The Social Dimensions of Climate Change

Discussion draft




ILO

UNRISD
United Nations Research Institute for Social Development

ITU

UNFPA

World Health Organization

UNAIDS
Joint United Nations Programme on HIV/AIDS
UNHCR UNICEF WFP UNDP UNFPA UNODC ILO UNESCO WHO WORLD BANK

WFP
wfp.org

UN WOMEN
United Nations Entity for Gender Equality and the Empowerment of Women

UNESCO
United Nations Educational, Scientific and Cultural Organization

UNITED NATIONS UNIVERSITY

unitar
United Nations Institute for Training and Research

International Organization for Migration (IOM)

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a For further information about the HLCP, see: http://hlcp.unsystemceb.org

Abbreviations

FAO	Food and Agriculture Organization of the United Nations
HLCP	High-level Committee on Programmes
ILO	International Labour Organization
IOM	International Organization for Migration
IPCC	Intergovernmental Panel on Climate Change
ITU	International Telecommunication Union
NAPA	National Adaptation Programmes of Action
OHCHR	Office of the High Commissioner for Human Rights
PAHO	Pan American Health Organization
RH/FP	reproductive health and family planning
SDCC	social dimensions of climate change
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNDESA	United Nations Department of Economic and Social Affairs
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
UNFPA	United Nations Population Fund
UN-HABITAT	United Nations Human Settlements Programme
UNICEF	United Nations Children's Fund
UNITAR	United Nations Institute for Training and Research
UNISDR	United Nations International Strategy for Disaster Reduction
UNRISD	United Nations Research Institute for Social Development
UNU	United Nations University
WB	World Bank
WFP	United Nations World Food Programme
WHO	World Health Organization

CHAPTER 1

Introduction

The *United Nations Framework Convention on Climate Change* (UNFCCC) states that "Parties should protect the climate system for the benefit of present and future generations of humankind, on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities." It moreover entrusts Parties to take climate change considerations into account, to the extent feasible, in their relevant social, economic and environmental policies and actions *(1)*. The current climate change discourse – including the way mitigation and adaptation measures are designed and appraised – tends to emphasize environmental, economic or technological inputs and costs. The social dimensions of climate change are not well understood or addressed. As a result, current policy responses may not fully address the negative impacts nor do they take full advantage of potential opportunities to reach a number of sustainable development goals.

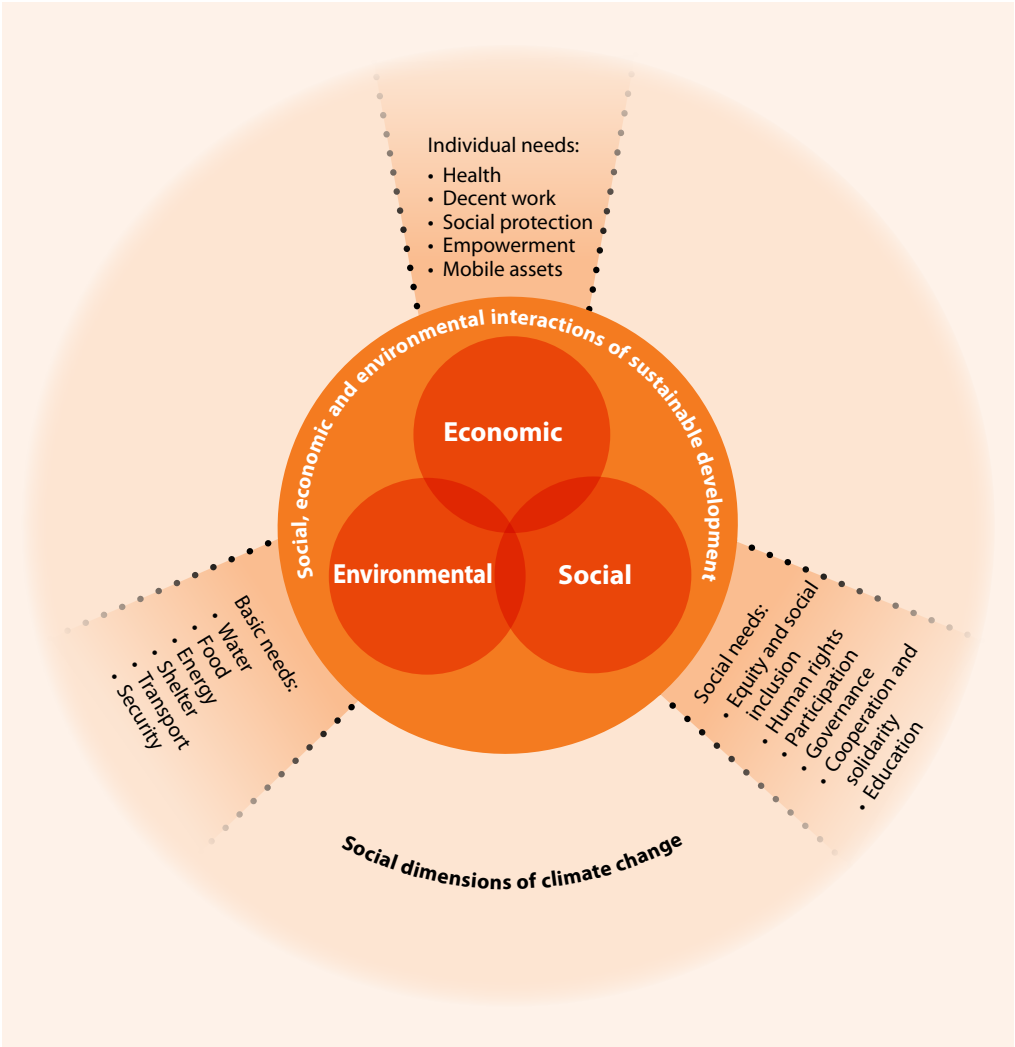
In this context, a number of UN agencies (FAO, ILO, IOM, ITU, OHCHR, UNAIDS, UNDESA, UNDP, UNESCO, UNFPA, UN-HABITAT, UNICEF, UNITAR, UNISDR, UNRISD, UNU, UN Women, WB, WFP and WHO) have come together to share perspectives and articulate a number of key messages to better inform policy discussions and ensure that the social dimensions of climate change are adequately reflected in global agendas. Social dimensions are approached in this paper as those that reflect the social, economic and behavioural aspects of the human condition as critical components of climate policies. The understanding of social dimensions of climate change has both an analytical and a normative thrust. It identifies the essentially social aspects of climate processes and, at the same time, builds on the principles of equity and social justice, especially for the most vulnerable people.

This paper addresses the social dimensions of climate change from a sustainable, equitable development perspective, understood as "an irreducible holistic concept where economic, social and environmental issues are interdependent dimensions that must be approached within a unified framework" *(2)*, and where the overarching outcome is to fully promote human welfare and equal access to life-sustaining resources (see Figure 1). The paper is not an academic review, nor a detailed assessment of the consequences of not addressing the social dimensions of climate change. The aim is rather to broaden and deepen policy-makers' understanding of the benefits of addressing and incorporating the social dimensions of climate change into climate policies. In doing so, the paper identifies a number of knowledge gaps within the social, human and natural sciences that need to be filled in order to further strengthen policy responses.

The underlying argument is that people are at the centre of a successful transition to a world of far-reaching and balanced global reductions in emissions and enhanced resilience, with specific attention to the most vulnerable groups, and their role in crafting solutions and increasing resilience. The goals of this transition must include fulfilment of basic needs, enjoyment of human rights, health, equity, social protection, decent work, equal participation and good governance.

This paper is organized into four substantive sections. It first elaborates the rationale for deepening the understanding of the social dimensions of climate change and incorporating them into climate change dialogue and policies. On the basis of international agreements, the aim is to explore the social dimensions of climate change from a range of perspectives and to assess how they can support convergence of various development agendas. Thereafter, it discusses the main social drivers of climate change, highlighting how they play out in different processes, including demographics, consumption and production, and offering a novel perspective on how to think through those dynamics. The paper then analyses vulnerability and presents a number of impacts on people's lives, including those related to climate change policies and processes. It analyses climate change impacts as a function of peoples' capacity to respond. To conclude, it draws out the policy implications, by charting potential pathways for policy-makers and exploring how guiding principles can be directly applied to effectively inform policies and practices. Addressing climate change without reference to its social dimensions is failing to address climate change at all.

Figure 1. Addressing social dimensions of climate change in the framework of sustainable development



CHAPTER 2

The rationale: Why integrate social dimensions into climate change policy?

1. Introduction

Without vigorous adaptation and mitigating measures, climate change is projected to further exacerbate vulnerabilities, place human health and security at risk and impede sustainable development. Integration of social dimensions into these measures is vital. It has a legitimate foundation in the UNFCCC as well as the larger sustainable development and human rights frameworks. It is a practical next step to help ensure the effectiveness of climate policies. It is, in essence, an extrapolated 'good practice' drawn from decades of development initiatives where the international community has learned that plans and strategies cannot be top-down if they are expected to take root and be sustainable, equitable and successful.

People are not only the victims of negative impacts of climate change; they are the drivers of climate change and the essential agents for redirecting development trajectories. This understanding – of the central role of people, social dimensions and institutions – should profoundly reshape the way in which policy-makers craft and implement climate change policy. It is especially compelling at this important juncture when many nations are committing to more robust mitigation and adaptation strategies, and the international community is deliberating core elements of the next climate change paradigm amid pressing expectations for concrete results.

At its most basic, climate change *impacts people* and response measures *depend on people* to be successful. Thus the social dimensions of climate change, the interplay between climate as a phenomenon, its related policy, and society – including the role of *people* as victims to and agents of climate change – are critical to successful climate policy. To date, however, the human variable of the climate equation has been too frequently missing or weak.

The impacts of climate change will increasingly affect the daily lives of people everywhere in terms of employment and livelihoods, health, housing, water, food security and nutrition, and the realization of gender equality and other human rights. Impacts are expected to hit those living in poverty the hardest, partly due to their more prevalent dependency on the very natural resources affected by climate change and also because they have less capacity to protect themselves, adapt or recuperate losses. Effective policies and measures to address these impacts and to reduce greenhouse gas emissions will in large part depend on these same people, and thus largely depend on the transformation of social and economic relations that contribute to their vulnerability.

Climate policies will consequently succeed, fail or, at minimum, be enhanced by the everyday actions of empowered and capable individuals, households, communities and countries. Moreover, climate change policies can do more than ensure a climate-resilient and sustainable

economic future. They also present an opportunity to achieve more just and equitable societies, and advance truly sustainable economic development approaches.

Inclusion of the social dimensions of climate change can be justified on at least four equally significant grounds. Firstly, social dimensions are **already recognized in existing climate agreements**, albeit in the most elemental sense, often under-recognized and under-implemented in practice. Secondly, the inclusion of social dimensions in climate policy is a prerequisite to **ensuring that human rights are respected**; climate change and related response measures impact the fundamental security, lives, health and livelihoods of people, especially the most vulnerable. Thirdly, the **effectiveness of climate change policies will very likely be enhanced** if social dimensions are fully integrated. According to case-studies and lessons learned from the history of human development, inclusion of social dimensions is essential if the most powerful and resource intensive societies are to change consumption habits and patterns. Finally, there are essential **synergies between the climate change agenda and complementary sustainable development and human rights agendas**, both in terms of their objectives and their means of achievement. By integrating social dimensions in climate policy, these synergies have significant potential to amplify concrete results.

2. Legal foundation in the UNFCCC

Created during the early 1990's environmental movement, the UNFCCC maintains the international process in which the evolving climate change agenda is discussed and determined. While the convention captures a broad array of state concerns and priorities, social dimensions of climate change can be found among them. In particular UNFCCC Articles 1 and 4 are cornerstones on which to build social dimensions within the climate change framework.

Article 1 establishes definitions for the whole of the Convention. It defines "adverse effects of climate change" as including those that have deleterious effects on "the operations of socio-economic systems or on human health or welfare." Thus it follows that any climate change policy addressing the "adverse impacts of climate change" should integrate consideration of potential impacts on people, including their health and welfare *(1)*. Article 4 comprises the commitments of Parties to the Convention. It recognizes the cross-cutting nature and symbiotic relationship between climate change policy and other policies, including social dimensions. In essence, Article 4.1(f) requests that governments minimize the adverse *effects* of climate change – already established as including adverse impacts on people's health and welfare (Article 1) – as well as to minimize adverse effects of climate *policies* related to either mitigation or adaptation, noting in particular to minimize adverse effects to public health alongside the economy and environment. Article 4.7 addresses the extent to which developing states implement their commitments under the Convention and also reaffirms that "economic and social development and poverty eradication are the first and overriding priorities of the developing country Parties *(1)*. These objectives – economic development, social development and poverty eradication – have various social dimensions. Thus Articles 1 and 4 serve to highlight that social dimensions are already embedded in the Convention in relation to climate impacts, policy measures and as an overarching priority of developing states. While their emphasis in the UNFCCC text varies, there is clear legitimacy for inclusion of social dimensions within the international climate change architecture.

Challenges to the inclusion of social dimensions also exist however. Critics often cite that social dimensions are not explicitly outlined in the Conventions objective (Article 2) nor are they explicitly included among its principles (Article 3), which has been subject to much scrutiny and diverse interpretation. The objective of the Convention is clearly stated as "stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system *(1)*. Critics argue that this is a purely environmental objective without social implications.

The principles of the Convention have also been interpreted to sideline social dimensions of climate change. Although the principle of equity is included in Article 3.1, common interpretations include its application to *inter*state equity and not *intra*state equity, or demographic, population-based equity. Specifically, it reads: "Parties should protect the climate system for the benefit of present and future generations of humankind, on the basis of equity and in accordance with their common but differentiated responsibilities". This is often interpreted as applying the principle of equity to equal shares of and benefits from a healthy climate system – between generations (over time) and between states (concurrently).[b] It is less clear that, as expressed in this Article, the principle of equity applies to the benefits of a healthy climate to vulnerable populations and all people impacted *within* states *currently (1)*. However, the authors of this paper assert that this is a valid interpretation. As all agreements are in essence living documents and the emerging climate change framework will be most relevant when it reflects realities on the ground, the principle of equity should be applied more broadly to include equity among people living today; those increasingly impacted by climate change, especially the most vulnerable, and those who – if provided equity[c] in process, opportunities and benefits – can advance climate-smart, people-centred policies. In addition, it is worth noting that regardless of one's interpretation of the equity principle, Article 3.3 urges Parties to take precautionary measures to anticipate prevent or minimize the causes of climate change and mitigate its adverse effects, and that to do so should take into account the different socioeconomic contexts. Moreover, Article 3.4 includes the right and the obligation of Parties to promoting sustainable development, which implicitly includes the social dimensions of climate change. These are further examples that while not explicitly stated, the principles of the Convention do indeed reflect the need to consider social dimensions.

In conclusion, the UNFCCC Articles 1 and 4 provide legitimacy and clear language on which the international community can firmly build a 'social' pillar of the climate change regime.[d] Article 3, while not explicit, clearly reflects the need to understand and address the social constraints and potentialities of communities and countries.

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b Common interpretation of Article 3 is that protection of the climate is to be undertaken among Parties, based on equity and CBDR. Polluters (based on assessments of state emissions not based on intrastate demographic-based emissions) own up to, `pay' for, and mitigate emissions based on states' historical contributions to global greenhouse gas concentrations.

c Equity has been defined in various ways by different theorists. Authors of this paper generally agree with those that posit equity exists in benefits (i.e. equal outcomes and material benefits) as well as in processes (i.e. equal opportunity in processes and relations of the social, cultural and political spheres, whereby people – now and in the future – are able to voice their concerns through equitable social and political relations).

d Precedent for this can be further found in Agenda 21 – of the 1992 Earth Summit – which in theory prioritizes the social pillar of sustainable development alongside economic and environmental pillars. The Hyogo Framework for Action as well, although established over a decade later and addressing disasters beyond those that are caused or intensified by climate change, lay a strong precedent for integrating the social dimensions into climate change policy, as it strongly integrates social dimensions into disaster risk reduction policy, a core element of adaptation to climate change in particular. As one small but key example, "Vulnerability" is defined as: "The conditions determined by physical, social, economic, and environmental factors or processes, which increase the susceptibility of a community to the impact of hazards". UN/ISDR. Geneva 2004.

The weak integration of social dimensions within the climate change architecture to date is largely due to the context in which these policies first emerged. It reflects the historical circumstances in which these major environmental agreements were formed; the Earth Summit was both a catalyst to and the culmination of a handful of conventions and environmental declarations, the main emphasis at the time being environmental health and ecological balance. The summit was an unprecedented effort to address long neglected or emerging environmental concerns such as loss of biodiversity and desertification that were seen as having been exacerbated due in large part to overvaluing economic development at the cost of the environment. The relative dearth of social aspects in the summit's outcomes, aside from *Agenda 21* which integrates social dimensions well, can be attributed to this environmental emphasis and other causes. In the case of the UNFCCC in particular, these causes include the extreme focus within the climate field on the science of emissions and impacts on the environment, compounded by the late entry of social scientists and social organizations into climate change work, as well as the late attention to adaptation as a priority in policy and practice.

In short, the Earth Summit saw the international community emerge from the paradigm of 'economic growth at all costs' to recognizing the need to integrate the environmental dimensions of development. While social dimensions were integrated into the soft science of environmentalism and sustainable development, their integration into the hard science of climatology and related policies was a step too far for the time. However we must now broaden that climate paradigm. It is time that the climate change architecture fully reflects reality on the ground and, in recognition of the vast social aspects of climate change and climate change policy, and fully integrates social dimensions into climate adaptation and mitigation policies. In this way people and their societal institutions – those facing the impacts and with potential to drive positive solutions – will be assigned equal significance to the environmental and economic dimensions of climate change.

3. Integration of social dimensions in practice

Although there is a legitimate foundation for the inclusion of social dimensions in climate change, a cross-sampling of climate policies indicates that the extent of integration to date varies from none to moderate. Where integration does exist it is inconsistent. Modest assessments of two mechanisms – National Adaptation Programmes of Action (NAPAs) and National Communications to the UNFCCC – are described below:

National Adaptation Programmes of Action (NAPAs)

Stemming from the COP7 *Marrakech Accords*, the NAPA process was established as a way for those most vulnerable to the adverse effects of climate change, the least developed countries, to prioritize and communicate their most pressing adaptation needs. The framework for the preparation of NAPAs (as set forth by the UNFCCC in Decision 28/CP.7), recommends the inclusion and analysis of various social dimensions. For example, the guidelines call for a participatory and transparent process that is multidisciplinary and country-driven, inclusive of local stakeholders, and guided by, inter alia, gender equality, sustainable development and sound environmental management. Additionally, the recommended criteria for identifying priority adaptation activities includes poverty reduction efforts to enhance adaptive capacity, as well as assessing the degree of anticipated adverse climate change effects, particularly in relation to such factors as loss of human life and livelihoods, human health, food and water security, and cultural heritage *(4)*.

While the NAPA process seeks to integrate social dimensions, at least in theory, gaps nevertheless appear in practice. For example, a recent analysis of 32 completed NAPAs found that 19% did not prioritize poverty and almost two thirds (62.5%) did not prioritize gender in their adaptation activities. In addition, due to a lack of micro-level analysis, 34.5% did not identify particularly vulnerable and often localized groups *(5)*. The study also found that a majority of NAPA reports and projects are primarily produced by ministries of the environment, leaving open the potential that social vulnerabilities (i.e. health, education and gender equality etc.) that are not directly linked to environmental policy might be left out of the needs assessment process altogether *(5)*. Furthermore, analysis of the documents available through the UNFCCC NAPA Priorities Database indicates shortfalls in the integration of key social concerns in the adaptation planning and implementation process: Of the 37 NAPAs submitted by September 2008, less than half included human health-related (48%), or education and capacity-building activities (43%) *(6)*.

Another clear example of the gap between the framework and implementation of NAPAs is seen in issues relating to population dynamics. The rapid and high population growth rates found in the majority of least developed countries present major, long-term challenges to many of NAPA guidelines and criteria, including sustainable development, gender equality, poverty reduction and human health. Indeed, a recent analysis of 41 completed NAPAs finds that 37 of the reports clearly identified pressures related to high and rapid population growth as relevant to climate change adaptation *(7)*. Nevertheless, only six of the NAPAs assessed mentioned population-related measures such as reproductive health and family planning (RH/FP) investment, and only one actually incorporated RH/FP projects into their priority activities *(7)*. Thus, while guidance exists for the inclusion of various social dimensions into the NAPAs, practice falls short.

As a final example, an overview of health considerations within NAPAs for climate change in least developed countries and small island states, developed in June 2010, indicated that health was included in 39 out of 41 NAPAs (95%) as a sector impacted by climate change *(8)*. However, only 23% (9/39) of these were found to be comprehensive in their health-vulnerability assessment; and of the total number of selected priority projects (459), only 50 (11%) focused on health. The total estimated cost of the priority projects was over US$ 1.8 billion with under US$ 58 million (3%) going to health projects. It is concluded that with few exceptions, the current consideration of public health interventions in NAPAs is unlikely to support the necessary processes to advance resilience and protect public health from the negative effects of climate change.

National Communications to the UNFCCC

All Parties to the UNFCCC are expected to report on their country's implementation of the Convention via National Communications, albeit with different content and timetables depending on the status as an Annex 1 or Non-Annex country *(9)*. For Annex 1 countries, there are sections of the National Communications where reporting on various social dimension of climate change would be relevant – such as in section VI on vulnerability assessments, climate change impacts and adaption measures. Although social dimensions are not mentioned, Parties are requested to provide information for each policy and measure reported on non-greenhouse gas mitigation benefits such as reduced emissions of other pollutants or health benefits. However, the UNFCCC Secretariat does not include relevant advice for such reporting in their guidelines to Parties for drafting their National Communications.

Despite the lack of specification of the various social aspects in the guidelines, some Annex I countries voluntarily highlight the social dimensions of climate change in their National

Communication. For instance, the European Union has given priority to social cohesion throughout their Fifth National Communication report and highlight a gender equality component in their support to Non-Annex I countries, including in relation to financial resources and transfer of technology. In this National Communication, health is not only included as a vulnerable sector but also highlighting the need of developing a cost-benefit analysis of environmental health risks and indicators for prevention strategies *(10)*. Canada also highlights human vulnerability, health implications and other social impacts of climate change *(11)*. Australia's Fifth National Communication includes multiple references to indigenous people, including in national vulnerability assessments, such as those related to mental health impacts, as well as in climate policies related to land use, agriculture and fire management. Efforts to engage women and youth in community networks and capacity building were also referenced *(12)*. While some other Annex 1 countries also reference social dimensions, without clear guidance the inclusion of social dimensions of climate change in National Communications of Annex 1 Parties is ad-hoc and left to the discretion of individual Parties. This can lead, at worse, to its omission and at best to inconsistencies in reporting. A current gap therefore exists, in essential support and guidance to Annex 1 countries in this area, as well as in actual reporting.

The *User Manual* for National Communications by non-Annex 1 countries is slightly more advanced in this area and provides more detailed guidance for reporting on social dimensions of national circumstances, including measures to facilitate adequate adaptation to climate change as well as vulnerability and adaptation assessments *(13)*. In the area of national circumstances, the manual recommends reporting on population dynamics (including growth rates, distribution, density and other vital statistics), the health sector, and education, although it emphasizes the inclusion of scientific and technical research institutions and does not reference prioritizing a population or social issue. For the section on adequate adaptation, there is guidance to include information on "human system"(s) that are vulnerable, and environmental problems along with their linkages to socioeconomic conditions, as well as information on some of the key sets of baseline conditions and their linkages, which might include population, food security and health. For vulnerability and adaptation assessments, emphasis is clearly placed on economic sectors; however the list of possible considerations does include human settlements, food security and health. Additionally, it recommends including other "socio-economic scenarios" including population size, density and related variables, as well as urban growth. While incomplete, the manual provides the possibility of more realistic reporting of on-the-ground interlinkages between people and the impacts of climate change.

Thus, while some efforts are underway to integrate social dimensions in to climate change policy, they are insufficient. Renewing and expanding focus on social dimensions in climate change policy is essential. And while international agreements provide the legal legitimacy for such efforts, additional rationales may help spur investment and action. These include the interlinkage to realization of human rights and the practical advantages to climate policy as well as to larger complementary agendas such as poverty eradication.

4. Rights-based approach to climate change

The impacts of and responses to climate change affect the enjoyment of fundamental human rights such as the right to life, food, water, shelter, safety and health. Countries have a duty to safeguard the rights of their citizens as affirmed, most essentially, in the *Universal Declaration of Human Rights*, including the right to life and security of person, the right to decent work and

social protection, and the right to adequate standard of living that promotes health and well-being (Articles 3, 23 and 25 respectively) *(14)*. While not binding in international law, the instrument is particularly relevant in that its principles are understood as a foundation for rights more clearly elaborated in multiple complementary human rights instruments adopted internationally and domesticated at the national level. This includes the *International Covenant on Economic, Social and Cultural Rights,* ratified by over 160 countries. This instrument elaborates human rights that happen to also be at clear risk of violation due to the impacts of climate change or irresponsible response measures, such as people's right to natural resources as a means of subsistence (Article 1); gender equality (Article 3); decent work (Articles 6–8); adequate standards of living (Article 11); physical and mental health (Article 12); and benefits of scientific progress and its applications (Article 15). These rights are further reinforced and in many cases more deeply elaborated in additional instruments, including the *Declaration on the Rights of Indigenous Peoples (15)*, the *Convention for the Elimination for all forms of Discrimination against Women* (CEDAW) *(17)*, and the *Convention on the Rights of the Child (18)*.

The *Declaration on the Rights of Indigenous Peoples* is especially relevant in that it calls upon Member States to the United Nations to respect and promote the inherent rights of indigenous peoples, including their rights to their lands, territories and resources *(15)*. In particular, Article 23 elaborates indigenous peoples' right to **formulate their own development priorities and strategies and to** "be actively involved in developing and determining health, housing and other economic and social programmes affecting them." Article 32 applies this right to the "development or use of their lands or territories and other resources" and further reads that "States shall consult and cooperate in good faith with indigenous peoples… to obtain their free and informed consent prior to the approval of any project affecting their lands or territories and other resources, particularly in connection with the development, utilization or exploitation of mineral, water or other resources" and that just and fair redress shall be provided for any such activities. Additional articles outline employment and social security rights (Article 21) and the improvement of economic and social conditions (Article 21; 2) with special attention to the "rights and special needs of indigenous elders, women, youth, children and persons with disabilities."

The *Beijing Declaration and Platform for Action* is the global community's most comprehensive instrument elaborating the objectives of gender equality and the empowerment of women, and the environment is one of twelve critical areas of concern outlined in the platform. Strategic objectives of this section aim for the active involvement of women in environmental decision-making at all levels; the integration of gender concerns and perspectives in policies and programmes for sustainable development; as well as the strengthening or establishment of mechanisms at the national, regional and international levels to assess the impact of development and environmental policies on women *(16)*. *The Convention for the Elimination for all forms of Discrimination against Women (CEDAW)* also targets the rights of rural women in particular (Article 14), calling upon Parties to ensure rural women's equal role in participating in and benefiting from rural development and to enjoy adequate living conditions, particularly in relation to housing, sanitation, electricity and water supply, transport and communications – all sectors deeply impacted by or integrated into the climate change agenda *(17)*.

Equally relevant is the *Convention on the Rights of the Child.* Climate change impacts and policies directly impact children's right to life and development (Article 6.2), right to health and health services (Article 24) and the right to enjoying adequate standard of living (Article 27) that are "adequate for the child's physical, mental, spiritual, moral and social development" *(18)*. Indeed

all these instruments have in common the responsibilities of states as duty-bearers to ensure the safety, health and livelihoods of rights-holders; the inclusion of people's needs and priorities in development and environmental strategies; and their participation in decision-making processes that effect their lives and resources. Thus the extent to which climate change instruments integrate social dimensions is virtually second in significance to the existence of these other instruments in the larger human rights framework, which details highly relevant principles and rights.

5. A prerequisite for effective climate policy

If principles are too abstract or lofty ideals, the practicalities of policies also beg for the inclusion of social dimensions. Peoples and society are often silent but assumed *beneficiaries* of international efforts and national policies. Simultaneously, however, they are the end-users of climate technology and *promulgators* of climate solutions. They are also key actors in pressuring for social change, whether that be via collective social movements or individual actions. Thus, practically speaking, the success of global climate responses for both mitigation and adaptation can only be improved by, and may very well depend on, integration of social dimensions alongside technology, infrastructure, environmental science and other predominant considerations. It is not only the right thing to do, it is a practical necessity.

Integrating social dimensions into climate change policy can be simplified as part of three key steps of the policy cycle: the *assessment* of issues; the *process* of policy development; and the *results* (monitoring and evaluation of impacts, and relevant restructuring of policy). More specifically this could include: (a) Assessment: initial social impact assessments to determine and manage the intended and unintended social consequences, both positive and negative, of climate change and/or planned interventions; (b) Process: transparent and participatory decision-making processes along all phases from design through monitoring, ensuring the inclusion and empowerment of often marginalized populations; and (c) Results: monitoring, impact evaluation and readjustment of policies and strategies in light of inequity and inefficiency concerns that arise during the post-implementation phase.

While longitudinal policy analysis is not within the scope of this paper, case studies reveal that where these steps have been undertaken, in full or in part, increased (and sometimes unexpected) gains in effectiveness have resulted. For example, forest preservation and tree planting initiatives that provide the benefits of stabilizing hillsides during excessive rainfall, sequestering carbon and enhancing biodiversity, have been highly successful where they assessed community needs in advance, especially women's needs for firewood fuel, and addressed these needs; included the local community in decision-making processes; and monitored the results, encouraging good practices.

Urban planning is another area that can benefit from integrating social dimensions. One example is mass transit. Initial social impact assessments are needed to ensure any new infrastructure impacts the fewest people possible and ensures that the most poor and marginalized groups are not unjustly effected. Assessment is also needed of the entire community's transit needs, so that the routes provided are most convenient and cost-effective for the most people, and that the ride is of high enough quality to meet their needs and not deter riders. This not only requires targeting high density areas, but responding to the differentiated needs of people in those communities whose behaviours and lifestyle choices the mass transit plan hopes to influence. For example, consideration needs to be given to whether there are many elderly people with

unique 'senior user' needs that will use the transit system, or single mothers with their hands full, or professional workers with different scheduling priorities. Integrating a more full social assessment of needs and impacts will ensure rights are respected and simultaneously maximize ridership. This example does not include the benefits of the second (process) and third (results) areas for integrating social dimensions but the benefits for integrating an initial social assessment are clear.

This approach can be readily applied to other areas of urban planning, disaster risk reduction and large infrastructure projects such as bridges and water development projects. It can also be applied to smaller-scale technology solutions that also depend on uptake and end-use for their effectiveness, and thus ultimate success as a climate response. If information technology solutions are expected to replace travel, and new clean cook-stoves are anticipated to replace coal or firewood stoves; in other words if many adaptation or mitigation strategies depend on changes in human behaviour – and few do not – then people's needs and preferences should be assessed early in the process, their rights should be respected, they should have access to and capacity to inform transparent decision-making processes, and the results must be equitable.

Broader and deeper questions are useful when sculpting climate policies such as: Where do people choose to live and why? Who has access to natural resources and depends on them for their livelihoods and what does that means for the climate? How does poverty exacerbate vulnerability and how does equity enhance it to strengthen adaptation measures? Who needs to be at what table when climate policy is designed in order for it have the greatest traction on the ground, and what are the ongoing power dynamics? Where will opportunities present themselves in green business sectors and who will be empowered (or disempowered) to seize these opportunities? When a new technology or infrastructure is designed, built or disseminated will it work for the community – the 'end-user – or be a waste of further resources? What are the incentives for all the above? In sum, these questions are useful to better integrate the sociocultural complexities that underpin climate policies and their effective implementation.

While the ultimate successes of climate responses may currently be judged on the basis of economic and infrastructural damage versus protection, they will depend in great part on the resilience of people, their livelihoods and their health and well-being. Strategies designed and implemented without appropriate consideration of the very people who will interact with and depend on them can undermine their success. Conversely, integrating social dimensions at all levels of analysis, design, and implementation can lead to more efficient and effective results on the ground. All of these require the active participation of the many and varied groups within society, and thus on the transformation of social relations to build equity and empowerment into such processes.

6. Potential to advance complementary agendas

Not only may the very success of climate policy depend on integrating social dimensions, but doing so has strong potential to advance significant complementary development agendas, including the Millennium Development Goals and the overall human rights framework. As an example, processes to develop climate strategies that are inclusive and transparent also advance people's rights related to good governance, participation in decision-making and the right to free and informed consent. Moreover, solutions to climate concerns that are a result of such inclusive processes are more likely to integrate and respond to the needs of a greater share of

the community in which they are implemented, not just to the needs of the most powerful. Such processes also ensure that governments remain accountable. Thus they have potential to contribute to concrete improvements in people's daily lives throughout the community, and to advance complementary objectives of concern to communities, be they related to health, resource access or use, labour rights and the economy, power relations in decision-making, human security, or the empowerment of indigenous peoples, women and youth. Overall, there is significant convergence of objectives between a successful climate change approach and the international community's goals of sustainable development, eradication of poverty and the realization of human rights. Examples of beneficial synergies are elaborated in Figure 2.

Possible unintended impacts of climate change policy that is undertaken *without* integration of social dimensions is also an important consideration. Unfortunately, it is not within the scope of this paper to undertake an analysis of this counter-argument, which would be fairly limited given the predominantly early stages of developing and implementing most climate change strategies. However, decades of international efforts to advance economic and human development point to a strong potential for the absence of social dimensions in climate assessment and response strategies not only undermine their own effectiveness, but also undermine other complementary agendas, including the eradication of poverty and the realization of human rights. The history of economic development and environmental interventions are rife with examples where not integrating social dimensions resulted in negative outcomes for sustainable development, to the environment, and to peoples' rights and security. Undertaking climate strategies without considering the rights, needs, culture, social dynamics, institutions and power relations of people that the strategies impact and depend on, may spur maladaptation; risk-reinforcing disparities; wasted capital, effort, time and expense; violate human rights; and undermine its own objectives, thus exacerbating climate change. (This important interplay or social drivers will be explored more fully in Chapter 3.)

None of this is to imply that design and implementation of successful climate change strategies is straightforward if it simply integrates social dimensions. The issue is complex, as are potential response measures; hard choices must be made and there are often trade-offs as with any public policy. And while protecting the most vulnerable is a priority, so is thwarting the greatest threat of our time: climate change. Costs must be weighed and there will not always be clear 'win-win' scenarios. Nonetheless, it would be ill-advised to view climate policy narrowly, focusing only on hard science and economic aspects, while neglecting the significance of social dimensions. Instead the perspective should be a broad one, aiming to achieve the highest degree of synergy between the technical, environmental and social objectives of climate change policy. In achieving this balanced view, some trade-offs may not be acceptable, in particular where human rights, empowerment, equity and active citizenship might be compromised. On the contrary, integrating the social dimensions of climate change into policy will necessitate that these social relations (i.e. power, equality, etc.) are fully integrated in order to enable a sustainable future.

Figure 2. Convergence of agendas and related benefits, including cross-cutting implications

Urban development	The majority of the world's economic and demographic growth is concentrated in urban areas. As of 2008, urban areas accounted for more than half the world's population and are expected to increase from the current 3.4 to 6.4 billion people by 2050 *(19)*.While urban areas are the primary locus of consumption and greenhouse gas emissions, they fortunately also offer better chances for long-term sustainability as well as social development. When well designed and administered, the compactness and economies of scale of cities can reduce per capita costs and energy demand and increase population resilience, while also minimizing pressures on surrounding land and natural resources. Urbanization is also a major factor in fertility decline and there is a strong correlation between lower fertility rates and the empowerment of women. Proactive planning for urban growth, particularly through securing the land and housing needs of the urban poor, multiply people's adaptive capacities. It can increase efficiency of and access to services by all people but most importantly by those living in poverty and most vulnerable to the impacts of climate change.[e] Good planning and policies supporting urbanization and the urban poor are win-win approaches.
Health and nutrition	The co-benefits to health of sound emission reductions and adaptation measures are vast. Decreasing emissions and slowing climate change will reduce asthma and respiratory diseases, water and vector-borne diseases, and malnutrition that results from food insecurity. Currently, 2.4 billion people rely on biomass fuels for cooking and heating, negatively impacting health and simultaneously exacerbating global warming *(20)*. Replacing high-emission cook stoves with low-emission alternatives would reduce the current 2 million premature deaths annually from indoor air pollution and substantial associated health risks, particularly for women and children *(21)*. Additionally, improved health infrastructure and services are an essential component of climate change mitigation and adaptation. Such health interventions contribute to the empowerment of women, enable families to build their resources and reduce poverty, and thus increase the resilience of their households and communities to prepare for and deal with climate change impacts. Promoting public transport use (especially cycling and walking) also has positive health implications, due to both reduced emissions and combating obesity through increasingly active lifestyles.
Employment and sustainable livelihoods	Efforts to tackle climate change will have positive net employment effects resulting in the creation of new 'green jobs' in the coming decades, despite concerns to the contrary *(22)*. Climate change measures that bring renewable energy to remote communities and households in particular have the additional co-benefits of supporting the sustainable growth of small towns; enabling new 'green' economic enterprises; diversifying income sources where agricultural decline is likely due to climate change; and increasing the chances that the poor – especially women – can engage in these enterprises provided they are relieved of the time-consuming task of securing fuel for their households and provided equal opportunities for education and employment. There will also be opportunities to 'green' previously 'dirty' jobs, which can benefits to employees' health as well as the environment. To ensure a just transition of the workforce, especially in sectors highly dependent on fossil fuel extraction and use [such as the oil and coal industries and some energy intensive industries that cannot readily switch to renewable energy] additional social protection measures and training will need to be provided, which can provide additional opportunities for economic development.

[a] These services include health and education systems, and infrastructure, including roads, electricity and waste water systems.

Disaster risk management	Comprehensive and holistic risk and vulnerability reduction strategies should be a core part of both sustainable development and adaptation to weather-related extreme events, as it will bring benefit to both agendas. Climate variability causes changing weather patterns that will most likely result in more extreme weather events – including a higher frequency and magnitude of weather-related hazardous events. Changes in the regional climate and environmental conditions as well as continuous societal changes, such as demographic changes and the global increase of urban settlements in coastal areas, make it likely that exposure and vulnerability to extreme events will increase. Consequently, strategies that help to link the expertise in various communities, including disaster risk reduction, adaptation, insurance and finance, and urban planning, can promote resilience and reduce the risk that lives and livelihoods are lost or harmed due to the adverse effects of climate change.
Human right s and good governance	Realization of human rights is a critical co-benefit of sound climate change policies and related good governance practices, and simultaneously enhances the success of climate change measures. Empowered people contribute to society through independent research, innovations and enterprises, an enlarged tax base, and informed choices and sustainable behaviours; all elements needed to achieve poverty eradication and sustainable development. Ensuring equality for women enables them to own property and benefit from land use, have access to credit for education and entrepreneurial endeavours, and better secure their homes against adverse climate impacts. Similarly efforts to reduce emissions from deforestation and forest degradation through payment for environmental services can only be successful where populations dependent on these natural resources are engaged in decision-making and good governance is practiced, most notably among small-landholding, forest-dependant and indigenous peoples. Engaging stakeholders in decision-making processes, especially at the national and local levels, increases the likelihood that initiatives will be locally appropriate, and thus adopted and sustained, while simultaneously empowering those involved and holding decision-makers accountable. This kind of 'active citizenship', as well as the effective protection of human rights – such as through access to information, the ability to effectively participate in decision-making processes, as well as access to justice, education, health and housing – are all important to strengthening the climate resilience of individuals and communities and contributing to environmental protection. In this way, the realization of human rights and society's collective capacity to successfully address climate change are interdependent.
IT-enabled services, human progress and sustainable societies	Enabling infrastructure and technology that enhances efficiency and provides low emission alternatives can simultaneously advance sustainable human development, welfare and rights in various areas, including those listed in this table: urban development, health and nutrition, employment and sustainable livelihoods, as well as human rights and good governance. Consider, for example, the adoption in many developing states of cell phones over landline telephones. New communication technologies not only have lower environmental impact but have simultaneously enhanced the potential for communication within civil rights groups to spur democratic movements, as can be seen in the recent 'Arab Spring'; and they have helped women in rural areas develop economic enterprises, including selling cell phone calling time as a business, bringing economic opportunity and wealth to an often marginalized segment of society. Thus environmental and overall social welfare are significant cross-cutting co-benefits of the sustainable development paradigm. Efficient infrastructure planning such as smart grids, green/low-carbon product design, IT-enabled services, information access and sharing tools do more than merely connect society efficiently. They provide economic and social networking opportunities at an unprecedented rate; often allowing developing states and emerging economies to leap-frog the burdensome and time-consuming development trajectory, and providing society with essential tools for social transformation.

CHAPTER 3

Social drivers of climate change

1. Introduction

Increasing carbon emissions and diminishing carbon sinks around the world underline the 'anthropogenic' nature of climate change and reflect the ways human societies function and change over time. Tackling climate change thus requires a broadened understanding of how human societies – and the activities that take place within them – drive climate change in different ways. While human societies necessarily interact dynamically with their environment and reshape it in response to their evolving patterns of production and consumption, the specific interactions that currently generate concerns regarding emission levels and depleted carbon sink capacities are not an inevitable outcome of development. A more sustainable development model can actually enhance the capacity to meet human needs.

To achieve this, it is necessary to abandon familiar indicators by which growth and prosperity are measured according to the consumption of resources, in favour of an approach that looks more directly at levels of needs satisfaction.

There are well established, long-term linkages between economic growth and resource consumption, and between economic growth and needs satisfaction. Rethinking these relationships requires an understanding of the social structures that drive climate change, outlined in Section 2 below. Alternative options can appear through the identification of negative feedback loops, which are explored in Section 3. Finally, Section 4 reviews the policy implications of identifying social drivers in this way, as potential constraints on and levers for policy and decision-making.

2. Social infrastructures

Use of the best available technologies in all sectors would produce enormous gains in resource use at comparatively modest economic cost and for the same aggregate level of social welfare, regardless of social co-benefits. Yet the average efficiency of existing capital stock lags far behind the best available technologies, and there is some evidence that the incentives required to produce significant behavioural shifts are disproportionate compared to the actual benefits. The inability of previous initiatives to achieve major emissions reductions emphasizes the difficulties of harnessing and retrofitting relatively accessible and cheap technological upgrades, the so-called 'low-hanging fruit'. To reverse this pattern of failure calls for an increased understanding of social infrastructures and how their interaction contributes to climate change.

Various social infrastructures demonstrate different patterns of inertia. What is often termed 'hard' infrastructure is materialized in capital equipment, whereas 'soft' infrastructure exists in the minds of people and in structured patterns of behaviour. The capital stock of roads, buildings, generating plants etc. sets the boundaries of what can be produced, and only changes fairly slowly. It also has high inertia due to sunk costs. At the same time, ideas, relations, ways of doing things all shape what individuals and groups do with their physical infrastructures. Such 'soft'

infrastructure evolves over a different time frame and exhibits different kinds of inertia to its capital counterpart.

Hard infrastructures of steel and concrete thus channel the physical transformation and circulation of goods, services and people. They lock in significant resources for lengthy periods and thus, ensure dependency on current development pathways and technologies. However, the soft infrastructures embedded in knowledge, attitudes, worldviews and cultures, and sometimes materialized in institutions and governance, are equally important in channelling expectations and behaviour. Changing such assumptions and understanding in favour of sustainable development has enormous potential to leverage alternative social infrastructures that entail, not sacrificing human well-being for the environment, but understanding human well-being in profoundly different ways.

3. Systemic interactions and feedback loops

The term 'feedback loops' refers in this context to the ways that hard and soft infrastructures affect one another and produce, over time, patterns of resource use and needs satisfaction that may appear to be inextricably linked. As many examples demonstrate, their relationships evolve and can be intentionally changed by deliberate policies. To take a well studied example, the construction of the United States interstate highway system that began in 1956, a hard infrastructure, created a long-term bias against rail transport that not only reshaped the social geography of cities but also increased dependence on fossil fuels. Similarly, the way in which a national electricity grid system is set up, with its fuel choices and architecture, may constrain energy policies for many decades, even if the deficiencies of initial choices become evident relatively quickly.

On the other hand, waste of water, energy, food and other scarce resources is embedded in the belief that it is acceptable, a prevalent form of 'soft' infrastructure for many industrialized countries. Conspicuous consumption has deep cultural and psychological roots, and it is in turn promoted and sustained by marketing, production and distribution systems that put a positive value on excess, superfluity and obsolescence.

While climate change is currently driven mainly by positive feedback between hard and soft infrastructures, it is also possible to imagine the influence of negative feedback loops. Gradual shifts in attitudes can lead to different patterns of behaviour, which enable incremental changes in hard infrastructure, which in turn entrench the new attitudes and behaviours. Sustainable development is, effectively, such a negative feedback loop in action.

Among the soft infrastructures of great relevance to social patterns of resource consumption are power, wealth and poverty, and their more or less equal distribution. While the web of connections in this respect is very complex, it is reasonably clear that poverty reduction will prove environmentally unsustainable if wealth continues to be interpreted in terms of the ability to consume conspicuously and thereby to waste.

A more detailed understanding of established positive feedback loops is therefore essential to imagining the transformative negative feedback loops that could move future societies towards sustainability. Development, as conventionally interpreted, is a positive feedback loop. The increased intensity and extension of human exploitation of natural resources since 1945 cannot necessarily be extrapolated over the long term. Current 'business as usual scenarios' entail a

30% increase in the world population at the same time as a rising level of per capita resource consumption, despite the evident lack of sufficient resources. Development will thus undermine itself if it fails to internalize and act upon resource constraints.

There are many familiar examples of how the social drivers of climate change arise from the production-consumption nexus. The following sections offer some cross-cutting analysis of particular sectoral issues that illustrate some of the feedback loops at work within that nexus.

4. Energy and transport

Increased energy efficiency for any given level of economic output is an observed and sustained trend over time, due both to improved technical efficiency of appliances and to changing economic structures. However, while energy consumption grows more slowly than the economy as a whole, it is still on a steady upwards path, which drives greenhouse gas emissions.

Two of the most powerful drivers in this regard are transport, both of people and of goods, and electrification, understood both as the introduction of electricity to societies from which it was previously absent and the need for electricity to drive new kinds of appliances. In 2004, transport energy use amounted to 26% of total world energy use and the transport sector was responsible for about 23% of world energy-related greenhouse gas emissions *(23)*. The aggregate figure for electricity production is of the same order of magnitude. The feedback loop in operation here is that electricity systems install generating capacity to meet end-user needs that have been partly promoted to optimize the load factor of pre-existing generating plants.

The fundamental challenge is to move away from energy consumption as a proxy for prosperity towards a set of hard and soft infrastructures in which human needs for heat, light and power have pre-eminence over the technical systems designed to deliver energy services. This entails replacing a feedback loop between energy availability and energy needs with one that supports energy frugality. Given that the era of cheap energy is coming to an end, it is important to ensure that relatively higher energy prices do not induce new patterns of social inequality driven by differential access to energy, including but not limited to transportation needs.

5. Agriculture, land use and deforestation

In 2005, agriculture accounted for 10–12% of total global anthropogenic emissions of greenhouse gases *(24)*. Its contribution may be expected to increase quite rapidly, in particular as a result of changing food habits in fast-developing societies, such as rapidly increasing consumption of red meat. Furthermore, observed trends are premised on a baseline that is itself arguably inefficient in terms of net greenhouse gas emissions. While agricultural productivity continues to increase, the trend appears to have slowed considerably, and there is some evidence to suggest that fundamental change in techniques and modes of organization may be required if the need to feed the planet is to be reconciled with appropriate responses to climate change.

Deforestation in developing countries, the largest source of emissions from the forestry sector, has remained at high levels since 1990. While the causes of tropical deforestation are complex, varying across countries and over time in response to different social, cultural and macroeconomic conditions *(2)*, it is driven in particular by the demand for hardwoods and edible oils in developed countries.

There are strong and well studied feedback loops linking agricultural change to climate impacts via irreversible structural transformations that combine increased productivity, rationalization of land ownership and techniques, rural–urban migration and the need to feed cities through long-range supply chains. While these transformations cannot – and probably should not – be undone given the greater potential sustainability of cities, they can nevertheless be adjusted. Mass agricultural production has imposed a 'deficit' model, based in particular on systematic and unsustainable use of chemical fertilizers. If alternative modes of agricultural organization and alternative techniques could be promoted, the feedback loops could be refocused towards ensuring lower climate impacts.

6. Cities

Transport, electrification and agricultural change in turn connect to urbanization, the social forms of which constitute a highly differentiated driver of climate change.

In general terms, cities are more efficient at resource use than more dispersed forms of living, though this tends to be counteracted by the higher level of development achievable through urbanization. To this extent, rural–urban migration is on balance a contribution towards sustainability. Conversely, the kind of 'de-urbanization' that is observable in some parts of the developed world, with declining city populations relocating to ever more distant suburbs or 'exurbs', erodes many of the sustainability benefits of urban life.

However, real-world cities are not necessarily sustainable. Dense cities create heat islands that represent a positive feedback loop with respect to climate-driven warming as well as inducing additional energy consumption to combat local effects. Conversely, there are major efforts among architects, engineers and planners to imagine sustainable cities, based on negative feedback loops. Implementing such ideas will require not just alternative transport systems, but a whole new soft infrastructure – a different way of imagining the city. However, infrastructure choices also shape cities very powerfully: the presence or absence of public transportation, the building codes and their effects on what gets built, the extent to which the city rejects or incorporates vegetation, the ways in which waste is disposed of. Adaptive patterns of attitude and behaviour in turn embed the underlying logic of urban structure, thereby making it very resistant to change.

Conversely, the choices made now in fast-growing cities in the developing world will have pervasive and long-reaching effects that can contribute to much more sustainable development paths.

7. Policy implications

Greenhouse gas emissions provide a proxy indicator for the social processes that drive them, and it may therefore appear reasonable to deal indirectly with social drivers by acting on the emissions. However, this 'end-of-pipe' approach has not proved successful in inducing either mitigation or adaptation. The combination of tax, trade and technology that defined the Kyoto agenda and currently shapes approaches to the 'green economy' undoubtedly has a role to play in responding to climate change. On the other hand, it is unclear whether structural social change can be leveraged through such tools. Yet to achieve social change directly, on the basis of education and awareness-raising aimed at modifying behaviour by shifting attitudes alone, seems equally implausible.

The points made in this chapter serve to underline the 'stickiness' inherent in the social drivers of climate change, while also pointing to some of the levers that might be available to induce change. These levers, in general terms, depend on identifying and mobilizing feedback loops, deploying relevant and appropriate policy options, and including investment in soft infrastructure (education and awareness-raising). It is equally important to act on enablers of and barriers to change, embedded in soft infrastructure, including institutions that induce bias towards unsustainable business-as-usual options.

'Climate-proofed', 'green', 'low-carbon', 'sustainable' societies are necessarily those that have adapted their social infrastructures in such a way that they emit less for any given level of human benefit, and can cope better with any given level of climate change. To this extent, emphasis on social drivers clearly points to the potential for major co-benefits from addressing climate change, in terms of more sustainable patterns of energy use, urbanization, agriculture and transport.

Ultimately, the challenge is to identify ways to shift developmental pathways – locking in lower-impact and more sustainable societies by harnessing the right kind of infrastructure in the appropriate way. This is of particular importance in fast-growing developing countries, which have the opportunity to 'leapfrog' stages of development that industrialized countries historically went through, but which do not correspond to the best currently available technologies and modes of social organization. Specific policy options, as well as related guidelines and principles will be presented in more detail in Chapter 5.

CHAPTER 4

The social dimensions of climate change vulnerability and impacts, and the implications for adaptation

1. Introduction

The previous chapter argued that greenhouse gas emissions constitute a proxy indicator for the social processes that drive them. To give an example, the fact that people increasingly use cars and airplanes is rooted in social and cultural norms. 'End-of-pipe' approaches – that attempt to reduce emissions through taxes or technologies – have not proven successful. Climate change mitigation must also address the social drivers of climate change, including people's attitudes towards driving and flying.

This chapter examines the social factors and conditions that make people and social systems vulnerable to climate change. The underlying argument is that climate change vulnerability is a proxy indicator for general vulnerability and lack of resilience *(27)*,[e] as determined by socioeconomic factors and human development pathways. Understanding the socioeconomic conditions that make people vulnerable, and acting upon them, is a major part of projecting and responding to the impacts of climate change on people and societies, and one that is often missing.

2. Socioeconomic determinants of climate change vulnerability

Article 1 of the UNFCCC refers to "adverse effects of climate change", including effects on "the operation of socio-economic systems or on human health and welfare." However, both vulnerability to climate change hazards and the impacts of those hazards on people, communities and social systems are not yet fully understood.

In 2008, cyclone Nargis struck Myanmar and claimed nearly 140 000 lives. In the same year, Cuba was affected by four devastating storms, among them the most devastating hurricane in 50 years. Very few lives were lost *(25)*. Differences in impact of climate-related hazards on peoples' health, lives and livelihoods are determined by their varying levels of vulnerability.

The Intergovernmental Panel on Climate Change (IPCC) recognizes that vulnerability and the potential impacts of climate change are determined by the exposure, sensitivity and adaptive capacity of people and societies *(26)*.[f] In its fourth assessment report in 2007, the IPCC noted shortcomings in its definition of vulnerability, particularly in its lack of consideration of 'social vulnerability', the need to address the determinants of adaptive capacity, and the need to consider human development as an essential mediator of climate vulnerability. Building on the IPCC

[e] Resilience is defined as "the ability of a system, community or society exposed to hazards".

[f] 'Potential impacts' and 'vulnerability' are quasi synonymous in the IPCC definition.

definition of vulnerability, this section explores the factors that affect adaptive capacity and make people exposed or sensitive to climate change.

Adaptive capacity, exposure and sensitivity are shaped by many non-climatic, socioeconomic factors, such as access to and control over economic, social and institutional resources *(27)*. These resources comprise:

- Human capital, such as good health, skills, knowledge and education;
- Social capital, including the power to influence decision-making, voting rights, and social connectedness, whether to relatives, neighbours, civil society organizations, business or government agencies;
- Physical capital, such as shelter, farming tools, but also community infrastructure such as embankments or terraces that protect a watershed and health care facilities, for example;
- Natural resources, including land and water; and
- Financial capital, such as income, savings or credit *(28–30)*.

Whether or not people have access to these resources in turn depends greatly on social, political and economic conditions and institutions at both local and global levels: the rules, norms, policies and services etc. that shape peoples' lives. An enabling institutional environment that empowers people and allows them to gain access to the resources they need for their well-being and the resilience of their livelihoods is therefore critical for adaptation *(31–32)*.[g] Clearly it is beyond the scope of this paper to provide a full analysis of the institutions that impact people's vulnerability. What is important is to understand that institutions are mechanisms that mediate vulnerability. These include:

- Normative and governance structures and processes, including human rights, transparency, accountability, participation and other elements of good governance, discussed in greater detail in Chapter 5;
- Social and cultural norms, which determine significant parts of access, political power and equality, including gender norms, social differentiation, exclusion and discrimination;
- Social policies and services, such as social protection, preventive and curative health services, that can reduce vulnerability to climate change from control programmes for climate-sensitive diseases, to reproductive health services and education;
- Sectoral policies, such as trade, agriculture and food security, health, land tenure and economic policies;
- Climate change policies, including mitigation strategies and adaptation support systems, some of which are being negotiated globally, like financing and technology transfer mechanisms, others of which are provided nationally, such as agricultural extension or meteorological services;
- Markets, as well as finance and credit institutions.

Policies can both empower or systematically exclude marginalized groups, and may reinforce existing inequalities or increase threats to their well-being and livelihoods. Transformative social policy that addresses aspects of redistribution, enhances productive capacity and social cohesion and reshapes institutions in line with the principles of good governance, equity and empowerment can significantly reduce vulnerability to climate change *(33)*. Social safety nets, such as school feeding programmes for example, allow poor people to invest in education, health, skills development and productive assets – all of which are critical elements of adaptive

[g] At the same time, relations of power and inequality also determine people's participation in institutions, the forms this participation might take, and thus outcomes of vulnerability.

capacity – and also allow them to benefit from technology transfer. In turn, the poor functioning or absence of social policies or other protection and insurance mechanisms reduce people's ability to withstand and manage shocks and stresses. In addition, access to stable and fair markets can provide poor people with an opportunity to raise their incomes and well-being, whereas exposure to market volatility and rising food prices can push millions of poor people into destitution and food insecurity, as the fuel and food price crisis of 2008 demonstrated.

Socioeconomic factors and institutions like the ones listed above not only influence adaptive capacity, but also exposure and sensitivity to climate-related hazards. Exposure is often considered a static factor that influences vulnerability, rather than itself being shaped through a range of political, socioeconomic and demographic processes *(34)* . Changes in the number and spatial distribution of people, through population growth or decline and through processes like seasonal or international migration and urbanization, can significantly change the exposure of populations. Availability and access to human, social and financial resources, as well as policies that support and plan for mobility, or those that attempt to restrict them or fail to plan ahead for coming population change, are key determinants of where people live *(35)*. Poor people tend to live in hazard-prone areas, such as steep slopes or riverbanks, because they cannot afford to live in safer places, and because political, economic and governance factors such as lack of employment and income opportunities, the absence of social services or conflict causes them to migrate to urban areas. Even among the poor, women and children can be at higher risk as they are prone to work and live in structures of lower social value and that are more poorly constructed, such as schools as compared to office buildings. Similarly, high dependence on natural resources, a key indicator of sensitivity, is linked to and shaped by economic and social structures. Policies on agriculture, land tenure, urban planning and many others can enhance or limit peoples' ability to change to livelihoods that are less sensitive to climate change.

In sum, the people most vulnerable to climate change are usually poor, undernourished, of poor health, live in precarious housing conditions, farm on degraded lands, have low levels of education, lack rights, have little opportunities to influence decision making, work under precarious conditions, and/or reside in countries and regions with non-resilient health systems, limited resources and sometimes poor governance systems. Social, cultural or political circumstances, often including inequalities and discriminatory practices, deprive them of the basic assets and entitlements and the institutional support needed to make a living and ensure their well-being even under normal conditions, let alone for mastering the increased and additional challenges posed by climate change. These non-climatic factors and the socioeconomic context in which climatic problems occur is likely to be as important, if not more so, than climate-related hazards themselves *(36)* .

3. Social impacts of climate change

Climate change increases the risk of acute events like storms, droughts and floods, cyclical changes in precipitation, or long-term changes in temperature and sea levels. How do these trends impacts people and societies? Most impact assessments and evaluations limit their focus to environmental and hard infrastructure impacts. However, climate change potentially affects a much wider range of sustainable development issues – such as health, food security, employment, incomes and livelihoods, gender equality, education, housing, poverty and mobility – either directly or indirectly.

Climate-related disasters already affect more than 200 million people every year *(44)*. For the 2.6 billion people who live on less than US$ 2 a day, climate shocks can trigger powerful downward spirals in human development. Whereas high-income people can cope with shocks through private insurance, by selling off assets or by drawing on their savings, the poor face a different set of choices. They may have no alternative but to reduce consumption, cut nutrition, take children out of school or sell the productive assets on which their recovery depends. These are choices that limit human capabilities and reinforce inequalities; they are avoidable low human development traps.

While climate change and extreme weather events affect multiple aspects of people's lives, the impact on health and nutrition and the ability to work or learn are significant.

The most important health impacts are those determined by the basic requirements for health – clean air, safe drinking water, sufficient food and secure shelter – and are also reflected in more frequent injuries and increases in social inequities. Climate risks can also damage health infrastructure, undermining the provision of health services *(37)*.

While climate change affects human health systems both as a result of sudden climate-related emergencies (e.g. extreme heat, floods and droughts, tropical storms and changing patterns of infection) as well as chronic stresses (e.g. water shortages, malnutrition, psychosocial stress, displacement, migration and conflicts), WHO estimates that ultimately the greatest health impacts may be from gradual increases in pressure on the natural, economic and social systems that sustain health and which are already under stress *(38)*.

Impacts on health in developing countries are already visible. It has been estimated that by the year 2004, the modest warming that had already been occurring since the 1970s had already caused over 140 000 additional deaths annually *(39)* . In many parts of the world, climate change may significantly worsen the situation and contribute to the spread of HIV, due to the impacts of escalating poverty, population displacement, and places an even greater burden on health care systems *(40)*.

Studies have shown that children aged two or less born during a drought are over 70% more likely to be malnourished than children born at other times *(41)*. In the years following floods, wasting and stunting rates among preschool children have been found to increase due to reduced access to food, increased difficulties of providing proper care, and greater exposure to contaminants *(42)*. Under- and malnutrition has a profound impact on a child's ability to grow, learn and rise out of poverty *(43)*.

Climate change could act as a significant 'hunger risk multiplier' *(44)*. By 2050, the risk of hunger is projected to increase by 10 to 20% compared to a no climate change scenario, solely due to productivity losses. Calorie availability in 2050 is likely to have declined relative to 2000 levels throughout the developing world: 24 million additional malnourished children, 21% more than today, are anticipated, almost half of them in sub-Saharan Africa *(45)*. Taking other, socioeconomic factors into account, the figure could be much higher. For example, with local production declining income opportunities and purchasing power of small-scale producers, as well as seasonal workers dependent on harvesting and crop-processing, will decrease. At the same time, prices for the most important crops, including rice, wheat, and maize could increase by up to 150% by 2060. Recent studies argue that food prices will more than double in the next 20 years (*46*) and increase by an average of over the coming decade *(47)*, with climate change being one of the most significant factors causing price volatility.

Creating a vicious cycle, climate change is multiplying many of the same socioeconomic factors that make people vulnerable to climate change in the first place. Through its impact on the systems and institutions that sustain human health and well-being, including ecosystems, livelihoods and employment, and the provision of social services, it is perpetuating existing drivers of vulnerability *(38)*. Africa alone is home to more than 650 million people who are dependent on rain-fed agriculture in environments that are already affected by water scarcity and land degradation, which will be further accelerated by climate change. Two-thirds of Africa's arable land could be lost by 2025 *(48)*. Dealing with even greater resource scarcity in times of growing demand for food poses tremendous governance challenges at the community, as well as the national and international level, potentially spurring instability, conflict and displacement – already major drivers of vulnerability *(49)*. People on the move, particularly those displaced by climate impacts, suffer from lack of access to health care services, including reproductive health services, which can lead to consequences that far outlast the direct physical impacts of particular climate events.

Climate-related disasters can damage the very service-delivery infrastructures that help secure health and well-being, such as health services, utilities and municipalities, energy and communications systems, police, etc. Responding to increasing extreme events may also overburden social protection systems and safety nets. 5.3 billion people already lack any access to social security coverage *(22)*, and existing policies and social protection systems are often inadequate to enhance resilience and adaptive capacity or to mitigate negative climate change impacts on employment. Climate change could result in a spike in unemployment and in the deterioration of working conditions in urban areas. For example, climate-related damages to transport, industrial infrastructures and settlements will compromise workers´ ability to reach their workplaces *(50)*.

Given the breadth of factors associated with vulnerability to climate change, and how pervasive social dimensions are among those factors, the wide range of potential impacts of climate change should not come as a surprise. Due to existing social marginalization, discrimination or insufficient protective policies and institutions, the impacts of climate change are also likely to be unevenly distributed among different social groups. Certain characteristics such as age, gender, ethnicity, social class and caste are strongly associated with social vulnerability. For example, gender norms, roles and relations already determine different impacts on women and men, including in relation to health *(51)*.

Impacts also depend heavily on where people are living and the assets and resources they bring to bear for resilience. The world is growing increasingly urban; already, more than half of the population lives in urban areas, and by 2050 it could be as high as two thirds *(35)*. Nearly all urban growth will happen in cities in the developing world, where more than 50% of the current population lives in urban slums *(52)*. Highly vulnerable locations, poor housing materials, limited access to infrastructure and lack of secure tenure make people in urban slums among those most likely to experience severe climate impacts. This is exacerbated by the fact that 15% of the world's urban population currently lives in cities located in low elevation coastal zones, many in the developing world, which are highly exposed to impacts of sea level rise and extreme weather conditions. These cities are also experiencing rapid growth, as people move to them for economic opportunities, often to slums, and at the same time expose themselves to greater risk of climate impacts *(19)*.

Box: Putting it all together – the example of displacement and migration

The wide range of links between displacement, migration and climate change provide a very powerful example of how the social dimensions of climate change need to be integrated into both vulnerability and impact assessments. Migration exists along a double continuum: from forced to voluntary, and from being and element of humanitarian responses to part of sustainable development *(53)*. Climate-related migration not only involves people fleeing from the imminent threat or aftermath of a climate disaster – the most commonly referenced type – but also entails planned relocation by households and communities as an adaptation strategy to search for alternative livelihoods and sources of income *(54)*.

Population mobility is critical to climate change exposure, sensitivity and adaptive capacity. The changing spatial distribution of a population has significant impacts on exposure, with the clearest example being the rapid current and projected growth of cities in low elevation coastal zones, much of it linked to migration of the rural poor to the most insecure, least serviced and most at-risk land in cities, including urban slums *(55)*. In these instances, economic migration may increase people's exposure to sea level rise and flooding. Similarly, livelihoods based on migration, including nomadic and seasonal movement, may be highly sensitive to changes in temperature and precipitation *(56)*. Adaptive migration that reduces vulnerability or mitigates impacts requires assets, including human and social capital. Those without these assets and the adaptive capacity they bring may not be able to move and are therefore will remain more vulnerable to climate hazards *(34)*.

New arrivals to urban areas are frequently poor, and often do not have secure lands rights, use substandard materials for housing, and may have no choice but to build in the most precarious locations *(35)*. In the absence of affordable, decent housing, migrants may resort to unregulated construction, as well as unsustainable and unsanitary livelihood practices leading to serious public health risks, increased risk of violence against women, deforestation, soil erosion and pollution *(53)*.

Movement as an impact of climate change will result from a number of different pathways: increased drought that undermines human health, agricultural livelihoods and reduced food security; rising sea levels that affect coastal deltas – especially low-lying island countries – which affect habitability of these areas; intensification of acute natural hazards such as floods, cyclones and hurricanes that threaten the health and physical safety of affected populations; and competition over scarce natural resources that may lead to conflict especially where other mediating factors are at play in the same region, including social tensions, extreme poverty and week governance *(56)*. Much of this movement will be short term and short distance, and often on the forced end of the continuum *(57)*. International and permanent migration also requires the kind of resources and assets that themselves are impacted by disasters, meaning that displacement and forced migration result partially from lack of adaptive capacity. Thus, there is a growing need for integrating social policy with climate change policy in order to deal with these realities.

4. Implications for adaptation planning and resilience building

Efforts to reduce vulnerability have often focused on technological innovations, for example improved crop varieties or more resistant infrastructure. Climate-proofing development is critical, but it is important that this process is not limited to 'end-of-pipe' approaches that address symptoms or outcomes rather than causes of vulnerability.

As this chapter outlined, the causes of climate change vulnerability and impacts are often socioeconomic ones. Investing in human and social capital sets the stage for and maximizes the impact of adaptation interventions. Similarly, robust institutions, well informed about current and future impacts of climate change, will help people and governments to prepare, design and implement an effective response to climate impacts and increase the resilience of social institutions.

Adaptation that is to benefit the most vulnerable people should therefore comprise broader developmental and resilience-building measures that empower people and reduce socially determined vulnerability as well as specific measures that reduce vulnerability to climate-related risks in the short and long term.

The discussion of the social dimensions of climate change vulnerability and impacts also underscores that they are contextual and the result of socio-economic conditions, rather than a characteristic of particular social or demographic groups, like women, children, the elderly or the disabled. However, vulnerabilities are more likely to co-occur within some of these groups, because they also often lack resources, rights and access to decision-making processes; therefore, focusing adaptation interventions on their specific needs is essential.

CHAPTER 5

The way forward: Integrating social dimensions of climate change in climate change policy responses

1. Introduction

Analysis of the social dimensions of climate change, the social drivers and determinants of what makes people vulnerable shows the extent to which climate change relates to, reflects and affects all aspects of contemporary societies. Climate change poses a challenge to established policy frameworks because it cuts across institutional sectors and issues that are usually addressed separately. Compartmentalizing climate change policy responses into a series of sectoral agendas, such as energy, transport, agriculture etc., overlooks some of the key features of climate change: a fragmented response does not respond adequately to climate change.

Nonetheless, addressing climate change via a sectoral, traditionally economic, cost-benefit approach is common practice in policy responses, particularly with respect to the emphasis on 'end-of-pipe' methods of greenhouse gas mitigation – for example through taxation, trade policies and technology approaches that do not adequately reflect the social infrastructure and consequences of such methods. As already discussed, such policies have not previously proved successful and broader policies that integrate social impacts and opportunities are urgently needed.

Major social and economic opportunities can be seized if polices comprehensively incorporate the social dimensions of climate change and if a strong social pillar of climate policies emerges to complement the traditional science and environment components.

2. Social dimensions of climate change: Seizing opportunities

Climate change poses an unprecedented challenge to international governance, requiring governments to address traditionally disparate issues in an interlinked manner and transforming the way in which they approach economic and development polices. The cross-cutting nature of climate change offers multiple social co-benefits to be seized for policy-makers who incorporate social dimensions into their approaches. For example, adaptation programmes that embed community consultations from their inception can result in communities' identifying and coming together around other related development issues, such as economic development and employment opportunities and access to safe water, sanitation and health care. Social unrest that can result from top-down policy interventions can also be prevented through policies and programmes that are socially inclusive and consultative. Indeed, social mobilization and cooperation around climate change is critical for the formation of inclusive and transformative social policies and good governance.

In addition, large-scale transformations necessary to meet climate objectives can be directed to deliver greater and more sustainable development benefits; failing to incorporate the social dimensions of climate change will likely result in wasted climate resources and missed opportunities for related development gains.

Decades of development experience demonstrates that gains result from effective and holistic development policies and from sustainable development policies that effectively integrate its three components – social, environmental and economic. This is not new, but deserves reinforcement and application to the climate context. While non-climate development policies will not be addressed in this chapter, the authors recognize that the social dimensions of climate change offer opportunities for other policy areas and that building climate resilience is an aspect of development in general.

3. Responding to knowledge gaps

Knowledge gaps related to the social dimensions of climate change largely fall into the spheres of formal social and human sciences, and local and informal knowledge. There is a need, for example, for regional/downscaled climate outlooks (assessment of likely social impacts at community level), detailed projections of the effects on climate-sensitive diseases, data on human impacts of disasters broken down by sex and age, and climate-induced migration projections.

In response to such gaps, the following approaches are recommended:

- *Value informal/local/traditional knowledge as a complement to scientific knowledge systems.*
- *Promote national and international cooperation to support collaborative social and natural science research on climate-related issues.*
- *Support efforts to strengthen climate science downscaling in priority sectors such as health, disaster risk reduction, food and water security such as the WMO-led Global Framework for Climate Service and link this information with socioeconomic vulnerability analysis.*
- *Strengthen incorporation of social dimensions in* National Adaptation Programmes of Action and National Communications to the UNFCCC.

4. Improving climate policy processes

Policies need to be developed and adopted with a consistent focus on the following procedural principles. Social policies and institutions must be "inclusive, responsive and accountable" in order to effectively empower people to be agents in the fight against climate change and to transform "from subjects and beneficiaries into citizens with rights and responsibilities" *(59)*. In addition, embedding good governance and these principles into climate policy design is essential to maintain trust in public spending and investments.

The need for strong global governance in order to implement effective climate policies is reinforced by Transparency International's *Global Corruption Report: Climate Change (60)*. The report reveals that countries' most vulnerable to climate impacts are also often those with the highest global corruption ratings. Like other development priorities, corruption and ineffective governance can derail efforts to combat climate change. In addition, large infrastructural investments and market shifts that vulnerable to corruption are necessary to achieve global low-carbon economic growth; it is therefore important that safeguards are in place and

institutionalized to prevent mismanagement. A dramatic strengthening of governance systems embedded with the following principles can make climate change policies more likely to succeed.

Means for enhancing the social dimensions of climate change policies and programmes

1. ***Participation:*** Active participation affords all people a genuine opportunity to influence and enhance policy formulation and implementation. Different participatory instruments and processes will have to be employed on various levels, ranging from national policy decisions to decisions at community level, for example, those related to infrastructure, use of land, housing and others. In all cases, it is essential to involve civil society organisations and communities at the early stage of decision making, including trade unions and employers' organisations. Leaving affected groups out of decision-making and planning increases the risk that when services are provided they do not match the needs and priorities of the people, are technically inappropriate, too costly or that payment options are unrealistic and may also contribute to growing inequality and vulnerability.
2. ***Accountability:*** States are legally responsible for keeping to the commitments they have made under international human rights treaties, labour standards and their own national constitutions and legislation. The human rights principle of accountability in the climate change process can be understood in three different ways: (i) It clarifies the lines of responsibility (who does what) by identifying rights-holders (and their entitlements) and corresponding duty-holders (and their obligations). In this regard, it looks both at the positive obligations (to protect, promote and fulfil) of duty holders, and their negative obligations (to abstain from violations). (ii) It underscores the 'answerability' of duty-bearers to rights-holders in the context of their policy interventions and seeks to identify policy failures for corrective action. This also implies the implementation of monitoring and evaluation frameworks by translating universal standards into locally determined targets and benchmarks for measuring progress. (iii) It emphasizes the need for 'remedy' when rights are violated, which requires the development of accessible and effective redress mechanisms and complaint procedures. This will include, variously, courts, administrative panels and tribunals, special commissions, ombudsman offices, and others.
3. ***Non-discrimination and equity:*** Particular focus should be given to the status of marginalized, discriminated and vulnerable groups within the context of climate change mitigation and adaptation policy-making. Integrating these principles into policy requires a specific effort to identify the individuals and groups most marginalized and vulnerable as a result of climate change itself and/or policies to address it. It also requires that proactive measures are taken to ensure that policies and programmes include these groups in the decision-making process (equity in opportunity and process), but also to ensure that policies result in equitable outcomes. Groups that are potentially vulnerable or marginalized include: women, children, inhabitants of rural and deprived urban areas as well as other people living in poverty, nomadic and traveller communities, refugees, migrants and internally displaced persons, elderly, indigenous and minority groups, people living with disabilities, people living in water-scarce regions and people living with HIV, among others.
4. ***Empowerment:*** All climate change-related decisions, policies and initiatives are required to empower local participants, while guarding against reinforcing any existing power imbalances. It requires that interventions contribute to the enhancement of the capacities of right-holders to claim and exercise their rights. For instance, it is required to plan and budget for programmes developing the organizational capacities and technical skills of people living

in poverty to participate in all phases of the policy process, to monitor public expenditure using available and easily accessible social accountability and audit tools, and to advocate for their rights. Empowerment is thus a precursor to good climate change policies, as well as a social benefit in its own right.

5. ***Transparency***: Climate change mitigation and adaptation policies and measures should be prepared in a transparent manner by providing full access to information to all stakeholders. It requires adopting a disclosure policy on plan formulation; making approaches/guidelines/objectives clear to all stakeholders; ensuring availability of climate change-related documentation online; utilizing media; issuing press releases on highlights of meetings; publicizing the planning process; making records of meetings available, and issuing clear guidelines and procedures .[h]

On the basis of the above, the following policy recommendations can be made:

1. *Complement global and regional climate analysis with social impact assessments to properly identify socioeconomic climate change 'hotspots'*. Global and regional one-size-fits-all climate analysis may not reflect the reality of a particular community or country and can under- or over-emphasize risks relevant to certain communities. The outcomes of downscaling should be incorporated where relevant and feasible, and combined with complementary mappings that may include social impact assessments and vulnerability maps, in order to identify social climate-induced hotspots (places where particularly severe problems may need to be addressed) and their intersection with other kinds of vulnerabilities such as lack of access to preventive and curative health services, that can reduce health vulnerability to climate change. Impacts assessment should ideally integrate coverage of the following critical sectors and groups: impacts on employment, health, food and nutrition security, gender, children and youth, small-scale farmers and migration.
2. *Develop more frequent and better informed social impact assessments.* Social impact assessments are often not conducted in tandem with the design and implementation of climate policies, and thus the policies omit essential community input into potential constraints and opportunities. Ensure that social impact assessments are conducted throughout each stage of programme and policy development.
3. *Promote interministerial policy coordination/dialogue*. At present, ministries, multilateral organizations and agencies often work in silos, and in so doing, neglect to fully address the complexities of climate impacts and co-benefits. At national and global level, fora must be made available for country ministers to dialogue about climate policies and ensure that their expertise is incorporated into global and national climate policies. Civil society should be part of these fora for informed and community-led decisions to be incorporated. These fora should be facilitated in coordination and alignment with national development strategies in order to guarantee that climate actions are designed and implemented alongside social, economic and environmental national priorities.
4. *Ensure safeguards are in place to protect the interests of the most vulnerable when designing and implementing climate solutions.* The underlying causes of vulnerability and adaptive capacity should consider the specific social determinants of climate change vulnerability using the conclusions of impact assessments and causality analyses. Ensure that policies are appropriately socially inclusive and do not adversely impact the most vulnerable people.

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h For more information on national examples of integrating these principles in policies and programmes with regard to aid assistance, water and food issues, please see: http://www.oecd.org/dataoecd/17/33/47182891.pdf; http://www.unescobkk.org/education/education-and-human-rights/rights-based-approach-to-education/human-rights-based-programming/; http://www.who.int/water_sanitation_health/humanrights/en/index4.html

5. *Invest in human capital.* Climate policies and programmes have the potential to empower people as agents of change and innovators. Policy-makers need to advance education and skills-building opportunities throughout the implementation of climate policies, ensuring that people are equipped with the tools to devise their own solutions and innovations, and that the most vulnerable people are empowered to minimize risk.
6. *Ensure that the large infrastructure changes necessary for low-carbon growth do not exacerbate societal inequities.* In communities where renewable energy investments, sea walls, large-scale irrigation systems are constructed, policy-makers must ensure that communities are provided with the skills to engage with the changes so that: (i) The investments contribute to livelihood opportunities, and (ii) Social unrest and inequities do not result from large-scale transformations.
7. *Include social dimensions-responsive budgeting in climate finance at both national and global levels.* Utilize existing budgeting parameters, such as children, health and gender-responsive budgeting, to inform the development of a social dimensions budgeting tool. This tool will examine what national and global resources currently allocated for climate finance also benefit social dimensions and will allow policy-makers to budget equitably for the social dimensions of climate change.
8. *Ensure that climate funding is additional to current official development assistance (otherwise funding might be diverted from essential development goals).* Diversion of development funding can have dire consequences. The guiding principle for the multilateral system on climate change should be to provide new and additional resources to advance pro-poor, low-emission and climate-resilient development. This implies a focus on actions that address climate change *and* poverty reduction, ultimately contributing to the achievements of the MDGs.
9. *Identify research gaps and prioritize areas in which to bolster research.* In addition to the presence of general research gaps related to the social dimensions of climate change, knowledge gaps frequently arise when designing climate policies. It is important to identify and prioritize gaps in the beginning of a policy design process, and to refer to expertise to answer research questions, relying on traditional knowledge, and partnering with local research, weather and climate institutions. Social impact assessment helps inform research gaps, as do causality analyses. The International Human Dimensions Programme on Global Environmental Change provides valuable best practices and research for policy-makers to consult.

In practice: What policies that give due consideration to the social dimensions of climate change look like?

This section contrasts hypothetical climate policies that neglect or incorporate social dimensions.

Example 1

Aquifer salt water intrusion: the entry of salt water into freshwater aquifers (from sea level rise or hurricane/cyclone-induced saltwater entry)

Climate forecasts imply that salt water intrusion will likely become more frequent with sea level rise and also potentially increase during hurricane/cyclone events. There is a need for effective policies to respond to identified risks, if the basic capacity to respond and resources are available.

An *inappropriate* response might include:

- a lack of community consultation, resulting in confusion and unrest in the community while responses are being implemented;
- relocating, though sometimes necessary, there are alternatives options to assess and trial before relocating affected communities;
- rushing into desalination, a costly endeavour;
- neglecting social feedback loops driven by ongoing, established water practices;
- implementing financial subsidies, which might in turn exacerbate the situation.

An *appropriate* response might incorporate:

- background analysis of the social drivers of vulnerability and impact, using causality assessment tools to identify problems correctly, including direct climate-related causes and exacerbating non-climate factors;
- meaningful engagement with communities to establish a basis for informed consent;
- prior open-ended environmental and social impact assessments that establish social impact priorities based on engagement;
- cost-benefit analysis including a full range of social costs and benefits;
- safeguards put in place in response to social impact assessment results;
- social dimension-responsive budgeting tools, which have been shown to foster equitable budgeting and resource allocation;
- skills-building and education of affected communities;
- monitoring and evaluation indicators that are consistent with those used in the assessment and embedded throughout the programme.

Example 2

Sustainable tourism

Sustainable or 'eco-' tourism has emerged as an approach to simultaneously promote economic development and conservation. As awareness about climate change and environmental degradation grows, eco-tourism is increasingly advocated as a method of responsible tourism throughout the world.

An *inappropriate* approach to eco-tourism might include:

- A lack of community consultation, resulting in placement of the tourism infrastructure in already-owned land, resulting in social unrest;
- Relocation of animals to the tourist destination that harm crops and destroy housing;
- Investment in monoculture desirable to tourists but damaging to soil that is needed for local crops, leading to worsened food security;
- Design of new roads to the tourist destination, which displaces communities and traditional animal routes to food and water sources;
- Development of irrigation systems for tourist sites, sourced by a nearby community, leading to a depletion of water availability for that community, in particular the most vulnerable.

An *appropriate* response might incorporate:

- Prior, open-ended social impact assessments conducted throughout policy design, thereby preventing disruption in the communities, and detrimental declines in food and water security;
- Cost-benefit analyses to determine the effectiveness of potential interventions (e.g. irrigation systems, migration of animals, placement of tourist sites, etc.);
- Relevant safeguards put in place in response to social impact assessment. Cohesive community engagement with tourist developments might lead to more successful sites that have tourists who positively interact with and learn from community members, and with community members running the sites;
- social dimension-responsive budgeting tools, which have been shown to foster equitable budgeting and resource allocation;
- monitoring and evaluation indicators that are consistent with those used in the assessment and embedded throughout the programme.

If all of the above were accomplished, multiple desirable policy outcomes would likely follow, including:

- Low-carbon growth policies that promote health co-benefits and that incorporate education and livelihood skills-building;
- Gender-smart climate policies;
- Improved governance and transparency for development and infrastructure investments;
- Cohesive communities in which climate policies are implemented;
- Targeted climate funding that does not replace traditional official development assistance.

Social benefits (by sector) arising from climate change policies that are designed and implemented with a focus on improving people's lives

Health: Climate change adaptation offers the opportunity to strengthen health systems, saving lives immediately, and also ensuring that populations are protected from the impacts of a warming and more variable climate. Well-designed mitigation policies in sectors such as transportation, power generation, and household energy, can bring large health benefits, for example through reduced outdoor and indoor air pollution.

Food and nutrition security: Climate change policies offer an opportunity to increase the support for investments in agriculture, rural development and nutrition. Opportunity for better agricultural farming practices, (reduced pesticide use), improving access of vulnerable groups, and income diversification through integrated farming. Opportunity for remuneration of environmental services and maintenance of ecosystems for traditional communities.

Energy: Small-scale renewable energy and decentralized power generation represent opportunities for improving access to energy, and to reduce the burden on poor households and women in looking for traditional energy sources.

Migration as adaptation: Policies to facilitate mobility, including circular mobility, diversification of incomes, and support of small urban centres.

Employment: The advent of 'green jobs' and investments in adaptation and mitigation could have significant potential for creating and maintaining employment. Green jobs are an opportunity for decent livelihoods.

Social cohesion, democracy and human rights: Climate change raises huge governance challenges and is an opportunity to bring democratic participatory processes, social dialogue and capacity to the forefront through involvement of affected populations and strengthening of institutional capacities.

5. Conclusion

A social dimensions lens allows for a broader understanding of climate vulnerability and directs attention to the socioeconomic conditions that make people vulnerable in the first place: the human and social resources, institutions, policies and power relations that are traditionally addressed by development and poverty reduction interventions. For adaptation to be pro-poor and result in enhanced resilience among the most vulnerable people and communities, addressing the socioeconomic determinants of vulnerability must be part of adaptation strategies. At the same time, a social dimensions lens allows accounting for climate change impacts on human health and well-being, social institutions, ranging from building resilience of health systems to social protection systems, and demographic factors that are critical elements of people's resilience.

Numerous international agencies have come together to make a plea to government leaders to substantively assess the drivers of climate change in national assessments, consistently incorporate social impact assessments in order to manage the positive and negative social consequences of climate change, and to ensure transparent and participatory decision-making processes. People-centred and multisectoral climate policies will yield multiple co-benefits, while the absence of social dimension-oriented policies often risks exacerbating inequities, potentially waste resources and undermine their own objectives in stemming climate impacts. In short, integrating social dimensions into climate change policies is not only right in principle, it is right in practice.

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This paper addresses the social dimensions of climate change from a sustainable, equitable development perspective, understood as "an irreducible holistic concept where economic, social and environmental issues are interdependent dimensions that must be approached within a unified framework", and where the overarching outcome is to fully promote human welfare and equal access to life-sustaining resources.

The aim of the paper is to broaden and deepen policy-makers' understanding of the benefits of addressing and incorporating the social dimensions of climate change into climate policies. People are at the centre of a successful transition to a world of far-reaching and balanced global reductions in emissions and enhanced resilience, with specific attention to the most vulnerable groups, and their role in crafting solutions and increasing resilience. The goals of this transition must include fulfilment of basic needs, enjoyment of human rights, health, equity, social protection, decent work, equal participation and good governance.

ILO
UNRISD United Nations Research Institute For Social Development
ITU
UNFPA
World Health Organization
UNAIDS Joint United Nations Programme on HIV/AIDS
WFP wfp.org
UN WOMEN United Nations Entity for Gender Equality and the Empowerment of Women
UNESCO United Nations Educational, Scientific and Cultural Organization
United Nations University
unitar
International Organization for Migration (IOM)