos* (2007, translated into English as *Folktales of the Amazon*, 2009), a collection of stories from across the Amazon basin, contains a glossary giving the vernacular and scientific name of 58 'Plants and Fruits' (2007, pp. 149–50) and many of the tales – including 'Pumayuyo: A Plant with Magical Powers', 'Renacal: a Grove of Magical Trees', 'Boa Plants: Plants turn into Animals', 'Seringa: Mother of the Rubber Trees', 'Lupuna: a Tree becomes Vengeful' and 'Vitória Régia: Giant Water Lily' – are motivated by the magical qualities attributed to the tropical flora. In an interesting postscript to the felling of the silk cotton tree in Bello's 'Silva', the story 'Lupuna' (a vernacular name for the *Ceiba*) tells of how, after a man saws down a *lupuna* in the hope that it will bring rain, he develops a painful and swollen stomach, which is only cured by the timely intervention of a shaman who appeals to the 'mother of Lupuna', an old woman with 'hair [...] made out of little leaves and [...] a face carved in wood' (2009, p. 99).[21] Indeed, many of the narratives in *Cuentos amazónicos* refer to the spirit protectors of plants and trees, including the *mãe de seringa* [mother of rubber] – distinguished by limbs covered with wounds similar to those rubber workers made on the *Hevea brasiliensis*. In 'Seringa', Galeano relates how a rubber worker living on the banks of the Yavari River is visited by a mysterious young woman, with bark clothing, who performs household tasks in his absence. One day he conceals himself to observe her and she punishes him by ensuring the non-productivity of his rubber trees from then on. In 'Renacal', a female guardian of a lake and the *renacos* (*Ficus americana*) and other trees which 'vivían allí' [lit. 'lived there'] expel a group of fishermen (2007, p. 62). In all these stories, folk beliefs about animate flora act as a check against the overexploitation of nature. Indeed, as Nigel Smith argues, the belief in the *mãe de seringa* may well have played an important role in the tree's conservation during the rubber boom since rubber tappers have attested to reducing the quantity and frequency of their latex extraction – hence allowing the trees time to heal – in order to appease this respected figure (1996, pp. 131–3).

Galeano's tales and poems demonstrate that it would be an error simply to consign indigenous belief in plant and animal lives to the world of 'myth'. Instead, in Galeano, as Joni Adamson argues, folktales are 'employed as authoritative commentary/theory illuminating the consequences of global economic development for local humans, animals, and non-humans' (2014, p. 173). In a recent anthology of Amazonian poetry, Jeremy G. Larochelle also stresses the way in which the region's writers often engage ecological ideas, a

21 A poem called 'Lupuna' also refers to the tree's 'ability to do good or evil' and concludes with the description of how 'To those who don't respect the Lupuna and piss beside his trunk, / the Lupuna will balloon their bellies with water until they burst' (Galeano, 2014, p. 33).

consequence not only of the lack of differentiation between humans and non-humans in Amazonian thinking, but also of the region's vulnerable position at the forefront of global capitalism (2014). Oil and gas extraction, oil palm cultivation and cattle grazing are just a few of the grave threats facing the Amazon's flora and fauna today. In the documentary *The Trees have a Mother*, Galeano blends the mythological and the ecological when local commentators reflect on how many spirit protectors of plants and animals such as the *chullachaqui* – characterised by having one foot larger than the other, and closely related to the *curupira* – have fled the forest just like the species they have been protecting (2007). If spirit protectors of the forest have traditionally been invoked, as Candace Slater observes, in response to man's 'disrespect for the natural world', then their extinction may well reflect the feeling among local people that they are beyond help (1994, p. 139). In a recent poem, 'History', Galeano writes of the loss of 'the entire jungle / with its birds, fish and rivers', adopting an apocalyptic tone:

> In the north we hunted many buffalo
> whose lard warmed us all winter.
>
> But in the jungle they told us that to bring more light
> we should throw more trees into the sun's furnace. (2013, p. 26)

The simple diction here belies a terrifying picture of environmental destruction and climate change as Oviedo's and Bello's superabundant tropical nature gives way to no nature at all: five hundred years after Oviedo tried to find a language commensurate to the untamed nature of the tropics, Galeano searches for a way to express its demise.

Conclusion

Galeano's work is not only concerned with raising environmental consciousness, but also, alongside Oviedo and Bello, with how man should understand and, crucially, speak and write about nature in the Americas. Oviedo has perhaps more in common with Galeano in this regard than with Bello, for both these writers accept the limitations of man's knowledge of and control over nature – Oviedo because of his belief in God, and Galeano as part of a posthuman tradition where plants and animals are credited with agency and rights. Bello, on the other hand, advocates a model of agriculture which, as Hoeg notes, 'sounds to modern ears as a slash and burn policy' (2009, p. 59). Yet Bello's poem shows that, in the end, humans are never able totally to overcome nature; even the form of the poem, the *silva*, evokes and preserves that which his lines wish to destroy. Perhaps most compelling in these works is the metaphorical dimension, whereby the division between the human and the botanical becomes indistinct – a feature not only discernible in the indigenous poetics

of the *novela de la selva* or contemporary writing from the Amazon, but in the anthropomorphic descriptions of plants in founding texts such as Bello's 'Silva'. The worlds of people and plants have long been intertwined in Latin American literature, with botanical discourse both providing a space through which to explore national identity and, more recently, engage in ecological debate about the Amazon's precarious future.

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3. Hybrid traditions: permaculture, plants and the politics of nature in El Salvador

Naomi Millner

Social scientists have long been aware of the need to acknowledge embodied social practices within the production of scholarly knowledge. Ethnographic research relies upon the observation of everyday cultural practices (Hume, 2009), while political geographies are increasingly called upon to attend to the claims and commitments of social movements rather than theorise from the sidelines of such struggles (Heynen, 2010). Feminist approaches emphasise the importance of 'embodying' concepts like the nation–state, which can be regarded as abstract and all-powerful until they are studied in mundane detail (Mountz, 2004).

Yet at times the activities and claims of social movements demand more fundamental 'scene-changes' in thought. As they grip public attention, emergent social configurations can reveal potent sites of knowledge production that do not necessarily seek academic permissions or forms of legitimacy. The appearance of such movements is rarely entirely isolated from the evolving ideas of critical scholarship, and rarely without critical opposition. On the other hand, when taken seriously, the analyses emergent from contexts of struggle can complicate scholarly assumptions in productive ways, not least by demonstrating people's capacity to account for their situation without academic mediation (Rancière, 1999).

The particular 'scene-change' which frames my engagement with environmental discourses in Central America is staged by the appearance of 'food sovereignty' as a fast-growing transnational social movement and political claim. Although the term was coined during the 1980s (Edelman, 1998), its reverberation through diverse geographical contexts is linked with the emergence of La Via Campesina (LVC) [The Peasant's Way] during the early 1990s.[1] It was founded in Belgium by a transnational group of agricultural producers against a backdrop of global agrarian crisis, exacerbated by withdrawal of support for domestic agricultural sectors across the Global South (Edelman, 2005). Founding members were unified by dissatisfaction with

1 Woodgate also refers to La Via Campesina in his discussion on agri-cultural practice and agroecological discourse in chapter 4.

'food security' terminology as it had been elaborated in United Nations forums since 1974; in particular, they challenged assumptions that global hunger could be addressed through market-based solutions (McMichael, 2014). The movement introduced food sovereignty formally at the United Nations World Food Summit of 1996, presenting it as a kind of 'agrarian citizenship' requiring correlative rights for small-scale farmers (Wittman, 2009). It was maintained that local and national communities would be better equipped to solve issues of long-term ecological unsustainability if they could cultivate a full range of food crops within their borders, rather than relying on export crops. Traditional methods of soil and seed conservation were also defended, over and against programmes that supported the interests of large commercial seed and fertiliser companies. The vocabularies of human rights and sustainable development have since been reworked through food sovereignty manifestos, such as the seminal Nyéléni Declaration written collectively in 2007. Today the movement boasts a 'peasant internationalism' comprising hundreds of thousands of small-scale producers (Martínez-Torres and Rosset, 2010).

This chapter focuses on the development of a grassroots 'permaculture' movement in El Salvador, established in 2000. The Salvadorian permaculture movement intersects in important ways with articulations of food sovereignty, although it operates at a remove from LVC activities. The movement resists easy categorisation and, drawing together diverse cultural approaches to environments and social change, offers a rich example for exploring a changing politics of nature. Its principles build on the idea of establishing 'permanent cultures,' comprising auto-replenishing ecological, social and biological processes, and they revalorise traditional agricultural practices to this end. However, permaculture reached El Salvador via 'brokers' who had grown up, or spent time, in the Global North, and agricultural traditions are significantly redefined through its practices by means of transnational discourses and forums. Salvadorian permaculture is distinct, however, not least because of its elaboration in the context of longer-standing popular education practices associated with the growth of peasant resistance prior to civil war (1979–92). Permaculture was also seen as an extension of the activities of 'agroecological' networks, which had been multiplying throughout Central America since hybrid seeds and chemical fertilisers were first introduced during the 1960s and 1970s. Within such discourses 'indigeneity' plays a complicated role. El Salvador's indigenous population was largely wiped out during the 1930s, when the national economy was being liberalised. Memories of ancestral practices are central to permaculture practices, but rely on fragments pieced together through exchanges with communities in other areas of Central America, and with transnational producer networks like LVC.

The aim of this chapter is to explore what an analysis of the permaculture movement adds to a conceptualisation of nature in Latin America, with an emphasis on situating indigenous knowledge within agroecological discourses. While drawing attention to the diverse ontological approaches to nature that underpin environmental disagreements, it argues that a focus on the hybridity, rather than purity, of agroecological knowledge is essential to contesting the forms of enclosure that characterise the Salvadorian context. Permaculture discourses through their pedagogical practices redefine 'tradition' as a set of embodied archives and infrastructures essential to agricultural sustainability and innovation. This tradition, they claim, is what environmental discourses such as food security eclipse, discourses that situate seeds and plants as purely *genetic* infrastructures to be re-engineered independent of their social relations. By positioning 'nature' as raw stuff to be worked on by 'culture', this imagination legitimises myriad forms of appropriation, since nature is considered universal, and culture singular.

The fieldwork which informs this chapter took place between December 2012 and May 2014 at two main sites. Suchitoto, a small colonial town in the Cuscatlán region, was an important guerrilla hub during the civil war and today hosts a central permaculture demonstration site. Torola is a smaller town in the rural Morazán region, also an important site of guerrilla activities during the war. The regions surrounding these towns are the most 'active' in terms of permaculture, although both permaculture and agroecological associations exist elsewhere. This chapter draws primarily on data collected during a visit (March–April 2014) during which I carried out eight four-hour participatory workshops, co-designed with my partners. The workshops explored issues of political-economic transformations, perceptions of power, and the relationship of soil conservation practices with ideas of *justicia alimentaria* [food justice]. I also conducted 32 interviews with small-scale farmers; local, national and international representatives of non-governmental organisations (NGOs); and regional and municipal governors. After gaining the appropriate consents, audio and video capture of interviews and fieldwork enabled a second translation of my data upon return to the UK. Combining these methodologies helped illuminate the way that different concepts (such as food sovereignty) were perceived by different actors, as well as allowing multiple opportunities for participants to contribute towards, and correct, my narratives of the movement.

The chapter continues with an outline of the theoretical approach which informs my analysis, situating agroecology against a backdrop of political ecological scholarship and concerns with the politics of in situ conservation – a politics I suggest can be expanded to engage questions of diverse nature ontologies. Specifically, I develop a 'multinaturalist' perspective, which goes beyond looking at different cultural approaches to one given nature (multiculturalism)

to apprehend several 'nature–cultures'.[2] The geographical context for this form of analysis is then elaborated, contextualising the Salvadorian permaculture movement in relation to a broader, long-standing politics of plants, and the development of rich repertoires of popular education practices. This analysis of the specificities of permaculture pedagogies emphasises how they already work to acknowledge contrasting nature ontologies, while sometimes seeming to collapse them. Indigenous practices are valorised in permaculture, at the same time as being reimagined and reconfigured in relation to cross-cultural ecological discourses. The final section outlines the place of tradition within this matrix, highlighting its role in conserving a diversity of agricultural cultures (in addition to genetic infrastructures). In this sense tradition offers an important way of understanding agroecological movements' authority, and their contribution to producing environmental knowledge for the future.

Decolonising nature

Nature and the politics of knowledge

The basis for today's agricultural practices is generally thought to have been set in place by the fourth century AD, when irrigation and fertilisation techniques were being systematised and disseminated, although a standardised 'soil science' was only consolidated in relation to agriculture during the Scientific Revolution. Vasilii Dokuchaev, the Russian geologist, became a prominent figure in the west in this regard, while the National School of Agriculture in Mexico was known throughout the Americas. It is perhaps symptomatic, however, that the latter was influenced far more by the French schools of agronomy than the historical folk knowledges and peasant practices which had long characterised the region.

This strange buffer between two worlds of agronomic expertise was noted by geographer Carl Sauer in the 1940s when he was consulted by the Rockefeller Foundation regarding proposals for radical agricultural development in the region. Sauer warned of the dangers of applying agricultural science 'to recreate the history of U.S. commercial agriculture in Mexico' (1941, cited in Bebbington and Carney, 1990, p. 35), advocating a 'bottom-up' process focused on the rich heritage already embedded in Mexican agricultural practices. This, he argued, would enable the cultural and economic infrastructures of agriculture, essential to the genetic diversity of the region, to be preserved. Intervention otherwise, he suggested, would result in the deterioration of all three forms of infrastructure. At odds with a perspective which defined food production increasingly in terms of urban consumption and agricultural modernisation,

2 Weber and Radcliffe, in chapters 7 and 8 respectively, also take up the nature and culture discussion.

Sauer's recommendations were not heeded. What is now known as the 'Green Revolution' was the alternative path chosen.

Although dismissed by the Rockefeller Foundation, Sauer's mode of thinking went on to influence new forms of scholarship. In agronomic terms, the field of 'agroecology' was established when this awareness of in situ ecological expertise was applied to agricultural systems' design and management during the 1970s (Altieri, 1995). This innovation was mirrored in the development of cultural, and later, political ecology, as sub-disciplines of the social sciences which set environmental uses and transformations into cultural and political contexts. Since the late 1970s and early 1980s political ecological perspectives have been adapted to analyse industrialising and globalising forms of agriculture, gaining critical purchase on the legacies of the Green Revolution and the transformations of labour through agricultural intensification.[3] Scholars also provided a counter-point to Marxist, feminist and post-structuralist interest in urban settings during this period, revealing the importance of 'rural peripheries' to globalising economic processes. This point was made most effectively in the 'food regimes', theorised and developed by Harriet Friedmann and Philip McMichael in the late 1980s and continuing to be significant into the 2000s and beyond, which exposed how entangled rural and urban processes in food production have been since the 1870s (2009; 2009). Generally focusing on 'settler societies', rather than the Global South (Bernstein, 2014), this work nevertheless evidenced and politicised agriculture's strategic role in constructing global capitalist economies (Weis, 2007; Fairbairn, 2014).

The importance of situated cultural understandings to a broader knowledge politics has also been noted within recent debates over the use of genetic resources: seeds, plants and the extracts derived from them to make pharmaceuticals. 'Bio-prospecting' and 'biopiracy', for example, refer to the exploitation of potentially profitable biodiversity and biodiversity-related knowledge, often by mining small communities' indigenous knowledge practices. Responding to bio-prospecting developments across Latin America, political ecologists have found it important to stress that traditional knowledge and natural resources *cannot* be separated in terms of protection laws (Hayden, 2003). Such accounts challenge the idea of 'commons' at stake, like food sovereignty emphasising the importance of combining access rights with protections against privatisation (Graddy, 2014). Similarly, there has been much debate over the ethical principles of 'benefit-sharing' in situations where profit has been commercially derived from such a plant or practice. Questions are raised around the kind of collective subjects that might take part in decision-making processes, and how such a subject might be produced where one does not yet exist. For Hayden (2003), as for Whatmore (2006) this politics of knowledge is also a politics

3 See also chapter 4.

of the 'public': a question of how to establish controversy over the 'givens' of science as it promotes particular interests. In many ways food sovereignty marks the articulation of diverse forms of in situ expertise into the claims of one such collective subject.

Food sovereignty networks have been particularly interesting to such scholars for their models of intercultural translation and knowledge exchange, which seem to allow for collective political claims to be created, despite focusing on the particularity of in situ agricultural practices and forms of knowledge (Pimbert, 2006). Rosset and Martínez-Torres emphasise that this distinctiveness derives from the *diálogo de saberes* [dialogue of learning] practices that have explicitly structured encounters between different kinds of knowledge and ways of knowing within LVC, prior to deliberation and planning (2013). From this perspective, food sovereignty claims are so powerful precisely because they emerge from a dialogue between *absences:* shared experiences of dispossession in diverse contexts, and shared discourses elaborated through early agroecological movements and peasant training schools in the Americas, Africa and Asia. For such scholars, the movement's distinctiveness emerges through negotiating internal differences in relation to this shared experience – for example, disagreement over the basic unit of politics (as the family, community or collective), or the appropriate vehicle for agency (workers, families or militants) (ibid., p. 11). Edelman makes a similar point when he analyses food sovereignty in terms of a 'globalising moral economy' – an attempt to redefine the marketplace under new conditions (2005, p. 337).[4] To historicise struggle in this way does not require an acceptance of the *content* of claims or ignorance of the complexifying transformations to labour which characterise contemporary small-scale agriculture (ibid.). It does, however, mean taking seriously the new forms of authority that are being produced in relation to the shared experiences of enclosure, oppression and value (McMichael, 2014).

Multinaturalism

To acknowledge situated practice as a political claim to knowledge is thus to promote the decolonisation of scholarly discourse through attention to 'parts' that have conventionally been excluded from it, and claims which destabilise prevalent knowledge hierarchies (Heynen, 2010; Rancière, 1999). It also entails an elaboration of an ethics for translation which acknowledges what *cannot* be translated, and *ought not* to be translated. Site-specific knowledge, as it is mobilised by movements like food sovereignty, responds precisely to the problem of 'flattened' approaches to environments, which acquire legitimacy

4 Edelman's description recalls the social historian E.P. Thompson's use of the term, though it was first used by the Chartists in the late 18th century in reference to laissez-faire economies and grain hoarding.

to enclose by framing agriculture as a technology that can be developed independently of sites and cultures.

Within science and technology studies key figures such as Bruno Latour, Michel Callon and Donna Haraway have attempted to draw such a language of translation into methodologies for the social sciences, problematising exactly such claims to neutrality. This field maintains that science and technology are domains of knowledge production which are just as context-specific as any other form of social practice: while scientific method establishes a basis for 'objectivity' – a ground for agreement between diverse semiotic networks and contexts – this is always reached through struggle and by persuading inflexible opponents. Science retrospectively produces a veneer of 'fact' that does not reflect the true process of discovery or invention. Thus coffee-room discussion is not included in the write up, points out Latour (1985); one element moves, but as it does so is not taking all of its previous associations or allies with it. The scientist is actually always creating new objects and points of obligatory passage for other actors.

For Latour and his allies, conceptions of nature and natural sciences are *always* invested with culture. Anthropologists like Mario Blaser (2014), Eduardo Viveiros de Castro (2004) and Philippe Descola (2005) expand such claims to struggles over environmental resources, emphasising the way that western forms of science often extend colonial violence legacies by failing to apprehend or value the myriad ways that environments are inhabited. They insist that the very idea of a division between nature and culture is itself a specific discursive production tied to the history of 'western' thought. Within indigenous and non-western cosmologies there is often no equivalent concept to either, with humans, animals and objects alike invested with an idea of soul, or with human production understood in terms of the movement of stars and planetary bodies. Although highly specific, the western scientific mode of thinking tends to dominate environmental discourse, not least because its corollary claim is that land not cultivated according to productivist rationalities is 'wild' land that can be appropriated (Makki, 2014). However, this marks just one way of 'worlding' lived environments. Such scholars term this 'worlding' as an 'ontology' of nature, and use the phrase 'political ontology' to make this diversity a contested field for disciplines such as geography and anthropology (Blaser, 2014).

Building on such a framework, the idea of 'multinaturalism' asserts that the many cultural interpretations of one given nature do not stand alone, as a 'multiculturalist' approach would imply, as there are many diverse nature–cultures, each of which articulates a non-contiguous world of inhabiting and knowing the environment (Latour, 2011; de Castro, 2004). Disagreements over the uses and role of environments are based not primarily in opinion but

in ontological understandings of what environments are, and what kind of agencies populate them. For example, viewing animals and plants as holding a shared spiritual component with humans has vastly different consequences in terms of how Amerindian peoples view hunting, eating and agriculture (de Castro, 2004). Such thinking makes clear that a politics of indigenous knowledge within environmental discourses is not as simple as defending 'rights' to territories or benefits. Instead, it is tied to competing visions of environmental inhabitation and environmental ethics. In relation to conserving the genetic material and cultural infrastructures of agricultural practices, more than one world is at stake.

The fresh attention within anthropology and geography to plural nature ontologies finds new connections with political ecology as an interdisciplinary field. Perhaps most notably, anthropologist Anna Tsing models a 'global ethnography of connection' in her work on Indonesian rainforests, situating herself at the interface between globalising political economies and fresh attention to the role of non-human agencies in shaping human knowledge systems (2005). In recounting the changing management of the forests and their occupants, Tsing seeks to integrate understandings of social conventions, poetical influences and state regulation on environmental management with thick ethnographic accounts of non-human patternings and the way these are enrolled in – yet also resist – human systems. Key for Tsing, is acknowledging that the forest is always a *social* place: its flora, fauna and human inhabitants have their own biographies, and it is the long-term connection between them that forms the 'basis for forest knowledge and management practices' (ibid., p. 190). This acknowledgement foregrounds what historical ecologists term the 'piecing together' of landscapes, in reference to the labour of disentangling long-term developmental histories of species life, including humans, within specific regions (see Rackham, 1998). Thinking historical ecologies through the recent scholarship around political ontology presents an exciting challenge for academic writing. Anthropological appreciation is called not only to distinct knowledge cultures but to non-human sign systems, together with how these are apprehended – albeit partially – in human sign systems (Kohn, 2013). From this point begins the challenge of translating complex systemic interactions faithfully, appropriately acknowledging the new 'objects' created as part of any translation apparatus (Latour, 2011).

Characterising specific movements and struggles in terms of plural ontologies is therefore far from straightforward. Agroecology, food sovereignty, and in situ conservation practices acquire coherency by being translated from one site to another, often between diverse cultural groups. They also retain a consistency derived from specific interactions with biophysical and animal systems. Meanwhile, indigenous groups do not always live at a remove from

others and may inhabit the city, shared territories or cultural memories. As Tsing's work underlines, rural and forest knowledge cultures are often at the very heart of global political-economic transformations, rather than at the fringes. Thinking through political ontology for emerging agricultural spaces of exchange and innovation therefore demands of researchers that they pay careful attention to avoid reproducing assumptions. As I contextualise the Salvadorian permaculture movement, I work to consider how the citation of indigenous knowledge within hybrid agroecological practices may be characterised, and what is at stake in terms of a politics of nature.

Hybrid cultures of nature in El Salvador

Power and plants

My research journal entry for 10 April 2014 describes my experiences during a workshop:

> the movement of plants became to us such a clear metaphor for power. The histories of coffee and cocoa and indigo we explored embodied so many of the struggles of people, so many emotions […] I wondered what would happen if we told a history of the country through plants and the movement of plants, rather than through states or global powers.

Plant genetic information has moved for thousands of years across long distances, by caravan across the myriad silk routes of the Asian continent, in the plunder of conquering armies, and in the wind. Plants migrated with people. From the 16th century, governments became increasingly involved in the planned dissemination of 'economic plants', for example taking breadfruit from Tahiti to the West Indies, or rubber from Brazil to southeast Asia (Headrick, 1996). Plant specimens and seeds travelled across the seas in glass containers to populate paradise gardens, and later, the botanical gardens, in which they were studied and displayed. Foodstuffs moved in all directions, especially into places of low biodiversity like Europe, while tropical plants tended to move laterally between colonial possessions.

The plant geographies of Central America, which underpin contemporary environmental discourses, were largely established through the 'botanical chess-game' of the 16th to 18th centuries (Brockway, 1988). For example coffee, first domesticated by the Arabs, was taken from Ethiopia to India, where the Dutch encountered it and planted it on Ceylon (Sri Lanka) and Java in the 17th century. One plant reached the Amsterdam Botanic Garden in 1706 and from this most of the world's coffee plantations are descended. Cacao, or *theobrama cacao* [food of the gods], on the other hand, originated from the rainforests of Central America and was prevalent in ancient Olmec, Mayan and Aztec cultures – although Europeans often claimed to have been

the first to introduce it there (Crozier et al., 2011). Cacao was an important form of wealth in early colonised Guatemala and El Salvador, popular as a drink among European elites, but competition from other colonies led to a marked drop in revenues. Stagnating trade was revived by the cultivation of *anil* [indigo] in the area, which was cultivated for dye. A sophisticated form of commercial agriculture developed to support indigo production in El Salvador in the early 19th century, comprising large estates managed by families who also played a leading role in agitating for Central American independence. However, although indigo was a mainstay of economic development, national problems emerged as synthetic dyes rose in significance and indigo exports declined.

For Hume (2009, p. 53) and Montobbio (1999, p. 40), it is coffee, however, which provides the key explanatory thread of Salvadorian history. Liberal agitations culminated in a 'coffee revolution', where new lands were opened to cultivation through government-backed appropriations of Indian communally-owned lands, the removal of trade barriers and the subsidisation of export-oriented crops. Through this means a new oligarchy, comprising coffee-growing families and the military, established a tighter rein over a poor campesino majority. During the colonial era, the Spanish rule had mostly supported the concept of Indian 'communal lands', and indigenous peoples had maintained their livelihood through share-cropping and subsistence growing. Unlike other Central American contexts, coffee production was also initially concentrated among indigenous populations (Roseberry, 1991, p. 20). However, this placed commercial and governmental elites into competition for land and labour. From 1882 private ownership was declared the only recognised form of land ownership and communal rights were marginalised within the law. It therefore became increasingly difficult for indigenous peoples to retain communal landholdings. Increasing restrictions on movement and labour led to rising impoverishment and displacement, and in 1912 the government formed a National Guard, using Spain's Guardia Civil as a model, to watch over coffee-growers' interests in the face of growing rebellions. Most notable was the killing of between 15,000–30,000 indigenous peoples and also thousands of campesinos by state forces during the 1932 *Matanza* [massacre]. Indigenous populations virtually disappeared from El Salvador during this period.

The political economy that marked the 1970s was largely in place by this time. The best agricultural land belonged to a small group of coffee plantation owners, while the high labour demand was met by a permanent, 'unfree' labour force living on estates in highly restrictive conditions. Permission had to be sought for movement, debt peonage was the norm, elections were tightly controlled, and in some places sterilisation was imposed as a form of birth-control (Roseberry, 1991). After World War Two, traditional patron-client

relationships on estates were transformed by highly coercive wage-labour relations as cattle-raising, cotton cultivation and sugar expanded El Salvador's trade repertoire. The coffee elite, backed by the military, further reinforced their dominance, while the majority laboured for little pay with no access to education or medical services (Montes and Gaibrois, 1979). Huge migrations across the country took place during the harvest months, while many sought work in distant labour markets. To deal with rising dissent, rural unions were made illegal and haciendas increasingly securitised. There were sporadic attempts to reform land tenure and labour relations, but the core alliance was defeated in 1944, 1960 and 1972 (Walter and Williams, 1993).

It was during this period that Green Revolution technologies were also experimentally introduced in El Salvador. Following discussions with the US Vice-President Henry Wallace, from 1943 the Rockefeller Foundation made the Mexican Agricultural Program its key 'developmental' intervention in the region. With the remit of increasing sustainable food production in impoverished areas, the CGIAR (formerly known as the Consultative Group on International Agricultural Research) was also involved from the outset in the collection of indigenous germplasm for commercial experimentations (Mangelsdorf, 1951). Over the next eight years, projects based on the Mexican model were rolled out throughout Central America and Brazil, mostly under the auspices of the US Department of Agriculture. Agricultural development became tied to civil upheaval in the region through an anti-communist rhetoric which pervaded CGIAR and Rockefeller Foundation discourses. National governments were persuaded that failure to introduce 'modern solutions' would lead 'underdeveloped' countries to accept communist promises and systems (Carey, 2009). A number of Central American governments consequently adopted recommendations, primarily based on fears for national security. The economic benefits of such schemes would have been minimal, since the new agricultural supplies were mainly obtained through US-based companies. Meanwhile, the 'miracle' high-yielding varieties required increasingly high inputs of fertilisers as soils became impoverished.

Violence deepened further within El Salvador as labour conditions worsened and agrarian autonomies deteriorated. Coalitions of landlords and military hardliners brutally derailed a reformist government's attempt at a limited agrarian reform along the coastal plains in 1976, while strikes for higher wages in 1979 were repressed with increasing violence (Wood, 2003). There was mass exodus from conflicted areas and civil war was on the horizon.

Popular education and plants

Green Revolution technologies became connected in the popular imagination with land inequalities through the widespread popular education networks which multiplied in El Salvador at the end of the 1970s in association with

the guerrilla uprisings. However, perhaps surprisingly, few of the networks or resources for revolt were in place in the decade beforehand. A 1973 survey of campesino culture, conducted by the Jesuit sociologist Segundo Montes, found that the rural poor in El Salvador were fatally resigned to poverty, with low social solidarity and high competition for land and jobs (Montes and Gaibrois, 1979). Wood concludes that two factors were crucial in bringing about the ensuing resistance: first, the new pastoral practices of liberation theology; and, second, the organising practices of tiny guerrilla organisations which built upon such structures (2003). These would later form the basis for bottom-up critiques of industrial agriculture and the development of alternatives.

The liberation theology movement had been sparked by calls for revival at the Second Vatican Council (Vatican II, 1962–4), when many bishops, nuns, lay theologians and activists rejected established authoritarian readings of the gospels for a biblical 'preferential option for the poor' (Smith, 1991). Carlos Rafael Caburrús (1983, p. 135), a Guatemalan Jesuit**,** described the beginnings of this movement across Latin America as an 'unblocking' of radical campesino fatalism. Previously, church and state authority figures were associated with the divine will of God. The idea that the oppression of the poor was an *obstacle* to God's will created a moral impetus for organised resistance, to which many became committed thus risking their lives (Pearce, 1986). From the late 1960s radical Catholic priests began to denounce the government from the pulpit and to record publicly the abusive harvest practices of local landlords. Meanwhile, a peripatetic network of priests and other active intermediaries, known as catechists, provided pastoral support for covert bible study cells in *cantones* and parishes across El Salvador. The study cells drew strongly on the pedagogical principles established by the Brazilian popular educator Paulo Freire for his 1970s adult literacy programmes, which are premised on the capacity of individuals and groups to interpret their situations independently (1972). Wood claims that the feeling of equality created was critical to subsequent sustained uprisings, as it created the sense that 'we are capable of managing these properties' (2003, p. 206).

Access to land and livelihood remained central to the guerrilla uprisings that led to the civil war, with the large majority of insurgents being subsistence farmers. Two years into the war, these campesinos began taking land for their basic food needs, beginning with *microfundia* [micro-plots], and many stopped paying rent. Coffee plantations were pulled down for firewood and many estates were destroyed, especially those of uncooperative landlords. However, the critiques of Green Revolution technologies which had developed during the 1970s were marginal until guerrilla resistance ended. Despite the struggles it provoked, liberation theology did not really promote solutions to the major agricultural programmes which continued to undermine subsistence

livelihoods. Instead, the movement provided a latent grammar for other popular education movements, especially the campesino-a-campesino [farmer-to-farmer] (CaC) agroecological movement, which reemerged in El Salvador during the 1990s.

The first documented agroecology initiative in Central America was a small NGO programme in Guatemala in 1972, which aimed to empower a group of indigenous Kaqarikel campesinos to teach ecological techniques that were embedded in their traditional culture (Holt-Giménez, 2006). Projects centred on sharing long-standing principles for agriculture that were being eroded, such as recycling biomass, minimising nutrient losses, and restoring degraded soils (Altieri, 1995). Bilingual campesinos were also trained as farmer 'extensionists', and used simple instruments – a machete, a tape measure and an *aparato A* [simple apparatus for measuring land gradients] – together with oral traditions and socio-drama, to communicate with other farmers. These were so successful that several *encuentros* [encounters] and *intercambios* [exchanges] were subsequently organised. Beginning in Guatemala and Mexico, these informal visits enabled farmers to consolidate and cross-fertilise their practices. The model grew in momentum during the 1980s when heavy flooding exposed the difference between terraced farms, planted using traditional techniques, and modern farms, which were stripped of topsoil. While El Salvador was largely isolated from this growth, agroecological discourses reentered the country as INGOs were supporting village-level projects during the early 1990s in conflict-affected areas.

Crucial to this process was learning to experiment: each farmer, or community of farmers, was encouraged to test proposed techniques by constructing *parcelas gemelas* [twin plots] and measuring the differences in production. Each farmer was encouraged to become a *promotor* [promoter] for principles they had found effective. As in liberation theology, the emphasis was on rejecting received models of practice and legitimising experience. Yet, as Sauer had indicated in 1941, long-standing traditional practices and their infrastructures in CaC are highly valued within agricultural development processes. The implication is that sustainable futures cannot be devised through attention to genetic properties alone – these depend upon cultural reservoirs of knowledge and practices, which have been shaped and established over many centuries. On the other hand, CaC pedagogies borrow from the science lexicon to establish methodologies which emphasise repeatability and testing. Agroecology, from this perspective, marks a conjuncture between scientific principles for establishing translatable authority, and notions of tradition which resist notions of universal translatability.

Permaculture and plants

The CaC movement reappeared in El Salvador via Nicaragua and Guatemala as leftist coalitions were breaking apart under the pressure of organising, without the unifying mission of guerrilla warfare. Repeated efforts to repair fragmented economic infrastructures were foundering, while INGOs were proliferating their interventions, as they would again after the 2001 earthquake. Rising concerns in Europe over gender issues, discrimination against indigenous peoples and environmental degradation were reflected in NGO project involvements, and later in bilateral and multilateral funding (Pearce, 1988). By 1989 there were around 700 NGOs in El Salvador, many of which provided opportunities for autonomous groups to operate outside state logics and jurisdiction (ibid., p. 599). However, the influx of new funding streams created new kinds of divisions between classes and party factions. The major INGOs became increasingly polarised by their entanglement within local forms of divergence. Meanwhile, older, male brokers who had not necessarily been involved in guerrilla leadership, took advantage of the fraught landscape to manipulate financial flows, ensuring that benefits reached those under their patronage.[5] Such dynamics are common in situations of high poverty and weak economic infrastructure, but served to further intensify the gendered and hierarchical structure of social organising in El Salvador.

Agricultural practice formed a hotbed for such struggles. Besides a land redistribution programme mandated by the peace accords, a rush of charitable investment from abroad framed itself through new food security terminology.[6] Many of these were 'quick-fixes', which did not take community infrastructures into account, and tended to be short-lived. Against this backdrop, the CaC movement was distinct for its bottom-up development models. Oxfam's 'South-to-South' programme of the 1990s, for example, drew on earlier CaC models to organise meetings between farmers across locations in Central America affected by conflict. Salvadorian farmers attended several meetings in Guatemala and brought back ideas to regions like Cuscatlán and Morazán, leading to the development of first an Eastern Commission, and later a Western Commission, for the Salvadorian CaC movement. In Guatemala, farmers also encountered permaculture, which centres on the idea of creating a 'permanent culture': autoreplenishing and dynamic systems which incorporate ecological, biological and social processes. Juan Rojas, a Salvadorian exiled during the civil war, discovered permaculture in Australia, where it had been developing since the 1970s out of 'environmental design', rather than agroecological critiques of

5 Interview with Karen Inwood, director, Instituto de Permacultura de El Salvador, 9 Oct. 2012.

6 See also Woodgate's discussion in chapter 4 on the interaction and cooperation between Latin American agrarian social movements and the researchers and activists involved in transformative agroecology.

growth economies. Sponsored by churches sympathetic to the aims of liberation theology, Rojas returned to El Salvador in 1999 to become a 'permaculture missionary', and established new links with nascent CaC and permaculture collectives in Central America.

In El Salvador permaculture thus largely entered the scene via several brokers, who had encountered permaculture overseas. Another important figure was Karen Inwood, a former community development worker from the UK, who discovered permaculture at a Scottish 'eco-village' in 1999, which Rojas also attended. Inwood spent 12 years in El Salvador, using her community development background to implement permaculture as an extension of CaC activities. From 2001, the Salvadorian permaculture association was a project of FUNDHAMER, a para-church organisation, and thus gained funding from the Inter-American Foundation, which supports bottom-up development projects. The group was founded formally in 2002 as the Instituto de Permacultura de El Salvador (IPES), with early grants from Catholic charities in Germany, Holland and the USA. Consequently, although IPES was not fundamentally a religious group, it was able to attract funding from a range of organisations sympathetic to liberation theology and its connection with agroecological movements.

Central to permaculture as it has developed in El Salvador are a set of 12 principles, each focused on observing how ecological and environmental processes take place. The idea is to mimic into social systems the principles of dynamic feedback and interaction which allow ecological networks, comprising diverse species communities, to coexist harmoniously. For example, the 11th principle, 'use edges and value the marginal', encourages designers to recognise how hedges and boundaries may support the proliferation of pollinators, but it also encourages recognition of how inbetween social spaces can form valuable interfaces between distinct cultures. The core values of 'earth care', 'fair share' and 'people care' express that such practices mean to support vibrant ecological and social relationships, as well as a more vibrant soil. Agriculture is thus reframed as a process of co-design, which involves cooperation with existing communities, including 'more-than-human' communities of microbes, animals and plants.

Permaculture also draws strongly on popular education's repertoire and ethos, encouraging the use of simple instruments that can be mastered and taught by anyone. In each new location, a permaculture design course is run in partnership with existing local organisations to develop such teaching capacity. This leads to the establishment of local permaculture associations, which form a basis for collective organising, restimulating local economies and farmers' markets, and collective learning.

The nature-cultures of permaculture

Embodied experience

Thinking about permaculture as pedagogies focused on interaction with nonhuman communities helps one to reflect on the nature–cultures in play. Permaculture mobilises specific discourses of the environment that highlight pragmatic observation and experimentation principles as a basis for intervention. At the intersection between the principles of popular education scientific method, these discourses treat the more-than-human world, as it is encountered through the body, as a kind of universal foundation for knowledge. However, although this universalisation allows a bifurcation of nature and culture to creep back in (for example, agricultural materials or technologies are selected according to criteria of 'what is natural'), the emphasis on bringing these principles into dialogue with long-standing agricultural practices, cultural stories and symbolic understandings results in hybrid assemblages that vary considerably from place to place. I suggest that the permaculture principles have much to offer sites of environmental policy-making and knowledge production, since they create a basis for environmental design that can be reproduced without colonising the worlds of diverse nature–cultures.

Given this focus on knowing the more-than-human world via pragmatic principles and traditions, a significant part of permaculture training is schooling the senses. Design students learn to feel the soil and notice how it heats and then cools through the process of making active compost. They also learn how to detect when there is 'life' or 'no life' in the soil through their finger-tips, and what healthy soil smells like. This reflects the biological principle at work in permaculture, which is, writes Puig de la Bellacasa, fundamentally based in ethos and doings (2010). That is, permaculture design does not just revolve around human selves and actions, but principles of collective interdependency, which reflect a different conception of '*bios*' and 'biopolitics' than those usually employed in the social sciences. *Bios* (Greek for 'life') is expanded to include soil and plant life, communities of microbes as well as the human body. The body on the other hand becomes a litmus for evaluation, in terms of experimentation, but also of ethics and aesthetics. The latter come into play when exchange with other communities, including transnational ones like LVC, brings different models and ideas into competition. Bodies decide whether a practice coheres with the ethos and practices of a lived permaculture world, or an established site-based tradition. Permaculture practices are thus essentially carried by habit – by embodied repetitions which cultivate ways of seeing, knowing and doing.

Of course, given these shared habits, permaculture discourses also establish new contours of doing and knowing that define geographies of connection across borders, rather than simply consolidating localised nature–cultures. The

process of learning about permaculture creates new collectives who identify with other permaculturists around the world, and cultivates agreement over what techniques are appropriate. This was evident, I noted when observing the Suchitoto permaculture design course, in the way that students, engaged in 'dramatising the Green Revolution', reproduced a similar script even as they drew on personal memories or accounts. The accounts agreed with one another and mobilised specific figures and narratives (such as the evil transnational company 'Monsanto' sending in representatives to dupe innocent farmers into abandoning traditional practices) in a way that confirmed exposure to discourses in other forums such as LVC and the World Social Forum. On the other hand, it was striking that although these existing scripts duplicated each other markedly, individuals felt they had the licence to improvise difference out of their own experience (for example, in the socio-dramas participants created theatrical costumes and sets from leaves, plants and seeds, drawing on their memories of indigenous medicinal uses within improvised scenarios in which they treated one another's ailments). Within such improvisations, discourses of alternative health or of 'natural' materials resonated from other sites around the world, yet the developments of the sites and training courses took on a singularity that differentiated them strongly from these other places. The permaculture movement I encountered was characterised by confidence in personal and group capacities, and by an aesthetic of *bricolage* in the construction of community sites from found materials, used glass bottles, recycled crates. This confidence was highly gendered, and the movement faces ongoing challenges from pervasive machismo cultures, but also demonstrated the capacity of permaculture pedagogies to generate site-specific forms of authority that function to challenge land enclosure as also being knowledge enclosure.

The challenges enacted by these experiential forms of authority include the reappropriation of abandoned land but also, increasingly, an impact on the strategic priorities of other influential domains. Thus, rising awareness of the connectedness between health, plant life and agricultural issues has opened shared platforms for collaboration between the permaculture movement, NGOs, municipal councils and regional government in El Salvador. Eberto Domínguez, director of the Catholic charity Caritas's Salvadorian office, has observed a general shift in public awareness, across the past six years, towards one that recognises the impact of monocultural production forms on health. This has been reflected in the mandates set at municipal, regional and national levels, which increasingly connect agriculture, health and poverty in their diagnostics and targets. For Karla Vásquez, from Ayuda en Acción in Suchitoto, involving permaculturists in establishing gardens in schools has provided a means of communicating with pupils and families about healthy

eating, leading to food production being targeted in rural areas as a means to tackle nutritional deficiency. Health has started to provide an intersectional forum where claims based on a revival of traditional practices can be staged in conjunction with experimental ways of combining and extending them.

This authority production also influences how people design their environments, including *huertos* [agricultural plots], but also their domestic and communal spaces, and life patterns. By changing how its practitioners view their own intelligence and capacities, permaculture allows designs to be innovated which reframe space and efficiency in terms of *connectivity* and *long-term health* rather than short-term profit. However, tradition plays an ambiguous role within this authorisation process. Traditional and indigenous practices are highly valued because they have been developed in perpetual dialogue with specific environmental conditions and evolving seed varieties. However, in El Salvador, traditional practices were increasingly marginalised during the Green Revolution and indigenous ones have often been reconstructed from memory and imagination.[7] Tradition forms the medium into which new techniques are translated, while also forming the friction preventing place-based knowledge from being upscaled and translated into other sites. It is important to make clear the place of tradition within the nature–cultures of permaculture and to evaluate the degree to which a romantic attachment to the past may play its own role in depoliticising or parochialising environmental disputes.

Terra Madre

A key aspect of tradition that needs to be considered is its place in *investing* particular practices with authority: do traditions carry weight because they have always been practised, or because they are cultural practices that *work?* Are indigenous practices valued because they articulate ontological frameworks that open up more lively and more sustainable relationships with the more-than-human world, or because they carry the promise of reconnecting agriculture with the 'nature' that is feared lost? This also raises the question of the degree to which new knowledge in permaculture is being reframed in relation to traditional authority structures, including patriarchal ones.

In El Salvador tradition is entangled within ideas of indigeneity, and it is difficult to discuss the two separately. Tradition means the weightiness that practice accrues through its association either with founding figures and texts, or with the cultural embeddedness of reiterated custom (Arendt, 1958). Within permaculture, tradition refers to long-standing agricultural practices, together with the cultural and symbolic ways that these are validated. This cultural content marks the connection with indigenous forms of knowledge. In El Salvador to speak of *nuestros indígenas* is to refer to the indigenous peoples who collectively

7 See Wylie's discussion in chapter 2 on the significant role plants have played in the culture and society of Central and South America since pre-Columbian times.

preceded the Spanish invasion, and who perpetuated their own distinct cultural practices in communities until the 1930s. A small indigenous minority of the Nahua-Pipil population still lives in the southwestern region of El Salvador, and smaller populations of Lenca and Cacaopera survive in the eastern regions. Besides ongoing deliberation on what qualifies as indigenous, many permaculturists value the practices of indigenous peoples as ancestral ones, and the stories, uses of plants and terminology remembered and learned from them are treated as sacred knowledge. As when traditional craft practices are revived, this process involves a mixture of research and reimagining. Tradition, on the other hand, means 'what we do now'. Permaculture practitioners emphasise tradition as an archive of the memory of past generations, specifically of its singular elements, but tradition is also the praxis into which tested techniques of other places are learned and incorporated.

The key concept forming the link between, and assessing the consistency of, these different forms of knowledge is the notion of Terra Madre, or Mother Nature – an idea derived from Mayan cosmology. To speak of Terra Madre is not to elicit a coherent indigenous ontology but to make a statement regarding the politics of ecological knowledge. Among permaculturists one can honour Terra Madre while also upholding a liberation theology praxis, or evangelical, Muslim and atheist beliefs. Most often the term is used to refer to the living vibrancy of the material world of plants, people and soil. It denotes life's connectivity, and usually, its refusal to obey or even heed human laws. Terra Madre is a term for acknowledging the excess of matter to human forms of knowing and saying the world. Within such terms, neither Terra Madre nor permaculture can be characterised in terms of nature–cultures. Rather than carrying their own ontological content, they comprise ethical and pragmatic principles that allow collectives to (re)design environments in dialogue with the more-than-human world, via the ontological forms of knowing and traditions that are practised there. This ontological empty space is what makes these principles so valuable for learning within other spheres, as it provides an opportunity for knowledge production that exerts friction in relation to imposed universals.

The hybridity of this process is vital. In practice, my interviewees told me, it is normally only well-meaning NGOs which insist that indigenous practice is something that is or ever was something pure and separate from all other forms of knowledge – a claim which some suggest in fact relegates indigenous peoples to the status of past cultures (Braun, 2002), along with the 'pristine' forest (Denevan, 1992). Moreover, while it is important to recognise that, historically, western ontologies of nature and culture have colonised other ways of relating to the more-than-human world, in the Salvadorian context to insist upon a pure underlying substrate of knowledge would misrepresent the constellation of cultural ecologies which informs contemporary campesino cultures. It would also eclipse the way

that Terra Madre is increasingly mobilised within food sovereignty framings as a connective concept allowing for cultural exchange between diversely positioned land-workers, agroecological practitioners. Like food sovereignty, Terra Madre therefore carries something of a 'strategic essentialism' without itself being an essentialist concept. It forms a vehicle to translate diverse experiences and cultural commitments, without requiring that they compromise their 'autochthonous' singularities (Rosset and Martínez-Torres, 2013).

Tradition, thus being transformed and politicised as it is taken up within the permaculture pedagogies, becomes the means through which diverse ontological accounts of nature are to be defended. As a lay form of science, like agroecological approaches more generally, permaculture borrows from ideas of scientific method to establish principles of generalisability and translatability. On the other hand, agroecological approaches have been set up to resist the ideas of *terra nullius* which industrial agriculture tends to presume: the presumption that all wild land is idle, and all lands are equal when it comes to generating productivity (Makki, 2014). Tradition, within agroecology, denotes the embodied practices of knowing and doing upon which the conservation of genetic wealth depends. Yet this tradition is not static, and does not equal a direct translation of past practices into present coordinates. Technologies of communication, experience and 'life' – such as the biological sciences – mediate everyday life in ways that have transfigured the way small-scale farming communities in El Salvador know themselves and each other. In rendering it translatable, permaculturists and agroecologists recreate tradition as a site of authority, whose 'weightiness' to govern derives not from the testimony of forefathers, as in traditional forms of authority (Arendt, 1958) but from notions of objectivity and experience associated with biopolitical technologies of government (Blencowe, 2013). Tradition claims an intimacy with more-than-human agencies and a consequent authority to speak that also reframes campesino farmers as experts and protagonists of food futures. What unifies such movements is not one ontology, as in cases where human rights are expounded as a fit-all solution, but a commitment to diversity: to biodiversity but, before this, to ontological diversity, without which biodiversity cannot be achieved.

Conclusion

Ontological diversity is necessary for biodiversity, because more than one world is at stake in the conservation of plant genetic material. Besides the long-standing practices that have functioned to preserve genetic archives across millennia, this is a question of what constitutes biodiversity, and how it is that we can know it. Scientific definitions and practices of biodiversity are helpful for establishing principles of objectivity through which more-than-human agencies, via their diverse collaborators, can influence practice (Callon, 2009). However, forms

of collaboration with more-than-human agencies far exceed that which can be captured by science. For future conservation practices, it is imperative that the plurality of nature–cultures within the world is taken seriously, and the way that the longer histories of agriculture manifest both ontological and land enclosure dispossession. Indeed, the latter is often performed through the former.

This chapter has argued that permaculture pedagogies of plant relationality constitute a form of authority that speaks to declining biodiversity issues, without flattening ontological diversity. This emphasis on knowledge cultures challenges a fetishisation of genetic technologies within agricultural development, as if manipulating these to achieve food security could sustain and be sustained by ecologies with which they bear no relation. This suggests a possible continuation of Carl Sauer's invocation into a different sort of Green Revolution, which takes the long histories seriously, geographies of connection, and innovative practices that form the seed's unseen husk. Through an understanding of nature–cultures it becomes clear that citing indigenous knowledge as something 'pure' can relegate such living archives to the past. Grasping the hybridity of agroecological practices within contemporary contexts of globalising political economy and communication technologies allows environmental design principles to be perceived that can move beyond this impasse. Permaculture practices, for example, cultivate a specific disposition or relationship with more-than-human agencies, but they also create a basis for aesthetic and ethical evaluations in terms of a sense of tradition. This tradition – like Terra Madre – is a reinvention for the present, whose emphasis on embodied practice and lived worlds as the locus of technological innovation acts to exert friction on forms of both agricultural and ontological enclosure.

Permaculture is also significant in the Salvadorian context because it has made the production of experiential and in situ claims to authority audible to other regulative institutions. Such organisations are beginning to recognise the negative impact of claiming too much agency or responsibility over a domain comprising myriad fragile cultural and ecological networks. A further move might entail collaboration in the production of forums which can articulate this authority in relation to other problems shared by other institutions in scientific terms, such as the effects of climate change, water conservation and biodiversity protection. Soil science, for example, and the belated global interest in its broader histories and geographies, offers one opportunity to rethink *terra nullius* into *terra plena:* a soil already populated by microbial and human communities, cultural narratives, lay scientific practices, political demands and solutions to environmental crisis.

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4. Agri-cultural practice and agroecological discourse in the Anthropocene: confronting environmental change and food insecurity in Latin America and the Caribbean

Graham Woodgate

In the realms of agriculture, food and the environment the 21st century is often described as one of impending limits, extremes and crises. Expansion of the agricultural frontier into forest land and farming's mechanisation and industrialisation are contributing to previously unwitnessed biodiversity depletion rates, while overall the food system accounts for approximately 50 per cent of global greenhouse gas emissions (UNCTAD, 2013). Indeed, the scale of human impacts on the biosphere is such that it is now detectable in the lithosphere's stratigraphy, prompting Crutzen and Stoermer to propose a new geological epoch – the Anthropocene (2000). This proposition emphasises the seriousness of the environmental challenges facing humanity in the 21st century.

Peak oil, peak nutrients, soil erosion, declining biodiversity, global warming, climate change and extreme weather events threaten agricultural productivity. At the same time market distortions, triggered by growing demand for biofuels and livestock feeds, together with commodity speculation have resulted in two exaggerated food price spikes since 2005. These rapidly rising prices have provoked acute nutritional crises for the world's 'bottom billion' (Collier, 2007), almost 200 million of whom are resident in Latin America and the Caribbean (LAC). So, what does the situation look like in the region and what are the options for confronting and mitigating negative environmental change and food insecurity?

Some 600 million humans inhabit LAC (approximately 9 per cent of the world total) and, while the population growth rate is declining, at *ca.* 1.3 per cent per year, it remains above the global average and is not forecast to fall below it until after 2030 (FAO, 2014). In terms of productive resources, about 37 per cent of LAC's two billion hectares of land is dedicated to farming and almost 47 per cent is covered by forests. The region also has abundant water resources: while it accounts for just 15 per cent of the total global land area, it

receives some 30 per cent of precipitation. With respect to industrial inputs, on average some 110 kilograms (kg) of fertiliser are applied to every hectare of the region's crop lands, while in Latin America, excluding the Caribbean, each hectare is also dosed with 5.21 kg of pesticides each year (ibid.).

This combination of land, water, labour and capital indicates that LAC is more than capable of producing enough food to feed its current inhabitants, with plenty of capacity to meet projected population growth. If the region's biological capacity is compared with its ecological footprint,[1] it becomes apparent that it has an ecological reserve or surplus of available resources over consumption of 2.9 hectares per person. This compares extremely favourably with the global scenario, which exhibits a deficit of 0.9 hectares per capita (GFN, 2010). Despite this apparent ecological cornucopia, some 30 per cent of the total population continues to subsist on less than $2/day, a figure that rises to over 50 per cent of rural inhabitants, some 35 million of whom fail to meet their daily food requirements (Berdegué and Fuentealba, 2011). Furthermore, despite the fact that by 2010, more than 20 per cent of the regional land surface had been assigned some form of protected area status, agriculture continues to have significant negative environmental impacts. Inappropriate cultivation and cropping practices lead to soil erosion, while the application of fertilisers and pesticides contaminates water, air and food itself. Expansion of the agricultural frontier and the replacement of biodiverse, peasant agroecosystems with monocultural, industrial production systems result in a continuing loss of biodiversity, while deforestation, soil cultivation, residue burning and animal agriculture all contribute to greenhouse gas emissions.[2]

This chapter seeks to unpick the situation and explore two distinct proposals for confronting regional food insecurity and environmental degradation. The first, which will be only briefly outlined, is the 'global food security' model promoted by institutions such as the World Bank and the International Food Policy Research Institute (IFPRI). This relies on technological developments, increasing trade liberalisation, what is termed 'sustainable intensification', and the extension of social welfare programmes. The second, which will be set out in greater detail, is the altogether more radical proposal for 'food sovereignty', proposed by the peasant and family farmer international, La Via Campesina

1 Biological capacity or 'biocapacity' is the 'capacity of ecosystems to produce useful biological materials and to absorb waste materials generated by humans', while ecological footprint is 'a measure of how much area of biologically productive land and water an individual, population or activity requires to produce all the resources it consumes and to absorb the waste it generates'. (Global Footprint Network, www.footprintnetwork.org/en/index.php/GFN/page/glossary/ (accessed 3 Dec. 2015).

2 Agriculture in LAC produces approximately 870 million tons of CO_2e annually (*c.* 18% of the global total), 65% of which comes from enteric fermentation in the guts of the region's livestock. See FAO (2014).

(LVC),[3] and promoted by a growing body of activist researchers and academics in the field of transformative agroecology (compare Méndez et al., 2015).

First, the environmental impacts of different agricultural practices will be explored, followed by a consideration of the benefits associated with low-external input – biodiverse agriculture. Having described the productive and environmental characteristics of the region's agricultures, the chapter will examine how the 21st-century food price spikes originated and compare proposals for global food security and sovereignty. It will close by setting out the key dimensions of what Altieri and Toledo have described as Latin America's 'agroecological revolution' (2011).

Agri-cultures and their environmental and health impacts

Since the emergence of agriculture humans have modified natural eco-systems so as to obtain a large, nett, primary product to harvest. In order to maximise the output of useful products farmers seek to optimise the availability of nutrients, light and water to crop plants by controlling competition from non-crop species. Eco-system modification usually involves removing most or all tree cover, especially in temperate regions, and as the agricultural frontier has expanded so the area of the Earth's surface covered by trees has contracted from a pre-agriculture estimate of *ca.* 75 per cent to a current figure of just over 30 per cent (FAO, 2010). As already noted, this process is less advanced in LAC, which still has almost 50 per cent of forest cover. Be this as it may, in the 20 years from 1990 to 2010 the region lost almost 100 million hectares of forest (*ca.* 10 per cent of the 1990 total): most of it to the expanding agricultural frontier. Trees store significant quantities of carbon, and thus forest clearance contributes significantly to greenhouse gas emissions and, hence, to global warming. It is not just the forests' trees that store carbon, the UN's 2010 Global Forest Resources Assessment estimated that, on average, forest biomass accounts for just 44 per cent of total forest carbon, with a further 45 per cent stored in soil organic matter and 11 per cent in deadwood and leaf litter (ibid.).

According to Ruddiman (2003), the advent and expansion of agriculture and agrarian civilisations were responsible for a global mean temperature rise of almost 1˚C prior to industrialisation, implying that what Crutzen and Stoermer (2000) dubbed the Anthropocene began not with the Industrial Revolution, but some 5–8,000 years ago with widespread forest clearance for agriculture. While Ruddiman's hypothesis has gained significant support and generated much debate, it is clear that the industrialisation of agriculture and globalisation of the food system based on fossil hydrocarbons has many

3 For information on LVC, see www.viacampesina.org (accessed 3 Dec. 2015).

additional negative environmental impacts as well as being a much more significant and problematic contributor to global warming than forest clearance alone.

As well as modifying eco-systems, agriculture has altered plant and animal genetics. Wild species have been domesticated and over successive generations those individuals with the most promising and useful characteristics have been selected and used to produce seed and offspring for subsequent plant and animal crops. The Americas are the centre of origin for a raft of familiar agricultural crops: maize, climbing beans, squash, cotton, chilli, tomatoes, avocados, cocoa and vanilla were first domesticated from wild species in Mesoamerica, while the vast area covered by South America, from the Andes down through the Amazon Basin, offers evidence of the early cultivation of potatoes, tomatoes, cotton, sweet potatoes and numerous other roots and tubers, as well as peanuts and pineapples (Toledo and Barrera-Bassols, 2008).

Over time, the ongoing domestication of wild plants and animals and the selective breeding of crop varieties and livestock have produced a significant expansion of agrobiodiversity. In Peru, there are as many as 4,000 to 5,000 different varieties of potato, each with its own flavour, shape, colour and texture, and each adapted to a particular ecological niche in terms of soil and climate. In just one municipality in Central Mexico, researchers from the Institute of Agricultural and Rural Sciences, working together with local farmers, have identified no fewer than 60 distinct maize varieties. The production and processing of crops, and the distribution and consumption of agricultural products have gone hand-in-hand with place-based, cultural learning and the establishment of a broad range of social institutions. In almost every seat of human habitation, distinct agri-cultures and agroecosystems have been developed and 'maintained through a mosaic of management practices that ... co-evolved in relation to local environmental fluctuations, and ... [have been] carried forward by both biophysical and social features ... including: genotypes, artefacts, written accounts, ... embodied rituals, art, oral traditions and self-organized systems of rules' (Barthel et al., 2013, p. 1142).[4]

Toledo and Barrera-Bassols refer to these traditional agri-cultures as 'biocultural memory' (2008) and concur with Barthel et al. (2013) regarding their importance in terms of biodiversity conservation and future food security (see also IAASTD, 2009 and UNCTAD, 2013). Globally, of some '1.5 billion smallholders, family farmers and indigenous people' that occupy around 350 million small farms, roughly 50 per cent employ agroecological practices and represent 'a testament to the remarkable resiliency of traditional agroecosystems in the face of continuous environmental and economic change – while

4 See also Wylie, chapter 2.

contributing substantially to food security at local, regional and national levels' (Altieri and Toledo, 2011, p. 591). Indeed, according to a United Nations Environment Programme (UNEP) report of 2011, small-scale farmers produce 50 per cent of the total global food production, with a further 25 per cent coming from wild harvest, hunting and fishing. Altieri claims that in Latin America '17 million peasant production units occupying close to 60.5 million hectares, or 34.5 per cent of the total cultivated land with average farm sizes of about 1.8 hectares, produce 51 per cent of the maize, 77 per cent of the beans, and 61 per cent of the potatoes for domestic consumption' (2008, p. 5).

The industrialisation of agriculture and the establishment of what McMichael has called the 'corporate' or 'food from nowhere' food regime has involved the simplification of agroecosystems and the transformation of diverse agri-cultures into homogenous agri-businesses (2009).[5] In the process, crop, wild plant, animal and human cultural diversity have all been greatly diminished:

> the rate of biodiversity loss due to ... chemically intensive monocultures is extraordinary. ... Entire habitats and [the] wild species associated with them ... have been lost or are on extinction trajectories ... and it is now well established that the current loss of biodiversity in agro-ecosystems also erodes fundamental ecosystem services that underlie the resilience of production, such as soil fertility, pollination and natural pest control. (Barthel et al., 2013, p. 1145)

The first stages of agricultural industrialisation began with mechanisation followed by 'the development of hybrid maize in the 1930s, [and] the expanding use of complete fertilizers and [chemical] weed and pest control technology following World War II' (Hildebrand and Poey, 1985, p. ix). The success of these petroleum-based technologies in Europe and the USA led to international efforts to increase global food production by promoting agricultural industrialisation in the south. Of particular relevance to this endeavour were the constituent institutions of the CGIAR (Consultative Group on International Agricultural Research), which include: the Centre for the Improvement of Maize and Wheat in Mexico established in 1966, the International Centre for Tropical Agriculture in Colombia (1967), and the International Potato Centre in Peru (1971). In concert with national agricultural development programmes and significant funding from philanthropic organisations and aid programmes such as the USA's Alliance for Progress, these international institutions drove what subsequently became known as the Green Revolution, which extended technological packages of hybrid seeds, synthetic fertilisers and chemical herbicides and pesticides throughout Latin America and more widely in the developing world.

5 Compare the 'agri-culture' and 'agri-business' notions with Millner's discussion of 'nature-cultures' in chapter 3.

Under optimum conditions industrial technologies returned remarkable increases in production. At the same time, however, increased productivity came at the cost of environmental integrity, social justice and long-term ecological and economic viability (see, for example, Carson, 1962; Eckholm, 1976; Repetto, 1985; Woodgate, 1992; Vandermeer and Perfecto, 2013). These and other studies show how industrial agriculture and the corporate food regime have concentrated land ownership, marginalised and impoverished small-scale farmers, depleted wild and agricultural biodiversity, polluted soils, water and the atmosphere, and transformed food from the most basic of human needs into globally traded commodities. Furthermore, toxic agrochemicals pose significant risks to the health not only of agricultural labourers but also of urban populations living in proximity to large-scale agribusiness enterprises.

Wright's benchmark study reveals the impacts of chemical-intensive, Green Revolution agriculture on the health and welfare of the untrained, poorly paid and ill-protected campesinos, without whom the agribusiness model would lose its comparative advantage (2005).[6] His analysis of export agriculture in Sonora, Mexico reveals how the exposure of campesino labourers to a wide range of toxic chemicals is so ubiquitous that pesticide poisonings among them are almost a daily occurrence: an example of the 'super pollution' that O'Connor considered a consequence of combining First World production technology with Third World working conditions (1989).

Neurotoxicological studies of modern, supposedly-less-noxious, agricultural chemicals clearly suggest earlier assumptions that sub-acute exposure to non-persistent organophosphate and carbamate-based pesticides had little compound effect on human health were quite false, indicating instead permanent nervous system damage with loss of reasoning and other mental-processing skills (Wright, 2005, pp. 336–40). In addition, developments in the use of recombinant DNA techniques have allowed companies such as Monsanto and Syngenta to develop genetically modified (GM) strains of cereal and other crops that are capable of withstanding frequent spraying with herbicides such as glyphosate, or contain their own bioengineered pesticides. The former allow farmers to increase herbicide applications without risking damage to their crops, while the latter run the risk of creating pesticide immune pests. Furthermore, as with the Green Revolution's so-called 'miracle' seeds, the new GM varieties are covered by intellectual property right law, which holds the prospect of any farmer suspected of saving seed derived from patent protected crops, being dragged through the courts for breach of intellectual property rights.

> Treating plants and animals like so many assemblages of interchangeable parts is the ultimate stage of the application of … 'the industrial mind' to agriculture and nature. Using this logic to more tightly chain farmers

6 Originally published in 1990.

> to the legal practices of industrial patent law and universalizing trade agreements extends the logic of the factory to the complex cultures of rural people and the winds and migrations of wild nature (Wright, 2005, p. 351)

The potential for catastrophic impacts on human health that emerges when agricultural policy is captured by corporate agri-business is amply demonstrated by soya production in the Southern Cone. In 2003, Syngenta – one of six global seed corporations – took out an advertisement in the Argentine national dailies Clarín and La Nación, proclaiming 'The United Republic of Soya' (GRAIN, 2013): a vast, imaginary, agri-industrial territory, unifying arable land in Argentina, Uruguay, Paraguay, Bolivia and Brazil. Argentina is the world's largest producer of GM crops accounting for more than 20 per cent of global GM production. Since the 1990s, the Argentine state has rigorously promoted GM agriculture, revenue from which was vital to economic recovery following the country's crippling debt crisis and eventual default in 2001 (O'Toole, 2014, pp. 102–3). Genetically modified soya production follows a simple recipe: Syngenta's patented, Glyphosate-resistant soya beans are combined with a regime of fertiliser and herbicide applications. While the package is being promoted as 'environmentally friendly' due to the claimed but contested low toxicity of Glyphosate and minimum tillage requirements, the size of the areas being farmed means that routine herbicide applications have to be carried out using light aircraft. In the suburbs of cities such as Ituzaingó in Córdoba province, to the west of Buenos Aires, less fair winds blow. Surrounded by immense oceans of GM crops, residents have been subjected to long-term repeat exposure to pesticide and herbicide spray drift.

Many are familiar with Las Madres de Plaza de Mayo and the struggles of these mothers to recover, at least, their memories of the child victims of enforced disappearance during the brutal 1976–83 dictatorship. In the 21st century, regulatory capture has produced an Argentine agribusiness model that resembles a corporate dictatorship, one that is spawning more bad memories for the future as it conducts what Broccoli characterises as the world's most grisly 'toxicological experiment' (2015). Today, another group of mothers is seeking justice, this time fighting for the rights of their 'contaminated children'. They are the Mothers of Ituzaingó, who first reported the impacts on their children of excessive agrochemical use in 2001. Their struggle for justice is supported by popular gatherings, pesticide-poisoned peoples' organisations and peasants driven from their lands by the 'violence' of the industrial model of monoculture GM crop production (compare Shiva, 1991). By 2012 this pernicious production regime had spread over some 22 million hectares of Argentina's grain belt, with a resident population, not including the major cities, of approximately 12 million (Broccoli, forthcoming 2016). It was also in 2012 that the Mothers of Ituzaingó were finally able to set before the courts

compelling evidence of more than 200 children diagnosed with cancers that it was claimed had been triggered by agrichemical poisoning. In a landmark ruling, 'the court in Cordoba found farmer Francisco Rafael Parra and pilot Edgardo Jorge Pancello guilty of violating regulations that banned the use of farm chemicals near homes' (BBC, 2012). Encouraged by their success the mothers are now leading a national campaign against GM giant Monsanto's plans to build a seed-processing plant at Malvinas Argentinas in the peri-urban area of Córdoba City (Broccoli, forthcoming 2016).

This section began with a description of how, for most of the past 10,000 years, agri-cultural practices produced a growing diversity of crop plants and domesticated animals. It concludes by noting that the globalisation of industrial agriculture and the corporate food regime has resulted in the loss of some 75 per cent of crop plant genetic diversity, more than 30 per cent of livestock breeds at risk of extinction, and fully three-quarters of the world's food being derived from just five animal and 12 plant species (FAO, 2004). Most, if not all, of these 12 species of crop plants have been subject to genetic engineering and depend not on the local knowledge and eco-system services that motivate peasant agriculture but on standardised regimes of mechanical cultivation, agrichemical application and harvesting, all of which are dependent on dwindling fossil fuel reserves. The profits from industrial food and fibre production are reaped by transnational seed and agrichemical corporations and large-scale agri-business enterprises, while national accounts are boosted by export revenues. The social costs of the corporate food regime's recipe for global food security are evidenced in ecological degradation, social deprivation, dietary deterioration and increasing risks to human health.

From industrial agriculture to transformative agroecology

In contrast to industrial agriculture, agroecology begins not with the formulation of 'magic bullet' technological packages in corporate laboratories and agricultural research stations but with the agri-cultural practices of farmers in the field, seeking to learn from and build upon the ecological principles and place-based, biocultural knowledge that support long-term sustainable food and fibre production.[7] Agroecology has emerged as a transformative, transdisciplinary and pluralist discourse and practice from deep-seated foundations. Woodgate and Sevilla Guzmán have sketched out some of these intellectual roots noting a number of recent LAC experiences (2016).

After several years working in commercial enterprises in Costa Rica and Mexico in the mid-1970s Stephen Gliessman took up a post as agricultural

7 The interaction of farmer-scientists and researcher-activists involved in transformative agroecology reflects the 'valorisation of diverse forms of expertise within the production of future-oriented environmental knowledge', as Millner posits in chapter 3.

ecologist at the Colegio Superior de Agricultura Tropical in Tabasco, Mexico, which had been established 'to train the agronomists and test [Green Revolution] technologies on its experimental fields' (Gliessman, 2013, p. 26). During his time in Central America, Gliessman had been intrigued by the agricultural practices of his peasant neighbours and, as an ecologist, it became clear to him that rather than trying to override natural processes the local peasants worked with them. He took these insights to Tabasco, where he delivered what was probably the first university course in agroecology: 'International summer courses in agroecology were offered in 1978–80, a master's degree program in agroecology was begun in 1978, and research projects with the agroecosystem as the organizing concept and agroecology as the research process began as early as 1977' (ibid.).

During the 1980s a multitude of development NGOs sprang up throughout Latin America as IMF-imposed structural adjustment forced states to cut back on public spending and close down rural development programmes. Towards the end of the 1980s, NGOs from Chile, Brazil, Argentina, Bolivia, Colombia, Ecuador, Paraguay, and Peru, joined forces to form the Latin American Consortium on Agroecology and Development (CLADES). One of its technical advisers was Miguel Altieri, a Chilean agroecologist from the University of California, Berkeley. Together with the likes of Peter Rossett and Clara Nichols, Altieri developed the Consortium's relationships with rural social movements and development NGOs, providing them with agroecological advice and training. Since 1991 CLADES has published Agroecología y Desarrollo, a journal dedicated to making agroecological knowledge and experience available to institutions. It works to encourage ecologically and culturally relevant development practice and provides a forum for debating the institutional challenges of sustainability.[8]

Following the 1975 International Working Party for Peasant Studies at the University of Manchester, UK, where he had met and been encouraged by Teodor Shanin, Angel Palerm, Joan Martinez-Alier and Eric Wolf, Eduardo Sevilla-Guzman returned to Spain where, in 1978, he founded the Institute of Sociology and Peasant Studies (ISEC) at the University of Cordoba. The ISEC became involved with the Rural Workers' Union (SOC), Andalucía's landless workers' movement, supporting its members as they occupied and began to cultivate abandoned haciendas, using agroecological techniques they had learned from the peasants that lived and worked around these old estates. The relationship between ISEC and SOC led to further important linkages with Latin American agrarian social movements, whose experience of struggle against the depredations of Green Revolution technologies and institutions made a significant contribution towards developing the militant perspective

8 See www.clades.cl.

that characterises agroecological research and teaching at ISEC to this day (Sevilla Guzmán and Martinez Alier, 2006).

Cooperation between the University of California, Santa Cruz, CLADES and ISEC resulted in the first doctoral programme in agroecology being established at ISEC in 1991, followed shortly after by a taught postgraduate programme at the International University of Andalucía. Many of today's key contributors to agroecological discourse have lectured or studied on these programmes, and the personal and institutional relationships that have developed through this long period of interaction and cooperation have facilitated the training and diffusion of agroecology practitioners, social movement activists, academics and state functionaries throughout the Americas and beyond. These agroecological actors have contributed to the establishment and work of numerous institutions including the Associação Brasileira de Agroecologia; the Brazilian agroecology umbrella network, the Articulação Nacional de Agroecologia; and the Movimiento Agroecológico de América Latina y el Caribe, many of which come together in La Sociedad Científica Latinoamericana de Agroecología.

Agroecology has developed through the coming together of farmer researchers and activist scientists within a significant and growing social movement for food sovereignty.[9] Unlike certified organic agriculture, agroecology does not simply substitute chemical inputs with commoditised ecological amendments; it seeks to break farmer dependency on industrial inputs and the corporate food regime's institutions, and to join with producers and consumers in their struggles to defend themselves against the commoditisation of land, labour, knowledge, genetic resources and food. For Altieri and Toledo, agroecology comprises a technical, epistemological and social revolution that represents an overt challenge to 'neoliberal modernization policies based on agribusiness and agroexports' (2011, p. 587). It also seeks to create positive environmental change and remedy past degradation through appropriate agroecological practice rather than technocratic environmental management.

The agroecology of agri-cultural practice

Traditional agri-cultural practices are built upon local, ecological knowledge and institutional resources, the maintenance of soil health, and crop and non-crop biodiversity. They display a number of key properties that are vitally important to future food security and environmental sustainability.

9 C.f. Millner, chapter 3.

1) Energy efficiency

Low external-input polycultures tend to be more energy efficient than high-input industrial monocultures. This fact came to light in the dark years of the 1970s energy crisis, when researchers were keen to figure out how vulnerable the USA might be, having passed its own point of peak oil production and being subject to an oil embargo imposed by the Arab states within the Organization of the Petroleum Exporting Countries (OPEC), in response to US backing of Israel during the Yom Kippur War. Pimental et al. published a key paper at this conjuncture in Science, which demonstrated that the energy efficiency of corn production in the US grain belt was significantly lower than traditional milpa production in rural Mexico (1973).

Martínez-Alier points out that for most of its history agriculture was 'the energy sector', because it produced greater quantities of energy in the form of agricultural crops than the amount of energy invested in their production (2011). In his seminal text on traditional agriculture in Mexico and Central America, Gene Wilken calculated that manual agriculture, without the use of draught animals, was capable of returning as many as 30 calories of crop output for every calorie invested in production (1987). Of course, once part of the production has to be diverted to feed draught animals, the Energy Return on Energy Invested (EROEI) declines. Nevertheless, even when a proportion of the work is undertaken using animal traction it is still possible to achieve an EROEI of as much as ten to one. High external input, industrial agriculture, on the other hand, often requires ten calories of fossil fuel energy to produce just one calorie of food, transforming agriculture from a net energy producer to a net energy consumer. Clearly, such practice has no long-term future as it is entirely dependent on fossil fuel availability at a price (often subsidised) that makes it profitable. Furthermore, as the starting point for the neoliberal model of global food security or what McMichael calls the 'food from nowhere regime' (2009), it is responsible for significant greenhouse gas additions to an already overheating planet.

2) Productivity

Ploeg points out that, in discussing productivity and agroecological production's potential to produce sufficient food, it is vital to specify what type of productivity is being referred to (2013). Proponents of industrial agriculture often claim that small-scale farmers and peasant producers are incapable of producing enough food to feed the world's growing population, and demonstrate this through reference to labour productivity, which is greatly enhanced by the use of industrial inputs. For example, a mechanical reaper might be capable of harvesting eight hectares of maize in a single day, whereas it would take an individual around 20 days to harvest just one hectare by

hand. In contrast, it is generally the case that low external-input polycultures outperform monocultures in terms of land productivity. Mesoamerican corn, beans and squash polycultures can produce almost twice as much food per hectare as industrial maize monoculture, and twice as much organic residue for composting and turning back into the soil, thus obviating the need for synthetic amendments (Altieri and Toledo, 2011). Polycultural agroecosystems in general can achieve 20 to 60 per cent more useful outputs per hectare than monocultures because, when the entire land surface of a field is covered by a mixture of useful plants with varying growth habits, the productive potential of available nutrients, water and light is maximised.

Furthermore, species and genetic diversity within the plot provide inbuilt protection against losses due to pests and diseases, avoiding the need to use polluting synthetic pesticides and fungicides. Vandermeer and Perfecto illustrate this point particularly clearly in recounting the story of Guatemalan entomologist, Helda Morales and her research into traditional pest control techniques among the indigenous farmers of the Guatemalan Highlands (2013, p. 82). When Morales asked farmers about their problems with crop pests, she was astounded to hear most folk reply that there were none. Knowing that numerous pests cause losses in maize monocrops, she instead enquired about the insects that inhabited the milpas. In response, the farmers reeled off comprehensive lists of every invertebrate pest that could potentially harm both maize and beans. Asked why they did not regard these commercially significant species to be pests, the Mayan farmers related aspects of milpa management that kept insect populations below levels at which they might be experienced as such.

3) Carbon balance

Carbon is the key building block of life and a component of all organic matter. Plants extract it from the atmosphere in the form of carbon dioxide (CO_2), combining it with water to create simple carbohydrates in the process of photosynthesis. It is returned to the atmosphere as a product of respiration, decomposition or combustion, or stored for longer periods in the woody tissues of perennial plants, and more permanently in the organic and mineral fractions of soils. Carbon is therefore found in the crop and non-crop plants and animals that comprise agroecosystems and, perhaps more importantly, locked away in perennial plants and soils.

Agroecological production is based on maintaining a healthy, living soil, rich in organic matter and soil meso and micro flora and fauna. Biodiverse, polycultural systems, especially those that integrate annual and perennial crops, are continually sequestering carbon and storing it in both above and below ground biomass and subsequently in soil organic minerals and matter. Soil organic matter benefits farmers through the slow release of plant nutrients,

reducing the need for increasingly expensive synthetic inputs. It also improves soil structure and water storage capacity, buffers soil pH, and moderates fluctuations in soil temperature. All these functions contribute to soil health and productivity. In addition to benefiting the farmer, this means that agroecological farming has significant potential for climate change mitigation (IAASTD, 2009; UNCTAD, 2013).[10]

Industrial agriculture, on the other hand, treats the soil as an inert substrate to which synthetic fertilisers are applied to supply plant nutrition. As a result, soil organic matter is depleted and in the process significant quantities of carbon are released to the atmosphere. Furthermore, in order to make its contribution to global food security, industrial agriculture depends on a whole raft of downstream and upstream institutions and activities. From the manufacture and employment of agricultural machinery and equipment and the synthesis of agrichemicals from oil, through the processing, packaging and storage of agricultural products, to their distribution to wholesalers and supermarkets and final preparation for consumption, at every node in its global web the industrial food system releases greenhouse gases to the atmosphere.

To add insult to this already significant planetary injury, it has recently been estimated that approximately a third of all food produced is wasted (FAO, 2013).[11] This figure takes a few moments to digest. One third of all food production uses water equivalent to the annual flow of the Volga, Europe's longest river, and 1.4 billion hectares or 28 per cent of the world's agricultural area. It is also responsible for contributing 3.3 billion tonnes of greenhouse gases to the planet's atmosphere every year (ibid.)

4) Resilience

In addition to climate change mitigation, diversified agroecosystems are more resilient to the increasingly severe and frequent extreme weather events that are associated with global warming. In the Central Highlands of Mexico, traditional Mazahua milpa production provides year-round ground cover. The interlocking root mass of the maize, beans and squash plants, together with numerous wild species that are used as quelites [summer greens] for both human consumption and animal fodder, protect the soil from torrential summer rains. When synthetic herbicides are used, maize has to be grown as a monocrop, exposing the soil on steeply sloping hillsides to erosion and depriving people of important sources of dietary diversity and nutrition (Woodgate, 1992).

Further evidence of agroecological resilience can be garnered from a survey of more than a thousand farms in Central America reported by Holt-Giménez (2001). It demonstrated that, following the ravages of Hurricane Mitch

10 Contrast this with the REDD+ mitigation mechanism Anthony Hall describes in chapter 6.

11 The Institute of Mechanical Engineers suggests this figure may be as much as 50% (IMechE 2013).

in 1998, farms with biodiverse agroecosystems suffered significantly lower economic costs and recovered more rapidly than those where monocropping was prevalent, reflecting the inherent risk-mitigating character of agroecological production. A more recent study of the impacts and aftermath of Hurricane Ike in Cuba demonstrated a similar situation, with agroecological production systems suffering approximately 50 per cent fewer losses and recovering their productive capacity substantially faster than adjacent monocultural systems (Machin-Sosa et al., 2010).

5) Adaptive capacity

As diversity confers resilience, in combination with traditional, place-based farmers' profound understanding of local ecological and cultural resources and relationships, it also imparts adaptability (c.f. Vandermeer and Perfecto, 2013). Indeed, the hundreds of millions of traditional farms that continue to exist at the margins of the corporate food regime represent vital reservoirs of adaptive capacity that will be indispensable in the struggle to maintain food security in the context of declining biodiversity, dwindling oil reserves and accelerated global warming (c.f. Altieri and Toledo, 2011; Barthel et al., 2013; IAASTD, 2009; Martínez-Alier, 2011; UNCTAD, 2013).

'Transformative agroecology': beyond global food security

Méndez et al. distinguish two major agroecological perspectives or 'agroecologies'. In the 21st century, as the negative environmental impacts of industrial agriculture and the global food system have become more obvious, an interdisciplinary but top-down and apolitical 'agroecology-as-natural science' (2013, p. 12) has taken shape (c.f. Tomich et al. 2011; Wezel et al., 2009 among others). Its mission is to develop recommendations and eco-technological packages directed at the greening of industrial agricultural production through ecological input substitution and what Pretty has called 'sustainable intensification' (1995). Agroecology-as-natural science ignores the much deeper social and political foundations of 'transformative agroecology' (Woodgate and Sevilla Guzmán, 2016), which is transdisciplinary, participatory, politically engaged, and oriented towards social action focused on transforming agrifood systems from the bottom up (Méndez et al., 2013).

Transformative agroecology operates within a participatory action research framework to generate understanding of agri-food system issues in order to inform transformative social action (c.f. Fals Borda, 1985). The co-production of knowledge and shared understanding by activist researchers and scientist farmers does not lead to the promotion of technological solutions, but rather the 'co-motion' (Esteva, 1987, p. 149) of systemic strategies directed

at establishing and reinforcing beneficial socio-environmental relationships. Such strategies seek to reduce dependency on external inputs of commoditised knowledge and petrochemical technologies, increase functional diversity and optimise productivity across provisioning, regulating, supporting and cultural eco-system services. They also aim to enhance the quantity of energy output from each unit of energy input, to empower farmers and rural communities and to make a positive contribution to their food sovereignty goal. Transformative agroecology thus clearly strikes at the heart of the global food security model promoted by the corporate food regime.

Rapidly increasing food prices between 2005 and 2007 led to an additional six million people going hungry in LAC, while 2008 alone added a further 40 million people to the total global undernourished population. According to Torero, the price spike and associated food insecurity were the result of a combination of demand and supply factors (2009).[12] Among the demand factors he points to are population and income growth, and growing demand for both meat products and biofuel feedstocks, such as sugar cane, maize, soya and palm oil. In terms of supply, the high price of oil, poor infrastructure, low research and development investment and climate change were implicated. The International Food Policy Research Institute's (IFPRI) policy priorities for combating the crisis and promoting global food security were, at the global level, reducing barriers to trade and combating market volatility while, at the national level, expanding social protection, taking action to improve child nutrition and achieving greater efficiency in linking small farmers to markets (ibid.).

Although the global food security discourse does to some extent recognise the productive potential and importance of small-scale producers (IAASTD, 2009; UCTAD, 2013), IFPRI's plan of action for 'Reaching sustainable food security for all by 2020', published in 2002, frames them more as hapless culprits of environmental degradation than victims of the violence of the new Green Revolution: 'poverty, low agricultural productivity, and environmental degradation interact in a vicious downward spiral, as desperately poor farmers [exhaust] soil fertility and climb the hillsides in an effort to survive' (p. 4). The solution is pro-poor economic growth, involving 'small-scale, nonagricultural rural enterprises ... [and] ... [m]ore productive agriculture' (p. 3). From IFPRI's position as a CGIAR consortium member which defines and seeks to facilitate global food security through research and development, in order to become more productive farmers, 'poor rural people need access to credit and savings institutions, yield-increasing crop varieties, improved livestock, appropriate tools, fertilizer, and pest management technology' (ibid.). To contribute to food

12 Director of the IFPRI's Markets, Trade and Institutions Division.

security they must be articulated with markets dominated by agribusinesses and regulated by corporate food regime institutions.

Torero's paper at the 2009 'World Food Crisis Conference', held in London, contrasted sharply with the one presented by LVC technical adviser, Peter Rosset. In Rosset's view, the principle causes of the 2007/8 food price spike could be divided into long- and short-term factors (2009). Over the long run neoliberal economic policy had been dismantling the capacity of the peasant/family farm sector to produce food, while promoting agroexport capacity to generate state income. Furthermore, structural adjustment had forced most debt-ridden developing nations to sell off national food reserves such as those once held by Mexico's National Basic Products Company, CONASUPO. In the years immediately prior to the spike, Rosset emphasised the impact of speculative capital in commodity futures markets, growing demand for agrofuel feedstock, rising input costs, hoarding by transnational corporations and domestic private sector, speculation and forced exports.

Rather than seeking to achieve food security at a global level, LVC champions an alternative model for moving towards a more sustainable system, central to which is the right of every country or people to define their own agriculture and food policies. Food sovereignty demands the right to produce food for anyone that wishes and thus requires genuine agrarian reform and the protection of national markets against dumping by the advanced capitalist countries. It also proclaims people's right to adequate, affordable, healthy and culturally appropriate sustenance. Furthermore, food sovereignty envisages rebuilding the productive capacity of peasant and family farm sectors, through developing local agri-cultural practices and agroecological knowledge (Rosset, 2009).

The voices of the global corporate food regime and of global food security supporters criticise the food sovereignty model and, despite clear evidence to the contrary (from, among others, Altieri and Toledo, 2011; Holt-Giménez and Altieri, 2013; Ploeg, 2013; Wilken, 1987), doubt local agri-cultures' capacity to produce sufficient quantities to feed the world's growing population. This censure rings somewhat hollow, however, as more and more eco-technological fixes from 'agroecology-as-natural science' are incorporated into industrial production systems in pursuit of 'sustainable intensification'. Detractors also criticise agroecology for not scaling up. In response, Holt-Giménez and Altieri point to the massive mobilisation of state and private capital that was required to globalise the Green Revolution and the significant efforts and resources that are currently being poured into promoting commercial bio- and eco-technologies (2013). They further suggest that '[a]sking "Why can't agroecology scale up?" begs the question, "What is holding agroecology back?"' (ibid., p. 93). Besides

the vastly unequal funding received by transformative agroecology, revisionist agroecology-as-natural science (compare Wezel et al., 2009; Tomich et al., 2011) obscures agroecology's social context and neglects its political content.

Transformative agroecology from the bottom up

The development of capitalist agriculture and food production through commoditising land, labour, water, and most recently biodiversity and knowledge, while promoted as the solution to global food insecurity has, at the same time, resulted in the dispossession of small-scale farmers from biocultural resources that have been coproduced over generations of agri-cultural practice. The collapse of state-sponsored development and the return of economic liberalism in Latin America since the 1980s, have created the space and stimulus for a resurgence in peasant politics and direct action social movements (Altieri and Toldeo, 2011; Martínez-Torres and Rosset, 2010; Peréz Vitoria, 2005; Ploeg, 2009).

These new agrarian movements demand access to and invade unoccupied land, and denounce the 21st-century phenomenon of international land grabbing: foreign capital's rapid, large-scale acquisition of rights to vast areas in the south and the associated removal of peasant farmers (Magdoff, 2013). They also condemn what they characterise as the biopiracy of transnational seed companies, denounce the environmental degradation caused by industrial production, and protest against the health impacts of toxic agrochemicals on those that work on, and reside in close proximity to, agribusiness estates. Their own responses to enduring poverty and food insecurity involve practising agroecological alternatives and political mobilisation in pursuit of land, water, seed, food, technological and energy sovereignty.

Altieri and Toledo identify five areas within Latin America where what they call the 'agroecological revolution' has become firmly established (2011). In the Andean region supportive institutions and government policy have given new life and meaning to the highly significant biocultural heritage embodied in indigenous cultures and agroecosystems. In Central America, the campesino-a-campesino (farmer-to-farmer) movement has seen smallholders sharing their knowledge of agroecological methods, allowing thousands of farming families to reduce their dependence on costly industrial inputs at the same time as increasing yields, improving nutrition, and building resilience to the increasingly intense and frequent extreme weather events that plague the region (Holt-Giménez, 2006).[13] In Mexico, the extensive inheritance of communal land holding that resulted from the revolutionary Constitution of 1917 has facilitated the growth of sustainable rural communities and,

13 Also see Machin-Sosa et al. (2010) on the campesino-a-campesino movement in Cuba.

of particular note, a significant experience of successful community forest management (Woodgate, 2013).

In Cuba, following the collapse of the Soviet Union, the country's access to cheap oil, agricultural machinery and chemical inputs was drastically reduced, forcing national agricultural research institutions to explore low-input alternatives to the highly specialised industrial agriculture they had previously developed and promoted. In an extensive restructuring process involving reforms to land tenure arrangements, the development of urban agriculture and the adoption of agroecological production methods, Cuba has been able to respond to changed circumstances and make substantial progress towards national food sovereignty (Funes Monzote, 2009; Machin-Sosa et al., 2010). In the process much of the environmental damage inflicted by intensive industrial production has been ameliorated and, as already noted, resilience to climate change impacts has been enhanced.

In Brazil, agroecology has given rise to and become embedded in farmers' associations, social movements, universities, scientific associations and government agencies. The landless workers' movement, the Movimento dos Trabalhadores Sem-Terra (MST), was established to contest the concentration of land in the hands of the few and, since 1984, it has led more than 2,500 land occupations, settling at least 350,000 families on somewhere in the region of 10 million hectares of land.[14] The movement champions agroecological production methods and, in 2006, established the Latin American School of Agroecology on MST land in the state of Paraná. It also organises an agroecological seed network to reduce dependence on transnational seed companies and to facilitate food sovereignty (Altieri and Toledo, 2011).

Like the MST, many national and regional agrarian organisations, confederations and social movements are members of the peasant and small-farmer International, LVC. Martínez Torres and Rosset trace LVC's historical development from the early coalescence of numerous peasant and small farmer organisations and confederations in Latin America (2010). Established as a global social movement in 1993, during the rest of that decade LVC's leaders gained access to international policy fora, rejecting NGO representation and making a space for authentic peasant voices to be heard. In the 21st century the movement has taken on a global leadership role for agrarian struggles and, through the politics of food sovereignty, presents a clear, potent and unified challenge to the corporate food regime and its neoliberal sustainable intensification and global food security discourse. In short, 'peasants and family farmers have been able to build a structured, representative, and legitimate movement, with a common identity, that links social struggles on five continents' (2010, p. 150). In 20 years LVC has grown to encompass around

14 For more information on MST, see www.mst.org.br.

150 local and national organisations in 70 countries, representing, according to its website (see note 4), about 200 million small-scale farmers in their struggle to 'defend community-based agroecological farming as a cornerstone in the construction of food sovereignty'.

At the local level LVC works with member organisations to facilitate agroecological knowledge exchange through farmer-to-farmer processes and has established continental-scale networks of trainers, who organise regular encounters to share and develop the agroecological approach to food sovereignty. In the face of global capital's relentless pursuit of profit through land-grabbing, displacing small-scale producers, and patenting seeds, knowledge and technologies, developed over generations of farming practice, the second Americas Continental Encounter of Agroecology Trainers in LVC issued a declaration:

> Agroecology is Ours and is Not For Sale. Peasant agriculture is part of the solution to the current crisis of the system. In this context we reaffirm that indigenous, peasant and family farm agroecology [can] feed the world and cool the planet (LVC, 2011).[15]

Today, agroecologists, whether farmers, scientists or social movement activists (and many individuals operate in all three of these overlapping spheres), are working in concert to defend rural communities and agroecological cultures against the negative social and environmental impacts of neoliberalism and the capitalist industrialisation of the food system. However, while the struggle for food sovereignty has become globalised, human experience of such impacts remains place-based and the local values, knowledges, practices and institutions of ecologically and culturally embedded people are indispensable to the (re) construction of ecological integrity and social justice. Throughout the length and breadth of the LAC region richly diverse agroecological experiences are coalescing and making their distinctive contribution to the politics and practice of food sovereignty, part of a growing countermovement to the global corporate food regime.

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15 LVC's decolonial politics seeks to resignify the campesinado similarly to how it has been devised by indigenous peoples who rework indigeneity and recast the protection of environments. See Radcliffe, chapter 8.

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5. Brazil and the international politics of climate change: leading by example?

Marieke Riethof

At the end of March 2012, Brazilian workers on strike against low wages and poor living conditions began burning down structures associated with the Jirau Dam's construction on the Madeira river in the Amazonian state of Rondônia (*New York Times*, 2012). The dam forms part of the Brazilian government's flagship project to expand hydro-electric power generation, particularly in Amazonia. When the army was called in to suppress the strike, it was another indication of the region's political and economic importance (Salina, 2012).

The strike was also part of a wider anti-dam movement that encompasses environmentalists and human and indigenous rights activists, both Brazilian and foreign. In June 2012, and thousands of kilometres away in the megapolis of São Paulo, I witnessed hundreds of people filing into the Oscar Niemeyer-designed Auditório Ibirapuera, to attend the premiere of the documentary *Belo Monte, Anúncio de uma Guerra* [Belo Monte, Announcement of War] directed by André D'Elia.[1] The screening's timing was calculated to coincide with the Rio+20 UN Conference on Sustainable Development, which was about to start. Many audience members wore feathered head-dresses and had their faces painted to resemble Amazonian indigenous peoples. After a standing ovation, the predominantly young and middle-class Sampa audience streamed out of the Auditório against a backdrop of brightly lit skyscrapers, switched on their phones, and returned home in taxis and cars to blog about the Belo Monte Dam's effects on indigenous peoples. They were oblivious to their own overuse of resources, which is one of the dilemmas underpinning Brazil's recent economic boom.

A week later I watched as cavalcades of the international political elite and their advisers were ferried back and forth through a rain-swept Rio during the +20 conference. Given the physical absence of most of the world's most important leaders, who were attending the G20 heads of government summit in Mexico, and the political failure to achieve any far-reaching consensus, the

1 See https://vimeo.com/44877149 (accessed 7 Dec. 2015).

Brazilian authorities were happy to use the occasion to highlight their newly forged economic preeminence as a basis for a concomitant international role and status.

Because of Brazil's ecological vulnerability and traditional insistence on national sovereignty, the right to development and the 'common but differentiated responsibilities' (CBRD) principle, one would expect a Brazilian approach to climate change talks rejecting binding agreements and any interference with domestic policy. However, Brazil has shifted its position in recent years, particularly since 2009, from such a rejection of binding commitments to reluctantly accepting a higher level of responsibility for major developing countries. This was especially evident when Brazil took an active role in the Copenhagen climate talks in 2009, and during the 2011 Durban Climate Change Convention when it helped to negotiate a legally binding agreement to follow the Kyoto Protocol's second commitment period in 2020. This chapter argues that rather than constituting a minor concern or component of Brazil's foreign policy agenda, environmental issues are increasingly significant and have allowed the country to showcase its claims about the effectiveness of Brazil's own climate change policies and its ability to broker international deals on thorny topics, while bridging developed and developing countries' interests. Brazilian global leadership ambitions involve projecting its domestic climate change policy on a global stage through active participation in climate change negotiations and promoting climate change monitoring and renewable energy. Environmental foreign policy can help legitimise Brazil's ambitions to become a global and regional leader but discrepancies with domestic environmental policies and development goals have the potential to undermine this agenda.[2]

Using a constructivist explanatory approach to the role of ideas, norms and identities in foreign policy, this chapter's first section argues that environmental leadership has become a significant concern for Brazil. Legitimacy is a major incentive for emerging powers to engage in international climate change governance, which in Brazil's case is based on claims about the effectiveness of the domestic climate change agenda. The second section demonstrates that these leadership ambitions are also in line with renewable energy expansion to support national economic development and wider foreign policy ambitions. The third section argues that Brazil's projected carbon emissions reductions by 2020 rely heavily on efforts to reduce deforestation, which is a source of considerable international legitimacy. An explanation of how these tensions and dilemmas have been translated into Brazil's position in recent climate talks is given in the final part. It argues that the shift towards nationally differentiated but binding commitments is rooted in Brazil's domestic climate change agenda

2 Compare this chapter with Hall's discussion on REDD+ in chapter 6, which looks additionally at the articulation between nation-state policies and international frameworks.

and foreign policy ambitions. The country's position also reflects that its environmental foreign policy continues to be framed by ideas about economic development which are not necessarily sustainable. Although renewable energy and deforestation policies are a key part of Brazil's efforts to mitigate the effects of climate change, they have also provoked vocal international and domestic opposition due to their high environmental and social costs.

Explaining environmental foreign policy in emerging powers

When evaluating the Copenhagen and Cancún climate talks and their implications for Brazil, José Domingos Gonzalez Miguez, general coordinator of Global Climate Change at the Brazilian Ministry of Science and Technology, reflected that

> the pressure on developing countries, especially the major emerging economies, to assume targets in the second commitment period of Kyoto is seen as an attempt to halt or slow the progress of these countries … This arrangement would entail a new form of colonialism. (2011, p. 313)

In the run-up to the Rio+20 conference, former Foreign Minister Luiz Alberto Figueiredo defended Brazil's environmental leadership credentials as 'impeccable', citing Brazil as 'one of the few countries that has achieved economic growth with social inclusion and a reduction in deforestation never before seen in the history of this country' (quoted in Frayssinet/Inter Press Service, 2012). The two quotations illustrate a dilemma at the core of Brazil's international climate change policy. The country has made significant environmental progress based on climate change mitigation through renewable energy and deforestation policies, which legitimises the Brazilian position in international climate talks. Although the differentiation between the obligations of developed and developing countries is still a core part of Brazil's foreign policy agenda, there has been a shift towards recognising the need for emerging powers to contribute more actively towards combatting climate change. This is exemplified in Brazil's proposals at recent international climate change talks to develop nationally appropriate targets for carbon emission reductions and to enhance the technical and financial support offered to developing countries for climate change mitigation and adaptation.

Recent debates about the causes and effects of climate change, as well as the role and responsibilities of developing countries, indicate a highly politicised and controversial debate. Brazil's position on environmental negotiations has tended to be that developed countries should take on a leadership role in carbon emission depletion and that reduction targets should be based on actual contributions to climate change (Johnson, 2001). As the economies of

major developing countries such as Brazil, India and China continue to grow, the question is whether they should be subjected to binding targets similar to developed countries. At the Copenhagen Climate Change Conference in December 2009, there was a split between developing countries that proposed a more radical approach to climate change, including Bolivia, Venezuela and the small island states, and major developing countries such as Brazil which continue to question binding targets for emerging powers (Bodansky, 2010). Bolivian representatives were particularly vocal at the 2011 Durban climate talks, with its former ambassador to the UN, Pablo Solon, warning negotiators that their lack of action entailed committing 'eco-cide'.[3] At these talks, the Russian Federation proposed to add a mechanism to the UN Framework Convention on Climate Change (UNFCCC) to periodically review the status of developing countries. Although this proposal was rejected after the the G77 coalition of developing nations with China opposing it, the continuing problem is highlighted of major developing countries' commitment to climate change policies. However, the resulting Durban Platform for Enhanced Action (ADP), in which Brazil played a significant role as negotiator, did include the intention to agree legally binding commitments for both developed and developing countries.

Many observers of climate change talks have criticised the lack of action among major developing countries, leading to the failure of effective global climate change governance. Although Campbell does not necessarily criticise the emerging powers' insistence on equity, he does attribute the failure of the 2012 Doha climate change talks to the lack of caps on major economies' emissions (2013, p. 128). According to Hurrell and Sengupta, many commentators treated the BASIC countries (Brazil, South Africa, India and China) as 'the villains of Copenhagen' or the 'great irresponsibles', generating a pessimistic view of the environmental implications of the power shift towards major emerging countries (2012, pp. 464–7). However, these negative observations ignore that it is not so much a refusal to engage with climate change by blocking binding agreements but an adoption of the principled position that future international agreements should continue to reflect climate justice and north-south differences. Furthermore, various studies emphasise that the major developing countries have made significant progress through domestic climate change policies adopted on a voluntary basis, reflecting their recognition that major developing countries' have additional responsibilities (Gupta, 2007, pp. 124–5; Hochstetler and Viola, 2012; Hurrell and Sengupta, 2012, p. 466; Vieira, 2013, p. 377).

3 See Pablo Solon's interview while on the Durban Climate March, 3 Dec. 2011, OneWorldTV video, https://www.youtube.com/watch?v=0azwUxIzg3s (accessed 7 Dec. 2015).

Despite the increasingly prominent role of emerging powers in climate talks, environmental politics' role in a country's foreign policy, particularly outside the developed world, is a relatively neglected field of inquiry, involving a 'myriad of actors, institutions and forces' (Barkdull and Harris, 2002, p. 63). Research on environmental policy's international dimensions usually focuses on the interaction between states (and non-state actors) in climate change negotiations, the regulation of environmental problems in trade negotiations and international cooperation in nature conservation and protection (Johnson, 2001; Rong, 2010). Explanations of a country's environmental foreign policy and behaviour in international negotiations on the issue have often concentrated on explanatory factors such as vulnerability to climate change and the significance of a country's natural environment (Barkdull and Harris, 2002, p. 71). In the Brazilian case, the global environmental and political importance of the Amazon region obviously shapes Brazil's interests but a more complete picture only emerges when considering a wider range of issues, including the international context as well as national issues such as economic development priorities and the changing foreign policy agenda.

Traditional foreign policy explanations focusing on the national interest, security and sovereignty do not provide an accurate explanation for how it works in developing countries (Gardini and Lambert, 2011; Hurrell, 2006; Papa, 2009, p. 207). The nature of foreign policy in developing countries challenges a series of assumptions that are traditionally used to explain state behaviour. For example, the national interest defined in terms of the right to economic development rather than national security is a driving force of foreign policy in major developing countries such as Brazil. The protection of the right to pursue development motivates Brazil's behaviour in international trade and environmental negotiations (Montero, 2005; Narlikar, 2010). What is particularly significant is that the national interest tends to be defined in terms of economic development rather than national security (Guilhon Albuquerque, 2003). In many developing countries, the national interest is framed as the ability and right to promote economic development alongside the principle of national sovereignty over natural resources, often resulting in the argument that developing countries should have the right to exploit their natural resources as developed countries did in the past.

An ongoing example of this argument is the question of Brazilian stewardship over the Amazon region. The Amazonian territory within Brazil's borders and the social, environmental and economic problems in that region, tend to be viewed internally as an exclusively domestic matter, although this view is not necessarily shared by those domestic social movements and non-governmental organisations (NGOs) engaged in international networking and campaigning (Alonso and Maciel, 2010; Hochstetler and Keck, 2007). Brazil has long

resisted any form of international Amazonian deforestation monitoring and rejects what it calls the 'internationalisation' of the Amazon. Echoing this sentiment, in the context of the protests against the Belo Monte Dam in March 2012, former President Lula observed that 'I saw in the newspapers today that a lot of NGOs are coming here from various parts of the world, hiring boats to go to Belém to try to prevent us from constructing a dam … No one is more preoccupied with the protection of Amazonia and our Indians than we are. Those who have already destroyed theirs do not need to stick their nose in our business' (cited in Bocchini, 2012, author's translation).

Brazil's position in global environmental governance was therefore traditionally characterised by a strong reluctance to allow international deforestation monitoring and management by other states, international organisations or NGOs, and the region continues to be treated as an area of exclusive national sovereignty. The view of the Brazilian eco-system as a matter of national political responsibility stems from a combination of commitments to national security, economic development and environmental protection. Concerns about national security in the region have traditionally referred to the difficulties of controlling borders as well as those natural resources deemed essential for national development. More recently international concerns about drug trafficking have led to increased transborder monitoring of the Amazon region, including military cooperation (Hochstetler and Keck, 2007; Montero, 2005, p. 142), while international NGOs continue to challenge the direction of international climate negotiations as well as the environmental effects of domestic policies. Business interests also play a significant role in shaping the policies, both through a growing interest in green development, while in the context of Brazil's booming agricultural exports, agribusiness interests have often lobbied for limitations on legislation to protect forests.

Due to these controversies, Viola and Barros-Platiau argue that Brazil has not taken up a leadership role in international climate politics similar to its ambitious agenda in other areas of global politics, speaking of a 'dissonance' between foreign and environmental policy (Viola, 2009; Barros-Platiau, 2010, p. 75). Vieira Lisboa claims that for the Brazilian government, ecological principles cannot contradict the prerogatives of economic policy, which in her view undermines the country's ambitions to become a global leader in this field (2002, pp. 49–50). In the run-up to the 2010 Cancun climate talks, Kozloff commented that

> [p]laying down its environmental role on the world stage may appear logical given Brazil's strong and independent stance on its right to develop, yet such a position may not win it many friends in the long term … a more constructive stance on climate change may prove more beneficial to Brazilian foreign policy goals. (2010)

The Brazilian commitment to international environmental leadership appears weak, ambiguous and often contradictory in their view, which highlights the problematic relationship between economic development priorities and the environmental agenda. If this is the case, what is the incentive for Brazil to engage in combatting climate change if there are no internationally binding restrictions on developing countries' carbon emissions? What explains Brazil's motivation to play an active role in climate change talks to the extent that it attempts to position itself as an actor capable of bridging developed and developing countries' interests?

Constructivism's emphasis on the fluid nature of interests and actor's positions in international politics is particularly useful when considering Brazil's motivations to engage more actively with international environmental politics. There is increasing attention to the role of ideas, norms and identities in explaining emerging countries' foreign policy behaviour, which resonates with Brazil's own perspective on foreign policy, which tends to focus on multilateralism and an adherence to international law, while championing developing countries' interests and rights (Almeida, 2009; Guilhon Albuquerque, 2003). Barkdull and Harris also point to the role of ideas in environmental foreign policy explanations, which can be studied at the level of society, the state and the international system. In their view, '[i]deas both shape preferences, and constitute the identities of states as empowered international actors' (2009, p. 25). These ideas do not emerge or develop in a political vacuum so they 'are formulated to serve a specific goal' and result from 'a dialectical process involving both internal and external influences' (Burges, 2009, pp. 67–8). The Brazilian perspective should therefore not necessarily be understood as an ideologically-informed attempt to radically challenge certain norms and principles 'but rather [as an attempt] to gain status … in order to advance the Brazilian agenda' (Gardini, 2011, p. 18). This approach can also be detected among other emerging powers' foreign policy agendas which 'seek not just material power and economic development but also status and recognition' (Hurrell and Sengupta, 2012, p. 464). Another significant principle is that even if the stalemate in climate change talks appears to be due to irresolvable and rigid differences between developed and developing countries, the environmental foreign policy agenda is in fact 'continuously redefined as foreign policies evolve and adapt to new situations' (Papa, 2009, p. 209). It is therefore unsurprising that the Brazilian position has changed in response to the domestic and international recognition that environmental issues can provide the country 'with a new if problematic source of potential leverage' (Hurrell, 1992, pp. 398–9).

From this perspective, Cass contends that actively pursuing an international environmental agenda can serve to legitimise government policy: 'governments

frequently utilize environmental foreign policy as a symbolic tool to manage international identities in the eyes of both domestic and international constituencies' (2009, p. 41). From a constructivist perspective, 'governments therefore have an incentive to affirm liberal international norms to cultivate an identity as a legitimate international actor' (p. 42). Hochstetler and Milkoreit also emphasise the significance of norms in shaping environmental foreign policy behaviour. Referring to the role of the BASIC countries in recent climate talks, they conclude that their policies are informed by the desire 'to be perceived as responsible global stakeholders in a context where they knew they were receiving extra scrutiny' while 'defending against pressure to take on a larger share of the mitigation burden [and] protecting domestic development interests' (2014, pp. 226, 231).

However, the climate change debate is characterised by disagreement about international norms and differing perspectives among developed and developing countries.[4] Whereas the approach of the former focuses on 'economic efficiency in mitigation' without differentiating levels of development or responsibility, for developing countries international climate policy is 'about financial and technical assistance from developed countries to adapt to climate change and promote sustainable development' (Mayer and Arndt, 2009, pp. 77, 82). Parks and Timmons Roberts attribute this difference to worldviews and principled beliefs among developing countries about global inequality, based on the view that developed countries are responsible for climate change and that imposing environmental policy on developing countries can be a form of 'environmental imperialism' (2010, pp. 145–6). Vieira argues that 'the moral high ground belongs to developing nations' in climate politics due to their claims about fairness and the need to protect the poorest (2013, p. 372). As a result, '[e]merging powers have thus come to see themselves as defenders of … established norms rather than as revisionist states seeking to challenge the system's dominant norms.' (Hurrell and Sengupta, 2012, p. 469). In this respect, Hochstetler and Milkoreit view the emerging powers' voluntary commitment as a 'new constitutive norm', which combines recognising their responsibilities with differentiation based on national circumstances (2014, p. 229).

Apart from ecological vulnerability, coupled with the right to development, a major incentive for emerging powers to actively engage in international climate change policy is therefore to seek legitimacy in order to gain power and recognition on a global stage. For Brazil, that legitimacy to speak out is based on claims about the effectiveness of its domestic climate change policies, illustrated by the increased importance of extensive and transparent reporting on domestic environmental policies. This rationale also supports the argument

4 See Radcliffe, chapter 8.

that a major developing country like Brazil can combat climate change without necessarily being subject to the same internationally binding emission targets as developed countries, legitimising the climate regime's transformation with nationally defined, rather than universal, targets for developing countries. For Brazilian negotiators, this rationale also underlines the nation's role in bridging the gaps between developed and developing countries in climate change talks, as illustrated by Brazil's active role in recent agreements. These policies are therefore also informed by Brazil's global and regional leadership ambitions, which include environmental concerns and the desire to present the country's position internationally as at the forefront of climate change governance and renewable energy.

Climate change mitigation through renewable energy

The Brazilian government has long used the argument in international negotiations that its contribution to climate change is mitigated by its heavy reliance on renewable resources for energy generation. As an example, the use of renewable energy sources constituted 44.5 per cent of total energy use in Brazil in 2006, in contrast with 6.1 per cent in OECD countries (Brazil/MRE et al., 2007). Brazil's voluntary reduction projections rely primarily on combining the reduction of deforestation rates and the expansion of hydro-electric power generation and other renewable energy sources, including biofuels (ibid.). In December 2009, the Brazilian government decided to unilaterally legislate its commitment to greenhouse gas (GHG) emission reduction, resulting in the adoption of a national climate change policy based on the Plano Nacional sobre Mudança do Clima (National Climate Change Policy – PNMC) (Brazil/CIMC, 2008). This legal commitment to voluntary reductions in carbon emissions is similar to initiatives in other major developing countries like India and China since the early 2000s (Bodansky, 2010; Dimitrov, 2010; Rong, 2010). It was introduced in the context of the 2009 presidential elections' second round, when the Workers' Party candidate Dilma Rousseff was running against Marina da Silva, a former environmental activist, Minister of the Environment, and Green Party representative. While indicating a clear electoral motivation for this policy, it is also part of a wider trend to introduce voluntary commitments among emerging powers (Hochstetler and Viola, 2012).

Arguing that its emissions are not primarily due to fossil fuel use, as is the case in developed countries, has allowed Brazil to hold the position that its emission reduction efforts should be voluntary and in proportion to its stage of development. From their perspective, the same principle applies to all other developing countries without differentiating varying development levels. However, Brazil continues to expand the exploitation of fossil fuels to promote economic development. President Lula announced in 2006 that

Brazil was self-sufficient in crude oil, making the country the second-largest oil producer in South America after Venezuela. Although it has been argued that this announcement was politically motivated, the discovery of significant pre-salt oil reserves in the Tupi field in late 2007 further confirmed this optimism (*Economist*, 2008). Although gas production has increased from the early 2000s onwards in an effort to reduce dependency, Brazil still imports considerable amounts of gas from Bolivia (EIA, 2012). Investments in gas exploitation and infrastructure in Bolivia are a key part of a strategy to integrate regional energy supplies through the Initiative for the Integration of South American Infrastructure (Burges, 2009, pp. 117–19; Zhouri, 2010, p. 264), but they have also been highly controversial. When Evo Morales announced the nationalisation of hydrocarbons in Bolivia in May 2006, this directly affected Brazilian investments in the sector. Meanwhile there is an ongoing dispute with Paraguay over electricity generated by the Itaipu Dam, located on the Paraguayan-Brazilian border (Ubiraci Sennes and Narciso, 2009, pp. 58–9; Vigevani and Ramanzini, 2011, pp. 58–9). The issue flared up again in the context of the Paraguayan presidential elections in 2008, when the government attempted to negotiate a fairer price for power sold to Brazil.

The 2010 PNMC forms Brazil's contribution towards international efforts to reduce carbon emissions (Brazil/CIMC, 2008). The policy includes a carbon emissions reduction target of between 36.1–38.9 per cent of projected emissions by 2020. Its core focus is on mitigating climate change through the increased use of renewable energy, that is, hydro-electric power generation and the expansion of biofuels production through the Programa Nacional do Álcool (National Alcohol Programme – PROALCOOL). Brazil is well-known as a pioneer in the development and exploitation of alternative energy sources, such as ethanol and hydro-electricity. In order to reduce dependency on oil imports in the aftermath of the 1973 oil crisis, the Brazilian government decided in 1975 to provide fiscal incentives to produce bioethanol based on sugar-cane production, leading to land being converted to sugar- cane plantations. The government's energy strategy also focused on diversifying energy sources, including nuclear power and hydro-electricity. When the price of sugar increased and that of oil decreased during the 1980s, the use of ethanol for cars began to decline, resulting in the stagnation of ethanol production (Brazil/MRE, 2007, pp. 14–15). From 2000 onwards, renewed domestic and international interest in alternative energy sources revitalised the sector. The production of 'flex-fuel' cars with engines that run on a mix of ethanol and petrol has increased substantially since 2003 (ANFAVEA, 2012, p. 60). However, a combination of the rising price of sugar, a poor harvest and a decline in global demand led to ethanol production decreasing between 2009 and 2011, although it recovered in 2012 along with exports (Brazil/MME, 2011; Brazil/ANP, 2014, pp. 62–4).

In environmental terms, biofuels are a renewable energy source and therefore have a reputation for being environmentally friendly. However, concerns exist that the production of biofuel competes with that of food, contributing to the global inflation of food prices. In Brazil, sugar-cane production is associated with high social and environmental costs, as well as the conversion of arable land for the purpose. Furthermore, questions have been raised regarding the ability of biofuels to contribute to carbon emission reduction, as the energy used for its production reduces the overall impact. In 2011, ethanol represented 5.7 per cent of domestic fuel consumption. Expansion of biofuels in the road transport sector, in particular, one of the largest carbon emitters in the country, is expected to contribute to a reduction of oil consumption by 2020. Brazil's biofuels policy includes expanding production abroad through investments in Africa, in particular, and attempts to create a more competitive market for biofuels internationally by diversifying producers (Freitas Barbosa, et al., 2009). Despite the country's ambitions, international demand for biofuels has decreased considerably since the 2008 global financial crisis (Brazil/MME, 2011, p. 244; Brazil/ANP, 2014, p. 64).

In 2007, the Brazilian government introduced the first Plano de Aceleração de Crescimento (Growth Acceleration Plan – PAC), followed by a second phase (PAC 2) launched in 2010. Apart from improvements in social policies (urban improvement, basic public services and housing), the plans focus on expanding the energy matrix as well as infrastructure development. These two areas comprise the bulk of the investment programme, totalling R$503.9 billion during the first phase (2007–10) and R$1.59 trillion between 2011 and 2014. Controversially, the plans include expanding infrastructure and energy generation in the Amazon region. The projects combine road, railway and port development along with electricity transmission networks, mining and agriculture. The drive to invest in the Amazon region domestically is matched by the growth of oil and gas exploration as well as infrastructural investment in neighbouring countries, such as Bolivia, Peru, Ecuador and Bolivia (Burges, 2009, pp. 113–19).

By the close of 2009, hydro-electric generation provided 71.7 per cent of the country's power consumption and 93.9 per cent of electricity was produced domestically, which included that generated by the binational Itaipu Dam on the border between Brazil and Paraguay (Brazil/MME, 2011, p. 33). Brazil's most recent energy expansion plans focus on the development of northern Brazil, which has now become a new 'energy frontier'. Amazonia has long been viewed as a region with high potential for the growth and integration of hydro-electric energy generation, and the Belo Monte Dam project is part of the Brazilian government's drive to expand hydro-electric energy generation nationally, and in Amazonia in particular. The project is located on the Xingu

River in Pará State and was first proposed by the military government in 1975. The expansion of hydro-electricity was a key element of the military government's drive to reduce oil dependency, also forming part of ambitions to develop Amazonia. National security and control over natural resources were another motivating factor, which continues to be the case after the democratic transition (Hochstetler and Keck, 2007, pp. 142–7; Montero, 2005, p. 132).

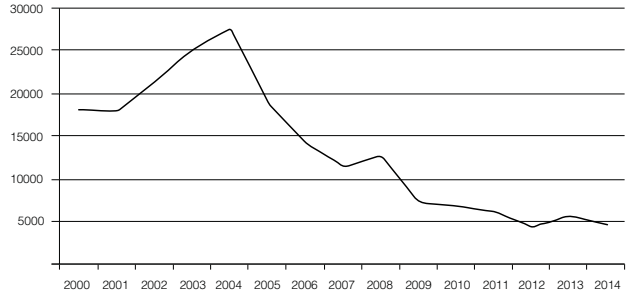
Reports and planning were finalised in the late 1980s, provoking protests by indigenous groups in the hope that a democratic government would be more likely to listen to their demands. After prolonged groundwork and legal delays during the 1990s, the plans were revived in the early 2000s aiming not only to expand hydro-electricity, but also to develop the Amazon region, including integrating electricity transmission networks and infrastructure within the region and across the country (Brazil/Ministério do Planejamento, 1999). Renewed attention fell on the project in the context of electricity blackouts in large urban centres in 2002 and the hydro-electric dams' vulnerability to droughts, lending a new urgency to the plans. Amid protests and legal challenges, the government simplified the requirements for environmental licensing of electricity projects that were expected to have a low environmental impact in 2001, with a view to increasing the potential for natural resource exploitation.

Deforestation policies

Although combatting deforestation is at the core of Brazil's climate change policy, there is considerable domestic and international controversy relating to deforestation's role in Brazil's contribution to carbon emissions. Deforestation monitoring has improved dramatically over the last decade as a result of almost real-time satellite surveillance by the Instituto Nacional de Estudos Espaciais (National Institute for Spatial Studies – INPE). Rates have dropped steadily since 2004 and INPE data show that deforestation has more than halved between 2006 and 2012 (see Figure 5.1; INPE/PRODES, 2015). Research demonstrates that carbon emissions dropped when deforestation rates began to reduce in 2004–5, which is expected to contribute to Brazil's voluntary emissions targets by 2020 (INPE, 2009, pp. 2–3). A report by the Institute of Applied Economic Research (Instituto de Pesquisa Económica Aplicada – IPEA), a Brazilian think-tank, points out that '[n]ational targets concentrated on controlling deforestation can offer the country a significant comparative advantage, since deforestation reduction is undoubtedly less restrictive to economic growth than limits to energy consumption' (Seroa da Motta, 2011, p. 37). However, the causes of deforestation are still highly controversial as

they underline contradictions between simultaneous commitments to economic development and environmental protection.[5]

Figure 5.1: Annual deforestation rates (km²) in the Brazilian Amazon
(source: INPE/PRODES, 2015)



Despite the substantial progress made in reducing deforestation rates, forest protection has come under fire as being in favour of agribusiness and other economic interests in recent years. In legal terms deforestation has been managed in Brazil through the Código Florestal (Forest Code) since 1965. The Forest Code legislation is highly protective of forested areas, stipulating that between 50 and 80 per cent of forests should remain uncut in Amazonia and other vulnerable areas like the *cerrado* and the Atlantic rainforest. Although the *cerrado*, a semi-humid tropical savanna, covers significant parts of the national territory and is a rich natural habitat, it is under threat from the expansion of large-scale intensive agriculture and desertification (Brazil/Ministério de Meio Ambiente, 2005). Partly because of its economic importance and also because environmental problems in this region receive less attention than in Amazonia, regulation and monitoring of this issue is particularly lacking, while enforcement of the Forest Code is weaker (Wolford, 2008, pp. 222–3). The Atlantic rainforest located in the southeast, a UNESCO World Heritage site, is under threat from increased road transport, oil refining and shipping activities. Even in regions that feature prominently in international environmental debates, deforestation policy has been blighted by contradictions between efforts to monitor and regulate deforestation, environmental conservation and economic exploitation (Hochstetler and Keck, 2007, p. 2), as well as weak enforcement capacity. Although authorised logging has become better regulated, illegal logging continues and enforcement is difficult despite the improved monitoring. As deforestation is often directly connected to changes

5 See Hall on REDD+, chapter 6.

in land use and the conversion of forest to – often unsustainable – agricultural activities (including cattle ranching and soybean production), this question is at the heart of Brazilian debates on the expansion of export agriculture versus environmental protection.

The domestic debate on forest protection and the conversion of land to agricultural use continues to be heated, particularly in the context of the Rio+20 Conference, which placed Dilma Rousseff under pressure to showcase Brazil's environmental credentials. Since 2009–10, the Forest Code has come up for renewed discussion, as exemplified by a legislative proposal in May 2011 to alter the percentage and types of land that are legally protected (the Novo Código Florestal). Agribusiness representatives and deputies in favour of *ruralistas* [agricultural interests] lobbied strongly in favour of the changes proposed by Deputy Aldo Rebelo, a member of the Partido Comunista do Brasil, which supported the government. Environmental movements protesting against the proposal to water down the Forest Code bore huge signs calling for Dilma to veto the entire Code – 'Veta Dilma!'. In May 2012 the government announced that Dilma would veto 12 out of 84 of its legal articles, followed by further amendments and vetoes in October 2012 (Globo, 2012; Richard, 2012). Although progress has been made in the area of deforestation, the problems associated with its regional and domestic regulation demonstrate there is no clear consensus about the need for forest protection in relation to promoting export agriculture. The increase in deforestation rates in 2013 (see Figure 5.1) have given a clear warning that deforestation policy might not be sufficient to meet Brazil's climate targets, particularly in light of the new forest legislation's unpredictable impact.

Brazil's position in recent international climate change negotiations

Despite these significant indications of progress in deforestation policy and renewable energy, significant fault lines can be found in the relationship between environmental and development policy, as export-led growth and the legacy of state-led industrialisation clash with attempts to protect the environment. Indeed they often actively exacerbate related problems. In light of these dilemmas, this section discusses these tensions' impact on Brazil's evolving approach to international climate change negotiations. Neoliberalism and state-led export promotion have contributed to the growing importance of market-oriented approaches to nature conservation, which includes carbon trading through the Clean Development Mechanism (CDM) and REDD+ (UN Programme on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries) (Zhouri 2010). The rise of agribusiness

and export agriculture poses significant challenges to Brazil's environmental policies, and points to tensions between Brazil's international commitments and domestic policies. Most notably, these economic changes have led to large-scale export expansion (for example, soybeans, fruit and sugarcane), often to the detriment of small-scale producers (Barros, 2009). The growth of cattle ranching in ecologically vulnerable areas is also a key deforestation factor (IPCC, 2014, chapter 27, p. 11) but this issue is hard to tackle through government policy. Actors associated with export-led growth in agriculture and natural resources tend to lobby for policies that weaken environmental protection (as seen in recent debates about forest protection regulation) and in favour of large-scale infrastructural and energy projects that sustain economic expansion. At the same time, Brazil's development strategy throughout this period has also been based on state-led growth in other sectors, particularly energy, infrastructure and manufacturing.

Due to the variety of Brazil's natural habitats and the country's reliance on exploiting natural resources and agricultural production, the country undoubtedly has a significant stake in climate change. For example, a 2011 report on climate change impact on Latin America provides evidence for rising sea levels along the Brazilian coast, particularly in the north-eastern states. The report also cites evidence of increasing wind speeds and other extreme weather events (ECLAC, 2011, pp. 71–4, 121–39). Several regions in Brazil, including the south, the northeast and Amazonia, have experienced a combination of droughts and extreme rainfall, leading to high levels of social disruption and economic costs (IPCC, 2014, chapter 27; Malhi et al., 2008, p. 169; Marengo, 2010, pp. 7–9). Northeastern Brazil's semi-arid regions have experienced desertification for years, compounded in recent decades by increasingly extreme fluctuations in rainfall and droughts (Brazil/Ministério de Meio Ambiente, 2005; 2006). More recently, landslides in Rio de Janeiro state caused hundreds of deaths and left thousands homeless (BBC, 2012; *New York Times*, 2011). These extreme weather events have high social costs, but there are also concerns about the impact on agricultural production, the availability of drinking water, and hydro-electric power generation which depends on a steady water supply (Marengo, 2010).

Although Brazil tends to stress national autonomy and sovereignty over natural resources in its environmental foreign policy, it has also made several notable contributions to international climate change negotiations. Whereas in the 1980s Brazil tended to oppose binding targets for carbon emissions and resisted initiatives for international deforestation monitoring, during the 1990s it became a CDM proponent as part of the Kyoto Protocol and other policies to assist developing countries with mitigating climate change effects (Johnson, 2001; Gupta, 2010). Brazil is the third-largest participant in the CDM after

China and India, as measured in terms of the number of projects and carbon emission reduction, with projects focusing primarily on hydro-electric power generation (Brazil/MCT, 2007; Brazil/MRE et al., 2007; IPEA, 2011).

Recent climate change talks have been a highly frustrating process but even so Brazil has played a significant role in implementing some changes. During the negotiations, the Brazilian agenda has been threefold. The first important element is support for a multilateral climate change regime, including a second commitment period of the Kyoto Protocol post-2012 and the negotiation of a new agreement with binding targets for all countries to enter into force in 2020. Secondly, although the country's position continues to be based on the 'common but differentiated responsibilities' principle, since 2009 it has shifted towards proposing a new model for developing countries' targets, based on Nationally Appropriate Mitigation Action (NAMA). Brazil claims that this proposal's legitimacy is based on effective domestic monitoring, focusing primarily on deforestation. Thirdly, reflecting the principle that developing countries should be assisted in their climate efforts, the agenda concentrates on ensuring appropriate finance for mitigation and adaptation programmes in various economic sectors through the Green Climate Fund. Such initiatives have been reflected in Brazil's national climate change policies, such as the national Climate Fund and the Amazon Fund (Brazil/MMA, 2013; Teixeira, 2012a, pp. 5–6). These, together with REDD+, will help combat deforestation.

The Brazilian position is strongly influenced by its role as an emerging power among an increasingly heterogeneous group of developing countries, particularly the G77 alliance. It has also become increasingly apparent that the emerging powers are now coordinating their environmental negotiation strategies to some extent, particularly through the BASIC group since Copenhagen in 2009 (Papa and Gleason, 2012, p. 919). The BASIC group's starting point continues to be that major developing countries should not be subject to the same binding targets as developed countries and that climate change agreements should 'not hinder their central priority of promoting economic development' (Vieira, 2013, p. 373). Regular ministerial meetings have been held in advance of the annual climate change talks to agree a joint statement and negotiating position. Their unity and collective strength should however not be exaggerated as Brazil and South Africa appear more willing to move towards targets for developing countries than China, and particularly India (Hochstetler and Milkoreit, 2014; Hurrell and Sengupta, 2012, p. 473; Papa and Gleason, 2012). Major powers' increasing engagement can also have positive implications for climate change governance. Hurrell and Sengupta argue that the climate change regime has in practice shifted away from differentiation to a bottom-up system 'based on "pledge and review" that requires developing countries, especially the emerging powers, to be treated in much the same way

as the developed world with regard to their climate mitigation and reporting obligations' (2012, p. 471). Hochstetler and Milkoreit also conclude that the coordination effect through BASIC 'can be productive … when it pulls reluctant parties [such as India] forward' (2014, p. 233).

The 2011 climate talks resulted in the Durban Platform for Enhanced Action (ADP agreement) which led to the negotiation of a new climate change agreement in Paris at the end of 2015 to succeed the Kyoto Protocol after the second commitment period ends in 2020. The ADP agreement was further recognition that major developing countries have more responsibility for climate action due to their higher emissions levels. In Durban, the then Brazilian Minister of the Environment, Izabella Teixeira, emphasised the country's focus on reaching a legally binding agreement which would include both developing and developed countries (2011). She reiterated this position in Doha in December 2012, expressing frustration with developed countries 'shifting the burden' to developing countries (2012b).

However, the details of how individual contributions would be calculated and translated into cuts in emissions remained highly contested, which was also the case in Warsaw at the UN Climate Change Conference (COP19) in December 2013. Brazil proposed that potential contributions to emissions cuts should be calculated domestically, taking into account historical contributions while maintaining the distinction between Annex I and non-Annex 1 countries (*Folha de São Paulo*, 18 November 2013). The debates also illustrate how Brazil's negotiating position may be affected by the effectiveness of its domestic climate change policies. An additional complication and embarrassment for the Brazilian government was that the latest INPE/PRODES data, published in December 2013, showed that deforestation rates had increased in 2013 compared to 2012 (see Figure 5.1), which led to questions about the legitimacy and effectiveness of Brazil's climate change policies, which are primarily based on deforestation reduction (*Folha de São Paulo*, 14 and 19 November 2013).

The importance of agricultural production and land use change in Brazil's carbon emissions illustrates the problematic relationship between the country's development and climate change agendas (Fernandez Silva, 2012, pp. 379–80). A study published by the civil society organisation Observatório do Clima argued that although Brazilian carbon emissions have dropped significantly since 2005, reductions associated with combatting deforestation may have peaked between 2010 and 2012, with other economic sectors contributing to possible future increases (2014, p. 19). Brazilian exports have increased significantly since 2000, although there has been a drop since 2011, reflecting the economic downturn. Commercial relations with two of Brazil's main trading partners, China and the European Union, are dominated by agricultural and other primary products, particularly soy which represented

51.7 per cent of exports to China and 8.18 per cent to the EU in the first half of 2015 (European Commission/Directorate General for Trade, 2015; Jenkins, 2012, pp. 27–9; Ministério do Desenvolvimento/SECEX, 2015). There is a relationship between trade expansion in Brazil's major agricultural export products, soybeans and beef, to the Russia Federation, China and the EU, and carbon emissions resulting from deforestation and land use change (Karstensen et al., 2013, p. 15). Although deforestation rates have reduced since 2004, the drive to increase exports of primary products, which is at the heart of Brazil's development agenda, could challenge the nationally set reduction targets.

Brazilian civil society organisations used COP19 in Warsaw as an opportunity to press the negotiators not only to address the increase in deforestation but also to enhance democratic accountability and indigenous rights, while also underlining the contradictions between domestic policies and the legitimacy of Brazil's position in climate talks (*Carta aberta ao governo brasileiro*, 2013). Furthermore, research demonstrated that Petrobras is a major contributor to carbon emissions, particularly due to pre-salt oil exploration (Heede, 2014, p. 238; *Guardian*, 20 November, 2013). Despite the criticisms, Izabella Teixeira announced new deforestation monitoring measures at the conference and, linking environmental policy to Brazil's global ambitions, commented that 'it is impossible to deny that Brazil has a strategic position in the international geopolitical scenario, which unites production and forest protection' (quoted in Clark/Greenpeace, 2013, my translation). The increasingly transparent reporting that forms the foundation of Brazil's argument for nationally-calculated targets can therefore prove to be a double-edged sword.

Conclusion

In the aftermath of the Rio+20 Sustainable Development Summit held in Rio de Janeiro in June 2012, it appears that there is a significant role for major developing countries in global environmental politics. While Dilma Rousseff stated in her opening speech that the global economic crisis could be a catalyst for a transition to a more sustainable economic model, this was not the most important driving force for the negotiations. To a large extent Rio+20 functioned as an attempt to consolidate Brazilian leadership, particularly because the country's priority seemed to be to play a key role in international negotiations rather than to set a radical agenda for sustainable development. Together with Brazil's leadership ambitions in other arenas, these are all indications that environmental issues could provide the country with the power and recognition to which it aspires. While Brazil continues to oppose the argument that major developing countries should be subject to the same emissions targets as Annex 1 countries, its climate change agenda has moved towards accepting a degree of emerging power responsibility for climate change.

This strategy can provide Brazil with recognition and power internationally as the country's growing economic and political power also allows it to bridge developed and developing countries' interests in climate change talks.

Foreign and environmental policies in Brazil have several strategic goals in common, namely, as Hurrell states, 'the twin imperatives of economic development and political autonomy', as well as the need to balance environmental protection with the exploitation of natural resources for development purposes (1992, p. 378). Economic development strategies over the past decade, in particular, have contributed to the expansion of export agriculture with associated environmental and social costs. Industrial growth and the exploitation of natural resources have also required the spread of electricity generation in often vulnerable regions. Continued development in the use and production of biofuels is a key strategy in mitigating carbon emissions and climate change contributions. However, emissions related to deforestation and particularly changes in land use (the growth of export agriculture) still play a key role in Brazil's total emissions. The controversy surrounding the construction of hydro-electric dams in the Amazon shows that the drive to expand renewable energy can have high social and environmental costs.

Whereas there is considerable debate about the domestic sources of environmental foreign policy among emerging economies, less scholarly attention has been paid to the interaction between the domestic context, the dynamics of international climate talks and Brazil's foreign policy agenda. Based on a constructivist approach to environmental foreign policy in emerging powers, this chapter has therefore argued that such policy is not simply rooted in material interests and ecological vulnerability but also reflects the ambition to increase international recognition of an emerging country's power and status. Brazilian climate change discourse, based on claims about the effectiveness of national policies, serves to legitimise Brazil's position as a major actor in global environmental politics. The government's own perception of its comparative advantage in renewable energy and environmental monitoring has contributed to a shift in Brazil's position from an insistence on differentiated responsibilities to binding commitments at a national level. However, national-level climate change measures are less ambitious than those required to avoid environmental disaster and the international position is marred by the contradictions created by domestic policies. This in turn challenges Brazil's claims to legitimacy and environmental leadership.

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6. REDD+ in Latin America: promises and challenges

Anthony Hall

Rising greenhouse gas (GHG) emissions produced by human activity are generally acknowledged to be a major cause of global warming and climate volatility. According to the Intergovernmental Panel on Climate Change (IPCC), the increase in GHG (largely carbon-dioxide – CO_2) from its preindustrial level of around 280 parts per million to its current estimated level of 430ppm is contributing to a projected world temperature rise of 2–3 degrees over the next century (IPCC, 2007, 2014; Stern, 2007). Agriculture, forestry and other land uses are responsible for almost a quarter of all anthropogenic GHG emissions, producing between 10–12 gigatonnes of CO_2 equivalent (GtCO2e) each year.[1]

Historically, deforestation alone has accounted for approximately 18 per cent of global emissions, although this estimate has now been revised downwards to ten per cent (partly due to Brazil's recent success in curbing deforestation, discussed below). In Latin America, due to high levels of forest removal, this figure has historically stood at 70–80 per cent in the cases of Brazil, Bolivia, Ecuador and Peru (Hall, 2012). Curtailing forest loss can therefore mitigate climate change in two ways; by limiting anthropogenic emissions of GHGs caused by forest destruction and by strengthening the capacity of standing forests to act as carbon sinks.

The landmark United Nations Conference on Environment and Development (or Earth Summit – UNCED) was held in Rio de Janeiro in 1992 and launched international climate negotiations to address the issue of global warming. The United Nations Framework Convention on Climate Change (UNFCCC), signed by 150 nations, came into force in 1994. The basis was thus laid for negotiations to be held at annual UNFCCC Conferences of the Parties (COP), of which there had been 20 by 2014. The 1997 Kyoto Protocol finally came into effect in 2005, establishing binding commitments for 39 industrialised countries and the European Union (together known as Annex I countries in UN parlance) to limit or 'cap' their combined emissions to five per cent below 1990 levels by 2008–12, the first commitment period.

1 Including methane (18%) and nitrous oxide (9%).

Under the Kyoto Protocol, industrialised countries are expected to meet their emissions reductions targets through pollution controls and the introduction of green technologies at home.

In addition to these domestic measures, new 'cap-and-trade' mechanisms would allow Annex I countries to offset emissions over and above their designated quotas, known as 'assigned amount units' (AAUs). Surplus AAUs accumulated by countries within their quotas can be sold on carbon markets to countries that have exceeded their targets. Carbon has thus become a new international commodity. Through the Clean Development Mechanism, for example, emissions reduction projects can be set up in developing countries to earn 'certified emissions reduction' credits that can be traded on carbon markets and count towards industrialised countries meeting their Kyoto targets.

Under Kyoto, only afforestation and reforestation projects could be funded for carbon offset purposes, but not avoided deforestation schemes. However, the Coalition for Rainforest Nations emerged during this period to seek financial support to maintain standing forests as a potentially major contribution towards mitigating global warming. Yet the international forest lobby proved strong and under the 2007 Bali Action Plan, the principle of providing financial support for addressing Reduced Emissions from Deforestation and forest Degradation (REDD) as a mitigation policy was introduced onto the international agenda. The REDD concept has since been expanded to include not just avoided deforestation but also enhancing forest carbon stocks and regenerating secondary forests (REDD+) and sustainable forest production (REDD++). Its fundamental principle is that forest users would be given cash and in-kind incentives for maintaining standing forests, and preserve vital ecosystem services such as carbon sequestration, biodiversity conservation and climate regulation at the same time as sustaining people's livelihoods.[2]

A REDD+ Partnership was set up to develop collaborative arrangements, embracing national governments, multilateral bodies and major non-governmental organisations (NGOs) involved in forestry issues and the private sector. Working outside of the UNFCCC, a plethora of official organisations has committed to funding and/or providing technical assistance to developing REDD+. These include, for example, the World Bank's Forest Carbon Partnership Facility (FCPF), the UN-REDD programme, the Global Environmental Facility (GEF) and major bilateral donors such as Norway and Germany (Hall, 2012, chapter 2).

Funding for REDD+ can in theory originate from one or a combination of three sources: i) a market-based mechanism; ii) a results-based approach; or iii) non-results-based forest protection. Under the first option a high carbon

2 Contrast REDD+ as a mitigation strategy with the agroecological practices discussed by Woodgate in chapter 4 and Millner in chapter 3.

price would be necessary to have a significant impact and sufficient credits would need to be available in the market. Rules would have to be changed under the UNCCC to allow REDD+ offsets in compliance markets. Forest carbon transactions have been worth US$900 million over time, amounting to US$216 million in 2012, with multinational companies purchasing 67 per cent. The low prices of carbon and weakness of the emissions compliance markets is likely to maintain low levels of private investment, involving those commercial enterprises wishing to demonstrate corporate social responsibility and climate leadership (Norman and Nakhooda, 2014). Under the second option payments can be made based on results from projects and verified emissions reductions, without any formal status under the UNFCCC. The most prominent funding scheme for such result-based projects is the Norwegian Forest and Climate Initiative, which supports Brazil's Amazon Fund, as well as the World Bank's FCFP and the UN-REDD programme. The third option grants support for forest protection without requiring proof of additional emissions reductions or carbon sequestration, which are assumed to have occurred rather than being verified. In practice, many small REDD+ projects fall into this category, being more a statement of good faith than anything else (Wunder, 2005).

It is estimated that public and private finance for REDD+ amounted to US$8.7 billion between 2006 and 2014, most of which was pledged by 2010, since when the pace of such commitments has slowed down (Norman and Nakhooda, 2014). Some 90 per cent comprises public funding that originates from about 20 donors. Three-quarters of bilateral support comes from Norway, the US, Germany, Japan and the UK, while ten countries received the bulk, particularly Brazil and Indonesia, with 40 per cent of the total. Latin America and the Caribbean has been the largest regional recipient, favoured in particular by the multilateral agencies. New funding sources, such as the proposed Green Climate Fund, could offer additional sources of support for REDD+ once it becomes operational.

A large gap has opened up between the significant sums of money originally pledged by donors for REDD+ and amounts subsequently dispersed. Stern (2007) estimated that REDD+ would require US$5–10 billion annually, a figure that has increased to US$12.5 billion, the equivalent of roughly ten per cent of the annual international aid budget (Sunderlin et al., 2014). It has been estimated that a REDD+ funding gap will open up of US$15–48 billion by 2020 (Bastos Lima et al., 2014). This deficit has generally been blamed on the failure to reach a binding global agreement on climate change mitigation through the UNFCCC that would create a regulatory framework capable of underpinning a strong market for forest carbon. Fiscal restraint in donor countries and fears that REDD+ credit oversupply would depress carbon prices are also highlighted (Sunderlin et al., 2014).

As already mentioned, at present official compliance markets under the Kyoto Protocol do not allow forest carbon offsets for avoided deforestation; neither does the European Union (EU) emissions trading system. Such forestry projects have had to rely on public funding as well as private sources such as international NGOs and voluntary carbon markets. However, the latter have accounted for just one per cent of traded carbon's total volume, a situation that worsened in 2010 when the Chicago Climate Exchange closed its voluntary carbon-trading programme (Waage and Hamilton, 2011). Regional compliance markets offer another potential source of REDD+ funding as the result of agreements between subnational administrations.

Negotiations resulting from the Governors' Climate and Forests Task Force (GCF) have given rise to California's cap-and-trade system, which is being piloted through an agreement with Acre state in Brazil and Chiapas in Mexico to support jurisdictional (area-based) rather than individual, project-based REDD+ schemes (Sunderlin et al., 2014). This came into force in 2013 and could offer financing potential for the future. In 2013 there was a sharp increase in transacted REDD+ project carbon over the previous year, largely as the result of an agreement between the German government and state of Acre to purchase eight million tonnes of carbon credits. Notwithstanding these possibilities, REDD+ is likely to depend on aid-based public sector funding for the foreseeable future.

REDD+ in Latin America

On the global stage, Latin America has been a pioneer in developing REDD+ schemes, although individual country records have been greatly mixed. With probably about 100+ such projects on the ground, it remains small-scale in relative terms. It is also difficult to be precise since there is no central registry and many experiences might be difficult to officially categorise as 'REDD+' rather than simply 'conservation and development'. Countries with emerging REDD+ strategies can be grouped into four categories (Hall, 2012): leaders, latecomers, stragglers and non-participants (see Figure 6.1). With the exception of Venezuela, Uruguay, Belize and French Guiana, all Latin American nations are now at various stages in the process of developing REDD+ strategies. Norway through the Amazon Fund and Germany have been major bilateral donors. With the exception of Brazil, all countries involved in developing national REDD+ strategies have received technical support and seed funding from the World Bank and/or the UN-REDD programme. The World Bank's FCPF is the larger of the two programmes and requires countries to submit 'Readiness Preparation Proposals' (known as R-PPs) to qualify for support from its Carbon Fund to finance emissions reduction projects. Participants include Argentina, Costa Rica, Guyana, Peru, Panama, Colombia, Suriname,

Guatemala and Mexico. The smaller UN-REDD is a collaborative programme involving the Food and Agriculture Organization of the UN (FAO), United Nations Development Programme (UNDP) and United Nations Environment Programme (UNEP), and funds preparatory activities and capacity building in Ecuador, Bolivia, Panama and Paraguay.

Figure 6.1: REDD+ regimes in Latin America (source: Hall, 2012)

1. LEADERS

Costa Rica

Mexico

Brazil

2. LATECOMERS

Bolivia

Ecuador

Panama

Peru

Paraguay

Colombia

Guyana

3. STRAGGLERS

Argentina

Surinam

Guatemala

Nicaragua

Honduras

El Salvador

Chile

4. NON-PARTICIPANTS

Venezuela

Uruguay

French Guiana

Belize

Farthest along the REDD+ road in Latin America are Costa Rica, Mexico and Brazil. Most activities today labelled REDD+ projects, in Mexico and Brazil, and other countries such as Ecuador and Bolivia, have in some way been able to build upon preexisting experiences in the forestry sector. These can be loosely classed as conservation and development, or integrated conservation and development projects (known as ICDPs); that is, combining avoided deforestation and sustainable forest management, but without the inbuilt incentive payments that now form a part of the REDD+ approach (Hall, 1997, 2012).

Costa Rica was the first country in the world to introduce a national system of payments for eco-system services (PES), predating REDD by over two decades. It once had one of the world's highest deforestation rates but its PES system (Pagos por Servicios Ambientales) has been credited with restoring the level of forest cover from 21 per cent in 1987 to over 50 per cent by 2010 (Pagiola, 2008). Landowners are financially compensated for maintaining standing forest, reforestation and sustainable management. The cost of setting up Costa Rica's REDD+ strategy under the FCPF is calculated at US$4 million while implementation would cost an estimated US$35 million a year. Funding would come from a variety of public sources administered through the national body Fondo de Financiamiento Forestal de Costa Rica (FONAFIFO) and via private individual contracts (Engel et al., 2009).

Mexico has a long history of forest sector involvement. Unlike in Costa Rica, 80 per cent of forests are held as common property in the hands of indigenous and community groups rather than privately, a practice dating back to the 1910 Revolution (Corbera, 2010). Despite periodic struggles between collective organisations and commercial logging interests, community forests are judged to have been effective in holding back deforestation due to traditions of collective mobilisation, decentralised management and delivery of local benefits. Bray concluded that, 'there are regions of Mexico that already resemble the anticipated outcome of successful REDD+ projects' (2010, p. 2). Influenced by strong grassroots pressure, Mexico introduced a unified system of environmental service payments in 2006 under its Pro-Árbol programme to compensate forest users for carbon sequestration, biodiversity conservation and the introduction of agroforestry initiatives, funded by regular allocations from the national budget (Corbera, 2010). Well positioned to embrace a REDD+ strategy in view of its history and long experience in developing the forestry sector, with World Bank support via the FCPF, Mexico is seeking to establish a flexible, nested approach combining federal leadership with well-entrenched local initiatives (Hall, 2012).

Although national REDD+ preparations in Costa Rica and Mexico have emerged from long traditions of centralised forest conservation planning, Brazil's

experience has rather different roots. This has been more recent, fragmented and decentralised. Regional state and local initiatives have played a leading role, rather than REDD+ programmes being federally orchestrated from the centre. The groundwork for REDD+ was laid in the 1980s and 1990s, post-UNCED, with the spread especially in the Amazon region of forest conservation and development projects, involving, for example, the rubber tappers in Acre and small farmer movements along the Trans-Amazon Highway. These 'productive conservation' initiatives were based on the premise that forest cover could be preserved while sustaining the livelihoods of forest users and bringing wider environmental benefits to society at large (Hall, 1997). Unsurprisingly, these early forest conservation and development initiatives now form the basis of a wave of pioneering REDD+ schemes supported by NGOs.

During the 1990s a number of other projects were developed locally adopting eco-system payments which included several voluntary carbon sequestration projects (Hall, 2008). Brazil's first major PES forest scheme, Proambiente, was set up by civil society organisations but transferred to the federal government in 2004. Involving several hundred families in 12 Amazon locations, it was closed six years later following serious financial and logistical problems (Hall, 2008, 2012). However, they too are now providing fertile ground for Brazil's emerging REDD+ plans.

Over this period, while federal interest has faltered, Amazonia's state governments have seized the initiative for developing REDD+ in Brazil. Acre, Amazonas and Mato Grosso have established their own REDD+ strategies and legislative frameworks for facilitating eco-system payments. In addition, state administrations have been politically active in lobbying the federal government to play a stronger role in supporting REDD+ during international climate change negotiations (Hall, 2012; Viana, 2009). Of Brazil's state-wide REDD+ programmes, probably the best known is Bolsa Floresta in Amazonas, covering 10 million hectares and 7,000 families distributed among several protected areas. This is funded through public sources such as the Amazon Fund as well as private commercial donations (Viana, 2010). More recently, the state of Acre has formalised its own jurisdiction-based PSA-CARBONO forest and emissions reduction plan. This includes incentive payments, financed by the Amazon Fund, Sky TV and the German development bank KfW (Hall, 2012).

In addition to these state programmes, other individual REDD+ projects are being implemented, especially in the Amazon region (ibid.). The Trans-Amazon Highway scheme in Pará targets small farmers in areas of high deforestation and rural violence. It incorporates 350 households in 15 communities, formerly embraced by the now defunct federal government Proambiente programme, mentioned above. Other planned pilot schemes are aimed at larger producers as well as small farmers and traditional forest communities. Larger commercial

cattle ranchers and soybean producers have been targeted on the grounds that they are the main drivers of deforestation and, therefore, maximum emissions reductions can be achieved more effectively rather than focusing entirely on small farmers.

These larger-scale initiatives include major schemes in Pará (São Félix do Xingú) and Mato Grosso (Northwest Mato Grosso, and the Socio-Environmental Carbon project) where a multi-stakeholder approach is being planned to benefit farms of all sizes (ibid.). Furthermore, a number of indigenous groups have developed PES schemes, most notably the Paiter Suruí of Roraima. These initiatives are being set up with technical and financial support from state and municipal governments, as well as a range of domestic and international NGOs such as the Nature Conservancy and academic bodies including the Woods Hole Research Institute.

Beyond these three leading nations, the 'latecomers' occupy a more advanced position in their REDD+ preparations than the remainder of Latin America (Figure 6.1). Bolivia heads the list, having set up the pioneering, if controversial, Noel Kempff Climate Action project deforestation avoidance and carbon sequestration project in 1996. Bolivia was a founding member of the UN-REDD and in 2010 received a grant of US$5 million to prepare its strategy, although it remains firmly opposed to market mechanisms for generating revenues. Ecuador is building upon its Socio Bosque forest conservation plan to design a REDD+ strategy and has a number of other pilot schemes planned (ibid.). Panama, Peru, Paraguay, Colombia and Guyana are making efforts on the REDD+ road while the 'straggler' countries in which forests are considered less of a priority, such as Argentina and Chile, are in the very initial stages of planning for a REDD+ strategy.

Promises and challenges

In many ways, REDD+ comes as a breath of fresh air. In the past, the bulk of public incentives and subsidies in the Amazon have actively encouraged the spread of cattle ranching and commercial crop production as the basis of economic growth, incurring massive environmental and social costs, borne especially by the poor and the wider society (Mahar, 1979; Fearnside, 2008; Hall, 1997, 2011). In spite of its relatively modest scale so far, policymakers have high hopes that a scaled-up REDD+ strategy could have a positive impact in terms of encouraging a more socially and environmentally appropriate rural development model for the Amazon region and elsewhere to help reduce carbon emissions and avert global warming.

Yet the expectations raised by optimistic promises and expectations often belie the reality; REDD+ may well prove to be no exception. First, it makes some major assumptions about anticipated behavioural changes that can be

fashioned through providing financial and other incentives. Can people simply be paid to preserve? Second, REDD+ may underestimate the diversity and complexity of forest populations if it seeks to impose conservation strategies in a centralised, top-down, blueprint fashion without being flexible and sufficiently adapted to local reality.[3] Third, there are several technical complications that may frustrate REDD+ projects and compromise their effectiveness once they move beyond the experimental, pilot phase. In addition, basic questions need to be asked about how REDD+ is operationalised and what systems of governance are most appropriate in order to engage all stakeholders.

1) Paying people to preserve?

The most basic assumption underlying REDD+ is that forest users can be persuaded to switch from environmentally destructive behaviour such as forest removal to more benign land-use patterns through the application of cash and/or in-kind incentives. Appropriate compensation, it is argued, can offset the opportunity costs of negative, short-term practices such as deforestation and slash-and-burn farming while developing a longer-term perspective that encourages the preservation of natural capital alongside providing support for user livelihoods. Thus, in addition to securing environmental gains such as carbon capture, REDD+ can also generate 'co-benefits' such as biodiversity preservation, climate regulation, watershed conservation and welfare advantages for the local population.

Based on principles developed in the growing discipline of behavioural economics, 'choice architects' maintain that resource users can be 'nudged' in desirable directions, not just in economic and social terms but also in the realm of environmental policy (Thaler and Sunstein, 2008). The notion that psychological considerations may have a strong influence on development decisions, and can be manipulated to produce desired outcomes, has gained increasing acceptance in policy circles (World Bank, 2015). According to REDD+ proponents in this context, forest users can be persuaded, given the right incentives, to switch to more environmentally sustainable behaviour patterns. Ideally, REDD+'s long-term objective should be to create a payments culture in which resource users can expect to be appropriately recompensed in cash for practising more ecologically friendly, conservationist activities (Angelsen, 2008; Wunder, 2009).

On a continent in which public funds have in the past usually encouraged the removal of standing forest as an indicator of productive development, this change would represent quite a paradigm shift. However, this neoliberal REDD+ approach has come under severe criticism for encouraging an overreliance on cash payments as a major driver of behavioural change. In the context of

3 Radcliffe provides an important insight in chapter 8 into how indigenous peoples view and understand environmental policies such as REDD+.

traditional and indigenous forest communities, for example, Muradian et al. note that economic factors are only one influence on the choice of land-use patterns and willingness to supply environmental services (2010). Rationality, they argue, is context-specific and has to be seen in wider terms of the social embeddedness of economic relations. There is not necessarily an automatic link between cash and conservation. On the contrary, they argue, economic incentives may crowd out wider moral sentiments if applied inappropriately, and encourage selfish behaviour rather than working for the collective good (Ariely, 2008; Vatn, 2010).

What is considered rational behaviour may vary considerably depending on social and cultural circumstances. Research in Asia, for example, indicates the need to incorporate locally developed rules and norms in community-based forest conservation schemes in order to develop appropriate incentives, including the non-economic, which may be more effective than cash transfers (Clements et al., 2010). In Brazil and Mexico, research on REDD+ has found that communities often place a high value on investment into social infrastructure such as education and health facilities, as well as production support, rather than cash payments alone. This suggests that a multisector REDD+ strategy that addresses various complementary aspects of people's livelihoods is far more likely to be effective than one based on simple cash payments (Corbera, 2010; Viana, 2010; Bartels et al., 2010). A recent study by the Centre for International Forestry Research (CIFOR) of 23 early-stage REDD+ projects worldwide found that conditional livelihood enhancements were being considered in over half of these cases as potentially the most effective incentive for reducing deforestation (Sunderlin et al., 2014).

2) Social complexity

A second related major challenge for REDD+ concerns the sheer social and cultural diversity of forest populations. Despite the assumptions of straightforward (not to say simplistic) economic rationality that often underlies REDD+ planning, reality is much more complicated. The values and motivations that underpin land-use practices are bound to vary considerably depending on the forest populations in question. The forces that drive large-scale commercial farmers seeking to maximise profits by supplying international markets are likely to be rather different than those influencing indigenous groups, smallholders, extractivists and riverine farmers dealing with local economies and subsistence needs (Hall, 2012, chapter 6). It may be convenient to assume uniformity of hopes, expectations and practices amongst these diverse groups, but the application of an uncritical 'blueprint' model across the board will be problematic.

The Amazon region illustrates particularly well how such diversity might have strong implications for the application of REDD+ principles. Academic

research over many years in Brazil, Ecuador, Bolivia and Peru reveals the heterogeneity of livelihood activities that combine a range of productive undertakings designed to maximise flexibility while reducing risks for livelihoods. These may include a combination of extraction of non-timber forest products, small-scale farming, fishing, livestock and non-agricultural pursuits such as informal gold mining (Harris, 2008; Brondizio, 2008). A number of considerations may affect household decisions regarding the level of forest cover to be retained in a given situation. It is not enough to assume that offering cash payments will produce the desired effect. Factors might include, for example: people's position in the household life cycle; adaptation to specific frontier settlement conditions; accelerating rural-urban (and rural-rural) migration; and the growing demand for forest products (Moran, 2001; Padoch et al., 2008; Browder, 2008).

Another potential hurdle to be overcome in putting REDD+ into practice arises from variable and uncertain conditions of landownership, security of tenure and user rights. One of the basic concepts underpinning PES systems such as REDD+ is based on the Coasean assumption of clearly defined property rights supporting transactions (Coase, 1960; Muradian et al., 2010). However, in Latin America, this is very much the exception rather than the rule. Fortunately, in REDD+ pioneering countries such as Costa Rica and Mexico, despite some continuing problems, structures of individual and collective landownership are quite well established. However, in the Brazilian Amazon, for example, just four per cent of properties have officially validated legal titles, 21 per cent comprise unprotected public lands and over 40 per cent are officially protected areas (Brito and Barreto, 2009). Yet it must not be forgotten that land titles are often fraudulent or of dubious origin. The standing joke used to be that in many parts of the Amazon the fifth floor has already been sold.

In Latin America overall, governments control 43 per cent of forests and 32 per cent are in private hands while traditional and indigenous communities administer 25 per cent, just seven per cent of which is recognised by statutory tenure law. A large proportion of forestland is managed by community and indigenous groups, reaching 70 per cent in the case of Mexico. In Amazonia the figures are: Ecuador and Colombia 65 per cent, Bolivia 26 per cent, Brazil 22 per cent and Peru 17 per cent (RRI, 2009). Traditional and indigenous groups effectively manage a large proportion of forested lands, even if this is not always recognised in law. They are likely to become major players in the region's emerging REDD+ strategies and it is critical that their 'bundles of rights' be recognised. These would include not just formal property rights but also customary entitlements relating to resource use. This will have a major impact on carbon rights and income-generating potential under REDD+ arrangements (Larson et al., 2010). Recognition of local diversity is especially relevant in this context.

In fairness, it should be clarified that legalising indigenous lands and incorporating native peoples into the consultation process for REDD+ has been afforded a high priority in official preparations funded by the World Bank and UN-REDD. This is vital given the long history of conflict over natural resources that has resulted in indigenous groups being decimated in the past, and the understandable suspicion that currently typifies their negotiations with governments throughout the region. Independent observers have criticised these governments for failing to properly consult native populations under the International Labour Organization's principles of Free Prior and Informed Consent, or FPIC (Griffiths, 2010; Colchester, 2010). In many cases, only grassroots pressure from indigenous groups and action by civil society has given them a stronger political voice in the REDD+ process. In Peru, Paraguay, Ecuador, Guyana and Guatemala, for example, indigenous rights have become a significant bone of contention in REDD+ preparations, reflecting historical struggles and conflicts. As has been pointed out *ad infinitum* the challenge of dealing with such social complexities, both with regard to traditional forest user groups as well as indigenous populations, will require sensitive REDD+ solutions (CIFOR, 2010; Hall, 2012).

3) Operational issues

Cutting across this matrix of social and cultural diversity are several basic challenges that threaten to undermine REDD+'s effectiveness as a credible and viable tool for avoiding deforestation, reducing emissions and enhancing carbon stocks. The most infamous of these is the problem of 'leakage', in which illegal deforestation is simply displaced from a controlled area to one that is unprotected or unmonitored (Wunder, 2008). By definition, leakage is almost impossible to measure or control, raising serious doubts about the effectiveness of REDD+ overall. Enforcing conditionality is a very real practical problem.

One solution for overcoming the limitations of a results and project-based approach to REDD+ is to adopt a regional or area focus, as already noted. Such a jurisdictional model would take a macro-view of net deforestation achievements within regional or national boundaries, and reward participants accordingly, focusing on modifying landscapes rather than individual parcels of land. Underpinned by legislative frameworks, by a broader, more coordinated planning philosophy, and by appropriate financial incentives, the state governments of Acre, Mato Grosso and Amazonas, for example, have moved towards adopting a jurisdictional approach in Brazil.

Acre, located in the northwestern Amazon, is the clearest case of such an approach being put into practice. Its principles of *florestania* [forest citizenship] have their origins in the rubber tappers movement of the 1980s and 1990s, and have been developed by successive forest-friendly state government administrations. It is described as, 'a long-term successful experiment in

transformation of the state from an outsider-driven development model based on conversion of forest to pasture and agriculture to an endogenous, participatory process of development focused on sustainable use and valorisation of environmental, economic, social and cultural assets of the local populations' (Schmink et al., 2014, p. 31). Acre's State System of Incentives for Environmental Services became law in 2010 and supports what is now considered to be Brazil's leading subnational REDD+ initiative.

Closely tied to the leakage problem is that of additionality; how to establish a causal link between REDD+ schemes, deforestation and emissions reductions. How can one be sure that a project or programme has really been effective in achieving its stated goals of reducing CO_2 emissions? A reliable system of monitoring, reporting and verification to assess changes in forest cover and carbon stocks would have to be in place, which is a major challenge. Changes over time could then be set against a historical baseline to measure progress against a 'business-as-usual' scenario, and any payments apportioned accordingly (Angelsen, 2008). In June 2014, for example, Brazil became the first country to submit its national baseline reference level to the UNFCCC for REDD+ purposes during the period 2006–10, using an annual average emissions figure (calculated for 1996–2005) of 1.1 billions tons of CO_2e.

Besides leakage and additionality, a third major challenge concerns the permanence or sustainability of emissions reductions obtained through REDD+, given the seemingly inexorable expansion of ecologically unfriendly frontier activities such as logging, mining and farming in Brazil and elsewhere. It is unlikely that payments to individual farmers will be sufficient to seriously discourage deforestation unless PES is incorporated into producers' broader livelihood strategies. A landscape or jurisdictional model that takes a cross-sector, holistic approach to containing deforestation is more likely to be successful in the long run. This would link decisions about production and preservation not just to cash compensation but also to the whole range of economic and non-economic incentives and support mechanisms that condition resource users' behaviour, be they small farmers, commercial producers, traditional extractivists or indigenous groups.

A major concern in designing and implementing REDD+ initiatives is the balance that should be struck between efficiency and equity gains. In order to maximise efficiency in emissions reductions the priority should, in theory, be to concentrate REDD+ efforts against the main drivers of deforestation – agribusiness, livestock and logging interests. However, if achieving equity is the main priority in terms of alleviating poverty and strengthening the stewardship role of local populations, benefits should be more equally distributed, with traditional and community groups obtaining their fair share of the pie. Yet it remains to be seen whether distributional justice will prevail

in the battle for REDD+ income. The politically powerful are likely to benefit disproportionately. As noted by Wunder, 'Actors who represent credible threats to the environment will more likely receive PES than those already living in harmony with nature' (2006, p. 48).

Be that as it may, a critical design and implementation issue in Latin America and elsewhere is how to effectively incorporate forest populations into the REDD+ process. This is essential to ensure that people's interests are represented, that they are not simply manipulated by outsiders, and that there is an equitable system in place for sharing the co-benefits. It should not be forgotten that forest dwellers are its principal custodians and their presence and commitment on the ground are absolutely fundamental to the functioning of REDD+. Most such schemes in Latin America are heavily dependent on the successful participation of traditional and indigenous community populations. It is therefore essential to take into account REDD+'s social as well as purely technical aspects since the latter is heavily dependent upon the former. If project designers marginalise or sideline people on the ground it will be a recipe for disaster. Indigenous groups in particular, as noted, have used REDD+ debating fora to air their historic grievances in several Latin American countries to stand up for their rights and demand guarantees in the sharing of co-benefits. More generally, the mix of productive groups increasingly involved in emerging REDD+ programmes will require a nuanced management approach sensitive to their diverse perspectives, motivations and interests.

Incorporating social dimensions into REDD+ projects can take diverse forms involving varying degrees of popular participation. These can involve: i) basic social protection; ii) imposition of social safeguards; and iii) a more comprehensive social development approach (Hall, 2010, chapter 8). Social protection is similar to the conditional cash transfer (CCT), borrowed from social policy. With CCTs, regular cash payments are made to target households in exchange for compliance with conditionalities such as school attendance and participation in health and nutrition programmes. In the case of REDD+, the preconditions involve meeting conservation goals in exchange for cash and in-kind benefits. Brazil's Bolsa Verde (Green Grant) programme, which is administered through the Ministry of Social Development and the Bolsa Familia, targets some 73,000 poor families across the country with regular cash payments in return for forest conservation (Campello and Neri, 2014).

Going beyond social protection, introducing social safeguards builds upon the experience of the World Bank and other multilateral institutions in their quest to offset the potentially harmful effects of large infrastructure projects such as hydropower and highway construction. The World Bank and UN-REDD have adapted these 'do-no-harm' principles for inclusion in their national REDD+ strategy preparations to screen for potential risks. Another

independent initiative intended to uphold social and environmental standards for REDD+ has been developed by the Climate, Community and Biodiversity Alliance and CARE International, which works to tackle widespread poverty in the country, and is followed by Brazil's third sector. These safeguards concern issues such as respect for territorial rights, equitable benefit sharing, strengthening local livelihoods, maintaining biodiversity, full stakeholder participation and compliance with national and international law.

A more ambitious and comprehensive social development approach will involve understanding REDD+'s wider impacts on people's livelihoods, subsequently integrating conservation activities more systematically. This focus on livelihoods is being developed by CIFOR, whose multicountry study has evaluated the impact of REDD+ over four years to produce results that will inform future REDD+ planning (Sunderlin et al., 2014).

Corruption in the distribution of potentially large financial rewards accruing to REDD+ beneficiaries is another possible challenge. So far this has been a concern in Africa and Asia rather than Latin America, but the writing is on the wall. Interpol has warned, for example, that 'Organized crime syndicates are eyeing the nascent rainforest carbon market …[and] … REDD schemes are open to wide abuse' (Vidal, 2009). These include fake carbon credits being issued and unwitting communities being tricked into joining schemes without proper consultation as a front for generating carbon revenues. As far as can be ascertained, the 'carbon capitalism' industry with its 'carbon cowboys' have not yet appeared in Latin America, but this could change rapidly if the REDD+ market expands and becomes formalised within the UNFCCC.

Notwithstanding such concerns, mobilising greater financial support for the scaling-up of REDD+ is a major challenge, as described in the first section. Yet in spite of this funding deficit, perhaps a more serious issue is the pledge-implementation gap; that is, the inability of recipient governments taking part in the FCPF and UN-REDD programmes to spend their existing resources due to a lack of implementation capacity. Major questions have been raised over the failure to put into place the institutional structures and technical capacity necessary to ensure timely execution of REDD+ (IDEAcarbon, 2011; Hall, 2012). Furthermore, many critics have reservations about countries' overdependence on limited foreign funding to push forward the REDD+ agenda, raising questions about their genuine political commitment to reducing deforestation.

In order to scale-up and consolidate REDD+ policies, whether at the global or national level, it is necessary to have legislation in place that will regulate carbon markets and facilitate payments for eco-system services. Until this happens, it is argued, REDD+ provision will remain limited, piecemeal and dependent on voluntary markets and donor funding. Since the rainforest

nations' coalition formally pressed for inclusion of avoided deforestation under the UNFCCC umbrella at the Bali COP in 2007, efforts have continued apace to bring this about.

Provisional solutions to boost demand for REDD+ carbon offsets have been sought through the international Interim Forest Finance Project, which is appealing for enhanced bilateral donor support. Hope is also being placed in new regional compliance markets such as that spearheaded by California whose cap-and-trade system could stimulate demand for REDD+-based offsets for compliance purposes. Agreements have been reached with the states of Acre (Brazil) and Chiapas (Mexico) for establishing jurisdictional REDD+ schemes, as a consequence of participation in the GCF Task Force. Since 2009 the GCF has fostered collaboration at the subnational level among 16 states and provinces in five countries to lobby for REDD+ and raise funding (Hall, 2012). In their turn, regional administrations in Brazil, in collaboration with prominent NGOs, have formed a strong lobby, placing the federal government under pressure to adopt REDD+ as a national priority within UNFCCC negotiations (Viana, 2009).

In meeting the challenges posed by REDD+ in Latin America, it seems that a decentralised approach has become increasingly critical in order to get results on the ground. Individual, local projects have gradually become part of state-level strategies in what is becoming a nested approach (Hall, 2012). Brazil is the clearest example of this process. As stated above, the states of Acre, Amazonas and Mato Grosso have all set up regulatory frameworks to facilitate environmental service payments. At the same time, as previously noted, the federal government was unable to sustain its own national PES scheme (Proambiente). In Brazil, a bill (PL792/2007) to establish a federal PES programme (ProPSA) and federal PES fund (FunPSA) has been debated in Congress for several years. Another bill (PL195/2011) proposes a national REDD+ strategy to regulate existing initiatives. Further proposed legislation (PL5586/2009) would create a national system of verified emissions reductions to enable financial compensation for those groups which actively conserve forests. These initiatives have encountered opposition from civil society representatives on the grounds that they do not respect the rights of traditional and indigenous groups nor guarantee equal benefit sharing. In contrast to Brazil's slow progress, Costa Rica and Mexico have a long track record of introducing national legislation governing forest-based environmental services payments.

Is Latin America ready for REDD+?

It is no coincidence that Latin America has played a leading, if still embryonic, role in developing REDD+. There has been a long tradition of forest conservation by indigenous and other traditional populations in the face of

growing pressures on natural resources. Much of the effort that has gone into establishing REDD+ on the continent has emerged from local and regional initiatives that are now being built upon. In this general sense it could be said to contain a significant element of bottom-up pressure. On the face of it, REDD+ seems like a win-win solution to the problem of forest destruction. By coupling traditions of conservation with monetary and other incentives, it promises to channel official funding to preserve natural resources rather than degrade them in the name of progress.

However, as suggested above, many challenges threaten to undermine this promise. Questions have been raised over one of the fundamental premises underpinning REDD+; namely, the potential of cash transfers to modify behaviour patterns in favour of conservation. In complex societies with traditional cultures and belief systems, it is often unclear whether monetary incentives are as effective as is often assumed by policymakers serving neoliberal agendas. The dangers inherent in stimulating carbon capitalism and associated corrupt practices will also be ever-present. In addition to the problem of engineering behavioural change, there are many basic problems for REDD+ in terms of carbon leakage, additionality and sustainability. Putting in place appropriate institutional structures to oversee REDD+ policies and building appropriate capacity are other formidable challenges. Alongside these issues are the possible dangers faced by forest-based communities whose existing statutory and/or customary entitlements may be threatened by new property rights to carbon unless proper safeguards are included in REDD+ arrangements (RRI, 2014; Hall, 2012). Undue delays in establishing global (that is, UNFCCC) and national legislative frameworks will only increase these risks and uncertainties, undermining REDD+'s longer-term credibility

National REDD+ strategy proposals drawn up with support from the World Bank's FCPF and UN-REDD programme invariably come packaged with the observation that, while REDD+ constitutes a useful mitigation tool, national governments must also address the main deforestation drivers (Hall, 2012). Unless this challenge is tackled, it is argued, REDD+ will come to nothing if any climate benefits are cancelled out by the loss of forests due to logging, agribusiness, mining and resettlement.

Yet although in most cases this precondition has tended to be dismissed as 'pie-in-the-sky' wishful thinking, in the case of Brazilian Amazonia it could be argued it has become something of a reality. Official figures reveal that deforestation was reduced in the region by no less than 79 per cent between 2004 and 2013, cutting carbon emissions by 650 million tons a year. This has given rise to optimistic projections that the historically high rate of tropical forest loss has at last been brought under control.

The government attributes this turnaround to its action plan for prevention and control of deforestation in the Amazon, which has brought international accolades. This plan included several sanctions, including enforcing environmental laws in municipalities where deforestation has been concentrated. This has been coupled with prosecutions against companies that buy products such as timber and soya derived from illegally deforested areas, and agreements with suppliers in the beef and soy supply chains to pursue sustainable practices that are certifiable (Nepstad et al., 2014; Boucher et al., 2013).

More sceptical observers attribute the fall in deforestation to declining commodity prices from 2004 to 2008, as well as the subsequent global economic crisis and a drastic devaluation of the Brazilian *real* (Fearnside, 2014). In particular, the suspension of highly subsidised government agricultural credit to properties with pending fines to environmental authorities is reckoned to have had a major impact in this respect. A large reduction in availability of rural credit for cattle ranching from 2008–11, for example, is estimated to have saved 2,700 km^2 of Amazon forest from destruction over that period, when deforestation was running at five to seven thousand square kilometres a year (Assunção et al., 2013).

From 2012–13 the rate of Amazon forest loss has increased by 28 per cent due to land speculation and the advancing cattle/soy frontier, the effects of infrastructure projects built without environmental safeguards, the spread of agrarian reform projects, a reduction in the creation of protected areas and perceived weaknesses in Brazil's revised Forest Code, approved in 2012, that some argue significantly reduces protection (IPAM, 2014). There are thus doubts emerging over whether Brazil's apparent success at reducing deforestation is sustainable in the long run. It therefore also remains to be seen whether in Brazil's case this apparently more favourable context, if durable, will facilitate the scaling-up of REDD+ activities by reducing wider pressures on Amazonian forests. Furthermore, based on Amazonia's experience in respect of the close relationship between the availability of subsidised financial resources and deforestation, payment systems for environmental services need to be carefully designed to help prevent inappropriate use. It would be ironic indeed if PES channelled through REDD+ aimed at conservation were to have the opposite effect.

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7. Nature, space, identity and resource extraction: paradoxes of discourses around indigeneity and environment in Bolivia[1]

Katinka Weber

Contemporary discourses of indigenous environmentalism in Bolivia are explored in this chapter. How may such discourses operate to mask indigenous voices and realities, and undermine sovereignty claims? Familiar discourses that portray native peoples as 'closer to nature', or as its guardians have a long colonial history (Wade, 2004). A more recent version centres on the idea that 'indigenous environmental knowledge and traditional resource management practices could be harnessed towards the achievement of conservation goals' (Anthias and Radcliffe, 2013, p. 4). Such a view has become influential among environmental movements and international development institutions since the 1980s (ibid.; Conklin and Graham, 1995).[2] Redford has labelled this image 'the Ecologically Noble Savage' (1991). In contemporary Bolivia such discourses operate on multiple scales and are perpetuated by non-governmental actors as well as the government. This chapter considers their workings in the context of one local indigenous territorial governance project in the eastern Bolivian municipality of Concepción, where I conducted 11 months of fieldwork in 2006–7, and during the Bolivian winter of 2012.

At the time of my first research visit the Chiquitano organisation of Concepción was involved in developing guidelines on the use of natural resources for the Tierra Comunitaria de Origen (Communal Land of Origin, TCO) Monte Verde.[3] It also carried out research into existing governance structures among communities to develop an outline for a future territorial governance system (Proyecto Gobernanza). Together with colleagues from a Bolivian non-governmental organisation (NGO), I assisted on the project. Most Chiquitano leaders and their NGO allies regarded these activities as crucial steps in their struggle to consolidate their TCO. Yet the process

1 I am grateful to the Economic and Social Research Council and the Society for Latin American Studies for supporting the research this chapter is based on. I would also like to thank P. Anthias, S. Radcliffe and the editors for their helpful comments on earlier versions.

2 Also see Radcliffe, chapter 8.

3 Renamed Territorios Indígena Originario Campesinos (TIOC) in the 2009 Constitution.

involved constant negotiations, pressures and conditions regarding how Chiquitano could live in and administer their territories and engage with their environment. These emanated from existing legal frameworks as well as discourses and the programmes of non-governmental allies which worked, unintentionally in some cases, to undermine indigenous peoples' sovereignty over their life spaces. Discourses around indigenous peoples' capacities to manage territories sustainably and concerning 'ecologically noble' tropes often play powerful roles in the struggles surrounding indigenous territories, and the articulation of political and cultural projects. They also draw attention to the ways in which indigenous peoples' liveways are entangled with the environment. But while Chiquitano discourses on their territory and practices, in relation to land and resources, partly resonate with the 'eco-native' trope, their visions for development and their future also disrupt it. It fails to articulate more complex notions of environment, socio-natures,[4] ignoring their knowledges and lived realities.

The case of Monte Verde resonates with many others in Latin America and beyond, where governments have granted territorial rights to indigenous groups, but where the effective exercise of territorial sovereignty is closely intertwined with environmental governance technologies (compare Agrawal, 2005), subject to constant negotiations with diverse (non)-governmental actors and regulatory frameworks (for example, Erazo, 2013; Hale, 2011). This normally takes place in societies where indigenous peoples are struggling against a typically neoliberal, prejudiced policy environment and for their rights to be amplified. Territorial rights or environmental management responsibilities are granted, often in line with state decentralisation agendas and multicultural policies. Bolivia, however, is experiencing what some have called a 'post-neoliberal' moment under Evo Morales (2006–), and the Movimiento al Socialismo (Movement towards Socialism – MAS). Drawing on an extensive indigenous discourse and imagery, they follow a programme that purports to be anti-globalisation, anti-neoliberal and anti-privatisation. The government oversaw wide-ranging constitutional reform (ratified in 2009) which significantly extended indigenous peoples' rights. With respect to global and domestic environmental issues, the Morales administration proposes that wisdom and leadership can be provided by indigenous cultures and movements.

Although this strategy appeared to set the tone for a possible paradigm shift in human–environment and indigenous–state relations, critics highlight the contradiction between the MAS project's simultaneous reliance on developmentalist practice and neoextractivist development (Gudynas, 2009). In fact, the MAS project 'reifies understandings of progress based on the colonial domination of nature' in a way that 'negates alternative understandings

4 Compare Radcliffe, chapter 8.

of territoriality, governance and development postulated by many indigenous peoples' (Laing, 2015, p. 149). Like other territorial or environmental governance regimes, it thus has the potential to undermine regional and local indigenous peoples' territorial projects and alternative lifeways.

Governmental discourses around indigeneity and the environment

As has been well documented, President Morales frames his national political project – as well as his political discourse – around environmental issues by drawing on notions of indigeneity (Albro, 2005; Canessa, 2006, 2012). The Morales administration's view of indigeneity and the environment are clearly emphasised in its rhetoric on climate justice. Bolivia emerged as a vocal champion of the climate justice movement during the international climate change conference in Copenhagen in 2009, and when staging the World People's Conference on Climate Change and the Rights of Mother Earth outside the city of Cochabamba in April the following year in response to the Copenhagen conference's failure to achieve any binding agreements (Fabricant and Hicks, 2013, pp. 8–9; Laing, 2015). Morales criticises 'so-called developed' countries' lack of commitment regarding reducing greenhouse gases, pushes for radical international climate change policies to be adopted, and demands that the rights of Mother Earth be respected (Fabricant and Hicks, 2013; Postero, 2013). He has condemned capitalism as 'the worst enemy of humanity' and proposed 'a sustainable model of development based on indigenous values' as a viable counter-project (Postero, 2013). Indigenous peoples are portrayed as the 'moral guardians of the nation state, best able to defend its natural resources' (Canessa, 2012, p. 13). Demonstrating its domestic commitment to environmental issues, the administration passed the Law of the Rights of Mother Earth in 2010. Moreover, the new Bolivian Constitution contains the notion of *vivir bien* [to live well] – not the western consumerist notion of a 'better life' that Morales associates with egoism, individualism and resource depletion, but 'living well' and not at the expense of others, or the environment (Canessa, 2012, p. 14).[5]

Morales initially adopted an inclusive indigenous political rhetoric around 2002. This was aimed at a popular base by aligning indigenous issues with an anti-globalisation agenda, attacking neoliberal and privatisation discourses. In international terms, this rhetoric allowed for alliances with global support networks and NGO allies. Domestically, Morales' programme reflects the fact that his party rose to power in the early 2000s on a wave of disenchantment

5 There is insufficient space here to explore this notion further. See Radcliffe, chapter 8, and Coletta and Raftopoulos, chapter 1, for details on the *buen vivir* concept and its inclusion in the Bolivian and Ecuadorian constitutions.

with the neoliberal reforms of the mid 1980s, as well as with the multicultural reforms of the 1990s that were meant to offset the negative impact of the previous phase (Albro, 2005, 2009; Canessa, 2006, 2012). The latter reforms sought to address demands for more inclusive citizenship and declared Bolivia to be a multicultural, pluriethnic nation, and enshrined the rights of indigenous people in Bolivian law. This was accompanied by decentralisation measures aimed at expanding citizen participation and municipal-level oversight (Gustafson, 2009; Postero, 2007). Crucially, for many lowland indigenous groups the reforms fulfilled some of their key political demands. The Bolivian government passed the *Ley del Servicio Nacional de Reforma Agraria* (National Service of Agrarian Reform Law) in 1996, which is generally referred to as *Ley* INRA or INRA Law. This legislated for indigenous groups to have the chance to gain titles to TCOs, guaranteeing their rights to the 'sustainable use and exploitation of the renewable natural resources'.[6] However, successive governments continued to adhere to the neoliberal paradigm, while opportunities for real participation and oversight remained elusive and many indigenous land claims remained unfulfilled for decades. Capitalising on widespread political disenchantment, expressed in successive social mobilisations from early 2000, Morales promised to rewrite the constitution, expand indigenous rights, and take natural resources out of private hands (Postero, 2007; 2013, pp. 85–7).

However, Bolivian and international voices have highlighted discrepancies in this national indigenous project and the government's environmental discourse. For one, the Morales administration continues to depend on extractive industries; its main source of income is dependent on hydrocarbons (gas above all). Associated with this are environmentally damaging practices, underlined through the hundreds of operational mines across the country exploiting, among other things, silver, lead, tin and iron (Bebbington, 2009; Kohl and Farthing, 2012; Postero, 2013).[7] A familiar Latin American story (generally more associated with governments following neoliberal economic agendas) involves the groups who oppose the damaging effects of these practices, or who oppose government plans, being accused of obstructing the nation's development (Bebbington, 2009, p. 19; Postero, 2013, p. 86). This is epitomised by the ongoing controversies surrounding the Territorio Indígena Parque Nacional Isiboro Sécure (Isiboro Secure National Park and Indigenous Territory – TIPNIS). The government's developmentalist agenda, expressed in a road building project and seemingly linked interests involved in oil and gas exploration, clashes with that of lowland indigenous peoples. The

6 Art 3.III of the Agrarian Reform Law 1751.

7 Other contradictions have also surfaced in the pluricultural state. For instance, the administration has been accused of a lack of political will in relation to implementing autonomies, has infiltrated social movements and sidelined political opponents. See Tockman and Cameron (2014).

latter fear adverse environmental effects, the spread of extractive industries, disruption to liveways and the accelerated influx of highland coca farmers (who incidentally form part of the MAS political base) (Achtenberg, 2013; Canessa, 2012; Gudynas, 2010; Laing, 2015; McNeish, 2013). For other lowland organisations, the TIPNIS case represents the threat that lowland indigenous peoples face everywhere due to 'careless planning of other infrastructure projects, extractive and development projects nationally' (McNeish, 2013, p. 226).

The MAS discourse of environmental indigenism is powerful in that it captures the imagination of diverse actors in global climate change debates, and allows for political visions around decolonisation to be articulated, the expansion of indigenous rights and an alternative development model (vivir bien).[8] However, the reductive imagery clashes with the complex political and economic realities faced by the administration, as well as its diverse indigenous population. After all, as Nancy Postero remarks, the Morales administration faces 'the same dilemma everyone else is: how to develop *and* live well, how to find a path to sustainable industrialisation *and* to share the benefits and burdens fair and justly' (2013, p. 88).[9] Many indigenous and non-indigenous Bolivian citizens are in fact on the receiving end of policies and social schemes funded through neoextractivism (Bebbington, 2009, pp. 15–16; Postero, 2013, p. 82).

The environmentalist indigenous discourse around the protection of Mother Earth also clashes with another aspect of MAS policy and rhetoric. Although anti-capitalist in nature and criticising the activities of *latifundistas* [large landowners], multinational corporations and enterprises of the traditionally white economic elite, the MAS programme is not anti-market. It is about equal access to markets and resources, that is, resources should be used for the 'good of the people' (Canessa, 2012, p. 30). Land needs to have some kind of (economic) functionality. This notion resonates with the legal framework of the 1953 Bolivian Agrarian Reform which was about formalising or legally recognising land ownership, as well as (theoretically) engaging with the breaking up of *latifundios* [landholdings]. The land's 'economic and social function' became important, that is, it had to be 'used', or 'worked' (Anthias, 2014; Assies, 2006), otherwise it would be deemed as 'empty' and 'available'. This clashes, however, with the 1996 INRA, which aimed to overcome the reductive concept of 'economic function', partly to guarantee that large areas could be titled, by stipulating that TCOs 'fulfil a social function when they are destined to achieve family wellbeing or the economic development of their owners' (INRA Law, Art. 2.I). 'Socio-cultural' aspects are thus introduced

8 See Radcliffe, chapter 8, for a comparison with Ecuador.

9 In order to reconcile these notions, Vice-President García Linera has formulated a 'less radical' notion of 'vivir bien', one that reconciles nature protection with development activities intended to secure the population's basic social provisions. See Laing (2015, p. 157).

(Anthias, 2014). Worryingly for peoples who hold titles to TCOs, government spokespeople and the president himself nevertheless question their lands' function on the grounds of a lack of productivity, referring to them as the new *latifundios* while proposing to review their borders. During a public meeting in 2011, Roberto Coraite, executive secretary of the Confederación Sindical Única de Trabajadores Campesionos (Unified Syndical Confederation of Rural Workers of Bolivia – CSUTCB) proposed to replace the 'obsolete' and 'discriminatory' INRA Law, as it 'favoured small (indigenous) groups who maintain immense expanses while the majority of *campesinos* [live on] tiny amounts of land' (Bolpress, 2011).

Spokespeople not only replicated the longstanding colonial discourse in which lands inhabited by indigenous peoples are deemed to be 'unoccupied', but also insinuate that (lowland) indigenous peoples do not know how to work it properly (Canessa, 2012, p. 26). As is exemplified not least by the TIPNIS conflict, the Morales' national indigenous project which celebrates an 'ecumenical indigeneity' (drawing on Aymara rituals and symbols), has the capacity to undermine the autonomy of those whose ways of living do not fit with the governmental agenda (ibid., p. 30). This heightens the potential for conflict, especially where territories or communal lands happen to encompass areas of economic interest (Bebbington, 2009; McNeish, 2013). As will be discussed below, notions of the ecologically noble savage and a simultaneous focus on the 'use' of land and natural resources is shared by actors beyond the government, in ways that can work to undermine indigenous territorial sovereignty by placing conditions on how indigenous peoples can live in and administer their territories, as well as engage with their environments.

The struggle for Monte Verde

Concepción, originally founded as a Jesuit mission, lies some 290 kilometres to the northeast of Santa Cruz de la Sierra, the Santa Cruz department's capital. From the 1690s Jesuit priests worked to evangelise and integrate individuals from different native groups into the settlements, thereby sparking an ethnogenesis which led to the emergence of a shared 'Chiquitano' identity, cultural practices and language (Krekeler, 1993, p. 27; Schwarz, 1994, pp. 33–4, 36).[10] Since 1767, the year of the Jesuits' expulsion from Latin America, Chiquitanos had gradually lost their land to Cruceño settlers who took over mission land, expanded their cattle ranching and agricultural activities, and exploited Chiquitano labour. Chiquitanos generally abandoned the ex-missions

10 To establish clear linguistic and ethnic affiliations for the groups that later became known as Chiquitano is difficult. Authors refer to as many as 50 different groups. See also Krekeler (1993, p. 26) and Métreux (1948). In terms of linguistic affiliation most authors cite *arawak*, *chiquitano* and *chapakura.* See Lacroix (2004, p. 14).

and established themselves in dispersed settlements, many of which became tied to agrarian and cattle ranching properties via an *empatronamiento* system [forced labour or debt-servitude]. The rubber boom that started in 1880, the Chaco war (1930s) and the building of the Corumbá Railway (mid 1940s to 1950s) accelerated both the Chiquitanos' displacement from their lands and their exploitation as a labour force (Lema, 2009; Riester, 1976, p. 134; Vallvé, 2010). As in other lowland areas, through the 1953 Agrarian Reform landowners generally managed to consolidate and expand their property. This led to further Chiquitano loss of access to land, resources and hunting opportunities (Urioste and Kay, 2005).[11] These processes accelerated further from the 1960s, as government-fostered development programmes, cattle ranching, logging operations, mining and oil exploration expanded (Radding, 2005; Schwarz, 1994, pp. 43–4).

Today, approximately 65 per cent of the population aged over 15 years from the *ca.* 20,000 inhabitants of the Concepción municipality identify as 'originario Chiquitano' (Gobierno Municipal de Concepción, 2007; Instituto Nacional de Estadística, 2001). The majority of Chiquitano live in approximately 50 rural 'indigenous communities' affiliated to the Central Indígena de Comunidades de Concepción (Indigenous Organisation of Communities of Concepción – CICC), but they also make up the majority of the inhabitants of Concepción town. *Comunidades* [communities] are located at varying distances from Concepción, from 20-minute walks to six-hour pick-up drives. Most comunidades have a population of between 150 and 300 inhabitants (the smallest around 50 and the largest 500), but many are steadily growing (Gobierno Municipal de Concepción, 2007, pp. 3–4, 49–51). Chiquitano people plant staples such as rice, yucca, maize, beans and plantain and, where possible, collect forest fruits and practise hunting and fishing. *Comunarios* [people who live in or are from a comunidad] largely produce food for their own consumption but may also generate cash by selling their produce to merchants or in the market to purchase items they do not produce themselves, such as sugar, salt and coffee. Money is also needed to improve the communal infrastructure, to send children to college in Concepción or to pay hospital bills. Some comunidades engage in communal productive projects, often in animal husbandry. Most of them are tightly enclosed by cattle ranches, agricultural estates or church-owned land. This means that expansion into adjacent areas, which may be necessary due to population growth, droughts or crop failures, is impossible.

11 However, when patrons occupied more favourable areas, new communities could emerge in remoter areas. See Schwarz (1994, p. 43). In some notable cases Chiquitano managed to form agrarian syndicates and started proceedings to gain land titles, or benevolent priests or patrons helped in the process. See Riester (1976) and Schwarz (1994).

The area that Chiquitano call 'Monte Verde' stretches over a million hectares – mainly rainforest – situated in the Concepción and San Javier municipalities and Guarayos province (Tamburini, 1999, 2006). Chiquitano made a first attempt to create settlements in the area in the 1970s to alleviate food and resources shortages. After limited success, new attempts at settlement were made after the CICC had been founded in Concepción in the mid 1980s. By the 1990s, Chiquitano started claiming territorial titles. This was a response to the 1990 march of lowland indigenous movements (the March for Territory and Dignity) which resulted in the ratification of the 1991 ILO Convention 169 and the inclusion of the term 'indigenous territory' in official documents (Jones, 1990, p. 5). Owing to sustained pressure from indigenous movements, in 1996 the Bolivian government passed the INRA Law, which defined TCOs as communal property covering lands:

> that constitute the habitat of the indigenous and originary peoples and communities to which they have had access traditionally and where they maintain and develop their own forms of economic, social and cultural organisation in a way that secures their survival and development. They are inalienable, indivisible, irreversible, collective . . . indefeasible and imprescriptible;[12]

In light of these developments, the Chiquitano organisation of Concepción, San Javier and Lomerío presented a joint claim to the Bolivian presidency in 1995 for recognising the TCO Monte Verde as an indigenous territory (Tamburini, 1999; 2006). In the process, Chiquitano leaders consciously highlighted the organisation's and local Chiquitano population's indigeneity, their ancestral connections with the land, distinctive language, culture and communal organisational forms (Weber, 2013a).

Due to the historical displacement of Chiquitano peoples, the case somewhat disrupts assumptions about indigenous peoples' (historical) close connection to ancestral lands. This did not cause problems in the INRA process, however. The justifications for the Chiquitano land claim drew on ethno-historical accounts of the different groups living in the region pre-conquest, their settlement patterns and nomadic lifestyles, as well as the history of displacement. While 'traditional' occupations were taken into consideration in conducting the Estudio de Necesidades Espaciales (Study of Spatial Necessities) as part of the INRA process to calculate the surface area to be titled in the claimants' favour, emphasis was placed on meeting socio-economic subsistence needs. The size of an area to be titled was ascertained through a complicated calculation that translated activities such as hunting, fishing and animal husbandry into a monetary equivalent, combining this with projected population growth over

12 Art. 41.I.5 of the Agrarian Reform Law 1751.

the next 50 years. In the Chiquitano case, this resulted in a substantial initial claim of 1,082,334 hectares.[13]

Nevertheless, as was the case with other TCOs, the titling process entailed a decade-long juridical battle as the INRA procedure involved formalising ownership and recognising existing landholding patterns. Private settlements within TCOs or overlapping with them – that is, *terceros* [third parties] – were given priority if legal ownership could be proven. Properties also need to fulfil the 'economic and social function' (Bolivian Constitution, Art. 169 and the INRA Law, Art. 2) or, in this context, 'agrarian use'. Hectares consequently 'missing' from the land to be titled in favour of indigenous claimants would be compensated in unoccupied areas adjacent to the TCO (Anthias, 2014; Anthias and Radcliffe, 2013, p. 8; Balza Alarcón, 2001, pp. 51–3; Tamburini, 2006, p. 251).[14] In the case of the Monte Verde, private claims were raised by politically well-connected landowners, loggers and cattle ranchers from Concepción and beyond. Like other TCO titling processes, this was accompanied by corruption, violent confrontations with counter-claimants and threats against Chiquitano leaders and NGO allies.[15] Moreover, *terceros* scaled up land takeovers and logging activities to stake out property claims. Despite such obstacles, in 2006 the organisations consolidated 88 per cent of their original land claim (CGTI-MV et al., 2006, pp. 6–8), and in July 2007 Morales granted them their legal title for the TCO.

Chiquitano notions of Monte Verde, land and resource use

Chiquitano themselves have attached partially overlapping visions to the space of Monte Verde. Historical memory of land loss, enslavement and labour drafts, combined with the land claim's more recent and conflictive nature, were reflected in 2006–7 when many comunarios from Monte Verde claimant communities displayed a sense of struggle and standing up for themselves; territory was often mentioned in the same sentence as *lucha* [fight]. Simultaneously, many regarded the area as safe. In this context some noted that their ancestors moved through the space on the old rubber path to the *gomales* [rubber areas] in the Beni. Although many died on the way, others managed to flee to the forest, using it as a space of refuge. The Chiquitano to whom I spoke stressed that by

13 For an analysis of the contradictions in these aspects of the studies see Anthias (2014) and Balza Alarcón (2001).

14 Problematically, some of the resulting territories were discontinuous and fragmented, and spaces that groups relied on for hunting often remained outside the titled area. Compensation areas were often hard to access or unsuitable. See Anthias and Radcliffe (2013); Balza Alarcón (2001, pp. 53–4).

15 Compare Anthias (2014) and Anthias and Radcliffe (2013, p. 8).

having the territorial title one could 'live happily' and '*tranquilo*' [peacefully] hunt, fish, collect forest fruits, plant the *chacos* [fields] and sustain one's family. Several actually called it a 'reserve for future generations', some called it '*nuestra madre*' [our mother] or '*nuestra casa grande*' [our big house].

By having access to the land, Chiquitano could also escape exploitative labour relations. As noted previously, some comunarios regularly engage in agricultural work or seek employment in Concepción if they need cash, but shortage of land and natural resources may actually *force* Chiquitano to engage in such work. For many of them the prospect of working on the surrounding agrarian properties was a 'sore point' as they or their parents might have been tied into *empatronamiento* relations on these properties; the more exploitative version of the system continued well into the 1980s. As a Chiquitano leader explained the situation:

> between the CICC, the CIDOB [La Confederación de Pueblos Indígenas de Bolivia] and the CPESC [Coordinadora de Pueblos Étnicos de Santa Cruz] then, they thought about claiming a territory, why? Because they have seen the need of the comunidades. Because there are some comunidades that are around Concepción and they have no land any more. And the families multiply, multiply themselves . . . afterwards we will not have land anywhere. The businessmen will take over the lands, and we will be left with this very small space. [Then] we are going to depend [on them] again, even though we have a comunidad.[16]

Somewhat nostalgically, others noted that by gaining access to the territory one could live like *los de antes* [the ancestors], or *los padres* [parents] and allow future generations to do the same. Given the history of forced labour in the region, this is more likely to demonstrate that Chiquitano associate the territory with socio-cultural reproduction, a relational space where Chiquitano comunario social and cultural beings could continue to exist. This is also evident in the explanation a Chiquitano leader gave for claiming the territory: 'we want to have our own territory to develop our own culture and … life of the Chiquitano people'.[17]

Notably, what Chiquitano leaders and comunarios generally associated with their cultural distinctiveness, apart from having their own language, beliefs, customs, dress and so on, was 'working to survive', 'working the land' and 'working with people' in a way that differs from non-Chiquitano, such as local whites, mestizos or immigrants. In the words of Chiquitano leader Carlos Leigue:

> [The highland immigrants] are not similar to one, the Chiquitano, right? The Chiquitano works to maintain his family, but he is not a trader. The Chiquitano does not work an amount to be able to sell. ... In contrast

16 Interview, Concepción, 26 Oct. 2006.

17 Interview, Concepción, 26 Oct. 2006.

> the one who has come from the interior [here: the highland or valley region] ... they work their fields in great quantity but it is for business, it is different.[18]

Chiquitano land and resource use is restricted by certain norms which stipulate the amount of hectares or location where a comunario or family could plant or fell. Decisions in relation to commercial activities need to be agreed upon in a communal assembly. To illustrate how transgressions may be handled, a brief transcript is given here of a socio-drama, organised as part of the Proyecto Gobernanza in the small comunidad Las Abras in San Javier municipality. According to the plot, a comunario and his foreign wife (played by myself) had been extracting wood from the communal land and were selling substantial quantities to Bolivian and international enterprises. One comunario opined with regards to the punishment:

> … well, the comunarios have already said that one cannot clear more than five hectares, we just have to make [them] comply to the rules, and if he does not want to, well that he goes to another place, and we will not permit that he breaks the laws of the comunidad, well, and if he wants to help, that he puts the money for the sanitary post, and that he works like we all work … because the one who is Chiquitano has to think like a Chiquitano and act like a Chiquitano.[19]

Another comunario added that his neighbour was 'appearing in the comunidad as if he were a tercero'. As one Chiquitano leader explained to me, treating land and forest 'like the terceros', caused resource depletion; where they operated 'there is nowhere [left], all is plantations, thus, the land is not looked after.'[20] When large estates farm for commercial purposes or graze cattle, the land is cleared for all but a few for shade trees and consequently tends to be dry. Sanctions can be applied to those who pollute water sources or transgress hunting norms. Depending on the comunidad, sanctions ranged from verbal warnings, compensation fines, communal work to physical punishment and or expulsion from the comunidad.

From 2004, Monte Verde's claimant organisations worked on developing a normative framework for the use of natural resources while drawing on existing practices. The results were shared with communities via their leaders or workshops and, in 2006, in booklet form. For some comunidades this led to a formalisation of land-use regulation and sanctions, while others had already specified a set of rules. Such forms of formal or informal regulation, especially in comunidades outside the TCO, are clearly linked to resource and land scarcity and aimed at undermining practices that potentially prejudice

18 Interview, Concepción, 26 Oct. 2006.

19 Socio-drama, *Las Abras*, 17 April 2007.

20 Interview, San Javier, 8 June 2006.

the community. But Chiquitano attitudes to land, nature and resources are also linked to their cosmovision and beliefs, expressed in myths and *cuentos* [tales] where such figures as *jichis* and *duendes* [dwarves] hold moral sway (Radding, 2005, p. 238). The jichi lives mostly in water holes and possesses the power to control the force of nature and is therefore often referred to as the 'owner of the forest', or the 'owner of the animals'. He often appears to Chiquitano comunarios in the form of a snake, but also as a frog or a human. Jichis appearances are often associated with human activity in the environment, which may have potentially damaging effects on the beings living there (that is, it appears to those who overhunt or overfish, fell trees, pollute water holes or hunt gestating animals) and its retaliations may even be fatal.[21] While the topic of how Chiquitano perceive their environment, land and resources deserves a more in-depth exploration, this short discussion highlights that claimants associate the land with visions for the continuity of Chiquitano ways of living which may fit into the eco-native image, but as will be discussed below, other Chiquitano visons disrupt notions held by (non) governmental actors.

Territorial management, indigeneity and the environment

The interest in indigenous territories from international and national NGOs and their funders, stems from contemporary discourses around environmentalism and nature, as well as popular portrayals of Amazonian and other tropical forest areas as 'the lungs of the earth' and crucial 'last reserves'. They are a 'hot topic' in the light of campaigns that focus on climate change mitigation and biodiversity protection. Anthias and Radcliffe note that the TCO-titling process in Bolivia can be seen as an example of an 'ethno-environmental fix', which sought to 'synergise protection of vulnerable populations and highly-valued natures from the destructive effects of markets' against the background of the 1990s' otherwise-neoliberal governance approaches (2013, p. 1). This was partly a response to the academic and policy critiques of the 1980s and 1990s that were picked up by institutions like the UN and World Bank, which highlighted the links between the protection of biodiversity and indigenous peoples (ibid., p. 4). As such, environmental protection and indigenous development were seen as compatible, and 'land rights were justified as a prerequisite for realising indigenous peoples' potential as natural resource managers' (ibid., p. 5). Anthias and Radcliffe further argue that this has resulted in the creation of 'hybrid, "not-quite-neoliberal" and double-edged spaces … in which traditional livelihoods activities coexist with various forms of market

21 For more information on Chiquitano belief systems, see Riester (1976, p. 142), Freyer (1997, p. 96) and Balza Alarcón (2001), pp. 256–82.

engagement' (ibid., p.11). What is clear is that land rights are not given simply because these lands can serve (and be protected as) 'relational spaces' where socio-cultural relations can be reproduced (García Hierro and Surrallés, 2005, pp. 10–11). Instead, functionality is attached to the space; territorial rights are granted because these lands need to be protected or managed in some way and native peoples are deemed to be 'natural conservationists'. As discussed below, economic functionality is key, even when accompanying environmentalist ideas of 'sustainability' whereby lowland peoples can serve as 'guardians of the forest'. This rhetoric may undermine indigenous peoples' sovereignty over the spaces in which they live, and ignore their knowledges and lived realities.

One example demonstrating how this might work is the meeting that was held Concepción in late February 2007 between the leader of the city's Chiquitano Organisation and employees from a large, globally-active NGO focusing mainly on wildlife conservation. The NGO planned to implement a sustainable communal forestry project funded by the European Union in the TCO. According to the NGO spokesperson, the Chiquitano were chosen for the project as they knew how to live in harmony with the forest and could protect it. However, he added that they still needed to be taught one or two things about logging, as their own techniques damaged the forest and lowered the quality of the wood. Sensing some resistance to the project's premises, he asserted: 'TCOs are large areas, how can you justify them? [Through] forestry management, selling oxygen, conservation of the biodiversity and even tourism, thereby one can develop many projects to preserve this territory'.[22] The colonial logic that areas inhabited by lowland indigenous peoples are 'empty spaces' whose occupation must be 'justified' is clearly one shared by a wider set of non-governmental actors. Merely living on the land is clearly not enough, so NGOs step in 'to provide opportunities' for (or threaten people into adopting) market-based conservation initiatives, which will 'help' indigenous groups in asserting that they have a right to reside on the land, or deserve formal titles to it. Indigenous knowledges have to be improved upon, as they are deficient. This exemplifies how the environmental discourse can function to undermine indigenous territorial sovereignty by placing conditions on what kinds of development indigenous peoples can engage in. The outcome of the meeting was inconclusive. However, in a move that clearly undermined the authority of the Chiquitano organisation, NGO workers had already approached separate comunidades about the project, making it likely that they would deal with them if the organisation refused.

The discourses of NGOs and governmental actors about indigenous peoples' ecological credentials and their visions for indigenous territories are also evident in debates around territorial management procedures. From

22 Field notes, Concepción, 27 Feb. 2007.

around 2000, the Barcelona Centre for International Affairs, known as CIDOB, its NGO allies and foreign donors increasingly focused on *gestión territorial* [territorial management], leading to its implementation in TCOs across Bolivia.[23] Indigenous organisations and NGOs had begun to debate the administration of the claimed territories in the late 1990s. This was seen as crucial to exercising self-determination and *autogobierno* [self-governance] (see CPESC, 2003). It was portrayed as a participatory process through which Chiquitano would define how they wanted to live in and govern the territory, as well as generating production, while simultaneously conserving natural resources and strengthening Chiquitano identity (Flores, 2006, pp. 7–8). As one NGO stated, Chiquitano could 'enjoy the freedom to pursue their own development', but NGO assistance was needed as Chiquitano 'lacked the practical skills necessary to assume the challenge of autonomous territorial management' (Tapia and del Pilar Valencia, 2007, p. 2).

From 2005, and in line with *gestión territorial*, the Chiquitano organisation engaged in an NGO-financed project involving the *ordenamiento,* that is, 'ordering' the territory through settlement planning, establishing the exact amount of land each community could use and establishing zones for conservation and sustainable forestry (CGTI-MV et al., 2006, p. 11). Apart from carrying out studies focusing on establishing the territory's economic potential, further NGO projects in 2006–7 concentrated on strengthening the organisational structures responsible for the TCO. Many leaders regarded territorial management as necessary in order to consolidate and strengthen the territorial claim to ownership of such a vast stretch of land. It was also feared that without a solid justification the INRA would ask: 'for what do these *Paicos* [from Paikoneka, used in a derogatory fashion by some local whites and mestizos], the *Indios* need that much land?'[24] There were specific anxieties about land and its 'function'. Recent government rhetoric that likens indigenous groups with TCO titles to *latifundistas* gives such fears more substance. Despite legislation being passed that allowed indigenous groups like Chiquitano to gain territorial titles – hard-won by the country's indigenous movements – these gains are now threatened by the government and, paradoxically, as addressed below, by the autonomy legislation which the movements hoped would deepen their rights (Weber, 2013b).

Critical Chiquitano voices have underlined the more problematic aspects of the process behind territorial management. Chiquitano leader José Bailaba noted that it seemed paradoxical to reeducate Chiquitano comunidades on how to manage their land. Should Chiquitano control territories with the

23 In 2001, CIDOB signed a contract with the Danish embassy for a pilot project in territorial management in the Bolivian lowlands.

24 Field notes, Concepción, 27 Feb. 2007.

aim of living there according to their 'own forms of economic, social and cultural organisation' (CPESC, 2003, p. 33), how could they do so lacking the necessary practical skills? This highlights what Radcliffe (chapter 8) identifies with regard to environmental policy in Ecuador; namely, while such policies link indigeneity to conservation, they dismiss indigenous knowledge and practice (which at the very least needs to be improved), undermining the actual possibilities native groups might have to exercise self-determination and autonomy in their territories. Bailaba has highlighted the problems this could create. Experience has shown that productive activities, such as forestry management and agricultural activities can cause conflict among Chiquitano (CPESC, 2003, p. 33). Chiquitano Anacleto Peña voiced similar objections:

> We are talking of territorial management of the TCO, according to the dictionary this is synonymous with administration. We talk of indigenous territorial management, which we perceive to be different and it has another conceptual meaning. For us the concept of territory, in the vision of the indigenous people, is to say where one is born, one grows, one reproduces, one lives … And territorial management as we the indigenous peoples see it, we have realised the administration of our territories since time memorable, of the natural riches, the fauna, the flora, we have lived from fishing, hunting, and gathering. In Lomerío, they have implemented projects of forestry extraction … but the experience gained in all this process, created discontent among the comunidades … and they forced the closure of the sawmill (my translation, quoted in CPESC, 2003, p. 33).

Thus, both highlight problematic aspects concerning productive and development activities. The issue here is not that *no* income should be generated, but is one of scale. Although projects such as cattle ranching or sustainable forestry management may provide an extra income in times of need, as José Bailaba and Anacleto Peña highlight, productive projects on a grander scale have often failed or created conflicts (see McDaniel, 2003).[25]

Further challenges

During the height of the Constituent Assembly in 2007, some Chiquitano leaders were considering what it would mean if their TCO gained recognition as an autonomous entity – one of the key political demands from lowland indigenous movements at the time. Chiquitano leaders felt this was a way of consolidating their territory, protecting it against the grip of the departmental elites and opponents of the territorial claim in Concepción. Several leaders expressed the opinion that autonomy was about ensuring the continuity of Chiquitano lifeways, achieving socio-cultural survival and securing livelihoods. As one leader highlighted, this also entailed finally obtaining the legal rights to make use of their renewable and non-renewable resources in what was after

25 The circumstances surrounding the failure of such projects merit further investigation.

all *their* land.[26] While the 2009 Constitution legislated for the possibility that indigenous groups accede to Indigenous First Peoples Peasant Autonomies, the government has been slow to implement them, if not actively been discouraging (Tockman and Cameron, 2014). Multiple restrictions mean that in order to accede to autonomous status, indigenous peoples need to adapt their 'supposedly "autonomous" community-based modes of decision-making to the Bolivian state's managerial logic' (Cameron, in Tockman and Cameron, 2014, p. 58). Rather than leading to a consolidation of self-determination this, combined with the fact that the Bolivian government has not actually relinquished control of natural resources to autonomous entities, is 'seriously limiting the jurisdiction of indigenous self-governance and indigenous conceptions of territory' (Tockman and Cameron, 2014, p. 54).

When I returned to Concepción in 2012, CICC leaders had yet to file for recognition of autonomous status for their TCO, and were worried about its future. As one of the leaders explained, not many Chiquitano had chosen to settle in the TCO because it lacked schools, health facilities and other amenities available in communities located closer to the municipal capital. This put an obstacle in the way, as the law indicated that a population of 1,000 was a prerequisite for gaining autonomous status (ibid., p. 51). Furthermore, a lack of Chiquitano settlers made it harder to prevent illegal logging or settlements. The Chiquitano communities' right to the land might be questioned if other people put the TCO land to use, thereby potentially laying claim to it. But creating amenities and infrastructure in the territory requires resources. In 2006–7, Chiquitano organisation had relied on funding from the Catholic church, a range of NGOs, and various government administrative institutions for productive and infrastructure projects. But in 2012, NGO funding had largely dried up; the Chiquitano organisation and its projects were maintained by municipal funding and through some of the functioning territorial management plans with which claimant communities now generated resources, partly to keep the CICC going.[27] The municipality had been run by a MAS Chiquitano mayor since 2010, but such funds may vanish if the municipal power distribution changes (in 2012 CICC leaders and the mayor assured me that cooperation was good), hence increased economic activities by communities may be required to fulfil the Chiquitano leaders' dream of an autonomous territory. While more research needs to be conducted into this topic, it seems that despite promises of autonomy, the situation of many Bolivians resembles that of territories elsewhere (but generally under neoliberal governance regimes). Although these have seen a delegation of responsibility,

26 Interview, Concepción, 17 July 2007. The Chiquitano notions of autonomy will be explored in depth elsewhere.

27 Interview, Concepción, 1 June 2007. More research needs to be carried out in relation to funding issues and the working of the management plans.

they lack the finances to match it, an example of 'autonomy without resources' (Stahler-Sholk, quoted in Erazo, 2013, p. xix).

The shortcomings of such territorial governance regimes are thus exposed, and those of idealistic images of ecologically noble savages who rely on assumptions about indigenous supposedly 'traditional' and non-extractivist stances, as opposed to a governmental or entrepreneurial modern or market logic (compare McNeish, 2013). At the same time as indigenous peoples may aspire to futures where they can live 'how past generations have lived' as far as relationships with other peoples and within their own groups, and vis-à-vis more-than-human entities are concerned, they may also desire development in the form of improved access to housing, health, education and sustainable economic projects. Their leaders see such aspects as crucial to exercising territorial autonomy (compare McNeish, 2013, p. 236; Laing, 2015). If capital for such plans is not forthcoming from other sources, they may negotiate payments with NGOs or donors for biodiversity protection or apply to carbon credit schemes. However, this would signify potentially relinquishing control over their lands (compare Erazo, 2013). Alternatively, they may actually have to (or want to) engage in certain economic activities in their territories, including exploiting subsoil resources. Or they might even grant concessions to third parties to do so, although this may put them at loggerheads with the government. It could also open up indigenous groups to criticism from those (NGOs, government officials, academics and more) who harbour ideals of the 'environmentally noble savage', or who invoke this image tactically to influence patterns of resource governance. Being based on the 'generic assumption that Native Americans' relations to nature are equivalent to Western environmentalist principles', this necessarily misrepresents native Amazonian communities' lived realities and their main concerns (Conklin and Graham, 1995, p. 697). It fails to articulate indigenous peoples' complex visions of how they wish to live in the future. This may involve different forms of development in the face of the reality that development and resource distribution, especially if state-led, has been uneven and generally not extended to indigenous lands and communities.

Conclusion

This chapter has focused on the way that indigenous environmentalism discourses function in MAS rhetoric and NGO-indigenous projects, and examines their effects and limits. The Bolivian government is drawing on this discourse to intervene in international debates on climate change as well as using it to frame its vision for the Plurinational State. The administration has gone so far as to ratify the rights of Mother Earth, declaring her a 'collective subject of public interest' (Art. 5, *Ley de Derechos de la Madre Tierra*). While

the reforms and rhetoric promised a paradigm shift in human-environment and state-indigenous relations, there are some fundamental contradictions in MAS's indigenous political project. As demonstrated here, it clashes with the administration's developmentalist practice and dependence on extractive industries. In tackling the challenge of 'how to develop and live well', the administration has been unable to break a century-old dependence on extractivism and the established wisdom that the path forward lies in economic development and industrialisation (compare Postero, 2013, p. 88). Certainly, although the government's rhetoric may capture the imagination of westerners involved in global climate change debates, it also clashes with the realities of what Evo Morales seeks to portray as an indigenous national political project, opening up the governmental project to further criticism. Moreover, MAS's all-inclusive national indigenous project has the potential to undermine regional and local indigenous political struggles and alternative lifeways, especially where the lands of these peoples encompass areas of economic interest. Worryingly for indigenous groups with TCO titles, MAS governmental spokespeople replicate the longstanding colonial discourse which deems lands inhabited by indigenous peoples to be 'empty' and 'under-used'. This leads commentators to conclude that 'official plurinationalism has come to look more like liberal multiculturalism, which reasserts the primacy of the central state over indigenous peoples and territories and minimizes the spaces for nonliberal forms of citizenship' (Tockman and Cameron, 2014, p. 50).

While discursive strategies based on the ecologically noble savage may be beneficial to native groups in helping to articulate political projects and alliance building, and possibly leading to the granting of certain rights, it may also work to undermine their very struggle, and silence their voices. For groups like the Chiquitano, current Bolivian state legislation concerning indigenous territories and dominant environmental discourses have created a situation where they must live up to certain state-recognised or NGO-defined forms of organisation, administration and identification (that is, indigenous, peasant or *originario*) (Weber, 2013a). The territory has to be 'used', involving processes of sustainable 'marketisation', rather than being recognised as a space where human vis-à-vis human, and human vis-à-vis more-than-human relationships predominate. While Chiquitano want to live peacefully and 'like past generations have lived', they are forced to demonstrate that they are capable of administering the space in ways that (non)governmental actors see fit, while their own practices and knowledges are dismissed, or at least are in need of improvement. Chiquitano self-determination goals and the way they envisage their livelihoods are neither expressed in the image of the eco-native, nor are easily compatible with the logic of sustainable production. If self-determination and autonomy is to become a lived reality for native peoples,

the lived realities and socio-natures of Chiquitano must be included in what researchers, policymakers and environmental organisations take into account.

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8. The difference indigeneity makes: socio-natures, knowledges and contested policy in Ecuador

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Today Latin America is the site for vibrant debates concerning environment, socio-cultural difference, and the policy implications of diverse knowledges, as previous chapters have testified. Latin American places are central to the urgent environmental questions of our time such as Amazonian deforestation's contribution to global climate change, the socio-environmental consequences of biofuel plantations, and the challenges of urban sustainability. Socio-natures – that is, the overlapping and mutually constitutive relations and material assemblages that blur a conceptual divide between nature and culture, humans and non-humans – now lie at the heart of multidisciplinary debates about development. Within those discussions that recast the understandings of nature in Latin America, the notion of indigeneity often appears, with respect to the articulations of characteristics and political positionality associated with being indigenous (whether by self-identified individuals and groups, or diverse non-indigenous actors constructing a discourse about indigenous peoples).[1]

Indigeneity epitomises new debates around socio-nature as it is often associated with marginal lands and pristine biospheres, although its meanings are always shifting and being rearticulated, relationally positioned with respect to other social categories and specific forms of socio-nature. Policymakers involved in biodiversity conservation and eco-system services often draw on long-standing associations between indigenous peoples and nature. Although these peoples are often seen as closer to nature than the 'universal' subject (Anderson, 2007), western understandings of indigenous knowledge regarding environments are often ambivalent; on the one hand, indigenous technical knowledge is celebrated, yet often perceived as largely empirical and only locally relevant. On the other hand, western representations of these peoples stress an affective, spiritual relation with land, arising from ancestral cultures untouched by history and politics. It is arguable that the Anthropocene's

1 See chapter 7 for Weber's discussion of governmental discourses around indigeneity and the environment in Bolivia.

generalised anxiety about the speed and consequences of global climate change entails a recalibration of these associations between a nurturing population and Nature writ large, which demand critical analysis.

In Latin America, indigenous politics are often linked with environment policies and processes that threaten biospheres and climate change, with ethnic rights movements highlighting the centrality of hierarchies of postcolonial social difference to the way in which the environment is approached in the region (Fabricant, 2014; Postero, 2013; Offen, 2014). Indigenous peoples often understand environmental policies as the usual development round yet again, as summarised by a 2013 declaration: 'The current ... development model promotes megaprojects, infrastructure … REDD+, carbon credits … which do not respect the individual and collective human rights of indigenous peoples' (Foro Indígena, 2013). This chapter examines how environmental policy debates in post-neoliberal Ecuador position indigeneity, and the decolonial politics devised by these peoples to resignify indigeneity and recast the protection of environments. In this context, indigeneity does important work informing and positioning socio-natures in relation to all-too-human subjects and the political, administrative and development contexts in which they operate. Exploring these issues in 'post-neoliberal' Ecuador permits a grounded account of how indigeneity plays a role in moulding the ways socio-natures are imagined, how conservation knowledge and policy are formulated, and how political contests emerge. The chapter suggests that, notwithstanding a degree of policy openness to indigenous knowledges, indigeneity is configured in ways that tend to reproduce relations of coloniality (Andolina et al., 2009).

The chapter ends by arguing for decolonising the discussions around environment and indigeneity.[2] A growing debate about the colonial contexts within which knowledge is produced and circulates informs this account (Anderson, 2008; Jazeel and McFarlane, 2010; de la Cadena, 2010; Blaser, 2010; Jazeel, 2014). Environmental policy necessarily entails processes of professional knowledge production and epistemological positioning (Briones, 2011), which arguably necessitates analytical attention to the politicised way boundaries are drawn around human/more-than-human difference, especially in light of subaltern struggles over dispossession.

According to geographer Kay Anderson (2007; also Bhabha, 1994, p. 146), indigenous people become an important 'hinge' or means by which policymakers and scholars think through global environmental challenges, as western knowledge categorises these peoples as closer to nature. Yet dominant and metropolitan knowledges about environments and climate change rarely reflect critically on how indigeneity and its knowledges are constructed, or how

2 Decolonisation seeks to rethink modernity in its co-constitution with coloniality, prompting the resignification of modernity's key categories and knowledge production (Mignolo, 2000).

indigenous struggles are positioned in emergent environmental policy.[3] To do so first requires identifying the enunciation loci of diverse actors (policymakers, academics and indigenous peoples) brought together by 'environmental protection' (Sundberg, 2014), and secondly reexamining policies from indigenous perspectives reveals how environmental policy becomes mired in colonial exclusions and dispossession.[4] In order to examine these dynamics, the chapter analyses two key policy shifts introduced since 2007, the year Ecuador's President Rafael Correa was elected and inaugurated a profound shift in how environmental policy was formulated and debated. These include a payment project for forest biodiversity protection, a proposal to leave oil reserves unexploited (the Yasuní-ITT initiative), and indigenous decolonial politics of socio-natures. Each project seeks to protect nature while positioning indigeneity in distinctive ways and with diverse consequences for achieving indigenous rights regarding socio-natures (compare Ari, 2014, on Bolivia).

Before sketching out the political and policy context, a couple of qualifiers are in order. The chapter does not present a systematic review of Ecuadorian indigenous peoples and environment politics, or a comprehensive overview of environmental policies in that country. Instead, it draws on collaborative, decolonial research with Kichwa and Tsáchila indigenous women regarding their experiences of, and responses to, development in order to reflect on environmental questions under post-neoliberalism (Radcliffe, 2015). Hearing their discussions at meetings, on buses and sitting around the fire at home informs the interpretation of Ecuador's environmental debates and policies offered here. Emblematic (although not representative) of Kichwa female contributions to knowledge production and political debates is the figure of a Kunak Warmi, a 'knowledgeable woman' in the Andean kichwa language. As well as addressing local problems, the Kunak Warmi reflects wider insights into the relationships between living forms, indigeneity (and the racism that accompanies it), and decision-making in post-neoliberal Ecuador (compare Gibson-Graham, 2011). To these women's critical, often decolonial, perspectives on development, the chapter also adds material drawn from diversely positioned women belonging to Ecuador's 12 other indigenous nationalities.[5] Diverse indigenous women's perspectives on environmental debates and policies are forged in relation to a differentiated and postcolonial field of knowledge production. In this chapter, these heterogeneous women provide an entry point into exploring contested socio-natures.

3 Coletta and Raftopoulos, chapter 1, analyse the emergence of plural knowledge centres, which have transformed environmental agendas and conflicts in the region.

4 See Hall's discussion on REDD+ in chapter 6.

5 Nationalities – *nacionalidades* – in the Ecuadorian context refer to major indigenous ethno-cultural groupings.

Figure 8.1: Kunak Warmi/knowledgeable woman, Quimiag parish, central Andes, Ecuador, International Women's Day 2010 (author's photo)

Buen Vivir and rights for nature: Ecuador in context

Ecuador is world-renowned for its broad range of biodiverse habitats. Notwithstanding the fact that the country faces some of Latin America's major environmental challenges, the 2008 Constitution and the planning process known as Buen Vivir – which seeks peaceful cohabitation between citizens and harmonious relations with nature – have strengthened the institutional

and legal basis for environmental protection.[6] Recognising the rights of nature in the constitution became the first step in a resurgence of environmentalist, indigenous and civil society mobilisation around deforestation, petroleum dependency, mining and sustainable lifeways.[7]

Debated throughout the 2007 constituent assembly and then ratified within the 2008 Constitution, the Buen Vivir approach emerged from a contentious politics involving diverse social movements including women, indigenous peoples, deep ecologists, sectors of the left and mainstream political actors. Buen Vivir in this sense represents a 'radical questioning' of modernist development's high human and environmental costs, a questioning made 'possible within several indigenous traditions in South America' (Gudynas, 2011, p. 442). It also reflects how 'Ontologies bring themselves into being and sustain themselves even as they interact, interfere and mingle with each other' (Blaser, 2014, p. 7). Ecuador's national Buen Vivir development plan is committed to 12 goals including endogenous development, an economy built on 'solidarity', recognition of unpaid (including reproductive) labour, cultural diversity, nature and environmental sustainability as constitutive of and as intrinsically valuable as social life. Buen Vivir seeks to centre sustainable and just forms of living for humans, and nature or Pachamama (earth more-than-human, in kichwa), in an 'unprecedented biocentric turn' (Escobar, 2010, p. 21). Moreover, Ecuadorian policy is embedded within a complex infrastructure of rights, most linked to western legal traditions, although the stress is on how rights are to be fulfilled in 'harmonious existence with nature' (Gudynas, 2011, p. 443). Buen Vivir selectively draws upon indigenous border thinking, making it the first nation-state endorsement of non-western epistemologies (de la Cadena, 2010; Cortez, 2011). At its broadest, Buen Vivir can refer to diverse conceptions of more-than-human assemblages and agency, including from the Shuar in Ecuador, Guaraní in Bolivia and Mapuche in Chile, socio-natural relations that do not claim universality. In Ecuador, the constitution outlines the rights of nature/Pachamama in ways that hint at the profound impact of indigenous and deep ecology epistemologies that centre the liveliness of more-than-human nature and seek to recalibrate the balance between human and natural flourishing.[8] Constitutional article 71 states:

6 Through a strongly rights-based and social movement-influenced constituent process, the 2008 Constitution incorporated a range of anti-neoliberal and pro-rights agendas, repositioning Ecuador in the global economy and restructuring the relationship between state, citizens and resources (Becker, 2010; Escobar, 2010; Radcliffe, 2012).

7 Also see Coletta and Raftopoulos, chapter 1, for details on the *buen vivir* concept.

8 I do not argue that policy recourse to an ethnic discourse of Pachamama indicates a reactionary utopia or a head-on confrontation with capital (compare Sanchez Parga, 2011).

> Nature or Pachamama, where life is reproduced and exists, has the right to exist, persist, maintain and regenerate its vital cycles, structure, functions and its processes in evolution. Every person, people, community or nationality will be able to demand the recognition of rights for nature from public institutions.

Nevertheless, the constitution presumes that nature is exterior to the human condition and establishes human obligations towards nature (Sanchez Parga, 2011, p. 43). Buen Vivir represents a geographically and historically specific articulation of meanings, hopes and epistemologies from indigenous organisations, environmentalism, feminism, degrowth advocates, small farmers and many others, an 'invented tradition' unique to Ecuador (Bretón, 2013). Diverse women from multiple indigenous nationalities had expectations, as did others, of the rights of nature and Buen Vivir, as illustrated by early comments from Monica Chují, female vice-president of the Amazon indigenous confederation Confeniae and Constituent Assembly member. For her Buen Vivir represents 'one of the most important and profound proposals in the context of globalisation, as a new model of development and economic growth.' Around the time of the 2008 Constitution and the first Buen Vivir development plan (2009–13), Ecuador embarked on some specific measures to address environmental concerns which are summarised below.

Environment and indigeneity I: payments to protect forests

Established in 2008, the Socio Bosque (Forest Partners) Program reflects the post-neoliberal government's aim of compensating forest-dwelling communities in protecting biodiversity for its intrinsic values. Presenting itself as the vanguard of emissions-reducing measures, Ecuador devised Socio Bosque with technical assistance from Conservation International. The programme aims to protect over four million hectares of forest, reduce emissions and improve the wellbeing of around a million people in the poorest areas. To take one community example, the Amazonian Rukullakta community government receives $39,500 yearly under a 20-year contract with the government, representing a nominal payment to participants (Erazo, 2013; also de Koning et al., 2011; Krause and Zambonino, 2013). At the latest count, 12.8 per cent of target forests had been protected, and 5.6 per cent of potential beneficiaries incorporated into the programme (Bertzky et al., 2010).

Although Socio Bosque began as a REDD+ project (Reducing Emissions through Deforestation and Forest Degradation),[9] it is now institutionally

9 See Hall, chapter 6.

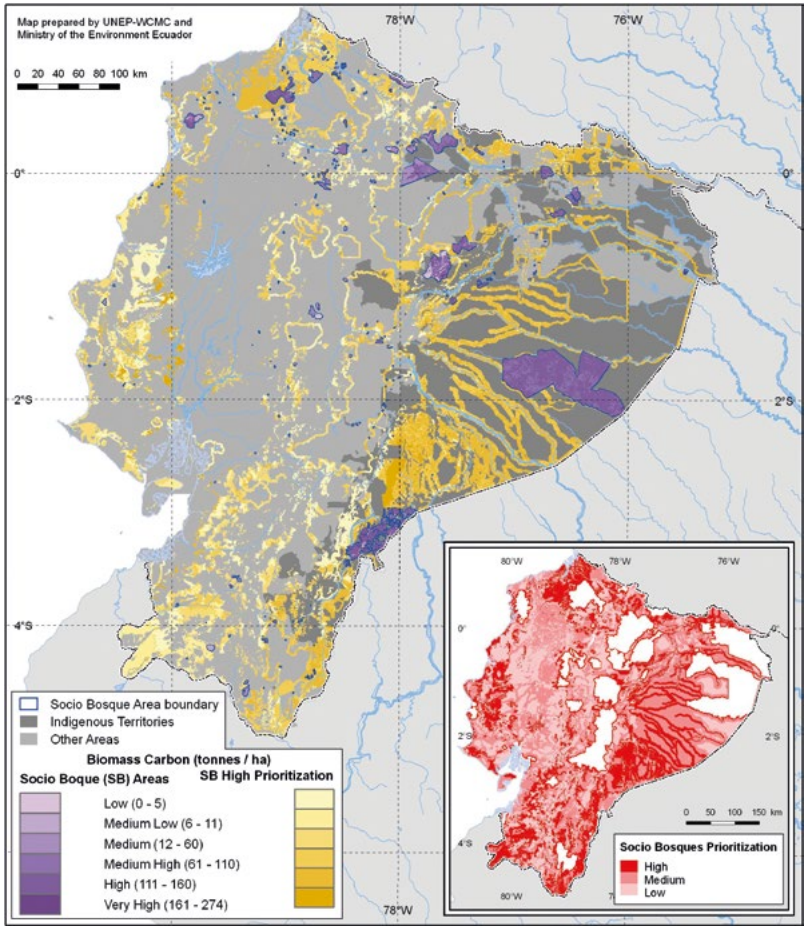
separate in Ecuador's administration of environmental programmes.[10] However, similarities remain in that incentives (cash payments) are made to managers and users of vulnerable environments for forest conservation and protection. REDD programmes in Latin America often frame indigenous difference as powerful in particular ways. In this case, Socio Bosque directly unites indigeneity with environmental concerns as a third of targeted eco-systems are inside indigenous territories while 11 of the country's 13 indigenous nationalities have enrolled at least some land and territories into Socio Bosque (Bravo and Moreano, 2015). To deliver poverty alleviation, forest protection and global climate change mitigation, the programme calls upon indigenous subalterns to practice eco-system services in return for payment (Erazo, 2013), in the context of government attempts to launch the country as a primary provider of eco-system services for emerging carbon markets (Fitz-Henry, 2012, p. 272). By equating carbon reduction practices and monetary value, eco-systems service approaches have been critiqued for treating nature as another commodity within a market (Scales, 2014; Fitz-Henry, 2012), whereas in Ecuador's post-neoliberal model, eco-systems services were deliberately framed in the 2008 Constitution as the remit of the nation-state, not the market (Acosta, 2010, p. 10). The Socio Bosque programme straddles these issues by pursuing environmental goals under constitutional commitments to nature's rights, by paying for conservation behaviours.

The programme raises questions about the relationship between indigeneity, the spaces for biodiversity conservation and postcolonial power relations. As in other conservation projects, the Socio Bosque overlaps environmental protection zones and indigenous territories and frames them as in need of particular modified forms of market relations. As Karl Polanyi has argued, policymakers at times attempt to legislate to designate certain subjects and objects as 'not ready' for the market and distance them from capitalism's most destructive effects (Li, 2010). Latin American countries apply this model in areas inhabited by indigenous groups, most recently by bundling biodiversity and cultural diversity conservation goals into a new form of governance. Reserve areas seek to suspend both indigenous subjects and nature outside the most damaging effects of capitalism by means of this 'ethno-environmental fix' (Anthias and Radcliffe, 2015). Such frames have a number of consequences for indigeneity's position in conservation debates. First, indigeneity is framed as in positive synergy with a discrete nature category. On this basis, indigenous groups and nature are framed as equally incorporable into nationally-realised and globally-envisioned environmental governance. In other words, 'indigenous and other forest-dwelling peoples

10 The institutional separation was established around 2010 (Melissa Moreano, personal communication).

are now re-imagined in the context of global relations of biopolitical security linked to climate change' (Latta, 2013, p. 573).

Figure 8.2: Map of established Socio Bosque areas



Key:

Red – priority areas for Socio Bosque
Grey – indigenous territories
Purple – biomass carbon areas currently in Socio Bosque
Yellow – biomass carbon areas which are a priority for Socio Bosque

Source: M. Bertzky et al. (2010, p. 15). Reproduced with permission

A second aspect is illustrated in the above figure, which shows how Socio Bosque imagines indigenous peoples are present – and policy-relevant – in remote, rural and environmentally-rich areas, a cartography that silences as much as it reveals. Beyond the realities of motley and heterogeneous urban and rural spaces where diverse forms of indigeneity are lived, this mapping of conservation-friendly indigenous subjects in Socio Bosque areas reflects a postcolonial politics in which indigenous actors lack full political voice and legitimacy in many spaces. Indigenous groups must fulfil the project terms to receive payment, but generally exert limited leverage when it comes to clarifying land title and enforcing rights; likewise, international REDD+ frameworks have yet to systematically incorporate global indigenous rights regimes (Lemaitre, 2011). Under the terms of post-neoliberal payment for eco-system services, indigenous subjects are expected to conform to state governmentality – what anthropologist Agrawal terms 'environmentality' (2005) – in a depoliticised role as an indigenous subject synergistic with and subordinate to prevailing governmentality, consistent with REDD+ globally-directed goals (Hale, 2002). In this way, projects tend to reify indigeneity as local and subordinate, making diverse indigenous voices into a narrower version of indigeneity that leverages particular visibility in decision-making (for example, Hiraldo and Tanner, 2011; Shankland and Hasenclever, 2011).

Such experiences inform certain indigenous responses to Socio Bosque. The Amazon indigenous federation Confeniae rails passionately against what it perceives as the programme's undermining of indigenous economic, political and social rights. The federation scorns 'local use' of indigenous 'local' knowledge, effectively pointing to how Socio Bosque replicates coloniality-modernity's tendency, by which 'indigenous systems of knowledge are reified by the very modern structures that marginalize them' (Briones, 2011, p. 318). The programme fails to secure indigenous nationalities' informed prior consent (despite its status as a constitutional right) on major infrastructure and extractive projects that continue unabated in, around and overlapping with indigenous-inhabited areas in the Amazon (Confeniae, 2009). In its critiques, the federation links REDD+ mechanisms with other international markets and neoliberal measures, each of which over recent decades deepened subaltern impoverishment and entrenched political marginalisation. For these reasons, the indigenous movement rejects Socio Bosque, as it represents 'a continuation of the type of policies that have impeded their quest for sovereignty and self-determination' (Reed, 2011, p. 525). Despite Socio Bosque's admirable goal of protecting cultural and biodiverse enclaves, the issues of knowledge, difference and authority remain outside the terms of this policy field.

Between the 1948 UN Charter on Human Rights and the 2007 UN Declaration on the Rights of Indigenous Peoples, decades of dispossession

unfurled through place-specific combinations of racialised denial of a common humanity, skewed legal systems, and discourses of progress/ development/ modernity in ways that suspended human rights' applicability to indigenous groups. Moments of particularly acute and rapid forms of dispossession were associated with neoliberalism and post 9/11 securitisation, after which rapidly expanding extractive frontiers have continued to displace indigenous populations while undermining their effective recourse to policy, law and power to protect rights and interests. Indigenous groups, such as those in Ecuador, live in postcolonial nation-states that claim sovereignty over the entire national territory and subterranean realms. As under previous Ecuadorian republican governments, the post-neoliberal state continues to claim state sovereignty over subsoil resources such as oil reserves, thereby establishing the legal-political framework for interventions in indigenous territories in the name of national interest. The political ground over which environmental policy is implemented does not, then, represent a 'symmetrical antagonism' between a nation-state and indigenous groups (Parry, 2004, p. 14), but a playing-field tilted by coloniality-modernity's construction of space and difference. Postcolonial power relations set the conditions under which indigeneity is linked to conservation in the first place, whereas longstanding indigenous demands for autonomy and self-determination are delegitimised. Environmental policy could hence be argued to be perpetuating the notion of 'empty lands', a policy imagination that undercuts existing inhabitants' visibility and presence, while dismissing their knowledge and practices as excess to universal policy procedures and priorities.

In response to such postcolonial knowledge production, indigenous subjects mobilise alternative forms of knowledge including understandings of more-than-human agency and difference (de la Cadena, 2010).[11] Informed about geographies and histories of resource dispossession, diverse Ecuadorian indigenous women articulate specific critiques concerning the Socio Bosque programme, as became clear during a nationwide consultative project with indigenous and Afro-Ecuadorian women (Radcliffe et al., 2014). According to Gloria, a Sápara woman from the Amazon region, Socio Bosque did not represent a means of protecting her livelihood and indigenous autonomy, but rather an unwelcome intervention that would further her dispossession. As she recounted,

> I met with [staff from] Socio Bosque and asked them 'What is happening? They are buying up our territory.' They asked me how I knew. And then payments – no one gives away money for conservation, the conservation of Sápara territory! (Interview, August 2012)

11 Subalterns may strategically essentialise heterogeneous (more-than-) human identity, interests and difference to make sustained arguments 'from below', e.g. Fabricant (2014) on Bolivia.

This Amazonian woman amplifies long-standing critiques of the successive waves of global development expressed by diverse indigenous women in Ecuador's Amazon, Andean and coastal regions (Radcliffe, 2015). She testifies how energies of the earth – what de la Cadena calls 'earth beings' (2010) – have political interests that could be harmed through Socio Bosque. Her words also provide insights into contemporary linkages between indigeneity and environment. Whereas Gloria makes her claims to indigenous forms of socio-nature management with reference to historical connections to a specific territory, she also reveals her politicised awareness of the postcolonial constraints placed upon such a configuration. In her narrative, indigenous places are contingent and precariously defended in comparison with 'national' socio-territories. To challenge the status quo, she argues that the state's interest in Amazonian biodiversity silences indigenous peoples' rights to give free prior informed consent as established in legal instruments such as International Labour Organization (ILO) Convention 169, the United Nations Declaration on the Rights of Indigenous Peoples, and the 2008 Constitution.

Additionally, global rights and environmental protection are constituted on the ground as ontological and epistemological struggles. Gloria views Socio Bosque through indigenous epistemologies that blur the Eurocentric distinctions between society and nature, humans from non-human forms of life. In encounters with Socio Bosque employees, she discovered the project understands 'environment' in ways that accord with dominant postcolonial 'universal' knowledges and not her socio-natural knowledges. The Socio Bosque team member told her, '"No, here above is your indigenous land, and below is the state's." That's what he told me!' Gloria's response highlights the distinctive ontological positions in this encounter, 'I said, "What did you say? We have a spirit that lives within the earth. The alive spirits live there. For this they say *uku runa* live in the mountain. [The earth is] alive. Where are they [the *uku runa*] going to live [with the Socio Bosque]?" This exploitation is going to throw everything out.' Gloria thereby decentres western epistemologies of individual human rights. For her, Socio Bosque risks unleashing potentially damaging consequences for a life form that exists beyond that envisioned in the project's design, but which is key to her socio-natural world. Her words highlight how 'the distinct ontological positioning of indigenous peoples has been shut out of REDD debates', as elsewhere in Latin America (Latta, 2013, p. 574).

Situated within socio-natures of human and non-human animate, political and significant actors, the Sápara contest the ontological basis of global environmental policy and debates as they interact with socio-natures outside dominant 'environment' policy categories. Gloria's critical knowledges about Socio Bosque generate two significant implications for our understanding

of the difference indigeneity makes in debates and policies. Firstly, Gloria's scepticism about policymakers' sudden interest in her territory highlights the always-already political field against which indigeneity and environment are linked in current interventions. Secondly, as discussed at greater length below, Ecuadorian indigenous subjects and movements strategically bring a distinctive epistemology-ontology to push environmental debates further in directions that bring into focus the exclusions associated with coloniality-modernity.

Environment and indigeneity II: Yasuní-ITT

First proposed in 2007, the environmental protection policy known as the Yasuní-ITT initiative was devised to raise pledges to a United Nations Development Programme (UNDP)-administered fund in return for which Ecuador would not exploit the petrol reserves found under the Yasuní National Park, one of the world's most biodiverse habitats as well as the ancestral and present territories of several indigenous populations, including Waorani and diverse uncontacted groups (Rival, 2010). Some 200,000 hectares of the park had already been designated a protected area, within existing environmental policy.[12] Despite reservations about the Yasuní-ITT scheme's long-term viability, international pledges to the fund began to flow in. The post-neoliberal government rethought its objectives, and by July 2013 a state commission concluded that the plan's economic results were insufficient. Correa terminated the plan in August 2013, citing the failure to generate more than $13.3 million. At the time of writing, the UNDP is reimbursing funds and encouraging donors to reinvest in alternative sustainability options. Rather than identify why the initiative ended,[13] my focus is on how the Yasuní proposal enrolled indigeneity issues.

What difference does indigeneity make to this proposal? As in the case of Socio Bosque, the Yasuní-ITT was to be rolled out directly in territories with resident indigenous populations, yet it also raised key issues about the differential valuing of western and indigenous epistemologies in environmental policymaking. Diverse indigenous women engaged in debating Yasuní-ITT and the politics that led to its closure, critiques that draw extensively on decolonial politics as well as ontologies involving political earth-beings. In October 2013, Alicia Cawiya, vice-president of the Waorani Nation of Ecuador (NAWE) from Amazonia, spoke at the national Assembly (parliament) against conservation

12 The park was also subject to familiar pressures: from the 1990s successive governments drilled for oil, built the Maxus road, and granted exploitation rights in bordering areas. Indeed, during the initiative, some government departments held negotiations over oil prospecting in other areas.

13 Yasuní-ITT plan's demise has been attributed to international conservatism, lack of sound economic planning, over-ambitious goals and unrealistic expectations.

areas such as Yasuní-ITT that ignored indigenous self-determination and rights: 'We demand our territory. Before it was immense, [but] the government always wants to divide it up [with] an intangible zone, [or] the Yasuní Park ... Where are the Waorani administering? They're throwing us out of everything, other people from cities, working and administering from elsewhere.' Reminding parliamentarians of Waorani rights to free informed prior consent, Cawiya continued:

> The resource that comes out [of the ground] is petrol. The assembly approved the award of 5 per cent [of oil revenues] to be managed by autonomous parish councils. But they are not the Waorani! They are denying us the Amazon, so we don't agree … How have we benefited? There should be a consultation for the Yasuní. All the ancestors disagree [with the plan]. I ask it as a Waorani woman. ... You can say that the whole world is in favour of exploiting the Yasuní, but we aren't. For that reason we were born in the Yasuní, like a woman. (Cited in Colectivo Miradas Críticas, 2014, pp. 77–80)

Elaborating in later press interviews, Cawiya clarified that exploitation was as much about her peoples' rights to oil revenues as it was overturning romantic notions of indigeneity's natural conservationist attitudes. Other indigenous women drove home the issues of sovereignty and self-determination, arguing that the government was trespassing on indigenous territories (Manuela Ima, former NAWE chairwoman, cited in Arsel and Ávila, 2012, p. 218).

Environment and indigeneity III: decolonising indigeneity and nature

The above sections highlight the urgency of indigenous struggles over Ecuadorian environmental policies and debates and how they are informed by direct experience of environmental projects as well as by distinctive ontological perspectives regarding 'nature'. As documented through ethnographic work, diverse Ecuadorian indigenous groups often view the world in terms of living chains that engage active and powerful more-than-human agents, as well as diverse human subjects (Blaser, 2010; Cepek, 2011; Descola, 2012; Kohn, 2013). Informed by these ontologies, critical engagement with western policy-related ontologies on environments occurs in highly diverse political contexts, underlining the importance of situated understandings of indigeneity, socio-natures and policy. Hence, although the 2008 Constitution, the Buen Vivir development plans and indigenous rights organisations such as La Confederación de Nacionalidades Indígenas del Ecuador (Coniae) and Codenpe[14] all use the term 'Pachamama' what they mean by it in relation to

14 Ecuador's indigenous development council, Consejo de Desarrollo de las Nacionalidades y Pueblos del Ecuador (Codenpe) represented indigenous peoples' primary institutional location in the Ecuadorian state from the late 1990s to 2014.

policy is quite distinct, especially in the context of increasing tension between the Correa government and indigenous and other social movements.[15]

In the complex coalitions with degrowth advocates, environmentalists, deep ecologists and others, indigenous Pachamama conceptions became associated with a perspective whereby 'all living beings have equal ontological value' (Acosta, 2010, p. 7). Furthermore, indigenous intellectuals argue living beings include diverse mineral, water and 'earth beings' that westerners understand to be inanimate landscapes (streams, rocks, mountains and so on).[16] Harmonious relations between humans and these other beings are captured by the kichwa term '*sumak kawsay*', defined thus by an Andean indigenous woman:

> Sumak kawsay is the life that we see on waking in the morning; it's a life in plenitude, this life in harmony; it's life in conversation with all the Apus [mountains viewed as more-than-human agents]; it's me and everyone living with nature, eating from the land, rituals, our festivals. Eating what Mother Earth gives us; this is life in equilibrium. This life in harmony is sumak kawsay that we've lived for over 10,000 years. (Laura, an educationalist in the third sector, speaking at a public policy meeting in 2010)

According to Luis Macas, an indigenous intellectual, who is director of independent thinktank Scientific Institute of Indigenous Cultures and Coniae's ex-president, its 'meaning comes from kichwa and contains two concepts. Sumak signifies plenitude, magnitude, justice, complement, the superior. Kawsay is life in constant realisation, dynamic and changing; it's the interaction of the totality of existence in movement' (2011). Sumak kawsay has hence been translated as buen vivir or living well and, after its meanings had been reconfigurated, it was incorporated into the constitution and development planning, as previously discussed.

Drawing again on indigenous women's insights, this section explores how concepts of Pachamama and ontologies of more-than-human earth beings provide insights into Ecuador's environmental debates and policy struggles.[17] Specifically, heterogeneous indigenous women focus on decolonisation, and what it means for knowledge production, decision-making and statecraft in

15 The gap between government and civil society understandings of nature/Pachamama is beyond this chapter's remit. Contributory factors include Alberto Acosta's exit from government, the breakdown of relations between Correa and former indigenous allies, the shift of political power to the SENPLADES planning secretariat, and a developmentalist modernising macroeconomic policy.

16 Wylie, chapter 2, discusses how indigenous and European views on the relationship between humans and non-humans in the South American tropics has been revisited through foundational narratives since the early modern period.

17 Sumak kawsay has been articulated, worked and reimagined by diversely-positioned actors; here it refers to Andean rural, low-income Kichwa women's uses and meanings.

relation to human and more-than-human thriving.[18] Sumak kawsay arises out of and speaks back to what indigenous intellectual Luis Macas calls 'historic experiences of life [which are] converted into struggles and proposals', forged through coloniality-modernity's exclusions (2011, p. 52). These conceptions build up from a distinctive ontology, challenging modern development, economies, the nation-state and natures, and as such they are entangled with measures to decolonise Ecuador (Escobar, 2010; Walsh, 2010).

Through discussions and meetings, Andean Kichwa women and their representatives clarify what Pachamama is, how it links to heterogeneous politics of decolonisation, anti-consumerism, rural orientations and more-than-human politics of sumak kawsay, and how it differs from state environmental policies. For these indigenous subjects to articulate sumak kawsay constitutes a political act which materialises the world in a specific direction, as it enrols a series of practices that constitute forms of being and seeks more than the daily experiences of bare life and second-class citizenship. By placing a more-than-human agency in equal position with all (heterogeneous) humans, Pachamama dissolves the society-nature dualism, expands the polis boundaries (the public sphere and the interests represented in it), and hence citizenship (Gudynas, 2011, p. 445). Pachamama signals a relationship not of human domination over nature, but one of understanding the mutual relations of care and nurturing, as well as the intrinsic power of more-than-human agents to act on the human world.

As human relations with Pachamama represent a bundle of practices and knowledges about human relations with the more-than-human, Kichwa rural women feel uniquely privileged to comment upon socio-economic priorities and templates for action that arise in relation to sumak kawsay. If neoliberal multiculturalism offered conditional recognition of difference, Kichwa women are aware that, for the first time in their lives, government policy and public debate are being discussed in terms they consider to be their own (Radcliffe, 2015). Yet diverse village Kichwa women noted how the new constitution talks of buen vivir yet does not, for them, equal sumak kawsay which, they argue, is a dynamic of mutual care for a more-than-human earth being linked to the decolonisation of territory, state and knowledge-making.

> For us now there is no sumak kawsay; the little gifts the government gives us aren't sumak kawsay. Sarah, you've seen that we don't have water for irrigating our crops. We don't have buen vivir, we lack healthcare – we don't have medicines in the community. And the government says that health has improved for everyone. But that's not true – we don't have anything. (Interview, Delia, COMICH women's representative, Chimborazo, 2010)

18 As above, this requires situating indigenous women's epistemologies and ontologies within contested political spheres and incommensurate forms of knowledge production and decision-making.

> The real sense of buen vivir has been lost, of the coexistence of nature and people, as women, as men. (Anonymous women's representative for coastal nationalities, speaking at public policy meeting, 2010)

Sumak kawsay is thus mutually embedded in the personal-political practices that underpin Andean notions of reciprocity, relationality, correspondence and complementarity with other humans and more-than-humans including Pachamama (Acosta and Martinez, 2011). Politicising their daily lives, women from Kichwa and other nationalities posit that Pachamama and sumak kawsay do not correspond to existing Ecuadorian analytical and planning boundaries which separate political economy and culture, national project and everyday livelihood. Instead, they articulate a set of priorities for life by recalibrating and in large part deliberately blurring the boundaries between politics and nature, between humans and climate security, and dignity.

Well before buen vivir principles were incorporated into the constitution and national plans, multiple indigenous women defined and defended these care relations, especially in agriculture, by encouraging seed and crop diversity, local production-exchange circuits and biospheres:

> For indigenous people, [a life force] is present in the animals, food, the fields, in the sown ground, in the land. We first have to say thanks to the Pachamama, ask her authorisation to start harvesting. So it's to do with all *seres* [all beings, human and more-than-human]. So sumak kawsay is not just about eating well; it's about living all this presence with the *seres* which give life to all existence. (Middle-aged Kichwa woman working as midwife, speaking at focus group, Chimborazo, 2009)

In turn, these practices feed into national and international activism with calls for communities, waters, air, forests and oceans to be declared food sovereignty areas, free of extraction, deforestation and industrial food production. According to some Kichwa, women have a gender-specific connection to socio-natures. Yet village women and elected representatives do not privilege or dehistoricise female connections to the more-than-human.[19] Women's accounts of sumak kawsay highlight the need to understand indigeneity as inherently intersectional, heterogeneous and dynamic: 'It's the women who defend the territory the most in demonstrations and uprisings. They bring the idea that the land is not marketable, that it cannot be reduced to a commodity – that's their idea' (Maria, Andean Kichwa development professional, Quito 2009). This view is echoed by rural Kichwa women who discuss the environment/more-than-human as relations of mutual care and nurturing in which Pachamama's

19 Femininity is privileged in other indigenous statements about environment, e.g. an international indigenous women's meeting stated 'As we women are part of nature and the universe, we are called to care and defend nature because our millennial history and culture follows from nature' (Mandato 1 Cumbre, 2009; compare female indigenous leader Nina Pacari, 2009, pp. 33–4).

power and authority rely upon women's actions, just as earth-beings animate women's concerns and priorities.

In conversations around more-than-human agency, rural Andean Kichwa women without leadership roles expressed sumak kawsay's epistemological and ontological consequences, based upon practices that guarantee relations of mutual constitution and care between human and more-than-human actors. Their female leaders in turn invest Pachamama with meanings that exceed its appearance in the constitution, reflecting a long history of indigenous intellectual activity in conjunction with a series of organisational efforts to articulate critical knowledges:

> We women were thinking about [sumak kawsay] before Conaie and before Ecuarunari and the NGOs … Women have been thinking about sumak kawsay for a very long time. We've talked about the protection of Pachamama, care of the environment, and how we produce organic food. Also for sumak kawsay we have been working a lot on identity, valuing our own kinds of food, the community ways of life, organisation. (Focus group of rural and urban Kichwa women, Chimborazo, 2009)

Numerous indigenous women leaders – and grassroots constituencies – express non-mainstream epistemologies to intervene in current debates on environment and development. In Ecuador, these non-essentialised perspectives owe their depth to years of activism, informal education and lively epistemologies, not 'dead tradition' (Chakrabarty, in Sundberg, 2014, p. 38). Indigenous women mobilise their connections to more-than-human agents to make specific interventions in environmental policy debates (de la Cadena, 2010), in demands for food sovereignty, organic agriculture, access to drinking and irrigation water, and protection of heath lands.

Indigenous formulations of sumak kawsay disrupt 'the separation between "nature" and "humanity" on which [western/global] political theory was historically founded' (de La Cadena, 2010, p. 342). As in Bolivia, the Ecuadorian indigenous movement has recruited the Pachamama into contemporary anti-colonial struggles and linked environmental debates and policies to a politics of decolonisation (Ari, 2014). Pachamama and sumak kawsay become integral to agendas of the plurinational intercultural nation-state in which diverse nationalities could pursue their own 'living in harmony' agendas. Expressed in terms of overturning colonial codes (racism, inequality, nature exploitation), Andean decolonisation profoundly rethinks the categories, relations and values that inform decision-making, participation and public policy (Codenpe, 2011; Aparicio and Blaser, 2008). In this political ontology, indigenous intellectuals envision new socio-spatial relations reflecting Ecuador's multiverse of humans and more-than-humans (Blaser, 2014). These dynamics are illustrated in the indigenous women's activism on climate change that took place in Lima in July 2014. Here female representatives from diverse ethno-cultural groups,

organisations, religions and generations called for effective participation in climate change decision-making in national and international policy; women's collective rights to land and forests; and the integration of women's vision and natural resource management into policy (Indigenous Women Combat Climate Change, 2014).

Women do not simply echo ethnic male leadership's decolonisation agendas (Colectivo Miradas Críticas, 2014, pp. 51–3; Radcliffe, 2015), but rather argue for deessentialised understandings of Pachamama and sumak kawsay in order to build on women's creative and unfixed roles in human wellbeing and environmental sustainability. Hence they struggle to ensure diversity is recognised within diversity and that indigeneity is not reduced to a masculinist interpretation. Ana Maria, professional agronomist and recently-elected local councillor, expresses this:

> We think of sumak kawsay in terms of food, the environment, in water, in the protection of lands and slopes. So it's something integrated. We're talking about how we all must live well, well-fed, well-educated, with our own rights, right to life, good environment, right to a good state education. And that we're all accepted – men, women, boys and girls without discrimination on the basis of colour, ethnicity, clothing, and language – nothing! (Interview, Chimborazo, 2009)

Hence female leaders intervene in public policy debates knowing that references to Pachamama and decolonial politics will be understood, at least as buen vivir, even if interlocutors are not fully conversant with sumak kawsay's non-western ontologies. At the II Continental Summit of Indigenous Women of Abya Yala, held in Cauca, Colombia in November 2013, more than 4,000 delegates gathered from Ecuador, Peru, Bolivia, Guatemala, Mexico, Venezuela, Panama, Colombia and Chile to debate priorities. They discussed development and resistance strategies to protect human and indigenous women's collective and gender rights, and challenge racism and inequalities, and concluded that resource extraction, water and forest exploitation, and megaprojects continue to produce impoverishment, displacement, and the loss of knowledges and sovereignty. In turn they called for ethnic movements and nation-states to ensure women's consistent, dignified, full and authorised participation in decision-making, political office and design of public policies (Declaration Piendamó, 2013). These agendas position sumak kawsay as a politics embedded in neither anti-globalisation agendas nor localist cultures, but a hybrid standpoint politics occupying multiple spaces and scales.

Conclusion

The shifting meanings of indigeneity present today in Ecuador – and Latin America – do specific and impactful 'work' in debates around environments

and socio-natures. Deliberately confronting mainstream interpretations of indigeneity and environment, this chapter draws on indigenous women's words and postcolonial feminist theorisations to recast and reimagine the links between indigeneity and environment. Indigenous women's emphasis on diversity within diversity, on indigeneity's constantly shifting meanings and practices, provide invaluable insights into the loaded term of 'indigenous', especially in the context of debates over environments and policy. Hence, the chapter reroutes indigeneity not through modernist expectations about conservation-friendly practices, or the synergy of indigenous knowledge with environmental protection goals. Instead, it argues that indigeneity – as it is entangled with politicised epistemologies-ontologies of the more-than-human – makes a difference to environmental debates and policies in Ecuador. This critical indigeneity challenges widespread assumptions about the shared interests of socio-natures and indigenous subjects by highlighting the latter's marked postcolonial status, and querying how policymakers decide about nature as if it were incapable of demands and politics. By systematically producing Other ways of thinking about socio-natures, and by reconfiguring the ways in which indigeneity is linked to environment in dominant thinking, indigenous politics – in complex interactions with other civil and political actors – decentres human agency. It also queries policy's tendency to privilege disembodied and merely human knowledges. Environments and places, according to this approach, are produced through dynamic multiscalar networks which enrol more-than-human actors (de la Cadena, 2010; Latta, 2013, p. 570; Gibson-Graham and Roelvink, 2009; Head and Gibson, 2012).

Where does this take us? First, more attention needs to be paid to how knowledge production on 'the environment' tends to either ignore or essentialise indigenous peoples (compare Mignolo, 2000; Blaser, 2014). As others have pointed out, professional and academic knowledge production claims authority and awareness in part through excluding indigenous people as active and informed knowledge producers (Briones, 2011; Blaser, 2010; Jackson, 2014). Viewing such production and deployment in environmental policy debates as an inherently political process in which there are no innocent, universal or a-historical positions should animate contemporary debates around the politics of global climate change. Andean indigenous knowledge production represents an empirical and theoretical challenge to climate change's depoliticisation which has been demonstrated by Swyngedouw (2011), Wainwright and Mann's bleak climate change-driven scenarios (2013), and Chakrabarty's point about western modernists' difficulty in thinking about 'humans ... acting like a geophysical force' (2012). Andean indigenous women's perspectives suggest that instead of 'liken[ing] humans to some nonhuman nonliving agency' (Chakrabarty, 2012, p. 11), as if it were a static and passive substrate (Jackson, 2014, p. 77), Andean

earth-being agents contribute to diversely-positioned situated knowledge about the mutual imbrications of humans with geologically-scaled processes. The issues highlighted in the latest Intergovernmental Panel on Climate Change report require multiscalar and multifaceted as well as urgent action, on which indigenous epistemologies could perhaps offer unique perspectives.

Second, the Ecuadorian case suggests post-humanist approaches themselves can usefully engage with decolonisation perspectives and decolonising methodologies, especially where these draw on indigenous epistemologies (Walsh et al., 2002; Smith, 2012; Sundberg, 2014, p. 38). The more-than-human or post-humanist approach questions dominant western ontologies by reexamining humanity's engagement with the agency, politics and assemblages of nature/non-human forces and actors. Examining indigeneity shines a light on how to retheorise the society-nature divide, and this chapter suggests that differently situated subjects and their knowledges have to be granted full ontological recognition within post-humanism (Blaser, 2014; Sundberg, 2014). As already established in relation to the Andes, 'the expansion of the political spectrum [to include more-than-human agents] may destabilize governmental categories, those population-making tools that regulate life and death in a non-state' (de la Cadena, 2006, p. 345). In contemporary Ecuadorian environmental policies and debates, Andean indigenous border thinking brings insights into the political realm, putting more-than-human agency to lever change in struggles over the regulation and protection of 'nature'. Indigenous women and ethnic rights organisations' inclusion of Pachamama's more-than-human agency arises in the context of a decolonising political agenda that has powerful contributions to make to environmental debates and policies.

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