Sustainable Development in Times of Climate Change

A Haitian student takes part in a massive tree-planting campaign to reforest areas depleted for charcoal production and farm land.

Transforming our world toward sustainability requires understanding environmental degradation and climate change as social and political issues. Adopting an eco-social lens in policy design and implementation can facilitate not only green but also fair approaches that will be required to achieve the SDGs. It would help minimize the risk of injustice associated with green economy policies, and redress the distributional impacts of environmental and climate change policies in favour of vulnerable groups. An eco-social policy mix brings together participatory governance and decision making, progressive social policies and environmental regulation with local initiatives and innovations to promote equitable and sustainable outcomes.

Chapter 5 addresses implementation of SDGs

1. Introduction

Climate change is one of the greatest challenges facing development as we know it. Decades of progress risk being reversed, and existing efforts to eradicate poverty nullified, if countries cannot work together effectively to limit global warming and manage the consequences of climate change. Climate change challenges the very foundations of a global economic system that is based on carbon-fuelled growth, a system that is incompatible with environmental sustainability. It forces us to recognize the reciprocal interlinkages and feedbacks of complex social-ecological-economic systems which require innovative new thinking, science, policy and practice for sustainability.

While attention to both climate change and unsustainable development has risen in recent decades, the focus has been primarily on environmental and economic dimensions and technological fixes. This approach has not worked. As this chapter shows, climate change is fundamentally a social and political issue. Social dimensions, including the politics of transformative change, are crucial for understanding both the drivers of climate change and its impacts, as well as necessary responses to address the problem in an equitable way.

## Climate change is a social and a political issue

Climate change–related risks increase as a function of both the increasing number and intensity of environmental hazards and levels of socioeconomic vulnerability and exposure. Rapid urbanization processes, for example, lead to growing numbers of settlements in highly flood- and storm-exposed coastal zones and low-lying areas. A large number of these fast-growing settlements comprise precarious infrastructure and are often inhabited by people in vulnerable situations. The risks and social costs associated with environmental and climate change are very unevenly distributed and closely linked to structural inequalities which leave disadvantaged people and communities more exposed and vulnerable to climate impacts.[1] Women and children are often disproportionately affected. However, the responsibility for climate change is often attributed

to those countries that are less affected or better prepared to cope with negative impacts, but have emitted the main share of carbon dioxide (CO_2) in the course of industrialization (figure 5.1).

Economic development and climate change are linked to the extent that per capita CO_2 emissions increase with GDP per capita (that is, rich countries emit more).[2] Climate change is thus fraught with a double injustice that leaves those least responsible for global warming incurring the highest social cost.[3] A similar situation applies to rich and poor countries or regions. Differences in disaster risk reduction capacities become evident when comparing the percentage distribution of weather-related loss events with the percentage distribution of their impacts. Asia, for example, experienced 30 percent of the events but suffered 69 percent of fatalities. In contrast, North America, with 25 percent of events, experienced 7 percent of fatalities.[4] Similarly, the solutions employed to address climate change, whether technology-based or not, have differing impacts for different groups of people.

This chapter calls for an eco-social turn in development thinking and policy responses. Social issues cannot be disassociated from their ecological context and environmental repercussions. The chapter thus explores the role and scope of eco-social policies in addressing climate change and other forms of large-scale environmental degradation in conjunction with social justice issues, drawing on different country and city examples from the Global North and the Global South. It assesses developments in international sustainability and climate change–related policies based on green economy examples. Looking at innovative measures that combine environmental and social objectives, it analyses the potential of eco-social approaches for promoting innovation and transformative change.

Comparing levels of human development (as measured by the Human Development Index/HDI on the basis of life expectancy, schooling and gross national income per capita) with per capita CO_2 emissions demonstrates the overall link between development and CO_2 emissions (figure 5.2). For sustainable development, this means that most industrialized countries need to drastically lower their emissions whereas most developing and other low-emitting countries need to accelerate development in a low-carbon way.[5] It also reveals that some countries have achieved high human

Figure 5.1. **Cumulative CO$_2$ emissions 1850–2012**, excluding land use change and forestry
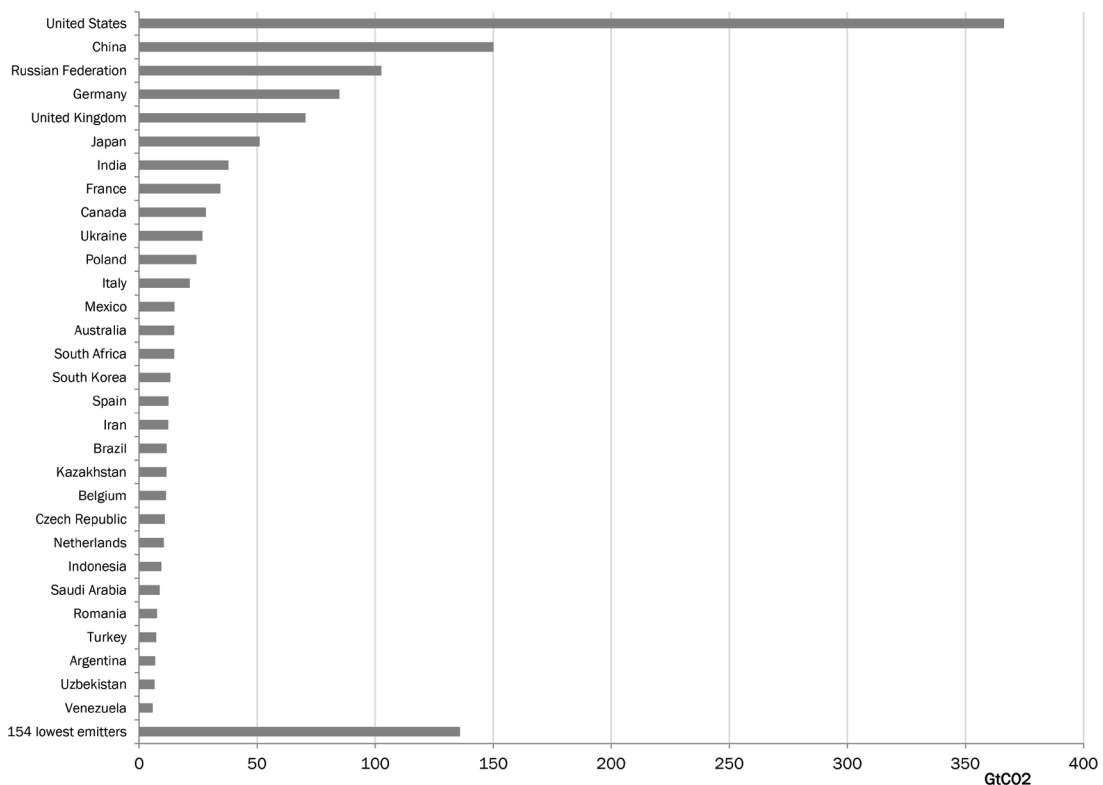
Data source: World Resources Institute 2015.

development with relatively low per capita emissions (for example, Costa Rica). When carbon emissions are factored into the measurement of development levels, country ranking can change significantly. Indeed, compared to the HDI, several developing countries, such as Brazil, Colombia and Ecuador, advance considerably (by 16 or more places) up the "human sustainable development index" when carbon emissions are factored in.[6] Some richer countries, notably the United States and Canada, fall significantly.

Evidence discussed in this chapter supports the argument that an explicit eco-social turn can foster climate change resilience by simultaneously supporting environmentally sound and socially just

Climate change challenges the very foundations of the global economic system that is based on carbon-fuelled growth, revealing a system that is incompatible with environmental sustainability

activities. The success of the eco-social turn depends on whether a social and political perspective can be adopted in policy responses to environmental degradation and climate change.

Key findings from this chapter include the following.
- Climate change needs to be framed as a social and political issue.
- Policies that engage beneficiaries actively in planning and implementation yield better results.
- Using an eco-social lens in policy integration can overcome tensions between different goals and actors and promote equality, redistribution and empowerment as well as environmental protection.
- The transition to sustainability will depend to a large extent on getting energy provision right.
- Transformative change will require inclusive institutions and an enabling environment for social innovation.

Section 2 looks at why, despite all the policy attention to sustainable development since the 1992 Earth Summit, relatively little progress has been made. It

Figure 5.2. CO$_2$ emissions per capita by HDI Score
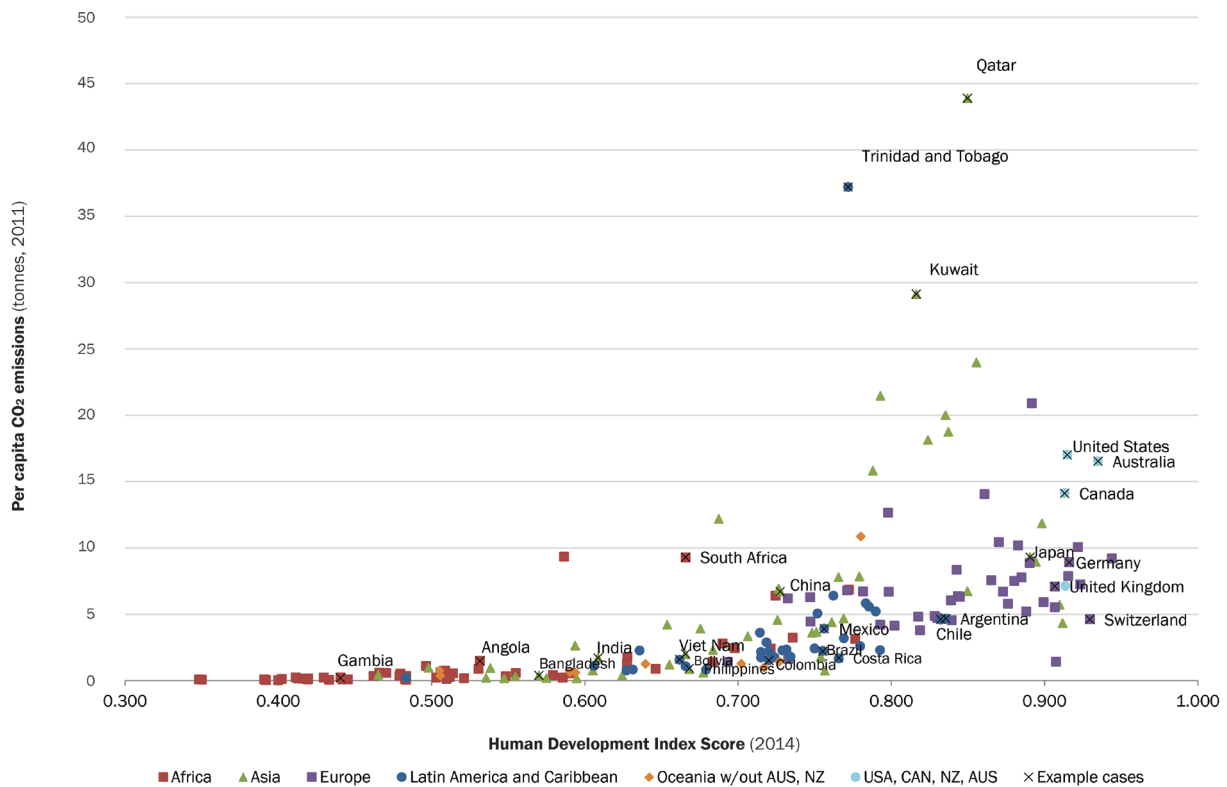
Data source: UNDP 2015, country classification according to http://unstats.un.org/unsd/methods/m49/m49regin.htm, accessed 27 June 2016.

The success of the eco-social turn depends on whether a social and political perspective can be adopted in responses to environmental degradation and climate change

goes on to highlight various innovative elements of the 2030 Agenda for Sustainable Development and the concept of resilience that has recently gained traction. Section 3 analyses the social dimensions of green economy approaches and highlights the need to adopt an eco-social lens in order to ensure that economies are not only green but also equitable and inclusive. Section 4 examines the role of innovative eco-social policies in promoting transformative change and climate change resilience. In conclusion, section 5 identifies the kinds of eco-social policies that can support the transformation to sustainability.

2. The Sustainability Turn

Increasing environmental pressures, combined with advocacy work by environmental and social movements and activists, have led to a stronger policy focus on environmental and climate-related issues. The interconnectedness of environmental sustainability and human well-being has been increasingly recognized since the term sustainable development was popularly defined in the 1987 Brundtland Report[7] and taken up at the 1992 Earth Summit. Subsequently, however, the focus on sustainable development meant a significant turn away from the more progressive approaches associated with "eco-development" that were promoted throughout the 1970s toward a much vaguer concept that entailed a rebalancing of environmental, social and economic goals and respecting the interests of future generations.

Indeed, sustainable development gained traction and international momentum in the 1980s and 1990s because it was often interpreted as compatible with market liberalism,[8] the dominant paradigm during that period, that circumscribed the role of the state and allowed market forces to develop with minimal external interference. As a result, environmental concerns were taken up by policy makers as well as the private sector. The extensive uptake and institutionalization of sustainability further moulded the concept, limiting the social dimension and fitting it into the neoliberal frame. It did not challenge the predominant economic paradigm that prioritized narrow interpretations of efficiency and growth, as well as returns to investors, over equity and environmental concerns.[9] For example, instead of creating stricter regulatory mechanisms and international policies, Agenda 21 and the three Rio Conventions[10] focused primarily on voluntary initiatives and market-based approaches, which were relatively well received by private and public actors but contested by many environmental and social activists and civil society organizations.[11] Many of these approaches have since been subsumed under "payments for ecosystem services" (PES) which are schemes that provide compensation to people who ensure the provision and/or maintenance of ecosystem services, for example, through reforestation (box 5.1).

Following the 2008 global financial crisis and in the run-up to the 2012 Rio+20 Conference, the United Nations Environment Programme (UNEP) promoted "green economy" as a concept that would result in "improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities" by means of reducing an economy's carbon intensity and investing in environmental protection.[12] This approach recognizes the twin challenge of achieving high human development while staying within the earth's limits and argues that "achieving sustainability rests almost entirely on getting the economy right".[13] Since then, it has become the predominant international approach to "clean" development and has helped to reduce fears that climate change mitigation would produce adverse economic effects. Rio+20 was also the starting point for the process of designing a set

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Box 5.1. Economic incentives and market-based approaches in environmental protection

Payments for ecosystem services schemes are often criticized for creating new "green" markets that turn natural resources into business assets and commodify nature.[a] Such commodification refers to fundamental value transformations associated with assigning economic values and property rights to nature or public goods.[b] Many PES schemes, however, can be seen as economic instruments rather than market-based ones. It is possible to differentiate several degrees of commodification to distinguish between economic incentives for environmental protection (such as government-financed, subsidy-like PES) and market-based PES.[c] PES schemes with lower degrees of commodification often resemble regulatory policy interventions, for example, in the case of ecological compensation for developments in European Natura 2000 sites[d] or the Western Cape Biodiversity Offset programme in South Africa.[e] Market-based PES schemes comprise non-mandatory offsetting schemes and innovative financial instruments such as forest or other green bonds. Outcomes of PES schemes depend on the degree of commodification they imply as well as on the institutional and political framework in which they are implemented. True market-based approaches rest on the creation of exclusive property titles that can be used in trading, for example. They shift the responsibility for sustainable development away from states toward the private sector without significant regulatory intervention. Economic incentives, on the other hand, can be used to promote and reward environmental stewardship and behaviour that support the fulfilment of environmental regulation.

Market-based PES schemes are often associated with "green grabbing", which is a new form of appropriation of nature implying the transfer of ownership and control over land and resources for environmental ends.[f] This is often linked with injustice as it can shift resource use rights or ownership from poor people to the more powerful. Market-based approaches ignore issues of social justice and usually do not integrate environmental, social and economic goals in a balanced way. Instead they tend to perpetuate patterns of inequality and speak to a consumer culture that is part of the problem rather than the solution.[g] But, more striking even than their neglect of social dimensions is their limited success in terms of environmental outcomes: the absolute decoupling of environmental impacts and economic activities has only worked in cases of local, visible environmental effects such as river water quality.

Notes: [a] Fairhead et al. 2012. [b] See Fairhead et al. 2012. [c] Hahn et al. 2015; Muradian et al. 2013. [d] Natura 2000 is a network of protected areas in the European Union. The network comprises core breeding sites for rare species and includes strictly protected nature reserves, but most of the land remains privately owned (http://ec.europa.eu/environment/nature/natura2000/index_en.htm, accessed 24 June 2016). [e] Fletcher and Breitling 2012; Hahn et al. 2015. [f] Fairhead et al. 2012:238. [g] Jackson 2009:76.

of sustainable development goals to succeed the Millennium Development Goals (MDGs).

Yet despite these efforts, environmental degradation and greenhouse gas emissions have kept increasing. A shocking finding of the United Nations assessment of the MDGs was the fact that carbon emissions, instead of stabilizing or declining as proposed by the Kyoto Protocol, actually increased over 50 percent between 1990 and 2012.[14]

Furthermore, biodiversity has declined at a rapid pace, and species extinction rates have accelerated. In fact, some research contends that we are facing a mass extinction episode unparalleled since the disappearance of dinosaurs 65 million years ago.[15] The rapid warming, acidification and reduction of oxygen content of oceans associated with carbon perturbation will have huge impacts on marine ecosystems and could further contribute to mass extinction.[16] The majority of soils around the world are in fair, poor or very poor condition and are further degrading.[17] This impacts not only food production but also the climate as soils store more carbon than resides in the atmosphere and all plant life combined. Forest cover loss continues but slowed from an average of 7.27 million hectares per year in the period 1990–2000 to an annual average of 3.31 million hectares in the period of 2010–2015.[18]

But a series of global agreements are attempting to reverse these trends: namely the 2030 Agenda for Sustainable Development, the Paris Agreement on climate change, the Addis Ababa Action Agenda on Financing for Development and the Sendai Framework for Disaster Risk Reduction. Together, they are setting the scene for a shift toward more sustainable and climate-resilient development by reiterating the need for integrative and coherent solutions that can balance social, economic and environmental goals. The 2030 Agenda calls for nothing less than "transforming our world" and seeks to address the most pressing global challenges to sustainable development.

Some research contends that we are facing a mass extinction episode unparalleled since the disappearance of dinosaurs 65 million years ago

The 2030 Agenda is more inclusive and integrative than previous development agendas

As highlighted in other chapters of this report, the 2030 Agenda differs significantly from its predecessors in terms of both content and process: the 17 SDGs emerged from a multiyear participatory negotiation process and are much broader in scope than the MDGs (chapter 1). Whereas the MDGs focused primarily on the social agenda, the SDGs are more complex and holistic, addressing the interconnectedness of social, environmental and economic elements. There are now stand-alone goals on inequalities, cities and human settlements, energy, climate change, sustainable consumption and production, and the protection of marine and terrestrial ecosystems. This broad agenda reflects human rights principles and standards and recognizes the interlinkages between different areas of development and the importance of environmental and climate protection for poverty reduction and human well-being. Nevertheless, the agenda is fraught with tensions both between different goals and between its normative aspirations and the suggested means of implementation that largely rely on trade, private finance and public-private partnerships (chapter 7). These tensions have to be addressed and minimized in the implementation process, and will inevitably entail negotiation of priorities and compromise among different actors, sectors and dimensions of sustainable development.

The Paris Agreement[19] faces similar challenges as there remains a significant gap between the emission reduction pledges that countries have communicated to the United Nations Framework Convention on Climate Change (UNFCCC)[20] and the emission reductions required at global level in order to avoid major ecosystem losses and catastrophic social and economic impacts.[21] On the current development path, it is unlikely that either the 1.5°C or the 2°C goal will be met, although it is still feasible (box 5.2).[22] There are, however, a number of positive developments: the Paris Agreement enters into force early, on 4 November 2016; global CO_2 emissions seem to have stalled for the first time in 2015;[23] and, as discussed in this report, numerous innovations and initiatives are being adopted around the world that bode well for transformative change and sustainability. In rural areas, solar power can be

used for domestic energy access or to power drip irrigation systems that save up to 80 percent water, for example. Farmland used for organic agriculture has expanded rapidly, from 11 million hectares in 1999 to 43.7 million hectares in 2014.[24] In cities, policies for more sustainable transport include those that:

- prioritize walking and cycling and expanding public transport systems;

- promote green roofs and vertical gardens to improve air quality, reduce the urban heat island effect and mitigate runoff from heavy precipitation; and

- integrate projects aiming to re-localize food and energy production while reducing waste and emissions, for example, through urban agriculture and waste-to-energy approaches that can be found in many Asian cities, including Cebu, Dhaka and New Delhi.

Achieving the SDGs based on the principles set out in the 2030 Agenda will depend on the ways the agenda is interpreted and implemented. Indeed, very different interpretations are possible. An eco-social approach to sustainability, for example, would look at economic activities as a means to reach equity and environmental sustainability. In contrast, the dominant market-liberal rationality sees human and natural resources as production factors to achieve economic growth as the main pathway toward welfare. As noted above, such an approach has been associated with adverse social and environmental impacts.[25] Does the 2030 Agenda hold the potential for a profound transformation toward a more progressive and rights-based eco-social approach that would shift the normative hierarchy for decision making, as discussed in chapter 7? This would require a significant shift in perspective: from seeing social and environmental issues as the consequences of economic policy choices, to conditioning economic choices on sustainable and just social and ecological outcomes (figure 5.3).[26]

An eco-social approach to sustainability would look at economic activities as a means to reach equity and environmental sustainability

Box 5.2. **Decision making and new alliances for climate change resilience**

In the context of global climate change, resilience means preventing the earth's climate from crossing a threshold into a different and less desirable state from the perspective of human development and the natural environment. Scientists and policy makers have placed such a threshold at a 2°C temperature increase above pre-industrial levels. Beyond this point, impacts would be intolerable and severely affect development outcomes.

There has been significant debate and criticism with regard to the 2°C goal, however, as the focus on annual global mean temperatures neglects regional variations of climate change effects and impacts. Many lower and middle income countries object to the 2°C goal, especially low-lying small island states that stress the significant risks and impacts they already face at lower levels of global warming. Critical scholars further emphasize that global power asymmetries have influenced and are mirrored in the debate on "safe" levels of global warming, with richer countries in temperate latitudes willing to accept the 2°C goal and poorer countries that face more severe impacts arguing for more ambitious climate action.[a]

In 2015, a small group of "progressives" (Angola, Chile, Colombia, Gambia, Germany, Grenada, Marshall Islands, Mexico, Peru, Santa Lucia, Switzerland and the United Kingdom) formed an alliance several months before the 21st Conference of the Parties to the UNFCCC in order to work toward an ambitious climate agreement. Over a series of informal meetings, the group grew to more than 100 states: 79 African, Caribbean and Pacific countries and the European Union (EU). The group eventually persuaded Brazil and the United States to come on board. This was an important game changer for the international climate negotiations as it brought hitherto reluctant states to the table. The group further bridged the previous divide between developing and developed countries and pushed not only for an ambitious climate goal but also for fair climate finance mechanisms to support low-income countries. The Paris Agreement now aims to keep global average temperature "well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change".[b]

Notes: [a] Tschakert 2015; see also Seager 2009 for a feminist appraisal of the 2°C goal and Liverman 2009 for a discussion of spatial inequalities of dangerous climate change. [b] Article 2a of the Paris Agreement (UNFCCC 2015).

Resilience presents an opportunity to improve sustainable development outcomes

Climate change alters the development context, especially in low-income countries, as its impacts threaten past development gains and often render traditional coping mechanisms ineffective as climatic variability increases. More frequent and acute droughts and floods, for example, can severely affect the capacities of farmers to cope with the loss of crops and livestock. Traditional coping strategies centred on the sale of assets or community support to recover from losses may be insufficient to cope with more frequently recurring or larger hazards that affect entire regions. To help deal with this, recent international debates have focused on the need for building resilience to the various impacts of environmental degradation and climate change (box 5.3).

People and communities will have to adapt to protect lives and livelihoods from the emerging, unavoidable impacts of climate change. Societies more generally will have to undergo transformations to overcome patterns and processes of stratification (related, for example, to class, gender, ethnicity, religion and location) that perpetuate vulnerabilities

and structural inequalities. People and enterprises will also have to improve ecological resilience by, for example, reducing greenhouse gas emissions and overcoming unsustainable practices of production and consumption that push ecosystems toward catastrophic shifts and intolerable environmental and climate change impacts.[27]

Both adaptability and transformability are needed for social-ecological resilience and sustainability

The 2030 Agenda addresses resilience in six of the SDGs: poverty (target 1.5), hunger (target 2.4), industry, innovation and infrastructure (goal 9 and target 9.1), sustainable cities and communities (goal 11), climate action (target 13.1) and life below water (target 14.2). It has mainstreamed climate change across a number of areas to promote climate-resilient sustainable development. Adopting a resilience approach has important policy and governance implications as it requires not only the coherence and coordination of policy design and implementation across different (social and ecological/environmental) domains and scales, but also the recognition of decision making under conditions of uncertainty and the need for experimentation and innovation in building resilience.

The concept of resilience presents an opportunity for reinserting more progressive and ambitious elements into mainstream sustainability approaches and debates. Resilience promotes participation, learning and sustainable resource management, and stresses the role of governance and institutions in managing social-ecological systems. It could thus present a way to link the scientific understanding of social-ecological systems to the resulting normative implications for more inclusive and explicitly eco-social policies for sustainable development. In the case of greening the economy, for example, recent assessments have followed the earlier UNRISD critique[28] by recognizing shortcomings with regard to the social dimensions of sustainable development. UNEP has recently underlined the need for "inclusive green economy" that incorporates long-term resilience thinking in green economy approaches.[29]
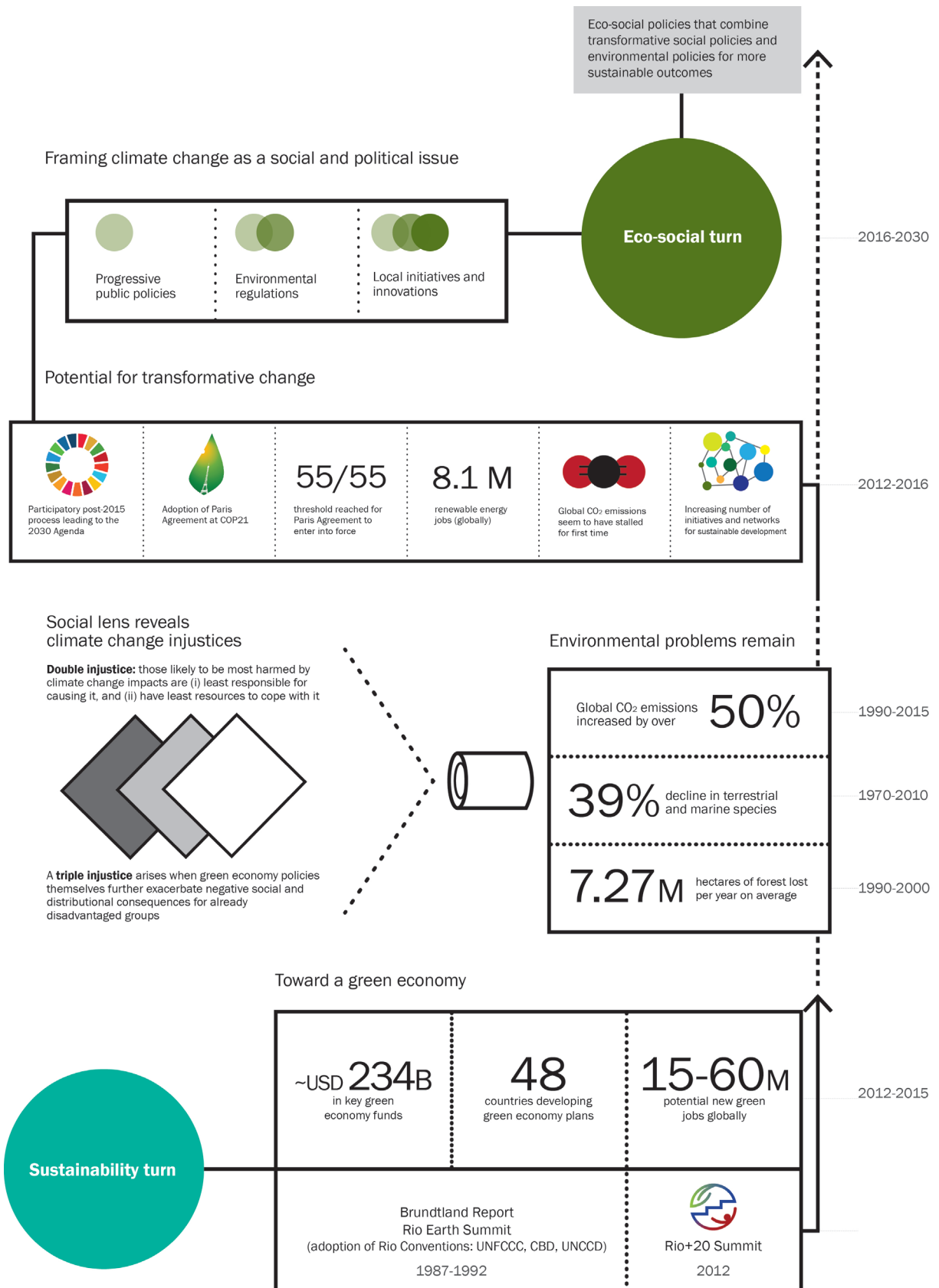

Box 5.3. Social-ecological resilience

The resilience concept is based on a social-ecological systems approach to sustainable development, which sees humans as part of nature. Social systems and ecological systems are linked, and changes in one system affect the other. Resilience describes the properties of a social-ecological system in terms of its ability to absorb or withstand perturbations without undergoing fundamental changes in its structure or functions.[a] This does not mean resilient systems are static, but that they can tolerate disturbance without collapsing into a less desirable state: for example, ecosystem services are sustained or restored to provide for human basic needs, and communities and people are able to cope with and recover from disaster impacts. As such, resilience entails notions of both maintaining the system (adaptability) and creating a new and more desirable system (transformability).[b] Both adaptability and transformability are needed for social-ecological resilience and sustainability.

Notes: [a] Berkes et al. 2003; Walker et al. 2004. [b] Walker et al. 2004

Figure 5.3. From sustainable development to a transformative eco-social turn

Eco-social policies that combine transformative social policies and environmental policies for more sustainable outcomes

Framing climate change as a social and political issue

Progressive public policies

Environmental regulations

Local initiatives and innovations

Eco-social turn

2016-2030

Potential for transformative change

Participatory post-2015 process leading to the 2030 Agenda

Adoption of Paris Agreement at COP21

55/55
threshold reached for Paris Agreement to enter into force

8.1 M
renewable energy jobs (globally)

Global CO_2 emissions seem to have stalled for first time

Increasing number of initiatives and networks for sustainable development

2012-2016

Social lens reveals climate change injustices

Double injustice: those likely to be most harmed by climate change impacts are (i) least responsible for causing it, and (ii) have least resources to cope with it

A **triple injustice** arises when green economy policies themselves further exacerbate negative social and distributional consequences for already disadvantaged groups

Environmental problems remain

Global CO_2 emissions increased by over **50%**

1990-2015

39% decline in terrestrial and marine species

1970-2010

7.27 M hectares of forest lost per year on average

1990-2000

Toward a green economy

~USD **234B**
in key green economy funds

48
countries developing green economy plans

15-60 M
potential new green jobs globally

2012-2015

Sustainability turn

Brundtland Report
Rio Earth Summit
(adoption of Rio Conventions: UNFCCC, CBD, UNCCD)

1987-1992

Rio+20 Summit

2012

Data sources: FAO 2015; ILO 2012; IRENA 2016; UN 2015a; UN DESA 2013; UNEP 2015b; WWF 2014.

The concept of resilience presents an opportunity for reinserting more progressive and ambitious elements into mainstream sustainability approaches and debates

3. Bringing "the Social" into Green Economy Approaches

By 2015, 48 countries were developing national green economy plans.[30] The green economy has also been described as an important engine of employment creation with most studies indicating net employment gains that could result in 15 to 60 million additional jobs globally.[31] In 2015, there were, for example, already 8.1 million jobs in the renewable energy sector, largely concentrated in China, the European Union, Brazil, the United States, India, Japan and Bangladesh.[32] In Germany, the transition to renewable energy is driven by citizens and communities which are benefiting from increasing revenues[33] and the creation of more jobs compared to conventional energy generation.[34] UN DESA estimated the volume of key green economy funds at approximately USD 234 billion (with an additional USD 51.6 billion in co-financing) in 2012.[35] Most of these funds are part of international climate finance mechanisms under the UNFCCC which has channelled more than USD 215 billion through the Clean Development Mechanism.[36] Despite these advances and the growing influence of green economy approaches, major challenges persist.

Inquiries into the benefits and repercussions of green economy approaches have shown that the assumption of improved human well-being and social equity does not hold per se. Using a social lens to analyse green economy initiatives shows the uneven distribution of benefits and risks.[37] The social lens approach considers knowledge and values that influence policy making as well as social structures, institutions and relations that underpin inequalities and shape behaviours. It assesses social impacts and distributional consequences of policy initiatives, the broader social and public policy framework, and the role of social actors and agency in popular participation and mobilization. This approach reveals the negative social repercussions that can arise from environmental and climate policies, reinforcing existing inequalities and injustices.

People in vulnerable situations may face a "triple injustice"

Beyond the "double injustice" of climate change noted above, there is a potential "triple injustice" which arises when green economy policies reproduce or exacerbate inequalities and negative distributional consequences for already disadvantaged groups.[38] In the Global North, for example, low-income households often do not benefit from subsidies that promote microgeneration of renewable energy due to the expensive upfront investments required, or because they do not own their homes. Nevertheless, they face rising electricity prices. In the Global South, some green economy projects have led to "land grabbing" and the displacement of people for infrastructure and biofuel projects, often involving violations of customary land rights and the rights of indigenous populations. Green technology policies often have an urban bias that neglects the rural poor.[39] Similarly, the social benefits of carbon finance have been unevenly distributed, partly due to varying levels of community organization and social mobilization, as well as local participation in the design and implementation of carbon finance schemes.[40]

Green economy approaches have often neglected the social pillar of sustainable development. Limited attention has been paid to analysing the unequal or problematic social consequences of these policies, the structural determinants of inequality and unsustainable behaviour, or the social and power relations that shape policies, processes and outcomes.[41]

As the following examples indicate, numerous types of negative distributional consequences are apparent.
- The allocation of private property rights to resources hitherto under common property or state-owned, as in payment for ecosystem services schemes, has reinforced unequal power relations.[42]
- Women's participation in emerging green

A triple injustice arises when green economy policies exacerbate negative social and distributional consequences for already disadvantaged groups

economy sectors is often low because their access is limited by male bias in job markets and governance institutions.[43]

- Strict conservation of carbon sinks (such as forests) has constrained the livelihood opportunities of indigenous peoples and excluded traditional owners from participation in natural resources management, for example, in Australia.[44]
- Efforts to promote sustainable development can be at odds with the social, environmental and cultural effects of infrastructural development for hydropower development, as cases in India have shown.[45]

Unequal access to land is a key source of injustice

Conflicts between customary and legal land rights have led to struggles over land ownership in green economy projects. People without legally protected land titles have been displaced for biofuel production or hydropower generation.[46] Lack of access to land and insecure land tenure are critical factors underpinning persistent rural poverty, especially for women in many developing country contexts.[47] In India, the government has promoted biofuel production (for clean fuel) and addressed social impacts by focusing on by-products of crops and cultivating non-food crops on marginal lands only, in order not to undermine food security. However, it neglected the fact that marginal lands were often used by rural populations, for example, in shifting cultivation, for fuelwood or medicinal plants. The use of marginal lands for biofuel production was thus perceived as massive land grabbing and hindered access to fuel for the rural poor.[48]

Land struggles can also be related to the displacement of people for green infrastructure projects, such as hydropower dams. In the Indian state of Sikkim, communities in the vicinity of hydropower projects have experienced displacement, loss of livelihood, social conflict and rapidly depleting natural resources resulting from the drying-up of water bodies. Displaced people were often inadequately compensated for relocation, and there were disputes over land ownership, particularly in cases that violated cultural rights of Sikkim's indigenous population. Key environmental impacts were related to changes in hydrology and sediment load that affected downstream areas.[49] These social and environmental impacts can be at odds with other development policies. In the case of Sikkim, the promotion of hydropower dams stands in contrast to the state's "Green Mission" that aims to preserve and promote environmental health and biodiversity. Trade-offs between the goal of promoting renewable energy production (SDG 7) and other environmental (SDG 15) and social aspects (such as access to land, SDGs 1 and 2) therefore need to be carefully assessed and negotiated in the design and implementation of development projects (chapter 7).

Conflicts between customary and legal land rights have led to struggles over land ownership in green economy projects

Linking green economy policies to pro-poor policies for more inclusive outcomes

Linking green economy policies to pro-poor policies can bring about more inclusive outcomes. A biofuel incubator project in Limpopo province, South Africa, supported subsistence farmers and unemployed people by facilitating access to land and growing soybeans and sunflowers for biofuel production. The project fostered rural entrepreneurship and actively involved female farmers. It improved the situation of rural men and women by bringing them into productive work. It also empowered female participants at the household level as they were able to better support their families economically.[50]

Lack of inclusion and active participation of affected populations in design and implementation are often barriers to the success of green economy projects. In a second project in Limpopo, a public-private partnership provided electricity access to the rural poor, the majority of whom were women. The project offered subsidized solar home systems in areas that were not covered by the national energy provider. However, achieving core project objectives related to gender equality and women's employment proved difficult. Many of the jobs created were related to the maintenance of the solar installations. They involved carrying heavy batteries and climbing

Careful project design and inclusive planning processes are crucial to achieve integrated goals

on rooftops. Women's participation in the project declined as a result of this type of work that was perceived as inappropriate. While there were other advantages, not least enhanced energy access which freed up time spent on fuelwood collection and other domestic work (chapter 3), the project would have benefited from more active female participation in the design phase to avoid these problems and develop alternatives. Gaps between policy objectives and effective implementation often remain a major problem. These examples illustrate that careful project design and inclusive planning processes are crucial to achieve integrated goals.[51]

Promoting green economy to achieve universal and sustainable energy access

Many green economy policies and projects deal with the provision of biofuels and renewable energy. Getting energy provision right—in terms of shifting to sustainable energy production and energy consumption—is crucial as it holds the potential to mitigate climate change by shifting from fossil fuel sources to renewables and to support social and economic development by providing universal access to sustainable energy. An estimated 1.2 billion people lack access to electricity while over 2.7 billion people rely on traditional biomass for cooking.[52] One consequence of this is that women and children, in particular, face serious health impacts from indoor air pollution.[53] Access to clean energy would improve their health and improve gender equality as it would reduce women's and girls' unpaid care and domestic work (chapter 3).[54]

Many developing countries are promoting energy policies to increase generation capacities and "ensure access to affordable, reliable, sustainable and modern energy for all" (SDG 7). In the case of India, which is expected to be one of the key driving forces of increasing global energy demand, the above case studies can inform decisions for sustainable and inclusive energy policies. India has ambitious plans to expand energy generation and increase the share of renewables by promoting solar, wind and hydropower, and through its National Policy on Biofuels. Past experience has demonstrated that the implementation of renewable energy projects can have negative environmental and social consequences and, at times, generate strong popular opposition. Adopting social and technical innovations in energy projects can be a way to achieve eco-social benefits. One social innovation, for example, consists of leasing rather than buying land from farmers for rural solar installations. This not only reduces project costs but also engages farmers as "partners in development".[55] The introduction of "solar double cropping" constitutes a simple technical innovation. This involves the installation of solar panels that are spaced out and placed at a height that permits the land underneath to be used for agricultural purposes.[56] This technique is expected to lower irrigation needs by better retaining soil moisture and to reduce heat stress in crops and livestock.

Effective green economy policies need to tackle the root causes of unsustainable development

The above examples highlight some of the challenges green economy approaches face in relation to distributional justice and coherence from the perspective of sustainable development. Despite growing recognition of the need for policy coherence and transformative change, green economy approaches often fail to achieve integration and can perpetuate inequalities by prioritizing economic and environmental over social aspects. If social policies implemented in response to adaptation pressures are to be transformative (chapter 2), they need to be part of a policy package that tackles the root causes of development models that are unsustainable with regard to environmental impacts and climate change.

Getting energy provision right is crucial as it holds the potential to mitigate climate change and to support social and economic development

UNEP's efforts to bring social inclusion into the green economy agenda have attempted to address some of the shortcomings identified above and to address the climate issue in a more integrated way.

But it remains to be seen how an inclusive green economy that is based on "sharing, circularity, collaboration, solidarity, resilience, opportunity and interdependence"[57] (chapter 4) can be realized. In a similar vein, SDG 8 (Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all)[58] introduces a social qualifier to the kind of economic growth to be achieved. It does not challenge, however, the underlying premises on which the economy is built, for instance, profit maximization, competitiveness, concentration and accumulation. Without substantive changes such as proper internalization of social and environmental costs, supported by effective regulatory and global governance, the environmental problems we are facing today will be reproduced (chapter 7).

In order to tackle the root causes of unsustainable development, green economy policies need to be part of a policy mix that addresses the social determinants of unsustainable practices. These include normative biases in development objectives, power asymmetries and inequalities. Avoiding multiple injustices and adverse impacts on poor and vulnerable groups associated with climate change and green economy approaches requires applying a social lens, implementing comprehensive social policies and creating strong public institutions. Governments play an important role in ensuring that the transition to low-carbon economies is equitable, sustainable and legitimate. The call for a just transition has evolved from being a demand related to workers' rights, largely promoted by the International Trade Union Confederation (ITUC) and the International Labour Organization (ILO), to being acknowledged in all major policy documents, including the preamble of the Paris Agreement.[59] Elements for a just transition comprise coherent public policies that provide an enabling environment for sustainable, low-carbon development as well as a just transition framework, including labour market policies for the promotion of green and decent jobs and social protection policies to mitigate the social impacts of job losses.[60] In addition to anticipating and mitigating the adverse distributional effects of climate change responses, it is also important to question whose values and ideas are in the driving seat. The persistence of neoliberal thinking and policies, for example, tends to constrain important aspects of public spending and market regulation. When not in denial about climate change, it focuses attention on relative (as opposed to absolute)

Green economy policies need to be part of a policy mix that addresses the social determinants of unsustainable practices, including normative biases in development objectives, power asymmetries and inequalities

decoupling[61] through technology innovations for increased energy efficiency.[62] There is a tendency in market-based approaches to prioritize private over public investment, as well as formal property titles over customary rights, which can lead to economic exclusion (chapter 7). These types of policy approaches are not conducive to bringing about a qualitative or transformative change toward more inclusive processes and equitable outcomes. Transformation has to go far beyond innovation and structural change based on clean technologies and rein in the power of market actors.[63]

Power asymmetries that influence policy making to the advantage of the economically powerful are a barrier to fair climate change responses and inclusive green economy policies. At the national level, strengthening democratic governance to increase representation and participation of people living in poverty and other marginalized groups in decision making is crucial to ensure that their needs are met and rights fulfilled. There could be benefits in the involvement of businesses not only in supporting implementation processes, but also in policy dialogue and the design of mechanisms to address sustainable development, as it could help persuade the private sector to consider changing the way it operates. However, there are significant risks associated with unequal bargaining power (chapter 7).

Greening the economy is difficult in contexts where countries depend economically on sectors with adverse ecological impacts. Oil exploitation and mining, for example, continue to undermine sustainable development, even in countries that have attempted to craft alternative development pathways (chapter 6). This in turn relates to tensions between domestic policy making and pressures to earn foreign exchange by selling exports in highly competitive global markets.[64] The Bolivian Framework Law on Mother Earth and Integral Development for Living Well articulates a "humans-in-ecosystems" perspective that promotes environmental stewardship and the

alleviation of social inequalities by reducing the influence of markets on "Mother Earth".[65] Bolivia has nationalized most of its natural resources and uses the revenues to fund redistributive social policies (chapter 6). At the same time, the country's reliance on mineral revenues means that it employs environmentally harmful practices. Furthermore, a law was passed in 2015 allowing oil exploration in national parks.[66] In international debates, Bolivia argues for its right to exploit fossil fuels to spur economic development and poverty reduction, and calls on early industrializers to take responsibility for reducing greenhouse gas emissions. Tensions between Living Well (Buen Vivir) and the exploitation of natural resources cannot be solved easily, as the relatively narrow economic base limits alternative development pathways that the government aims for. So-called reprimarization—renewed reliance on primary sectors—has even affected much larger economies with a more diversified economic structure, such as Argentina and Brazil.

Green economy policies need to help reduce existing inequalities. Inequalities do not only impact social and economic development, but also the environment (chapter 1). Biodiversity loss, for example, was found to increase substantially with the Gini coefficient of income inequality, which might be explained by the negative effects inequality has on collective action required for environmental protection.[67] As it is likely that there exists a vicious circle of inequality and unsustainability, "policies aimed at reducing inequality and achieving sustainability have a good chance of resulting in virtuous circles or win-win situations".[68] Designing policies that address both the social and ecological dimensions from the beginning in a way that regulates harmful economic practices will thus be a central element in the quest for sustainable development.

Designing policies that address both social and ecological dimensions from the beginning in a way that regulates harmful economic practices will be central for sustainable development

4. Promoting Transformative Change through Eco-Social Policies

The 2030 Agenda presents a renewed opportunity for a transformative eco-social turn, which is one of the key messages of this report. Based on the principles of universality and leaving no one behind, the 17 SDGs provide a normative framework for all nations that acknowledges the complexity of the challenges that lie ahead. Building on what has been learned from past applications of green economy and sustainable development approaches, the next generation of policies and strategies for sustainability and resilience needs to adopt an eco-social lens and promote equality, redistribution and empowerment as part of a changing development model.

Eco-social policies explicitly pursue both environmental and social goals to achieve sustainable development. They have the potential to overcome fragmented policy silos, for example, by integrating ecological dimensions into social policy (as discussed in chapter 2 in relation to cash transfer and public works programmes), or by integrating social components into green economy approaches. Furthermore, they provide incentives for or encourage behavioural change conducive to sustainable environmental management and resource use, as well as strengthen the resilience or adaptive capacities of individuals and communities.[69]

Costa Rica has pursued sustainable development with a strong social policy component

So far, only a few countries have pursued an eco-social approach on a national scale. Costa Rica provides a relatively successful example of eco-social development in which the state has played a fundamental role in incorporating people into markets and social systems by promoting productive (often public) employment and universal social policies.[70] In addition, Costa Rica was an early promoter of environmental sustainability and, in 1997, among the first countries to adopt a national PES scheme for forest conservation and regeneration. The majority of funds for the scheme

are generated domestically (through earmarked taxes on water and fossil fuels), but international loans and grants (notably from the Global Environment Facility and the German KfW Development Bank) enabled its establishment. Given the nature of the funding mechanism, the scheme has been described as "subsidy in disguise" rather than a market-based initiative (box 5.1).[71] The revenue from the fuel tax used to finance the scheme amounts to more than USD 11 million per year on average.[72]

> *The 2030 Agenda presents a renewed opportunity for a transformative eco-social turn*

Costa Rica managed to increase its forest cover from 17 percent in 1983 to 52 percent in 2011 and produces 90 percent of its electricity from renewable sources.[73] This shift was facilitated by changes in the international context that introduced PES schemes for environmental protection and encouraged the development of a strong ecotourism sector. With regard to climate change, Costa Rica is committed to reducing greenhouse gas emissions to 2005 levels by 2021 and achieving a carbon neutral economy by 2085.[74] In order to effectively tackle climate change, the government has put in place a comprehensive policy package addressing issues of both mitigation and adaptation and underlining the need for an integrated focus on energy and climate policy. The package relies primarily on economic instruments, but incorporates social components and promotes active citizen participation.

More recently, the state is being confronted by growing tensions that threaten the sustainability of past achievements, partly because "the principle of solidarity in the social policy regime has been eroded by growing marketization and weakened state capacities".[75] Inequality has worsened, in contrast to significant improvements in several other Latin American countries.[76] Unequal outcomes of economic development driven by high-tech industry, tourism and financial services, as well as fiscal constraints on public social spending, have led to these tensions. Rebuilding state capacities and maintaining a universal and effective social policy regime will be essential for safeguarding Costa Rica's success and to support further transformative change toward a low-carbon economy.

The increasing policy uptake of resilience could foster integrative development

The popularity of the resilience concept could allow for a more integrative and holistic approach in policy design and implementation. But as with other conceptual innovations that gain policy traction, such as the sustainable development concept itself, certain interpretations of resilience risk diluting the concept and adjusting it to business as usual, rather than catalysing much needed transformative change.

The transition to clean production systems that aim to halt greenhouse gas emissions and limit the negative impacts of climate change will require major transformations in both economic and social systems. So far, social dimensions of climate change have been more clearly linked to the concept of adaptation to climate change rather than to mitigating its effects.[77] Adaptation is considered most effective when it "offer[s] development benefits in the relatively near term, as well as reductions in vulnerability over the longer term."[78] Adaptation, for example, through the expansion of social protection and climate risk insurance schemes, is therefore intrinsically linked to social development and can contribute to social inclusion.[79]

This report argues for moving beyond current interpretations of sustainability and resilience and adopting an eco-social perspective for transformative change that pursues fair and green development, for example, through addressing distributional consequences of climate change mitigation (related to energy prices, industrial restructuring and changes in the job market), promoting participation and inclusive governance for a just transition, as well as rights-based sustainable development that protects the rights of individuals and communities in the context of market-based mechanisms and green economy policies.

> *This report argues for moving beyond current interpretations of sustainability and resilience and adopting an eco-social perspective for transformative change that pursues fair and green development*

The sustainability transformation can be initiated in progressive ways

There are many different ways to initiate the transformation toward sustainability. At the more progressive and eco-social end of the spectrum are approaches that address power relations and institutions to varying degrees. What have been referred to as embedded liberalism and alter-globalization are alternative pathways to the predominant market-liberal approach[80] (chapter 4). Embedded liberalism focuses on strengthening institutions and rebuilding states' regulatory capacity to correct social and environmental injustice from within the system, for example, via progressive taxation, comprehensive social policy and business regulation. The pitfall of this approach is that it often does not tackle head-on the need for transforming power relations and structural aspects associated, for example, with ownership and consumption patterns. Nevertheless, re-embedding markets into regulatory institutions can strengthen the pursuit of social and environmental goals.

Calls to transform power relations and structural dimensions that underpin unsustainable development are at the forefront of alter-globalization approaches. These focus not only on relative decoupling (of emissions from growth) but also on absolute decoupling; not only social protection, but also reducing inequalities and the emancipation and empowerment of disadvantaged groups. And they see conventional growth patterns at the root of unsustainable development.[81] Such approaches focus on strengthening environmental and social goals via a combination of transformative, redistributive social policies and proactive local development and collective action. They underline the importance of local agency and participation. Alter-globalization aims to fundamentally change existing production and consumption patterns and opposes neoliberal globalization for its negative social and environmental consequences.

In developed countries, some advocates promote "degrowth" or voluntary simplicity, which is to actively choose to engage in alternative economic practices and to consume and earn relatively little in ways that do not compromise well-being and happiness.[82] It involves behavioural changes to address unsustainable practices and consumer culture. Shifting toward sustainable consumption and production patterns will also require more comprehensive approaches to assessing environmental impacts over the life cycle of products or services. In the case of food systems, it has been argued, for example, that the role of meat production and consumption is not sufficiently addressed in sustainability and climate change research and policy although its significant environmental and climate impacts have been recognized.[83] Degrowth is often associated with movements toward autonomous, local food systems and alternative forms of trade (prioritizing local production) which can, however, be at odds with existing trade agreements. Fair trade, organic and locally produced food and lifestyle changes toward more sustainable living are winning ground. Many organizations that operate based on principles of cooperation, solidarity and democratic self-management have been captured under the umbrella of social and solidarity economy (SSE, chapter 4) which upends the modus operandi of the private sector by putting social goals before profitability.

Calls for such alternative forms of economic organizing are growing louder, and SSE has found its way into policy debates. In addition, concepts such as Buen Vivir in Bolivia (discussed above) enjoy increasing popularity and, despite inherent tensions, are examples of how different values and cultural identities can inform public policies.[84] Alternative concepts are often promoted by civil society groups and grounded in local, indigenous culture. Their line of thought is often closer to the emancipatory eco-social movements that pre-dated neoliberalism, promoting principles of well-being and an alternative to GDP for measuring developmental progress. The growing number of initiatives and innovative forms of combining environmental, social and economic goals marks an important step toward achieving sustainable development. It is noteworthy that the most successful examples seem to be based on the type of community engagement that adheres to the principles of social and solidarity economy, but political leadership and supportive public policies are also key (chapters 4 and 7).

Local communities are the forerunners of resilience and sustainability

Innovations conducive to resilience and transformative change for sustainability are increasingly evident at the subnational level, in cities and urban, rural and coastal communities. International networks and initiatives such as ICLEI–Local Governments for Sustainability or the Rockefeller Foundation's 100 Resilient Cities foster learning and exchange between municipalities at very different stages of development to promote resilience to a variety of environmental, social and economic challenges (chapter 7). They recognize the importance of communities and make use of shared learning to promote local resilience strategies and innovative approaches for sustainability.

Building resilience and developing sustainably in cities can be supported by a variety of initiatives that range from changing urban planning and development toward greener solutions in buildings, infrastructure, transport and energy, to community gardens and the promotion of local food systems. A multifaceted approach is often key. The *favela* (shanty town) of Vale Encantado in Rio de Janeiro, for example, has started to promote nature trails and local cuisine to attract ecotourism. Organized in a cooperative, the community is engaged in organic gardening, developing alternative energy solutions, and is working to secure land titles for its residents in order to become the first sustainable favela.[85]

Many projects include adaptation goals to build community resilience against climate-related hazards. The case of post-disaster reconstruction in two flood- and storm-affected communities in central Viet Nam shows that building more resilient housing requires a combination of local knowledge and innovations which, in turn, require greater cooperation of the local authorities, civil society and the private sector.[86]

Innovative approaches can also be found in advanced economies, for example, in the transition town movement that started in Totnes, United Kingdom, in 2006 and in April 2016 counted 1,258 initiatives registered globally.[87] Transition towns are community-based initiatives that strive for low-carbon, localized development through various projects including, for example, community currencies, locally grown food and improved energy efficiency.

Empowering communities for transformative change

What is clear from the various examples of green economy approaches and eco-social policies is that effective and multilevel governance and social institutions are central to their successful implementation. In many cases, adverse social impacts and popular opposition to green economy initiatives were linked to issues of land ownership and titles, as shown above in India. These often resulted from national policies and initiatives that were implemented in communities without adequate participation and representation of the affected population. More successful examples demonstrate the importance of local ownership and participation that enabled transformative change, for example, through the empowerment of rural women. In the case of community-based forest governance, "conservation outcomes improved substantially with women's greater involvement in green governance".[88] The successful cases also relied on strong social components which supported the acceptance of environmental protection and resulted in "co-benefit" solutions, improving both livelihoods and environmental protection.

The case studies point to a number of enabling factors countries should consider when crafting sustainable development strategies. The more successful examples are characterized by a combination of regulatory or enabling public policies and local ownership and participation. They focus on actively engaging the communities, providing space for innovation and ensuring that higher level policies and plans are adapted to local settings. The national policy framework can foster local innovation when it provides an enabling environment, for example, through the provision of social protection and regulation of market actors. Achieving the SDGs will depend on identifying the right policy mixes and governance approaches that can combine progressive public policies and environmental regulation with local initiatives and innovations in a way that promotes transformative change toward equity and sustainability. It will also depend on ensuring that the promotion of technological innovation, private sector investment and multistakeholder partnership is in line with considerations for social inclusion, participation and empowerment (chapter 7).

5. Toward Eco-Social Policies: Implications for Policy

The 2030 Agenda calls for policy coherence and transformative change in order to address the challenges of sustainable development, poverty eradication and equality. At the international level, sustainable development represents a challenge, as effective multilevel governance would require the re-negotiation of priorities between different agreements and the revision of an international architecture in which sustainable practices can, for example, be challenged by trade agreements (chapter 7). This chapter has argued that a turn to eco-social policies can support the achievement of the 2030 Agenda.

Climate change needs to be framed as a social and political issue

Transforming the world and moving it toward sustainability requires the framing of environmental and climate change as social and political issues. Despite the progress that has been made in the promotion of resilience and sustainability, particularly at the local level, mainstream debates too often neglect questions of power and the social structures and institutions that reproduce unsustainable outcomes. Climate change is closely linked to issues of social justice. Adopting an eco-social approach can promote transformative change by addressing distributional consequences of climate change policies (such as price adjustments, economic restructuring and employment changes) and by tackling the root causes of unsustainable development.

Policies that engage beneficiaries actively in planning and implementation yield better results

Participation is crucial to the success of eco-social policies. Active citizenship, social movements and collective action are central elements in catalysing transformative change that addresses power asymmetries and inequalities. Consequently, policy making needs to be built on participatory foundations and cultivate forms of governance conducive to

transitions that are both green and fair.[89] These should be grounded in a definition of the social which emphasizes the social relations, institutions and processes that are central to achieving integrated solutions for equitable improvements in human well-being and effective environmental protection and climate change response. Localism and approaches grounded in concrete realities can foster more inclusive approaches and achieve greater livelihood security by supporting income-generating activities adapted to the local context.[90]

Eco-social policy integration can overcome tensions between different goals and actors

Adopting an eco-social lens to promote integrated policy design can foster more coherent approaches to climate change resilience through the adoption of transformative social policies and environmentally sound policies and practices. Integrating social dimensions more consistently into green economy approaches can also support climate change adaptation efforts as it will lead to improved adaptive capacities and more equitable participation in the transformation process. Adopting a rights-based approach can resolve tensions between different actors and reduce social impacts, for example, through ensuring and protecting access to land. Policies need to take an eco-social rationale in order to promote equality, redistribution and empowerment, as well as environmental protection.

Transforming to sustainability will depend to a large extent on getting energy provision right

Renewable energy generation has a key role to play in inclusive sustainable development. Transitioning to renewable energy systems generates jobs, brings health benefits to households that have hitherto used traditional biomass for cooking, and contributes to gender equality. In addition to its climate change mitigation potential, it can facilitate off-grid access to energy in remote rural areas and generate multiple developmental benefits. Community ownership and participation are important to ensure appropriate design and implementation of renewable energy policies.

Achieving the SDGs will depend on identifying the right policy mixes and governance approaches that can combine progressive public policies and environmental regulation with local initiatives and innovations in a way that promotes transformative change toward equity and sustainability

Transformative change will require inclusive institutions and an enabling environment for social innovation

Enabling transformative change will require inclusive institutions and governance regimes that allow those most susceptible to the double or triple injustice sufficient voice and influence in decision-making processes that inevitably produce winners and losers. Policy makers need to promote and provide an enabling environment for social innovations—for example, behavioural changes in consumption patterns or collective action associated with SSE—that integrate protection of the environment with sustainable livelihood strategies. Social movements and participation will be crucial in urging governments and businesses to tackle tensions and trade-offs and deliver on the promise of an inclusive, fair and transformative 2030 Agenda.

Endnotes

[1] IPCC 2014a, 2012.

[2] UNEP 2009.

[3] Gough 2011.

[4] Munich Re 2015.

[5] See also ECLAC 2016; ESCAP et al. 2016; ECA 2016.

[6] Togtokh and Gaffney 2010.

[7] The report defined sustainable development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (UN 1987:54).

[8] van Griethuysen 2011.

[9] van Griethuysen 2010.

[10] Agenda 21 was a voluntary global action plan for sustainable development adopted at the Earth Summit (UN 1992). The Rio

Conventions comprise the United Nations Framework Convention on Climate Change (UNFCCC) and the Convention on Biological Diversity (CBD) that were opened for signatures at the Earth Summit as well as the United Nations Convention to Combat Desertification (UNCCD) that resulted from an Agenda 21 recommendation.

[11] The People's Earth Declaration that was put forth by participants at the alternative NGO Forum at the 1992 Rio Summit criticizes the neglect of the root causes—mostly economic—of unsustainable development. It promotes strong engagement of civil society to bring about transformative change for sustainability and protect and promote the rights of communities, and of all individuals to safeguard their environmental and social standards and to participate fully in the life and decisions of the community (International NGO Forum 1992).

[12] UNEP 2011:2.

[13] UNEP 2011:2.

[14] UN 2015a.

[15] Ceballos et al. 2015.

[16] Bijma et al. 2013.

[17] FAO and ITPS 2015.

[18] FAO 2015.

[19] The Paris Agreement was adopted by 195 parties to the UNFCCC on 12 December 2015. It was opened for signatures on 22 April 2016 and reached a record number of 175 signatures on the same day. By 5 October 2016, 74 parties had deposited their instruments of ratification, acceptance or approval of the Paris Agreement. These parties accounted for 58.82 percent of global greenhouse gas emissions, thereby reaching the threshold of at least 55 parties and 55 percent of global greenhouse gas emissions required for the Paris Agreement to enter into force early. (http://unfccc.int/paris_agreement/items/9444.php, accessed 6 October 2016).

[20] The UNFCCC invited its parties to submit Intended Nationally Determined Contributions (INDCs) detailing nationally intended emission reduction plans that will be turned into official Nationally Determined Contributions in the process of ratification, accession or approval of the Paris Agreement. As of 24 June 2016, 161 INDCs had been submitted, covering 188 out of 197 UNFCCC parties (parties are the 193 UN member states, Palestine, Niue, Cook Islands and the European Union, which submitted a single INDC on behalf of its member states). To date, only seven parties have not yet submitted an INDC: the Democratic Republic of Korea, Libya, Nicaragua, Palestine, Syria, Timor Leste and Uzbekistan. Panama, instead of an INDC, submitted its National Determined Contribution in April 2016.

[21] UNEP 2015a; http://climateactiontracker.org/global.html, accessed 24 June 2016; Tschakert 2015.

[22] IPCC 2014b.

[23] Le Quéré et al. (2015) project "that the growth in global CO_2 emissions from fossil fuels and cement production will be near or slightly below zero in 2014, with a change of -0.6% (range of -1.6% to +0.5%) from 2014 levels." This change is mostly driven by decreasing emissions of China. They do add, however, that the result is only an indication as the method they use is imprecise. In a more recent study of Chinese emissions, Korsbakken et al. (2016) find that claims of decreasing Chinese emissions were premature but confirm that coal use stagnated and emission growth slowed down.

[24] Willer and Lernoud 2016.

[25] van Griethuysen 2010, 2016.

[26] Cook and Dugarova 2014:32.

[27] Rockström et al. 2009a, 2009b.

[28] Cook et al. 2012.

[29] UNEP 2015b:20.

[30] UNEP 2015b:19.

[31] ILO 2012:viii; the ILO report stresses that "the green economy offers an opportunity to create decent work and improve social inclusion—if the right policy mix is put in place" (ILO 2012:xxi). Newly created jobs are not automatically decent jobs, however, so that it is important to monitor that the jobs created adhere to principles of decent work. The ILO defines decent jobs as "jobs that are productive, provide adequate incomes and social protection, respect the rights of workers and give workers a say in decisions which will affect their lives" (ILO 2012:6).

[32] IRENA 2016.

[33] Communal value added from the expansion of renewable energies stems from tax revenues (local business tax and communal share of income tax), net income of local employees and net profit. "The direct value added by renewable energies in Germany in 2012 adds up to 16.9 billion EUR with a municipal value added of around 11.1 billion EUR" (Aretz et al. 2013:15).

[34] Morris and Pehnt 2015; the recent amendment to the German Renewable Energy Act (EEG 2017) has been criticized for slowing down the transition to renewables and for continuing a policy reform process that pushes back community and citizen-led renewable energy projects (Morris 2016a, 2016b).

[35] UN DESA 2013.

[36] UN DESA (2013) identifies the following key green economy funds and actors with a volume of more than USD 1 billion: Clean Development Mechanism (USD 215.4 billion; UNFCCC), Global Environment Facility (USD 10.9 billion and USD 51.6 billion in co-financing; including least developed countries fund and special climate change fund; GEF agencies: UNDP, UNEP, World Bank and multilateral development banks/MDBs, FAO, IFAD, UNIDO); and the Strategic Climate Fund—Pilot Program for Climate Resilience (USD 1.1 billion pledged, World Bank and MDBs).

[37] Cook et al. 2012.

[38] Cook et al. 2012.

[39] Hezri and Ghazali 2011.

[40] Bumpus 2011.

[41] Cook et al. 2012:1.

[42] McAfee 2012.

[43] UNRISD 2012, UNEP 2016.

[44] Winer et al. 2012.

[45] Banerjee and Sood 2012.

[46] Bastos Lima 2012.

[47] UNEP et al. 2013; Rao 2005, 2011. Analysing the cases of India and China, Kelkar 2016 stresses that states have responded to women's claims to land rights and justice mostly by formulating policies and legal frameworks that "have remained largely ineffective in changing institutions trapped in gendered norms and women's economic dependency" (Kelkar 2016:24).

[48] Bastos Lima 2012.

[49] Banerjee and Sood 2012.

[50] Musyoki 2012; see also figure 1.9 in chapter 1.

[51] Musyoki 2012.

[52] IEA 2015.

[53] In 2012, exposure to household air pollution caused an estimated 4.3 million premature deaths, 60 percent of which occurred in women and children (WHO 2016).

[54] UNRISD 2010.

[55] Nathan 2015.

[56] Nathan 2015.

[57] UNEP 2015b:19.

[58] UN 2015b.

[59] See Morena 2014; Rosemberg 2010; UNFCCC 2015.

[60] ILO 2015.

[61] Decoupling refers to declining resource impacts from economic activities. It can be "relative", which means that the resource intensity of the economy (relative to GDP) decreases, or "absolute", which means that overall ecological impacts decline (Jackson 2009:67). While absolute decoupling would be crucial for sustainable development and climate change mitigation, efficiency gains from cleaner production are most often outpaced by increasing consumption of resources (known as the "rebound effect").

[62] See Utting 2013.

[63] Hoffmann 2015:2.

[64] van Griethuysen 2016.

[65] Estado Plurinacional de Bolivia 2012.

[66] Estado Plurinacional de Bolivia 2015.

[67] Mikkelson et al. 2007:1.

[68] Neumayer 2011:18.

[69] UNRISD 2014a:2.

[70] UNRISD 2014b; Martinez Franzoni and Sánchez-Ancochea 2013.

[71] Fletcher and Breitling 2012.

[72] Porras et al. 2013.

[73] Brown and Bird 2011.

[74] See the relatively ambitious INDC to the UNFCCC submitted in the run up to COP21 in December 2015 (Government of Costa Rica 2015).

[75] Martinez Franzoni and Sánchez Ancochea 2013:144.

[76] Martinez Franzoni and Sánchez-Ancochea 2013.

[77] Adaptation can be defined as "[t]he process of adjustment to actual or expected climate and its effects. In human systems, adaptation seeks to moderate or avoid harm or exploit beneficial opportunities" (IPCC 2014a:5). Mitigation, in contrast, "is a human intervention to reduce the sources or enhance the sinks of greenhouse gases" (IPCC 2014b:4).

[78] IPCC 2012:18.

[79] See Brooks et al. 2011.

[80] Utting 2013.

[81] Utting 2013:186.

[82] van Dijk 2014.

[83] See Arcari 2016; FAO 2013 estimates that global livestock is responsible for 14.5% of all anthropogenic greenhouse gas emissions.

[84] The concept of buen vivir has been criticized for its essentialist notion and the patriarchal structures of indigenous cultures that have coined the concept but that would need to be overcome for gender-egalitarian sustainable development (Wichterich 2012; Cochrane 2014).

[85] Alves Barros and Melo 2011; despite the efforts to obtain land titles, Vale Encantado is at risk as Rio plans to upgrade and remove favelas.

[86] Tran Tuan Anh et al. 2013.

[87] https://www.transitionnetwork.org/initiatives/by-number, accessed 27 June 2016.

[88] Agarwal 2015:321.

[89] Cook et al. 2012.

[90] Hezri and Ghazali 2011.

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