Mainstreaming climate compatible development

INSIGHTS FROM CDKN'S FIRST SEVEN YEARS

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About this book

Accelerating the shift to climate compatible development is CDKN's business, and improving the lives of the most climate-affected people is our mission. A multi-year, £130 million programme funded by the British and Dutch governments and other donors, CDKN works to support climate compatible development in Asia, Africa, Latin America and the Caribbean.

CDKN's programme provides focused technical assistance to governments, as well as research-into-action projects that fill gaps in our understanding of climate change impacts and solutions.

Our strategy is to work with progressive national governments, state and provincial authorities, city officials, civil society and businesses to achieve positive changes in policies and behaviour. Ultimately, we want to make life more stable, secure and fulfilling for those most affected by climate change.

A crucial part of CDKN's strategy is the exchange of honest learning about which approaches are (and are not) working in terms of climate compatible development. The rapid, deep shift in policies and behaviour that is needed will rely on innovation and experimentation. They will also need to build on the strengths and accomplishments of decades of development in humankind's recent history – the approaches to participation, inclusiveness and empowerment that have made other development efforts succeed. We want to help exchange and build on experience in climate compatible development so that decision-makers and practitioners everywhere can learn and assimilate lessons quickly.

We want to know: Which strategies are increasing resilience, curbing emissions and tackling poverty simultaneously? How are decision-makers grappling with sometimes conflicting climate predictions to make sound investments that will endure over decades of climate impacts? What are the trade-offs involved in making development more 'climate compatible' and what are the politics of decision-making? Which approaches are contributing to fairer outcomes for the most climate-vulnerable, and which decisions risk making the poor even poorer? The emerging answers to these questions can contribute to our collective endeavour to develop a secure, resilient world.

This book builds upon existing scholarship on climate compatible development, including books which explain what climate mitigation and adaptation are, including different conceptual and methodological approaches and how they are addressed in international negotiations.

Our book also complements and follows on from the *Green growth in practice: Lessons from country experiences* report, which CDKN co-sponsored, and which formed a major enquiry into the emerging field of green growth.[1]

This book is intended for decision-makers, development planners and practitioners (including civil society groups), as well as donors working to address climate change in developing countries. It aims to offer a rich source of learning based on CDKN's experience.

1 Green Growth Best Practice Initiative (2014). *Green growth in practice: Lessons from country sxperiences*. Seoul: GGBPI (www.cdkn.org/project/green-growth-best-practice-initiative-ggbpi).

Acknowledgements

Preface
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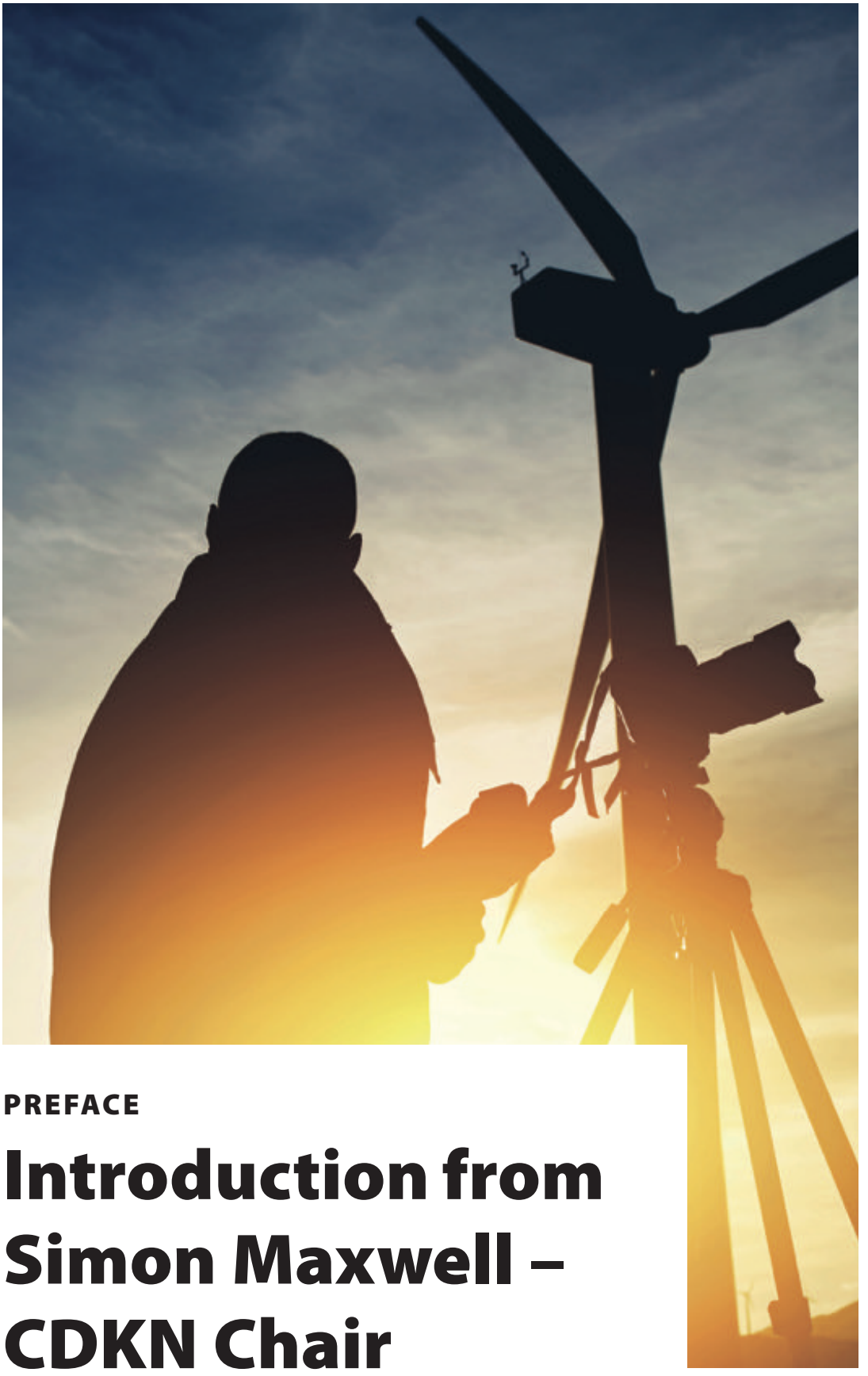

PREFACE

Introduction from Simon Maxwell – CDKN Chair

The purpose of this book is to synthesise lessons from the first seven years' work of CDKN – the Climate and Development Knowledge Network. Established in 2010, CDKN has funded research, policy advice and knowledge programmes, globally and in more than 70 countries. It has also supported negotiators and negotiating groups.

The book is written for policy-makers. It has been prepared by CDKN's experts and programme managers. However, it is backed up by the published work of dozens of independent analysts and researchers, drawn from CDKN's global network. Their work is referenced throughout the text.

The guiding idea of CDKN since its inception has been 'climate compatible development'. This is the idea that tackling climate change cannot be at the expense of reducing poverty and achieving human development. Indeed, synergies must be found wherever possible.

The idea of climate compatible development is intuitively attractive, and has gained widespread traction since we first proposed it in 2010. It is now an idea that has become central to the new Sustainable Development Goals (SDGs), and that is reflected in the Paris Agreement. The global goals are transformative in scope precisely because they require action on climate change to be mainstreamed in all aspects of development work. The Paris Agreement articulates the necessary level of ambition.

CDKN's work demonstrates that climate compatible development offers great potential for strategic action by governments, civil society and the private sector. There are many win-win benefits as new technologies are disseminated and as new investments are made to boost resilience. Those opportunities and benefits are explored in the text.

No-one should pretend, however, that achieving climate compatible development will be friction free. We have seen that there are inevitably choices to make, trade-offs to consider and political battles to win. There are also leadership and management challenges aplenty as finance is raised, programmes scaled up, and public and private sector actors held to account. Much of the analysis in the book, and many of the case studies, deal with these questions – offering not just a diagnosis of problems, but also stories of change which can inspire and inform action elsewhere.

As CDKN has worked with governments and others, seven issues have come to the fore and have demanded solutions.

- First, eliminating ambiguity in the concept of climate compatible development, and exploring complementarities and trade-offs in the implementation of climate and other policies to deliver the SDG goals and targets.

- Second, making the case and winning the argument, in countries where leaders face many competing demands on political capital and resources.
- Third, managing climate compatible development planning in ways that mainstream climate concerns into development planning and ensure cross-government coherence.
- Fourth, finding the resources to cover the additional costs of climate compatible development, drawing on international as well as domestic sources.
- Fifth, creating the right culture and instruments for implementation, to ensure that plans are not blown off course.
- Sixth, delivering at scale, so that impact is transformational in scale and irreversible.
- Seventh, linking the national to the global, so that national interests are well-represented in global negotiations, and global agreements reflected in national action.

Chapter 1 sets the scene by exploring the multiple linkages between climate change and the SDGs. It goes without saying that poor people will be most affected if temperature rise leads to more extreme weather events – and that securing the livelihoods of poor people must be a key consideration in mitigation plans. Even more challenging, the core framing of climate compatible development, post-Paris, needs to be that a start has been made in curbing emissions, but that much more remains to be done. Adding up all the national pledges at Paris, the Nationally Determined Contributions (NDCs) promise no more than a third of the emissions cuts needed by 2030. Far more ambitious pledges will be needed in the subsequent assessment rounds.

Action on the scale required will be highly disruptive of existing economic and social models. Indeed, action on climate change will trigger a new industrial revolution. Terms like 'disruptive innovation', 'insurgency' and 'creative destruction' are frequently used. Inevitably, there will be winners and losers, nationally and globally, as between geographies, generations and genders, as well as sectors. Leaders know that 'Business As Usual' will not be enough to deliver climate compatible development. Do they sufficiently understand how different 'Business Unusual' is likely to be?

Chapter 2 is designed to help leaders make the case and win the argument. In some countries where CDKN has worked, it is the impact of disasters that has given leaders the impetus they need; in others, it has been economic opportunity; in still others, it has been concern for energy security. In some countries, of course, it is the existential threat to the very territory of a country that has driven a passionate engagement with the topic. The idea of 'co-benefits' often offers a hook for engagement: cleaner air, for example, or reduced congestion. Sometimes, leadership originates at national level. In other cases, the original impetus comes from regional administrations or cities, or from the private sector. In no case with which CDKN is familiar, however, does consensus 'just happen': political skills and alliances need to be harnessed to the cause of climate compatible development.

CDKN's experience is that it becomes easier to build a consensus when the facts are clear. That is why it has been important to 'translate' and disseminate the findings of independent bodies like the Intergovernmental Panel on Climate Change (IPCC); but also to commission and share detailed, national-level studies of present and future impact. Knowledge brokers play a crucial role. The availability of data and analysis, often sketchy at first, but always improving, allows leaders to begin to build a consensus, a movement for change.

Chapter 3 addresses the question of how to build on the entry points created by the political process. If mainstreaming is to be successful, climate compatible development planning cannot be the prerogative of Ministries of Environment, however vital those are as catalysts of progress. In the countries where CDKN has worked, climate compatible development becomes credible only when Ministries of Finance, Planning, Energy, Infrastructure, Industry and Agriculture become fully committed. All stakeholders need to be involved, including the many private sector actors and civil society groups. Careful attention is needed to the incentive and regulatory framework as well as to public expenditure. Gender issues need to be central throughout. None of this is easy to manage, though the best cases supported by CDKN show what can be done to mobilise interests and help them work together. Locally and nationally (and also globally), it is important to think about pathways to transition, identifying who might gain and who lose from policy change,


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and crafting policy packages which ease the pain of losers as well as smoothing the path to innovation.

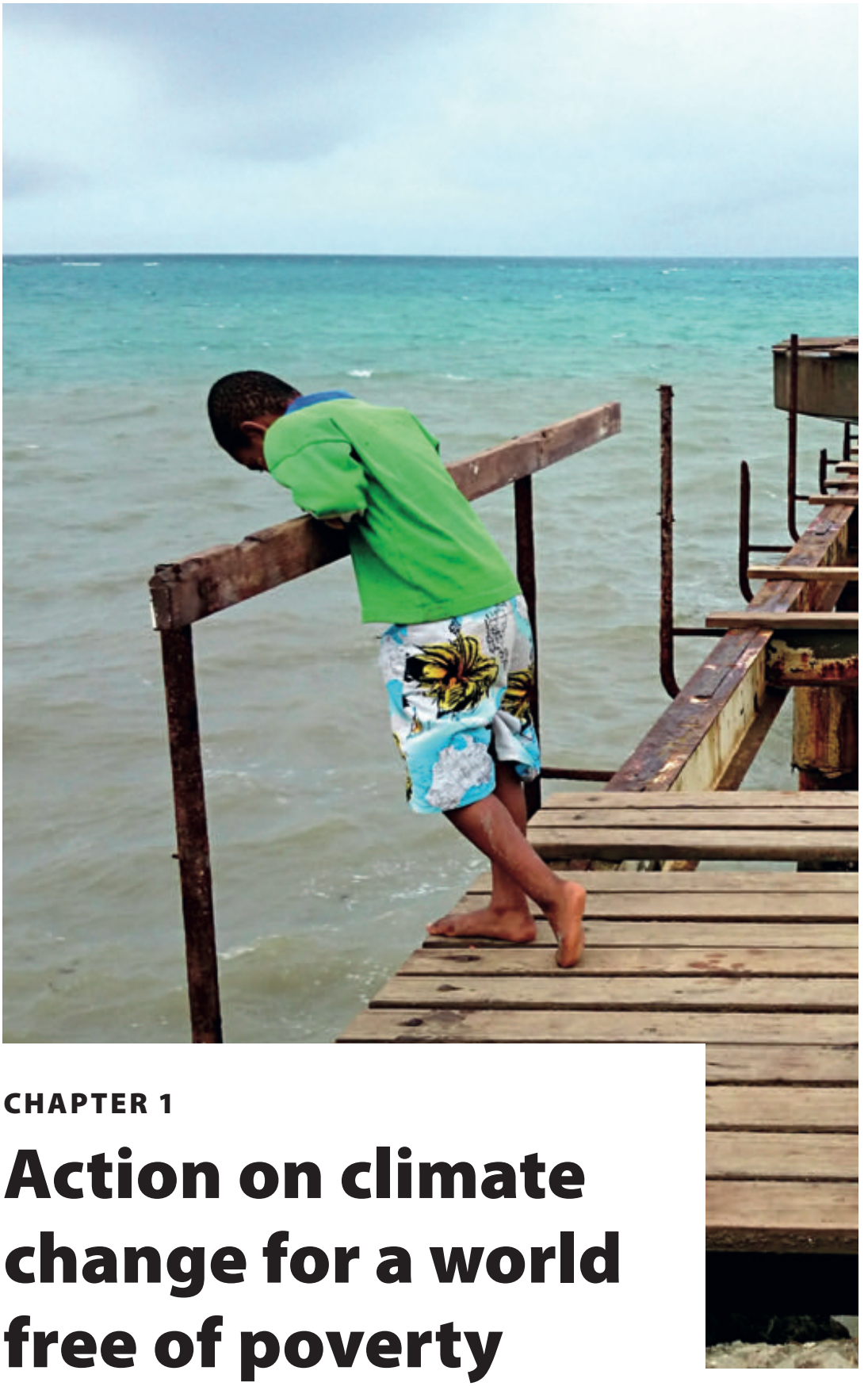
Chapter 4 tackles the question of resourcing climate compatible development. Aid, and especially official climate finance, is one instrument, but far from the only one. Spending is dominated by national budgets and private sector flows. Climate compatible development will cost trillions not billions, and these amounts will only flow if the right regulatory frameworks are in place, and if public finance is used in imaginative ways to overcome market failures and leverage other funds. That is why CDKN has supported climate finance readiness in many countries, with a special focus on blended finance, to reduce the risk of innovation for the private sector. It has also been important to support decentralised and smaller-scale innovations. There is much more to do in this field, however. For example, there is likely to be more attention in the future to restructuring fiscal policy in ways which capture the externalities of carbon pollution. CDKN has supported innovative approaches to payment for ecological services.

Chapter 5 deals with the transition from plans and pilot projects to sustained implementation. In CDKN-supported countries, and in many others, legislation has played an important part, whether focused on national or sectoral carbon pollution targets, or on specific regulations for vehicle emissions or the like. Successful implementation has also depended on strong cross-government coordination, and this in turn has benefited greatly from having sufficient numbers of people exposed to climate change issues and trained in relevant analysis. Capacity can be built in various ways: internally, through on-the-job training, or via fellowships and secondments, including internationally.

Chapter 6 is about scaling up, how not be trapped in a 'pilot phase syndrome'. This is certainly not a problem unique to climate compatible development. Lessons from CDKN experience, and from development programmes more widely, point to the importance of telling good stories, supporting project champions, and providing leaders with compelling evidence from monitoring and evaluation. Once a snowball effect can be induced, professional networks play a role through learning and peer exchange. Again, none of this happens on its own. CDKN has demonstrated that careful early planning, combined with strategic investment, is necessary to secure a multiplier effect.

Finally, Chapter 7 deals with the interconnection between local and global. Both are necessary, neither is sufficient. It is necessary to 'think global, act local', but also to 'think local, act global'. CDKN has demonstrated that bottom-up approaches deliver results locally, as one might expect, but also resonate nationally and globally: stories of change in one locality inspire change in others. At the same time, action locally is much harder, often impossible, without global frameworks. A global price for carbon may still be some way off, but international negotiations need both to provide a consensus on destination and a practical commitment to the means of implementation, including financial and technological. That is why CDKN has supported climate negotiators, and shared many lessons about how to manage global interactions. For example, climate diplomacy cannot be left to climate specialists alone, but needs to benefit from the full panoply of a country's diplomatic skills and instruments. Non-official voices have played an important role everywhere, especially in making the moral case and emphasising the urgency of action. Leaders have many natural allies in support of action – and need them.

This book offers much more detail to elaborate these arguments. As a final point, however, it is worth emphasising one key lesson from CDKN experience – and one deeply embedded in the work underpinning the book. This is that there is no single blueprint, applicable everywhere and for all time, to the challenge of climate compatible development. Climate change is a threat everywhere, and hopefully action on climate change is an opportunity for most. Mitigation, adaptation, resilience and transformation will be key themes as countries strive to attain the SDG goals and targets. However, progress at country level, and subnationally, will be idiosyncratic, progressive, and probably uneven, characterised by sudden leaps forward and occasional, unexpected setbacks. The challenge for leaders, and indeed for all those engaged in climate compatible development, is to prepare for such a process. The accumulation of cases and experiences in this book provides reassurance that others around the world are facing similar challenges; and encouragement that progress is possible.



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CHAPTER 1

Action on climate change for a world free of poverty

Introduction

Climate change is written on the agendas of governments around the world. After years of incontrovertible evidence that the climate is changing – with increasingly frequent extreme weather events such as droughts, floods and heatwaves, along with slow-onset signs such as melting glaciers, and rising sea levels – finally a political 'sea change' has occurred in countries' collective response to the challenge.

In 2015, representatives of 195 governments concluded the historic Paris climate agreement, stating that "climate change represents an urgent and potentially irreversible threat to human societies and the planet and thus requires the widest possible cooperation by all countries, and their participation in an effective and appropriate international response" and "acknowledging that climate change is a common concern of humankind."[1]

Until that moment, United Nations climate agreements had set a global target of limiting average global temperature rise to 2 degrees Celsius above pre-industrial times. This was based on the scientific understanding that beyond 2 degrees, the effects of climate change on ecosystems and related social, economic and political systems would become unmanageable. In Paris in December 2015, the mood shifted.

By the time of the Paris Summit, average global temperatures had already risen 0.85 degrees Celsius above pre-industrial levels. Greenhouse gas emissions worldwide were still rising – their rate of growth in the previous decade was the fastest ever. The year before, the Intergovernmental Panel on Climate Change (IPCC), comprising hundreds of climate science experts and endorsed by the world's governments, concluded that "it is extremely likely that human influence has been the cause of the observed warming since the mid 20th century".[2]

In Paris, the most climate-vulnerable nations – low lying island states and least developed countries – brought a powerful human dimension to the debate. They argued that if climate change impacts they are suffering at almost one degree of warming are so severe, then a 2-degree world would be unimaginable: some territories would simply cease to exist. Poet Kathy Jetñil-Kijiner of the Marshall Islands – whose government delegates emerged as leaders of the 'High Ambition Coalition' at the Paris Summit – said before the

1 UNFCCC (2015). *Paris Agreement*. Bonn: United Nations Framework Convention on Climate Change (www.unfccc.int/files/essential_background/convention/application/pdf/english_paris_agreement.pdf).

2 IPCC (2013). *Climate Change 2013: The Physical Science Basis, Summary for Policy Makers*. Geneva: Intergovernmental Panel on Climate Change (www.ipcc.ch/pdf/assessment-report/ar5/wg1/WG1AR5_SPM_FINAL.pdf). Also IPCC (2014). *Climate Change 2013: The Physical Science Basis, Working Group 1 Fact Sheet*. Geneva: Intergovernmental Panel on Climate Change (www.ipcc.ch/report/ar5/wg1/docs/WG1AR5_FactSheet.pdf).

Summit: "Scientists and climate change specialists have been advocating that we need to lower our carbon emissions so that the world's temperature doesn't rise above 2 degrees or catastrophe of the worst kind will hit – think "super droughts, rising seas, mass extinctions. Why is 2 degrees even considered an option if that would mean low-lying atolls drowning? This is why our island leaders have been pushing for 1.5 … I'm going to Paris because I'm fighting for our home."[3]

> ***"Extreme droughts that were once unthinkable in the region are now more frequent, intense and unpredictable. They are exacerbated by climate change and by the fact that the forest can no longer respond to this phenomenon and regenerate itself in the same way it used to. Future scenarios are less optimistic: it is projected that if warming trends continue, Amazonia will suffer from severe droughts every other year by 2025."***
> – Yolanda Kakabadse, WWF President and member of CDKN's Network Council

As a result of tireless 'climate diplomacy' by the Marshallese and others, delegates reached a stronger, collective resolve, and finally agreed to (in the words of the Agreement) "holding the increase in global average temperature to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C."

The Paris Agreement also acknowledged that some climate change impacts may now be causing loss and damage to vulnerable societies. In other words, some impacts are *already* unmanageable and beyond the scope of climate change adaptation measures.

3 Jetñil-Kijiner, K. (2015). 'I'm going to Paris because I'm fighting for my home.' London: Climate Home (www.climatechangenews.com/2015/11/25/im-going-to-paris-because-im-fighting-for-my-home).

Box 1

The reality of climate change today

Far from being a distant prospect, climate change is with us today, affecting our lives and our health.

Parts of eastern Africa are suffering more cases of malaria because of higher temperatures.[4] Studies from South Asia have shown an association between diarrhoea outbreaks and a combination of higher temperatures and heavy rainfall.[5] Scientists find that changing climate conditions in Latin America are increasing illness and death, and leading to outbreaks of diseases in new areas.[6]

Climate change is altering the productivity of land and marine ecosystems on which societies depend for food and livelihood. It has already had negative effects on wheat and maize production in parts of Africa.[7] The productivity of fisheries in the Great Lakes and Lake Kariba, and fruit-bearing trees in the Sahel have all decreased as a result of climate change, compounding food security problems.

Countries are losing land and coping with the aftermath: with rates of sea level rise at 3 mm per year, flooding and saltwater inundation in South Asia is already displacing people – permanently. Climate change poses a threat to the very existence of some small island developing states.

4 Carabine, E., and A. Lemma, with M. Dupar and L. Jones (2014). *The IPCC's Fifth Assessment Report: What's in it for Africa?* London: CDKN and Overseas Development Institute (www.cdkn.org/ar5-toolkit/ar5-africa).

5 Carabine, E., and A. Lemma, with M. Dupar and L. Jones (2014). *The IPCC's Fifth Assessment Report: What's in it for South Asia?* London: CDKN and Overseas Development Institute (www.cdkn.org/ar5-toolkit/ar5-south-asia).

6 Carabine, E., and A. Lemma, with M. Dupar (2014). *The IPCC's Fifth Assessment Report: What's in it for Latin America*? London: CDKN and Overseas Development Institute (www.cdkn.org/ar5-toolkit/latin-america-toolkit).

7 Carabine, E., and A. Lemma, with M. Dupar and L. Jones (2014). *The IPCC's Fifth Assessment Report: What's in it for Africa?* London: CDKN and Overseas Development Institute (www.cdkn.org/ar5-toolkit/ar5-africa).

Climate is now a mainstream issue, with global goals for low-carbon, resilient societies

The groundwork was laid for the Paris Agreement by the Sustainable Development Goals (SDGs),[8] which were agreed in September 2015 and are intended to be met by 2030. The SDGs are 17 broad-reaching goals, with 169 targets, covering vast areas of social and economic life and the health of the natural environment.

A dedicated goal (Goal 13) aims to "combat climate change and its impacts". However, there are explicit targets for achieving climate resilience and reducing greenhouse gas emissions in seven of the SDGs, addressing energy, sustainable production and consumption, food security and human settlements. The apex first goal on "ending poverty in all its forms" includes a target to "reduce the exposure and vulnerability [of the poor] to climate-related extreme events" and other environmental and economic shocks. The energy-related targets address climate change directly, calling for a substantial increase in the share of renewable energy in the global energy mix and a doubling of the global rate of improvement in energy efficiency by 2030.

Figure 1

Sustainable Development Goals with direct climate-related targets

Source: https://sustainabledevelopment.un.org

8 United Nations (2015). 'The Sustainable Development Goals'. New York: United Nations (sustainabledevelopment.un.org).

The connection between climate change and development runs even more deeply. The achievement of *most* SDGs by 2030 depends directly on climate action. That's because the impacts of climate change today are undermining recent development progress. The impacts of climate change today could send people back into poverty who only recently achieved food and livelihood security. The ODI report, *Geography of poverty, disasters and climate extremes in 2030*, finds that "extreme weather linked to climate change is increasing and will likely cause more disasters.[9] Such disasters, especially those linked to drought, can be the most important cause of impoverishment, cancelling progress on poverty reduction [in the period of the SDGs]. Up to 325 million extremely poor people will be living in the 49 most hazard-prone countries in 2030, the majority in South Asia and sub-Saharan Africa."[10]

Figure 2

Sustainable Development Goals whose achievement depends directly on climate action

Source: https://sustainabledevelopment.un.org

Due to inertia in the climate system, climate change is 'locked in' for the next two or three decades (see Box 2, and also the video interview with Rachel Kyte

9 Shepherd, A., T. Mitchell, K. Lewis, A. Lenhardt, L. Jones, L. Scott and R. Muir-Wood (2013). *The geography of poverty, disasters and climate extremes in 2030*. London: Overseas Development Institute (www.odi.org/publications/7491-geography-poverty-disasters-climate-change-2030).

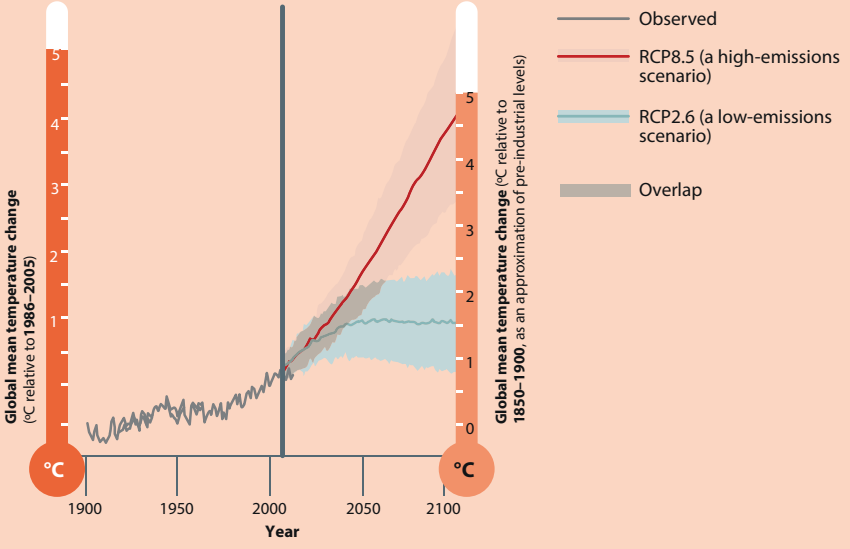
10 Gutierrez, M. (2015). 'While the rainforest is politically divided, the biome is one,' interview with Yolanda Kakabadse. London: CDKN (www.cdkn.org/2015/06/rainforest-politically-divided-kakabadse).

of the World Bank on the *Turn down the heat* report, to which there is a link in the footnote).[11] Even if greenhouse gas emissions were to stop now, climate change would continue for a further few decades (see graph in Box 2). Thus, significant impacts from climate change are inevitable during the period of the SDGs.

Taking adaptation measures can significantly reduce the risk of climate change impacts on people, assets and livelihoods – sometimes reducing severe risks to only moderate ones, or moderate risks to minor ones. Action on climate change adaptation and action to reduce the risks of climate-related disasters is imperative.

Box 2

Further change is inevitable in the short term – but the future is in our hands



During the short term (to around 2030), there is little difference in the impact of the high-emissions versus the low-emissions scenario on the world's climate; however, as this graph from the IPCC shows, after around 2030, there is a stark difference between scenarios on the degree of warming. Because there is a delay between when greenhouse gases are emitted or dramatically cut back, and the impact on the climate, very deep cuts in global emissions must begin now.

11 World Bank (2014). *Unavoidable impact of climate change: World Bank study* (film). Washington DC: The World Bank (www.worldbank.org/en/news/video/2014/11/23/unavoidable-impact-of-climate-change-world-bank-study).

Box 3

Global policy frameworks of 2015–16 that address climate change

- Sendai Agreement on Disaster Risk Reduction, 2015[12]
- Addis Action Agenda on Financing Development, 2015[13]
- World Humanitarian Summit, 2015[14]
- Sustainable Development Goals, 2015[15]
- Paris Agreement, 2015[16]
- Kigali Agreement to the Montreal Protocol: Hydrofluorocarbons Phase-down, 2016[17]
- New Urban Agenda, 2016[18]
- International Civil Aviation Organisation agreement, 2016[19]

12 UNISDR (2015). 'Sendai framework for disaster risk reduction'. Geneva: United Nations Office for Disaster Risk Reduction (www.unisdr.org/we/coordinate/sendai-framework).

13 United Nations (2015). 'Addis Ababa action agenda for the third international conference on financing for development outcome document'. New York: United Nations (www.un.org/esa/ffd/ffd3/wp-content/uploads/sites/2/2015/07/Addis-Ababa-Action-Agenda-Draft-Outcome-Document-7-July-2015.pdf).

14 United Nations (2016). *Natural disasters and climate change: Managing risks and crises differently*. New York: United Nations (www.worldhumanitariansummit.org/key-documents).

15 United Nations (2015). 'Sustainable Development Goals'. New York: United Nations (sustainabledevelopment.un.org).

16 UNFCCC (2015). *Paris Agreement*. Bonn: United Nations Framework Convention on Climate Change. (www.unfccc.int/files/essential_background/convention/application/pdf/english_paris_agreement.pdf).

17 IISD (2016). 'Earth negotiations bulletin,' Summary report of the 28th meeting of the parties to the Montreal Protocol. Winnipeg: International Institute for Sustainable Development (www.enb.iisd.org/ozone/resumed-oewg38-mop28).

18 United Nations (2016). 'The new urban agenda: Key commitments.' New York: United Nations (www.un.org/sustainabledevelopment/blog/2016/10/newurbanagenda/). See also UN Habitat (2017). 'Implementing the new urban agenda'. Nairobi: United Nations Human Settlements Programme (www.nua.unhabitat.org).

19 ICAO (2016). 'Historic agreement reached to mitigate international aviation emissions'. Montreal: International Civil Aviation Organization (www.icao.int/Newsroom/Pages/Historic-agreement-reached-to-mitigate-international-aviation-emissions.aspx).

Global climate change mitigation: There is good and bad news

The mixed news about the Paris Agreement on climate change is that, in climate change mitigation terms, it is a document of inherent contradiction. The foundations of the Agreement were forged through a country-led, 'bottom-up' process, instigated and guided elegantly by the 2014–15 Peruvian Presidency of the UNFCCC Conference of the Parties (COP) together with the incoming French COP Presidency (2015–16).

Governments were invited to submit their national climate action commitments to the UNFCCC in advance of the Paris Summit. The emphasis was to be on climate *mitigation* measures, although the door was left open to declare adaptation activities, too.

This marked a major gearshift in the global politics of climate change, compared to the Kyoto Protocol (2005–2020). The Kyoto Protocol of the UNFCCC separated countries into 'Annex I' nations: industrialised countries, which were obliged to follow centrally defined emissions reductions targets, and 'Annex II' nations, which were not. These agreements neither halted the rise in global greenhouse gas emissions nor addressed the challenges vulnerable countries face in adapting to climate change.

By contrast, under the 2015 Paris Agreement, all nations have agreed to contribute their fair share to the global response to climate change. This theme of action by all nations is backed up by:

- the latest climate science, which emphasises the scale of the challenge;
- the world's changing demographics, including the rapid rise of a global middle class; and
- the vulnerability of the least developing countries (LDCs), Africa and the small island developing states.

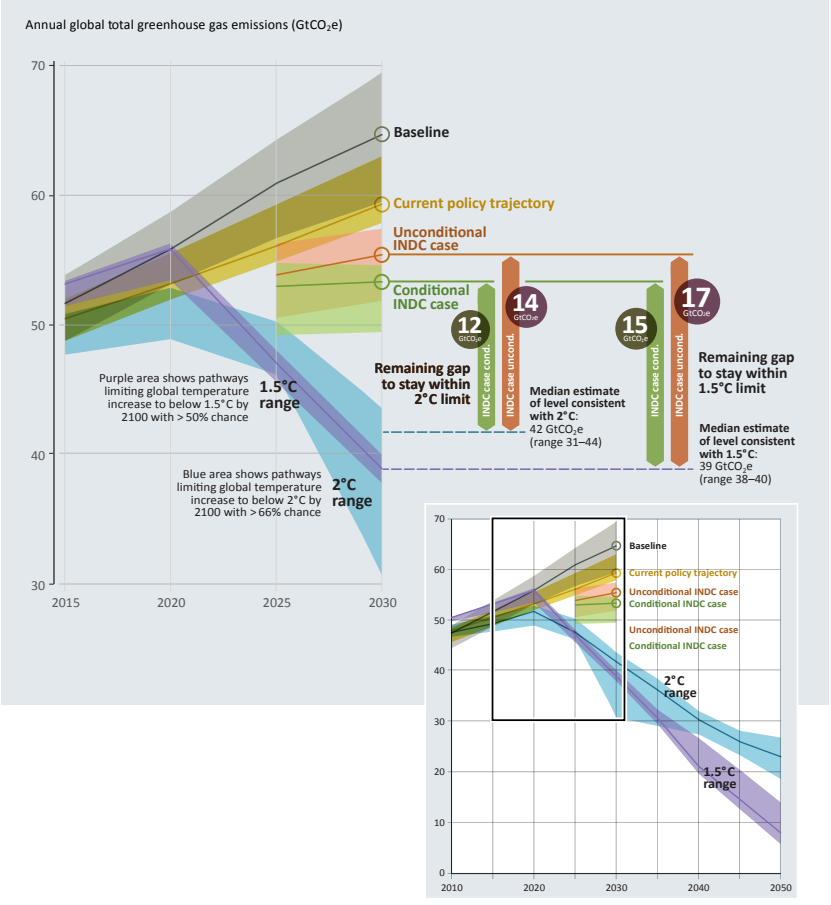
The new agreement must adhere to the core principles of the UNFCCC, including "common but differentiated responsibilities and respective capabilities" and the need for equity, poverty eradication and the survival of nations.

By inviting all Parties to submit a pledge, the Paris process levelled the playing field. For political expediency's sake, the UNFCCC did not define the precise format that country pledges should take or which methodology to use (e.g. which baseline year to use, whether to set an economy-wide emissions reductions target or declare a set of activities, whether to measure the reduction in emissions per unit of GDP or by sheer volume, and so on).

The openness of this process ensured very high levels of participation: more than 160 Intended Nationally Determined Contributions (INDCs) were filed before the Paris Summit: covering 90% of global emissions and representing over 90% of the global economy.[20] The level playing field also headed off arguments by industrialised countries (the historic polluters) that emergent economies were not doing their share.

Figure 3

The Emissions Gap



20 DECC (2015). 'Paris climate talks explained'. London: Department of Energy and Climate Change (www.gov.uk/government/news/paris-climate-talks-explained).

The disadvantage was that the bottom-up process yielded submissions that were in such different forms, that comparing them and aggregating the collective effort is technically difficult. When experts undertook their best effort at aggregation, they concluded that countries' collective pledges did not add up to anywhere close to the emissions cuts needed to ensure a two-degree world, let alone a 1.5-degree world.

"The world is still heading for a temperature rise of 2.9 to 3.4ºC this century, even with Paris pledges," said the United Nations Emissions Gap report, published in late 2016 (see Figure 3).[21] The world must cut a further 25% from the predicted 2030 emissions, urged the report. It will take far greater levels of ambition, including by non-state actors, to make up the difference.

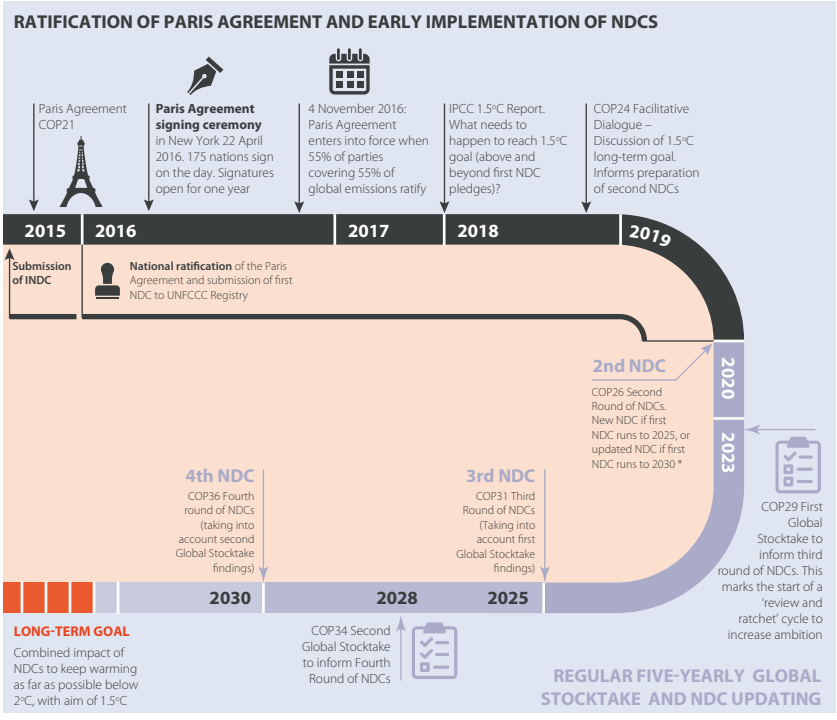
Presciently, governments in Paris also made a collective commitment to a 'ratchet and review' mechanism for reviewing and increasing the ambition of the national climate pledges (see Figure 4). Countries will need to submit increasingly ambitious NDCs to the UNFCCC, at least every five years, without the possibility for 'backsliding', and the first global stocktake of progress will take place in 2023.

Any assessment of the global collective effort toward climate mitigation and the Paris process tends, also, to assume that the INDCs – and the Nationally Determined Contributions (NDCs) that they have become – can and will actually be implemented. The NDCs are supposed to be delivered from 2020; a Facilitative Dialogue among Parties to the UNFCCC will take place in 2018 to check on progress toward implementation. CDKN's international team assisted in the process of INDC preparation in nine countries and tracked efforts in many more: we concluded that in some countries, INDCs were prepared in a highly consultative and participatory way, deepening the chances of successful implementation. In some countries INDCs were dashed off hurriedly in Environment Ministries with little cross-governmental buy-in, let alone broader stakeholder consultation and input. In these cases, there is a far greater challenge after the Paris Summit, to review and set in motion the wheels of implementation for the NDCs and the economy-wide transformations that they will require. We explore the 'enabling environment' for NDC implementation in brief in Chapter 7 of this volume.

21 UNEP (2016). *The emissions gap report 2016: A UNEP synthesis report*. Nairobi: The United Nations Environment Programme (www.web.unep.org/emissionsgap).

Figure 4

Ratification of Paris Agreement and early implementation of NDCs

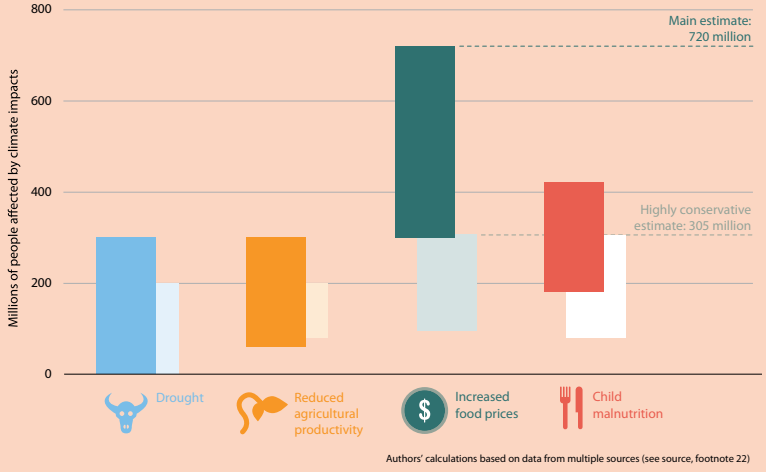


* The timeline is divided into three distinct sections: (1) Preparation and early implementation (black); (2) Five-yearly review and NDC updating (blue); and (3) Long-term goals (orange). Countries with an NDC target covering the period up to 2025 must communicate a new NDC target by 2020. Countries with an NDC target covering the period up to 2030 are required to communicate or update their NDC by 2020.

Box 4

Acting on mitigation today helps millions from future generations to escape poverty

Action on mitigation today will have a direct bearing on worldwide attempts to eradicate poverty over a 15–35 year horizon. An ODI report by Granoff et al., *Zero poverty, zero emissions: Eradicating extreme poverty in the climate crisis*, has concluded that if climate change goes unchecked, then its impacts could draw up to 720 million people back into extreme poverty during the period 2030–2050.[22] This is roughly the same number of people who escaped from extreme poverty in the last two decades of record development progress.



Note: These calculations derive from pathways tracing the impact of climate change on just four factors affecting poverty that have the most robust and easily quantifiable evidence: the productivity of primary sectors; food prices; effects on childhood malnutrition and stunting; and increased droughts. It is likely that the numbers shown would be much higher if other impact pathways were considered, such as sea level rise, urban vulnerability, higher incidence of airborne diseases and secondary impacts on child and female education, fertility and conflict.

22 Granoff, I., J. Eis, W. McFarland and C. Hoy, with C. Watson, G. de Battista, C. Marijs, A. Khan and N. Grist (2015). *Zero poverty, zero emissions: eradicating extreme poverty in the climate crisis*. London: Overseas Development Institute (www.odi.org/publications/9690-zero-poverty-zero-emissions-eradicating-extreme-poverty-climate-crisis).

Policy-makers must aim for 'triple wins' to enable societies to halt climate change, adapt to climate change, and eradicate poverty

We have reviewed the case, above, for why action on climate adaptation and mitigation will be essential to safeguard development gains of the recent past – as well as to ensure safe, secure lives to 2030 and beyond. But there is also a risk that poorly planned climate actions, particularly climate mitigation actions, could fail society if they do not take account of the most vulnerable groups. Climate change already affects the poorest and most excluded in society, including women, children, the elderly, the disabled, ethnic minorities and others (the IPCC's assessment of vulnerability explores this at length).[23] Efforts to adapt to climate change and build resilience must prioritise resilience for these groups. By the same token, societies must tackle social disadvantage head-on when pursuing mitigation actions. For example, a project which locks up carbon from the atmosphere by planting trees by displacing subsistence farmers, puts the future climate ahead of people's urgent development needs today.

In *Targeting zero zero*, Watson, Granoff and McFarland find not only that "Poverty eradication is impossible without a zero net emissions pathway," but also that "poverty eradication requires equal, moderate and sustained economic growth."[24] They argue that, "although some mitigation choices can involve costs, sensible low emissions strategies do not make it difficult to expand consumption of the poorest. The major change required is the reduction in the inequality of growth – to help poor people participate in the economy and become the engines of growth themselves." Their analysis demonstrates why issues of equity must be at the heart of action on climate change.

For all the reasons presented above, approaches are needed that deliver benefits across all three priority areas: climate mitigation, climate adaptation and poverty eradication. CDKN calls this 'climate compatible development': development that is defined as "minimising the harm caused by climate impacts, while maximising the many human development opportunities presented by a low-emissions, more resilient, future."[25]

23 IPCC (2014). *Climate change 2014: Impacts, adaptation and vulnerability.* Geneva: Intergovernmental Panel on Climate Change (www.ipcc.ch/report/ar5/wg2).

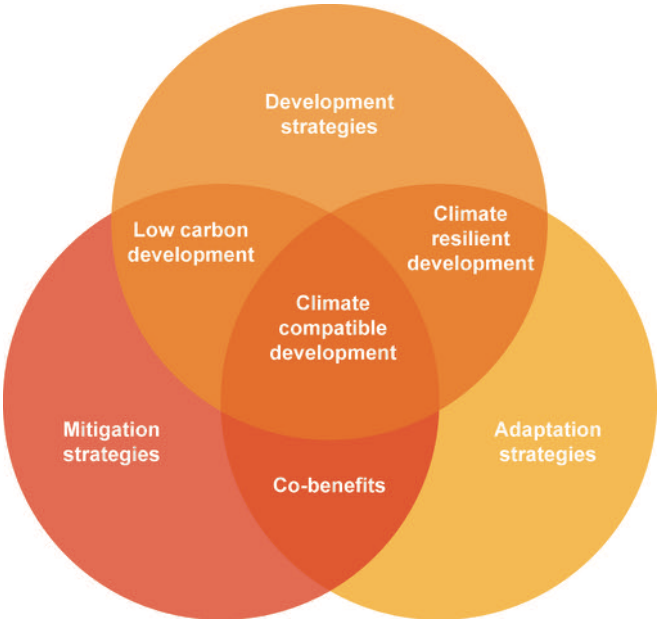
24 Watson, C., W. McFarland and I. Granoff (2015). *Targeting zero zero: Achieving zero extreme poverty on the path to zero net emissions*. London: Overseas Development Institute (www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/9542.pdf).

25 Mitchell, T. and S. Maxwell (2010). *Defining climate compatible development*. London: CDKN (cdkn.org/resource/defining-climate-compatible-development-3).

At a minimum, climate compatible development approaches that are good for one part of the equation should not prove detrimental to another. Climate compatible development requires careful assessment of options and understanding of trade-offs, and engagement and deliberation among stakeholders. It is not an easy way forward, but the only way to create sustainable and enduring development gains for the short- to long-term. This report explores, through CDKN's programmatic experience, how groups of stakeholders from community to national level have interrogated and navigated options that can achieve 'triple wins' for climate adaptation, mitigation and poverty reduction.

Figure 5

Climate compatible development: Where climate change adaptation, mitigation and development strategies meet



Businesses are showing unprecedented leadership on climate action

One of the Paris Agreement's greatest legacies will be the strong policy signal that it sent to businesses and investors around the world that the future lies in a low-carbon and eventually a net zero-carbon economy. As well as its ambitious global temperature target, the Agreement aims to make "finance flows consistent with a pathway toward low greenhouse gas emissions and climate resilient development."[26]

In Paris, governments re-committed themselves to the previous pledge, from the 2009 Copenhagen summit, to mobilise US$100 billion per year to address climate mitigation and adaptation. However, this figure is broadly recognised as representing a 'token' portion of what is actually required. Rather, there is a need to mainstream low- to zero-carbon approaches in every aspect of the economy so that the trillions of dollars of business transacted daily will lead to a zero-carbon, climate-resilient society.

A full-scale reorientation of current investment is needed to address the climate crisis: The Global Commission on the Economy and Climate finds, in its flagship report *New climate economy* (2014), that without action to mitigate and adapt to climate change, global growth may stall completely: "The next 15 years of investment will determine the world's climate."[27]

To achieve this transition requires environmental protection and regeneration on an unprecedented scale. It calls for rapid and profound shifts in production and consumption patterns. UNEP's *The coming financial climate* report concludes, "Harnessing the global financial system to deliver climate security, reduces the risks of high-carbon assets. Scaling up capital for the low-carbon transition is possible but will only happen if there is a comprehensive, system-wide approach to financing – including the required US$37 trillion of energy infrastructure – in the next two decades."[28] Businesses that continue to invest heavily in fossil fuels and do not immediately join the transition pathway to this zero-carbon future will find themselves uncompetitive, and ultimately holding 'stranded' fossil fuel-based assets. We have now entered an era when ignoring greenhouse gas

26 UNFCCC (2015). *Paris Agreement.* Bonn: United Nations Framework Convention on Climate Change (www.unfccc.int/files/essential_background/convention/application/pdf/english_paris_agreement.pdf).

27 Global Commission on the Economy and Climate (2014). *The new climate economy: Better growth, better climate.* Washington DC: The Global Commission on the Economy and Climate (www.newclimateeconomy.report/2014).

28 UNEP (2015). *Fourth update report: The coming financial climate.* Nairobi: United Nations Environmental Programme (www.unepinquiry.org/publication/4th-update).

emissions is untenable – and when ignoring the impact of future climate change on development plans and infrastructure investments makes no business sense.

At the UNFCCC Conference of Parties one year after Paris, convened at Marrakech, Morocco, the increasing participation of business in the side events and parallel discussions, was notable: here, large and progressive businesses gathered to exchange insights on the opportunities offered by the transition to a low or zero net carbon society. The visionary and active leadership of We Mean Business was evident: this coalition of 496 companies, with more than US$20 trillion under management, gathers voluntary commitments and invites companies and investors to 'join a low-carbon revolution'.

Just weeks later, the World Economic Forum convened business leaders with government representatives and thought leaders in Davos, Switzerland to pinpoint the key risks to business in the year ahead. The *Global risks report 2017* cited the top global risks – in terms of expected impact – for the world in 2017 as: extreme weather events; water crises; major natural disasters; and failure of climate change mitigation and adaptation. All of these risks are in some way exacerbated by human-made climatic changes or our failure to act on them. Only a single 'top five' risk cited by the World Economic Forum lacks an obvious climate dimension: weapons of mass destruction.[29]

This expert outlook by business, government and non-government leaders emphasises the centrality of climate risks and climate change solutions to the global economy. It underlines that there is no more important task in the months ahead than addressing poverty eradication, human development, economic growth and climate change together.

29 World Economic Forum. *Global risks report 2017*. Davos: World Economic Forum (reports.weforum.org/global-risks-2017).

REGIONAL REFLECTION

Asia

By Ali Tauqeer Sheikh, CDKN Regional Director, Asia

The challenges in Asia

Geographically, Asia is a hugely diverse continent. It has the highest and lowest points on the Earth's surface, the greatest amount of coastline of any continent, and is subject to the world's widest climatic extremes in terms of temperatures and rainfall.

Consequently, Asia suffers diverse, negative climate change impacts. These are already being witnessed, for example in the increasing number of extreme weather events: cyclones, hurricanes and severe dust storms; heatwaves and prolonged dry spells; changing monsoon patterns, periods of intense rainfall and floods; and avalanches and receding glaciers. These events are predicted to become even more frequent and extreme in the future, threatening the lives and livelihoods of millions of people across the continent.

These problems are exacerbated by the fact that many of the continent's large and growing populations live in coastal and low-lying areas which are being severely affected by rising sea levels. The majority of the estimated 680 million rural poor in the Asia-Pacific region are subsistence farmers who are impacted by disruptions to monsoon seasons and rainfall.

Asia's climate story does not end there. Asian countries are extremely diverse in terms of socioeconomic development, and the continent has some of the poorest, as well as some of the largest and fastest-growing economies in the world, whose growth rates translate into increasing carbon footprints in many places. These differing levels of development also translate into differing levels of commitment to controlling greenhouse gas emissions, with smaller less polluting countries more inclined towards adaptation activities.

The critical issue – dilemma, even – is how best to continue supporting the region's priority of economic growth and poverty reduction while delivering adaptation and mitigation outcomes. CDKN is currently supporting Bangladesh, India, Indonesia, Nepal and Pakistan; and all are identifying their own specific climate challenges while looking to take advantage of adaptation and mitigation opportunities.

Nepal is a good of example of a country at risk from climate change whose primary focus is on adaptation activities. It has a small economy and a large rural population, many of whom are subsistence farmers struggling with an uneven and unpredictable water supply. Geographically, it is extremely vulnerable to changing weather patterns and receding glaciers. To adapt to climate change, Nepal is scaling up 'climate-smart' agriculture techniques, improving the resilience of irrigation systems, and assessing the climate impacts on the hydroelectricity sector to reduce the vulnerability of the people most affected.

By contrast, Indonesia is a large nation with an economy geared towards rapid growth, which has accelerated emission levels. National policies in

Indonesia are geared towards low-carbon growth, paving the way for more mitigation actions in the country. These will require financing and technologies to achieve development benefits (known as 'co-benefits') for the varied population, including the most vulnerable. Examples of mitigation projects in Indonesia include Nationally Appropriate Mitigation Actions (NAMAs) for small- and medium-scale renewable energy, and the establishment of national institutions to access climate finance for mitigation.

Bangladesh, India and Pakistan are highly vulnerable to climate-induced disasters such as floods, which particularly affect those living below the poverty line. They are therefore working hard on adaptation as well as mitigation measures. Each country has presented a robust Intended Nationally Determined Contribution (INDC) in advance of the 21st Conference of the Parties (COP21) in Paris, 2015. These have been translated into separate, yet similar, projects in each country that aim to support their respective governments by initiating research and analysis to help them achieve mitigation goals. These include the preparation of NAMAs, research on low-carbon scenarios in Pakistan, and analysis on how to most effectively access climate finance.

Future challenges and key lessons

Under a 'business as usual' scenario, countries face a real risk of 'locking' themselves into a high-carbon economic growth trajectory, which will lead to further global warming. However, integrating climate action and development governance is a growing trend in Asia. It is also an important political issue, defining how climate and development policies are created and implemented. The role local governments play, both in the design and delivery of climate compatible development, is crucial. It is important for key stakeholders in Asia to understand how climate change can be mainstreamed at local and subnational government levels, and the specific institutional, economic and political factors that facilitate policy development and delivery.

The importance of local governments in integrating these two strands effectively – in ways that also manage risks – cannot be stressed enough. This necessitates making use of the appropriate entry points such as accessing climate funds in order to deliver the level of ambition on climate change required, and scaling up successful models of local governance. It is also important to identify opportunities to transfer lesson learning between countries facing similar issues, such as transferring the model of 'heat action plans' from Ahmedabad in India to Pakistan.

In many ways, the climate battle in Asia will be won or lost in its cities. For example, developing a NAMA to help mainstream renewable energy in the city of Sialkot in Pakistan is helping to encourage partnerships between the private sector and local government, and research on accessing climate finance through city level plans in India and Indonesia will help make cities more sustainable.

CDKN's focus areas in Asia

- Climate-smart agriculture and resilience.
- Delivering Intended Nationally Determined Contributions (INDCs).
- Insurance for climate risks, losses and damage.
- Vulnerability assessments and disaster mitigation plans, at state and city levels.
- Strengthening institutions to access global climate funds for climate compatible development.
- Nationally Appropriate Mitigation Actions (NAMAs).

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CHAPTER 2

Making the case for climate compatible development

Introduction

This chapter explores the national drivers for climate ambition and climate action. It looks at the array of reasons why communities, businesses, city, district and national governments are compelled to act on climate change – and at the hurdles to doing so. How are actors making the case for climate action and overcoming those challenges? How are they overcoming resistance to change?

Many aspects of a country's human and physical geography and political landscape provide the impetus for climate compatible development policies. These key drivers include:

- the recognition of the need to reduce poverty, particularly extreme poverty, and the recognition that ending poverty and action on climate change are completely interconnected;
- a recognised need to achieve sustained economic growth, which will be hampered by the overstepping of Earth's natural limits if it is not environmentally sustainable;
- the need to bolster climate resilience – awareness may become acute when a country suffers climate-related extremes or disasters (see Box 1);
- a concern about energy security;
- a desire to capitalise on new economic opportunities;
- a desire to capitalise on climate finance and aid; and
- a desire to act as leaders on climate compatible development in the international arena (for more, see Chapter 7).

The hurdles to winning the argument for climate compatible development can be significant. Like development more broadly, climate compatible development can be contested territory. There are no one-size-fits-all approaches. Rather, navigating the specific approach is a place-by-place and country-by-country affair.

However, proponents of action on climate change do face some common challenges:

- Interest groups are opposed to change.
- There is often a lack of awareness and lack of trusted information about what the future climate holds and what scientific projections mean.
- There are real and perceived costs associated with change, and risks, opportunities and trade-offs to be navigated.
- Decision-makers and influential stakeholders may prioritise more expedient, short-term issues.

This chapter suggests ways of framing the issues and building alliances to marshal political, social and financial support for climate compatible development solutions.

Compelling narrative must show the 'cost of inaction'

First, a compelling narrative is needed, around the costs of failing to deal with climate change. The conversation about the costs of failing to cut greenhouse gases is, naturally, a global conversation, because emissions released in one place affect us all. In the climate-vulnerable and least developed countries where CDKN has worked, per capita emissions are well below global averages and so the national and subnational conversation about 'action on climate change' often starts with the case for investing in climate change adaptation and building resilience.

In Nepal, an exercise to calculate the cost of climate change impacts over the next few decades has provided a focus – previously lacking – for the different ministries of national government to engage in the climate debate, assess implications for their sectors, and develop more climate-resilient interventions. Nepal is a predominantly rural society, where 70% of the population relies on farming for income. Recent temperature rises and reduction in winter rainfall are affecting productivity and the livelihoods of the most vulnerable populations. The CDKN-supported study, *Economic impact assessments of climate change in Nepal* identified agriculture as highly vulnerable to the impacts of climate change. It found that 2–3% of the country's GDP will be lost by 2050 as a result of climate change.[1] This was a wake-up call for government to support new farming practices that would increase farmers' resilience to climate change.

The case for taking action is a convincing one because the economics line up: many of the options for adapting to climate change are 'no regret' or 'low regret' options. That is, they make development sense and would cost little or no more

1 Integrated Development Society Nepal, Practical Action Consulting and Global Climate Adaptation Partnership (2014). *Economic impact assessment of climate change in key sectors in Nepal*. Kathmandu, Nepal: Integrated Development Society Nepal (www.cdkn.org/2014/05/report-economic-impact-assessment-of-climate-change-for-key-sectors-in-nepal).

than programmes the government would support anyway. The Government of Nepal is investing in a programme to scale up these practices and CDKN is advising the government on how to build the capacity of local researchers and farm workers.[2]

> ***"[This study] has helped sensitise all of us to the challenges and way forward associated with climate change impacts and has helped build the capacity of the scientific community in Nepal."***
> – Dr Krishna Chandra Paudel, Secretary, Ministry of Science, Technology and Environment Government of Nepal

In Uganda, the National Development Plan (2010/11–2014/15) recognises that climate change will affect most of the country's economic sectors.[3] The plan acknowledges that addressing climate change is crucial if the country is to achieve sustainable economic and social development, and the Vision 2040 goal of transforming Uganda to a competitive, upper-middle-income country. At the time of writing, the national government is in a process of evaluating how to further strengthen low-emission and climate-resilient measures into the country's next national development plan.

The impacts of climate change are expected to be felt across all sectors of Uganda's economy in the coming years. In the next 50 years, average temperatures are expected to rise about 2°C and rainfall is expected to decrease slightly across most of the country – most significantly over Lake Victoria, with slightly wetter conditions in the west and north-west.

CDKN-commissioned research on the future impacts of climate change in Uganda and the cost of inaction found that:

- The cost of adaptation is high – estimated at around US$406 million over the next five years. On an annual basis, this amounts to about 5% of net official assistance received and 3.2% of total government revenues (excluding grants).

2 Khan, H. R. (2015). 'Scaling-up climate smart agriculture in Nepal'. London: CDKN (www.cdkn.org/2015/06/feature-scaling-up-climate-smart-agriculture-in-nepal).

3 National Planning Authority, Uganda (2010). 'National development plan (2010/11 – 2014/15). Kampala: National Planning Authority, Uganda (www.adaptation-undp.org/sites/default/files/downloads/uganda-national_development_plan.pdf).

- However, the cost of inaction is far greater, estimated at around US$3.1–5.9 billion a year by 2025 – between 24 and 46 times greater than the proposed adaptation budget. (These costs combine current climate variability and future climate change, so some of the costs will occur regardless of climate change impacts.)
- The economic case for adaptation is clear. Most of the adaptation measures proposed in the study are 'no regrets' investments, in that they are valid even in the absence of climate change.[4]

Box 1

Locally and nationally, climate disasters make the case for action

CDKN has documented how extreme weather events and climate-related disasters play a role in convincing national and subnational policy-makers that they need to build resilience to climate change impacts now.[5] For instance, Bangladesh is ranked as one of the most climate-vulnerable countries in the world: in the past 25 years, the country has experienced six major floods, a severe tropical cyclone every three years and seasonal droughts.[6] Bangladesh was early in preparing its national adaptation programme of action in 2005 and the Government of Bangladesh has invested over US$10 billion to make the country less vulnerable to natural disasters.[7]

In Colombia, increased flooding and sea level rise are affecting the Alto Cauca River basin where Colombia's coffee, cocoa and sugar industries are based. The agricultural sector supports the livelihoods of 3.7 million Colombians and accounts for 10–14% of Gross Domestic

4 Markandya, A., C. Cabot-Venton and O. Beucher (2015). *Economic assessment of the impacts of climate change in Uganda*. Kampala: Baastel Consortium (www.cdkn.org/wp-content/uploads/2015/12/Uganda_CC-economics_Final-Report2.pdf). Also, Twinomuhangi, R. and C. Monkhouse (2015). *Economic assessment of the impacts of climate change on Uganda: Key results*. London and Kampala: CDKN (www.cdkn.org/wp-content/uploads/2015/11/UGANDA_Economic-assessment-of-climate-change_WEB.pdf) and CDKN (2015). *Climate change: Remapping Uganda's future* (film). London: CDKN (www.youtube.com/watch?v=Egep0rS6mi4).

5 Ellis, K., A. Cambray and A. Lemma (2013). *Drivers and challenges for climate compatible development*. London: CDKN (www.cdkn.org/resource/drivers-and-challenges-for-climate-compatible-development).

6 CDKN (2017) 'Bangladesh'. London: CDKN (www.cdkn.org/regions/bangladesh).

7 Luxbacher, K. (2011). *Bangladesh's comprehensive disaster management programme*. London: CDKN (www.cdkn.org/resource/cdkn-inside-story-bangladesh%E2%80%99s-comprehensive-disaster-management-programme).

Product (GDP). Farmers depend not only on price stability in global markets, but also on a predictable climate to make a living. In 2011, heavy rainfall resulted in unprecedented flooding that destroyed crops, infrastructure and homes across the basin, and economic losses totalled 2% of Colombia's GDP. This economic loss led to a major multi-agency vulnerability assessment project, involving Colombia's Department of Agriculture, to bolster resilience to such disasters in the future.[8]

The dominance of the debate around climate change-related loss and damage in the UNFCCC negotiations reflects the importance placed by developing countries on the present-day effects of climate change and the potential of severe climate impacts this century even at less than a 2°C temperature rise (see Chapter 7).

The reality of climate change impacts is prompting developing country governments to take action on adaptation – least developing country governments are investing more of their own funds in adaptation activities through their national budgets than they are receiving in adaptation finance from donors.[9] Neil Bird finds that in Ethiopia and Uganda the overwhelming majority of spending on climate resilience is being funded domestically: for instance, the Government of Ethiopia is funding in the order of US$440 million a year in climate-related activities, while international donors contribute in the tens of millions; the Government of Uganda's US$23 million per year expenditure compares to international contributions of some US$2 million.[10] For more on the monitoring of national financial expenditure on adaptation, see Chapter 4.[11]

CDKN and its learning partners have investigated many initiatives for building climate resilience at the city and subnational level and have noted that mayors and city officials often bear the brunt of criticism when extreme weather and climate-related disaster strike: "when it floods,

8 Peterson, C., A. Nowak, A. Jarvis, C. Navarrete, A. Figueroa, N. Riano and J. Vargas (2012). *Analysing vulnerability: A multi-dimensional approach from Colombia's Upper Cauca River basin*. London: CDKN (www.cdkn.org/resource/analysing-vulnerability-a-multi-dimensional-approach-from-colombias-upper-cauca-river-basin).

9 Bird, N. (2014) *Fair share: Climate finance to vulnerable countries*. London: Overseas Development Institute (www.odi.org/publications/8517-fair-share-climate-finance-vulnerable-countries-ethiopia-uganda-tanzania).

10 Ibid.

11 Bird, N. (2017). 'Monitoring national climate finance: Webinar and related resources.' London and Golden, Colorado: LEDS GP (www.ledsgp.org/resource/monitoring-approaches-climate-finance-webinar).

you don't call the president, you call the mayor."[12] The learning initiative documented many cases when small and localised disasters convinced citizens themselves to self-organise to understand the root causes of disaster and guard against future losses[13] such as: initiatives to restore the waterways of Madurai city in southern India;[14] to prepare for and avert flooding-related disasters in the urban Philippines;[15] and to map and tackle the repeating small-scale risks, which create 'risk traps' for residents of Lima, Peru in the changing climate.[16]

The 'development' in 'climate compatible development' is key to making the case for climate action

Second, a compelling narrative on the benefits of climate action is essential for overcoming political resistance and successfully making the case for climate compatible development policies. For climate mitigation in particular, where the benefits of immediate action to curb or avoid greenhouse gas emissions will not manifest themselves for several decades, the case must be made on the development benefits of low-emission actions today.

As you will read in the 'Regional Insights' in this book, in those cases where action on climate change mitigation and adaptation has been meaningful, ambitious and has truly gained traction at national level,

12 Dupar, M. and A. Cambray (2013). 'Close to home: Learning from subnational initiatives for climate compatible development'. London: CDKN (www.cdkn.org/2013/06/close-to-home-learning-from-subnational-initiatives-for-climate-compatible-development).

13 Anton, B., A. Cambray, M. Dupar and A. Westerlind-Wigstroem (2014). *Close to home: Subnational strategies for climate compatible development.* London: CDKN (www.cdkn.org/resource/close-to-home-subnational-strategies-for-climate-compatible-development).

14 Kumar, M. and M. P. Vasimalai (2016). *Future proofing an Indian city: Lessons from Madurai.* London: CDKN (www.cdkn.org/resource/inside-story-future-proofing-madurai).

15 Mateo, M. P. L. C., and D. M. Lagdameo (2015). *Building resilience to climate change locally – The case of Valenzuela City, Metro Manila.* London: CDKN (www.cdkn.org/resource/inside-story-building-resilience-climate-change-valenzuela-manila). Also, Arcilla, M. J. D. and D. M. Lagdameo (2015). *Understanding the risk of flooding in the city: The case of Barangay Potrero, Metro Manila*. London: CDKN (www.cdkn.org/resource/understanding-risk-flooding-barangay-potrero-metro-manila).

16 CDKN (2016). 'Project: Disrupting risk traps'. London: CDKN (www.cdkn.org/project/disrupting-urban-risk-traps-bridging-finance-knowledge-lima).

it has been firmly embedded in a country's development vision and strategy – at a macroeconomic and cross-sectoral level. Carl Wesselink talks about how the Rwandan and Ethiopian governments have done exactly this.

Of course, each individual country's circumstances are unique and the parameters in which a national narrative for climate compatible development can be constructed are, likewise, unique. Far-sighted political leaders recognise, articulate and respond to a new development story, a climate compatible development story "characterised by changing patterns of innovation, production and trade tied to climate responses and to financial, disaster, conflict and climate risks and uncertainties at an unprecedented level".[17] Again, the 'Regional Insights' essays provide examples of such narratives, as does Box 2 (p. 46) on China's leadership in renewable energy. Here are glimmers of an emergent paradigm, by which a country's overall economic growth prospects and competiveness in the global economy may be defined by its ability to offer 'clean' and 'green' products and services and manage climate change-related risks.

> ***"You can't go into Africa talking first about climate change, you have to talk about development. Poverty and inequality must be tackled now, so the question is, what are the lowest-emission and most climate-resilient means possible to do so?"***
> – Shehnaaz Moosa, CDKN's Africa operations manager

The term 'co-benefits' has become increasingly common, particularly with regard to interventions at project, programme or sector level. Discussion of 'co-benefits' reflects the fact that action on climate change produces many other benefits, not directly related to the climate. For example, action to reduce traffic congestion can have major benefits in terms of air quality, which in turn benefits public health. Identifying and quantifying the co-benefits can strengthen the overall case for climate action. A two-year expert assessment, *Green growth in practice: Lessons from country experiences* presents countries' practical experience in delivering jobs, economic growth, export revenue, income diversification, energy access, improved public health and more resilient infrastructure and cities, as a result of climate compatible development policies.[18]

An excellent example of 'co-benefits' comes from Tanzania, where the government supported a Small Power Projects programme – with limited

17 Mitchell, T. and S. Maxwell (2010). *Defining climate compatible development*. London: CDKN (www.cdkn.org/resource/defining-climate-compatible-development-3).

18 Green Growth Best Practice Initiative (2014). *Green growth in practice: Lessons from country experiences*. Seoul: GGBPI (www.cdkn.org/project/green-growth-best-practice-initiative-ggbpi).

financial resources – to enable the expansion of decentralised renewable energy, such as solar photovoltaic installation. The CDKN Inside Story *Achieving development goals with renewable energy – the case of Tanzania* describes how these renewable energy solutions are contributing to Tanzania's climate compatible development by: supporting economic development through improved access to reliable electricity; lessening vulnerability to fossil fuel price shocks and to drought-related hydropower shortages; and also reducing greenhouse gas emissions.[19] Now a significant scaling up of Tanzania's renewable energy infrastructure[20] is being supported by the Climate Investment Funds – as it has become a pilot country for the Scaling Up Renewable Energy Program (SREP) in Low Income Countries.[21] Many further examples of co-benefits are explored under the sectoral entry points for planning climate compatible development in Chapter 3.

> ***"Economic and social benefits alone would make many low-carbon policies and approaches worth pursuing."***
> – New Climate Economy – *Seizing the global opportunity* (2015, page 12)

Political leadership is essential

Strong political leadership is a minimum, essential requirement for making the case for, and progressing, climate compatible development. The initial phase of the Future Climate for Africa programme,[22] for example, concludes that "the prominence of climate change in, and the uptake of climate information into, national planning and decision-making in sub-Saharan Africa, is dependent on three interrelated areas of political economy: i) support from powerful actors and stakeholders; ii) the structure of governance arrangements and institutional incentives; and iii) the ability to take advantage of appropriate windows of

19 Weischer, L. (2012). *Achieving development goals with renewable energy: The case of Tanzania*. London: CDKN (www.cdkn.org/wp-content/uploads/2012/05/Tanzania-Power-InsideStory_6pp_final_low-res1.pdf).

20 Climate Investment Funds (2017). 'Tanzania's SREP programming'. Washington DC: CIF, Climate Investment Funds (https://www-cif.climateinvestmentfunds.org/fund/scaling-renewable-energy-program).

21 Climate Investment Funds (2011). *Scaling Up Renewable Energy Program in Low-Income Countries*. Washington DC: CIF, Climate Investment Funds (www.climateinvestmentfunds.org/cif/sites/climateinvestmentfunds.org/files/CIF-SREP%20Sept%20%2711%20Final.pdf).

22 For more information, please visit www.futureclimateafrica.org

opportunity." Jones et al. find that action on climate change within national policy and programming in sub-Saharan Africa has mostly been coordinated through ministries of environment and natural resources management, or their equivalents, which is suboptimal as these ministries are "often weak and under-resourced."[23]

In Rwanda, President Paul Kagame has championed the integration of climate action into all areas of national development, pioneering a national strategy on climate change and low-carbon development for Rwanda. Jones et al. add that "President Kagame's enthusiasm has also facilitated a strong role for senior – and therefore powerful – ministries, such as the Ministry of Finance and Economic Planning".[24] A learning paper by authors in Rwanda's Environment Secretariat together with CDKN and the University of Wolverhampton tells the story at greater length, as does a CDKN-commissioned film *Rwanda: Emerging in a changing climate*.[25]

In Peru, climate change became a leading issue in national politics thanks to the impetus lent by the then Minister of Environment, Manuel Pulgar Vidal, who established the Planning for Climate Change (PlanCC) project. PlanCC has been designed by public, private and non-governmental institutions under the leadership of a public steering committee and also involves the Ministry of Economy and Finance, Ministry of Foreign Affairs and the National Centre for Strategic Planning. PlanCC seeks to develop sound evidence about possible climate change mitigation scenarios in Peru, strengthen capacities and lay the foundations for long-term low-carbon economic growth. Since the initiative started in 2013, Peru has compiled the necessary evidence to plan for climate compatible development and to prepare an (Intended) Nationally Determined Contribution to the UNFCCC with significant domestic support.[26, 27]

23 Jones, L., E. Carabine, J. P. Roux and T. Tanner (2015). *Promoting the use of climate information to achieve long-term development objectives in sub-Saharan Africa.* London: CDKN (www.cdkn.org/wp-content/uploads/2015/02/CDKN_FCFA_synthesis.pdf).

24 Ibid.

25 CDKN (2012). *Rwanda: Emerging in a changing climate* (film). London: CDKN (www.youtube.com/watch?v=WWqV_UWwFpg).

26 Pacha, M. J., A. Echevarría, L. Guinand, M. Cerdán and J. Villanueva (2015). *La elaboración de la Contribución Prevista y Determinada a Nivel Nacional (INDCs) de la República del Perú: compromisos climáticos construidos en forma participativa.* Quito: CDKN (www.cdkn.org/wp-content/uploads/2015/12/Documento-de-Trabajo-INDC-Peru-08_2017.pdf).

27 CDKN (2017). *Plan CC: Tackling climate change in Peru* (film). London: CDKN (www.cdkn.org/2017/02/film-plan-cc).

In one 'small but beautiful' example which may inspire other governments, Barbados's solar water heater industry has been very successful.[28] It boasts over 50,000 installations that have saved consumers as much as US$137 million since the early 1970s. The Government of Barbados has created a framework to support the development of solar water heaters and ensure long-term fiscal and regulatory certainty for manufacturers and customers. The technology saves an estimated US$11.5–16 million per year for consumers. Analysts credit a major factor in the promotion and sustained uptake of the scheme to the leadership role of the prime minister, who visibly embraced solar water heating and communicated his support widely in the press.

Box 2

Political leadership: The case of China

China has embraced a restructuring of its economy towards clean energy – at least partly motivated by the poor air quality in many of its large cities. The New Climate Economy report *Seizing the global opportunity* (2015) describes how China "has now embarked on a historic structural transformation … China is moving away from a development model based on rapid growth in capital accumulation and energy-intensive export industries, powered largely by coal. It is seeking to move towards an economy based on growth in domestic consumption and services, with stronger innovation and more efficient resource use, powered increasingly by cleaner forms of energy. At the same time it is trying to reverse old patterns of urbanisation, which resulted in sprawl and rising air pollution. China's leaders have listed what they describe as building an 'ecological civilisation' as one of the country's five top priorities guiding reforms."[29]

Dramatic air pollution has been a central driver for this ecological leadership drive. The air quality in Beijing, home to 21 million people, has made the city "almost uninhabitable for human beings" in the words of one study, forcing schools to construct airlocks and clean air domes for

28 Bugler, W. (2012). *Seizing the sunshine: Barbados' thriving solar water heater industry.* London: CDKN (www.cdkn.org/resource/cdkn-inside-story-seizing-the-sunshine-barbados-thriving-solar-water-heater-industry).

29 Global Commission on the Economy and Climate (2015). *Seizing the global opportunity: Partnerships for better growth and a better climate.* Washington DC: The Global Commission on the Economy and Climate (www.newclimateeconomy.report/2015/wp-content/uploads/sites/3/2014/08/NCE-2015_Seizing-the-Global-Opportunity_web.pdf).

their pupils.[30] The Government of China has placed a national cap on coal consumption and the "seven 'strategic emerging industries' prioritised for economic growth in the government's 12th Five Year Plan (2011–2016) include … new developing energy sources, energy conservation and clean vehicles." A CDKN Inside Story, *How China built the world's largest wind power market*, charts how the Chinese wind power market has grown to become the world's largest, with China overtaking the United States to become the leader in terms of installed capacity in 2010.[31] Domestic manufacturing has "exploded" since 2006, says author Ailun Yang, and now supplies more than 70% of the domestic market for wind energy equipment.[32]

A clear expression of political will, backed by a set of effective policy measures, has been key to China's success in building the world's largest wind power market, she concludes. These includes the establishment of a stable and favourable pricing mechanism for wind power domestically, which has stimulated China-based manufacture of wind power equipment.

Leaders must build a national consensus

Champions inside government need champions outside, too. They must build broad alliances with non-governmental actors – identifying and partnering with the constituencies that will benefit from climate mitigation and adaptation in the short and long term (and ensure interventions are soundly designed to yield short- as well as long-term benefits). "Make industries and regions benefit from the change – identify interest groups that are against you and make them benefit from the change," Stephan Hallegatte of the World Bank has said at a recent ODI event[33] to introduce his *Three steps to decarbonizing development for a zero-carbon future* report.[34]

30 Wainwright, O. (2014). 'Inside Beijing's airpocalypse – a city made 'almost uninhabitable' by pollution'. London: The Guardian (www.theguardian.com/cities/2014/dec/16/beijing-airpocalypse-city-almost-uninhabitable-pollution-china).

31 Yang, A. (2011). *How China built the world's largest wind power market.* London: CDKN (www.cdkn.org/resource/cdkn-inside-story-how-china-built-the-worlds-largest-wind-power-market).

32 Ibid.

33 ODI (2015). 'How to ensure a zero-carbon future'. London: Overseas Development Institute (www.odi.org/events/4212-decarbonising-three-steps-zero-carbon-future-world-bank).

34 World Bank (2015). *3 Steps to decarbonizing development for a zero-carbon future*. Washington DC: World Bank (www.worldbank.org/en/news/feature/2015/05/11/decarbonizing-development-zero-carbon-future).

The following descriptions show just how complex it can become to identify and engage with the different groups that are affected by, or consider they have an interest in, climate-related policy. These interest groups may include global actors as well as local and national ones.

The first example is the contentious issue of fossil fuel subsidies, the worldwide phenomenon worth a staggering US$1.9 trillion globally – the equivalent of 2.5% of global GDP, or 8% of government revenues, according to a 2013 IMF report.[35] Shelagh Whitley has demonstrated how removing such polluting subsidies needs extremely careful handling (*Time to change the game: Fossil fuel subsidies and climate*).[36] She notes that fuel subsidies have originated for a variety of reasons, such as providing social support for lower-income households to access energy, or as a form of indirect subsidy for certain productive sectors of the economy; therefore, "The barriers to reporting on subsidies and to their removal are based on the multiple and often diverging interests of a wide range of stakeholders in both developed and developing countries. These include government officials, industry associations, companies, trade unions, consumers, social and labour political activists, and civil society organisations – all of whom need to be on board if subsidies are to be eliminated. Those pushing for the phase-out of subsidies must therefore harness the support of a wide variety of actors."

CDKN-commissioned research on the political economy of climate compatible development provides other examples of the complexity of socioeconomic gains and losses among groups in any local or national context.[37] One of the case studies examines Ghana's marine fisheries as a microcosm of climate compatible development possibilities. It sheds light on the fears, insecurities and risks that can threaten local people if decision-makers adopt a pro-climate policy without providing sufficient, tangible support to affected stakeholders – and communicating the process for managing change.

In the coastal fisheries, there are two environmentally unsustainable and polluting activities – tackling them could address greenhouse gas emissions.

35 IMF (2013). 'IMF calls for global reform of energy subsidies: Sees major gains for economic growth and the environment'. Washington DC: International Monetary Fund (www.imf.org/external/np/sec/pr/2013/pr1393.htm).

36 Whitley, S. (2013). *Time to change the game: Fossil fuel subsidies and climate.* London: Overseas Development Institute (www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/8668.pdf).

37 Tanner, T., A. Mensah, E. T. Lawson, C. Gordon, R. Godfrey-Wood and T. Cannon (2014). *Political economy of climate compatible development: Artisanal fisheries and climate change in Ghana*. Brighton: Institute of Development Studies in CDKN (2014). 'Project: The political economy of climate compatible development in Ghana, Kenya and Mozambique'. London: CDKN (www.cdkn.org/project/the-political-economy-of-climate-compatible-development-in-ghana-kenya-and-mozambique).

First, fishermen use a polluting premix fuel (a mixture of petrol and oil for two-stroke engines), and the government currently subsidises artisanal fishermen's use of the fuel. Second, mangroves are being cut unsustainably and lack effective government protection; as a result, they emit more greenhouse gases than they absorb (the destruction of coastal mangroves also increases the vulnerability of coastal Ghana to storm surges, which could become more frequent with climate change). Both issues are tangled in a "complex political economy" which makes it difficult to navigate solutions. The authors find that:

> "there is theoretical scope for a 'triple-win' outcome by removing the subsidy to reduce incentives to unsustainable fishing and supporting alternative policies [but] in practice this is highly problematic. Artisanal fishermen strongly oppose removing the subsidy on the grounds that it would damage their livelihoods, and do not have the confidence that they would be appropriately compensated for any hypothetical reform. Moreover, it is argued that removing it could have negative unintended consequences if fishermen are forced into alternative livelihoods that are themselves unsustainable. Meanwhile, although improved mangrove protection could have significant 'triple-win' benefits, this area suffers from a lack of funding and administrative coordination across ministries and agencies, leading it to be neglected."

Tanner's case study reveals that there are robust policy options that would move coastal Ghana toward more climate compatible development, but the major constraint to doing so is institutional failing. Different interest groups, including the most economically vulnerable, may "demand short-term improvements to current problems rather than aspiring to triple-win outcomes in the long term, creating a major challenge for climate compatible development." What does this imply for decision-makers? There is a need for robust institutional processes that enable stakeholders to appraise the problems together, and come up with a menu of options for action together. We analyse such multi-sectoral, multi-stakeholder planning processes in the next chapter.

Leaders in the executive part of government must also build alliances with those in the legislative part. The importance of building alliances across different branches of government is explored in greater detail in the next chapter.

Building a broad-based alliance includes acknowledging and dealing with real and perceived losses from climate compatible development

Without question, the impacts of climate change are already creating losers in society – and some of these losers are documented in detailed technical loss and damage research supported by CDKN.[38]

However, climate compatible development policies will also be perceived as creating some losers, especially in the short term. As the *New climate economy* report states: "The shift towards a low-carbon, climate-resilient path of growth and development will not be easy, and governments will need to commit to a just transition. Not all climate policies are win-win, and some trade-offs are inevitable, particularly in the short term. Although many jobs will be created, and there will be larger markets and profits for many businesses, some jobs will also be lost, particularly in high-carbon sectors. The human and economic costs of the transition should be managed through support for displaced workers, affected communities and low-income households. Strong political leadership and the active participation of civil society will be needed, along with far-sighted, enlightened business decisions."[39]

Simon Maxwell also picks up this point, foreseeing that "Adjustment [towards green growth pathways] is likely to be disruptive, with winners and losers as between sectors, geographies, genders and generations … a focus on mitigation and adaptation alone is unlikely to encompass the range of likely effects" Therefore, "some kind of national strategy is necessary to manage change on the scale expected." (*Ten propositions on climate change and growth*).[40]

38 Loss and Damage (2017). 'Loss and damage in vulnerable countries'. Bonn: Loss and Damage (www.loss-and-damage.net).

39 Global Commission on the Economy and Climate (2014). *The new climate economy: Better growth, better climate*. Washington DC: The Global Commission on the Economy and Climate (www.newclimateeconomy.report/2014).

40 Maxwell, S. (2011). 'Ten propositions on climate change and growth'. London: CDKN (www.cdkn.org/wp-content/uploads/2011/06/Ten-observations-on-climate-change-and-growth1.pdf).

'Knowledge brokers' can facilitate debate and action

Intermediary organisations and individuals who tailor knowledge to make it more accessible and usable for others, can play a critical role in deepening actors' understanding of climate impacts and solutions, so empowering them to act. Such 'knowledge brokers' can create bridges between the languages of science and climate-impacted communities and policy-makers.

There is a range of knowledge problems. Actors with a stake in climate action may simply be unaware of climate trends and prospects and the range of climate compatible development solutions. Or they may be aware of the issues and completely overwhelmed by the volume of information, and may need guidance on how to find information that is most relevant to them.

The Climate Knowledge Brokers (CKB) Group[41] defines the knowledge broker's role as interpreting, sorting, translating and integrating this wealth of information, and tailoring it to the needs of different audiences – from government decision-makers and industry chiefs to consumers and voters. The CKB Group is composed of more than 100 organisations and has a mission to make sense of the increasing 'ocean' of climate information so that people are well informed to act on climate-related risks.

"Only now are we really grasping the full extent to which our lives, our jobs and our environment are being altered by a changing climate", said Florian Bauer, Chief Operations Officer at the Renewable Energy and Energy Efficiency Partnership (REEEP) at the launch of the Climate Knowledge Brokers Manifesto in September 2015.[42] "To improve our resilience in the face of these changes, we need more effective decision-making in practically all sectors and at all levels. And the people charged with making decisions need the best available information and knowledge to do their jobs well."

The scoping phase of the Future Climate for Africa programme (2013–14) used case studies to explore whether and to what extent climate information is being used to inform decision-making in Africa. These comprised four country case studies (Malawi, Rwanda, Zambia and a combined study of Accra, Ghana and Maputo, Mozambique) and two desk-based studies focused

41 For more information on the Climate Knowledge Brokers' Group, please visit: www.climateknowledgebrokers.net

42 CDKN (2015). 'Climate Knowledge Brokers Manifesto launched'. London: CDKN (www.cdkn.org/2015/09/news-climate-knowledge-brokers-manifesto-launched).

on long-lived infrastructure in the ports and large hydropower sectors.[43] The final report, *Promoting the use of climate information to achieve long-term development objectives in sub-Saharan Africa*, concludes that, in many cases, scientists are not producing the right type of information for people who need to make investment decisions.[44] Even when they do, there is a pressing need for intermediaries or 'knowledge brokers' who can help decision-makers to understand the limits of the information and how it can usefully guide the decision-making process:

> "Embedding climate information into important development decisions often boils down to creating the right 'sales pitch': promoting the usefulness of climate information [to decision-makers]. A sales pitch could demonstrate how climate information will increase decision-makers' understanding of how certain long-term investments will affect their country's economic growth, productivity, and the protection and creation of livelihood opportunities."

The authors also add that there is a generic need "to help decision-makers understand what climate information should and should not be used for, and to encourage more systematic and evidence-based approaches to decision-making under uncertainty."

CDKN itself plays a role as knowledge broker in making climate information more accessible. Its work to create a range of guides, presentation packs and infographics to communicate the science of the IPCC has catalysed new forms of education, awareness raising, media work and policy debate in developing countries, as captured by an independent review (see Box 3).

43 Jones, L., E. Carabine, J. P. Roux and T. Tanner (2015). *Promoting the use of climate information to achieve long-term development objectives in sub-Saharan Africa.* London: CDKN (www.cdkn.org/wp-content/uploads/2015/02/CDKN_FCFA_synthesis.pdf). Also see www.cdkn.org/future-climate-africa

44 Ibid.

Box 3

Using the messages of the IPCC's *Fifth Assessment Report* to galvanise stakeholder action

The IPCC's *Fifth Assessment Report* (AR5) covers the physical science of climate change; impacts, adaptation and vulnerability; climate change mitigation; and a final synthesis report. It was released in stages in 2013–14. CDKN ran a wide-ranging outreach programme to bring the AR5 findings to developing country governments and other stakeholders, so that the latest state-of-the-art climate science could be better incorporated into their decision-making. CDKN produced four regional summaries of the AR5 science, in a colourful and appealing format: '*The IPCC's Fifth Assessment Report: What's in it for Africa?*' '*…What's in it for South Asia?*' '*… What's in it for Latin America?*' and '*…What's in it for small island developing states?*' Each region-specific guide boiled the relevant information contained in the AR5's more than 5,000 pages down to 24 pages.[45] CDKN also launched an online toolkit, which contains slide packs, free infographics and image resources for communicators to use in disseminating the AR5 content. CDKN also organised policy dialogue events at which IPCC authors spoke with more than 1,200 decision-makers and hundreds of young scientists and journalists.

Of online users who registered for the free graphics, 69% are from developing countries. The main uses to which the materials were put were: using them for university education (17%), internal organisational capacity building (28%) and external awareness raising, including policy-makers (32%), publications (13%) and journalism (10%).

45 CDKN (2014). 'AR5 toolkit'. London: CDKN (www.cdkn.org/ar5-toolkit). Also see AR5 SIDS toolkit (www.cdkn.org/ar5-sids), AR5 Africa toolkit (www.cdkn.org/ar5-africa), AR5 South Asia toolkit (www.cdkn.org/ar5-south-asia) and AR5 Latin America toolkit (www.cdkn.org/latin-america-toolkit).

An independent evaluator assessed how CDKN's work of crafting, tailoring and distributing the communications toolkit made a difference, and found the following examples:

- An NGO worker described the materials as his 'armour' to contribute to plans and forums on how to mitigate the effects of climate change.
- One ministry representative in Rwanda said they would use the material for community sensitisation programmes.
- One academic said they would use it to prepare the national UNFCCC delegation of Uganda for climate talks.
- One of the participants reportedly used his new knowledge to build a stakeholder engagement platform for taking forward the investment plans proposed under the Future Proofing Cities project at the corporation and district levels in Madurai, Tamil Nadu, India.
- Most of those with research backgrounds said they would use the material for proposal writing and for their research.

Interviewees emphasised the value of easy-to-use summaries of the climate science. Almost all of those originally surveyed said they would refer to climate change more frequently in their future work.

The experience shows the need for knowledge brokers – even as knowledge brokers walk a fine line to promote the 'accessibility' of the science while maintaining its core accuracy and integrity. The role of the knowledge broker includes acting as a neutral convenor, creating a platform for dialogue among parties. CDKN works as an intermediary between policy-makers and communicators, a kind of 'matchmaker' between these professional communities.

Much as the role of the climate knowledge broker can be vital, and is highlighted in these examples, there are also risks that the mass media and individual communicators can misconstrue or misrepresent climate information, by accident or design. A study by Pegasys for the Future Climate for Africa programme, *The political economy of long-lived decisions in Africa*,[46] cautions that climate programme managers "should be mindful of the role of communicators and approaches to disseminating knowledge … It is important to consider who

46 Pegasys (2015). *The political economy of long-lived decisions in Africa*. Cape Town: Pegasys (www.futureclimateafrica.org/resource/political-economy-long-lived-decisions-africa-framework-report/).

is communicating as well as what is being communicated. The role of 'science–policy intermediaries and 'trusted messengers' needs to be explored and appropriate approaches identified that show practical benefits."

Box 4

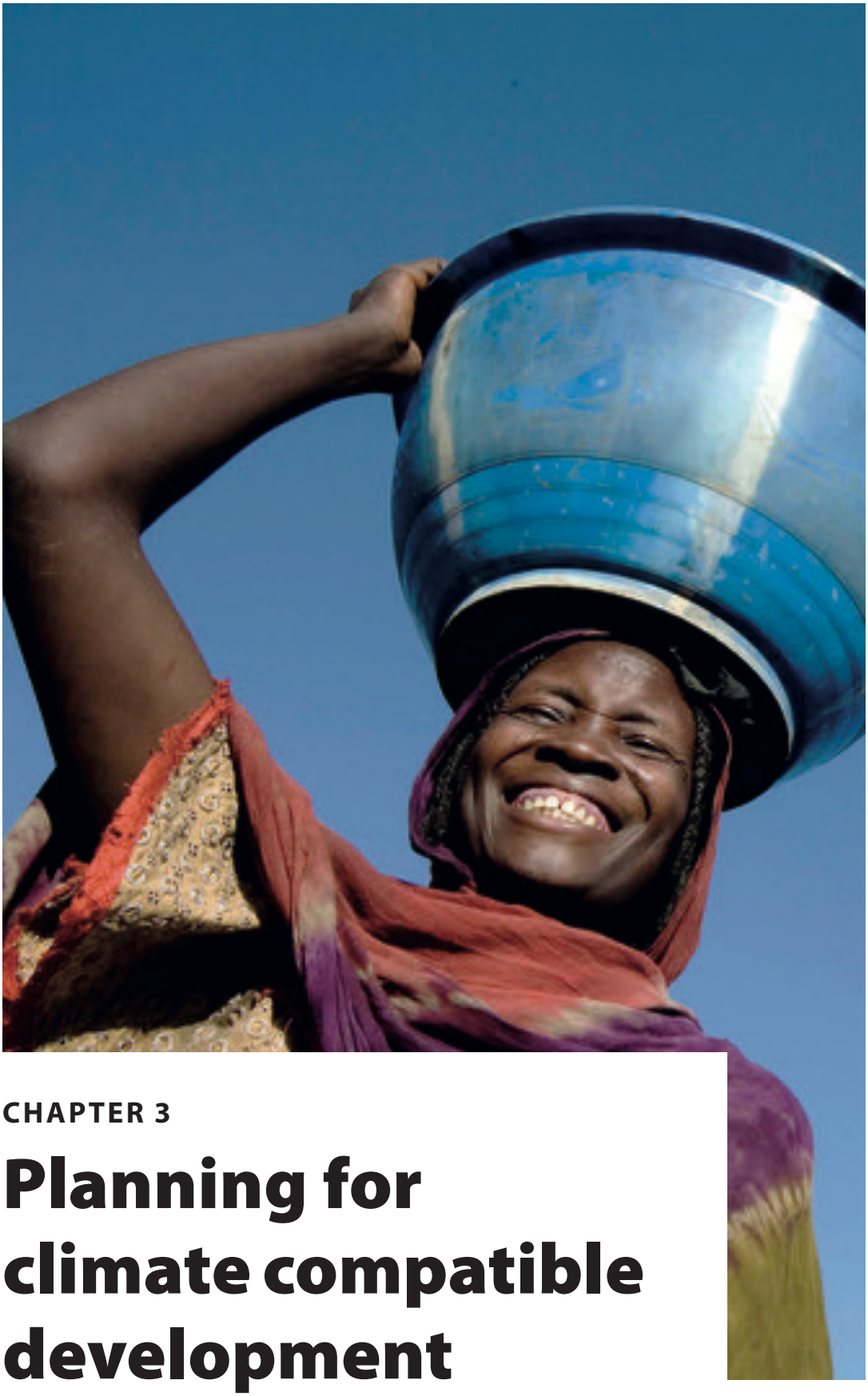
Climate change in the media: Accurate reporting is vital

To avoid inaccurate reporting on climate change, it is important for journalists and other communicators to be well grounded in the basics of climate science – or at least well networked with science experts who can check their work.

CDKN and other donors have invested in climate change training initiatives for journalists,[47] to improve the accuracy of reporting. This has included expert briefings for the media on the findings of the IPCC's *Fifth Assessment Report* and on the significance of NDCs for their countries. In 2016–17, CDKN joined with the World Weather Attribution initiative to support analysis of whether climate change was making certain extreme weather events more likely (the Raising Risk Awareness project).[48] The partners held multiple events in South Asia and East Africa to brief journalists and policy-makers, with the aim of deepening their understanding of how climate change is changing our current weather – and when it does not play a role. This is to counter the tendency to attribute every extreme weather event to climate change when there may not be a verifiable link, but rather, to ensure careful reporting every time and to foster honest public debate.

47 CDKN (2017). 'Climate change training initiatives for journalists'. London: CDKN (www.cdkn.org/2017/03 climate-change-training-initiatives-journalists).

48 For a comprehensive collection of scientific analyses, as well as event reports from the Raising Risk Awareness project, please visit: www.cdkn.org/climaterisk



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CHAPTER 3

Planning for climate compatible development

Introduction

In the previous chapter, we looked at a range of factors, including political factors, which are at the heart of making the case for climate compatible development. In this chapter, we look at some of the cross-cutting macroeconomic and sectoral entry points for climate compatible development. We then assess the 'ingredients' of successful planning processes that reconcile the informational and political needs of different interest groups and enable them to move forward together.

Macroeconomic and sectoral entry points for climate compatible development

Macroeconomic stability and growth

In his *Ten propositions on climate change and growth*, Simon Maxwell takes as the departure point, "The first approach to policy for low-carbon growth is that an economy must be equipped for growth in a rapidly changing global economy. This is always true, and growth policies need to recognise that technologies and institutions can change economic prospects very quickly. Climate change and climate change policy simply add further elements."[1] He explores some of the specific opportunities for growth that will be afforded to countries used as illustrations (e.g. lithium reserves in Bolivia that will support the expansion of batteries in solar power technologies).

Setting action on low-emissions development and climate resilience at the heart of macroeconomic planning is well illustrated by Rwanda, where "most of the country's climate-related policy milestones and strategic frameworks were developed in the last five years and are embedded in Rwanda's national development frameworks. In the case of Vision 2020 – Rwanda's long-term development strategy – its 2012 revision was informed in part by the increasing burden of climate-related impacts (e.g. droughts, floods and landslides). Similarly, Rwanda's latest Economic Development and Poverty Reduction Strategy 2013–2018 (EDPRS II) … prioritises 'green economy' transformations such as a green city pilot to test and promote new approaches that respond to Rwanda's rapid pace of urbanisation."[2]

1 Green Growth Best Practice Initiative (2014). *Green growth in practice: Lessons from country experiences*. Seoul: GGBPI (www.cdkn.org/project/green-growth-best-practice-initiative-ggbpi).

2 Caldwell, D., J. Dyszynski, and R. Roland (2015). *Climate compatible development in the land of a thousand hills.* London: CDKN (www.cdkn.org/resource/working-paper-climate-compatible-development-in-the-land-of-a-thousand-hills-lessons-from-rwanda/?loclang=en_gb).

Ethiopia has similarly set out a national vision in which its desired progression to medium-income country status by 2025 is predicated on low-emission, climate-resilient growth. The economy-wide strategy is termed the Climate Resilient Green Economy (CRGE) Strategy. Its conclusions have been embedded in Ethiopia's INDC, as submitted to the UNFCCC. According to the analysis by Climate Action Tracker, this INDC is one of fairest and most ambitious.[3]

The CDKN-supported Green Growth Best Practices Initiative found that "Ethiopia's main framework for green growth … considers synergies between economic development, poverty reduction, climate change mitigation and resilience across all sectors of the economy … Ethiopia used a broad analytic framework for assessing green growth benefits. An Integrated Assessment Model was used for macro-economic impact such as the loss of GDP from climate change impacts in the agriculture and energy sectors. The benefits (and costs) of each option were assessed using multiple criteria that ranged from economic cost-benefit ratios, to qualitative assessments of the benefits for biodiversity and poverty reduction. A relatively basic spreadsheet-based analysis was used to assess sector specific benefits." [4]

Adaptation

In the developing countries with few historic emissions and great development needs, an 'adaptation-based mitigation' approach is garnering attention and shows promise of expansion. Here, the primary policy driver or entry point is increasing the resilience of development solutions: there is demand for climate change adaptation, and mitigation elements are included as a side benefit.

For example, Fiji is a small country with relatively little forest cover and therefore somewhat modest potential for 'Reduced emissions from deforestation and forest degradation' (REDD+, a 'mitigation first' approach to finance and development). Rather, its predominant climate concerns are with adaptation, and its development priority is to tackle chronic poverty. However, country stakeholders, supported by a regional programme of the German agency for international cooperation (GIZ), recognised that a Fiji REDD+ programme could be "set in a broader context than what might be typical of REDD+ policy work in larger, more heavily forested tropical countries" (CDKN Inside Story *Going after adaptation co-benefits: A REDD+ programme in Fiji*).[5] Author Murray Ward reports,

3 Climate Action Tracker (2017). 'Tracking INDCs'. Berlin: Climate Action Tracker Consortium (www.climateactiontracker.org).

4 Green Growth Best Practice Initiative (2014). *Green growth in practice: Lessons from country experiences*. Seoul: GGBPI (www.cdkn.org/project/green-growth-best-practice-initiative-ggbpi).

5 Ward, M. (2012). *Going after adaptation co-benefits: A REDD+ programme in Fiji.* London: CDKN (www.cdkn.org/resource/going-after-adaptation-co-benefits-a-redd-programme-in-fiji/?loclang=en_gb).

> "Finance for readiness and eventual REDD+ activities can also contribute to a range of sustainable land management priorities, such as watershed protection, flood mitigation, water security, drought mitigation, mitigating land degradation, coastal forest management (including the protection and enhancement of mangroves) and biodiversity conservation. Seen in this light, the high costs of developing REDD+ readiness can become justifiable for more developing countries and donor agencies."[6]

Perhaps what makes this case study stand out is that Fiji's REDD+ plan contains explicit objectives across the domains of climate mitigation, adaptation, and human livelihoods and empowerment, including gender equality. As a plan that is intended to attract REDD+ financing, it must include specific objectives for delivering additional carbon storage and sequestration beyond a business-as-usual scenario, and the systems to measure this additional achievement. Yet, because this plan was formulated with the help of a GIZ regional adaptation programme and with endorsement from across Fiji's government agencies, explicit adaptation and human development goals are the driving force.

El Salvador has developed an 'adaptation-based mitigation' approach, also based on the principle that adaptation activities generate co-benefits for mitigation. According to PRISMA (Programa Regional de Investigación sobre Desarrollo y Medio Ambiente) in a study for CDKN, the approach enables the country to tailor climate action to its specific needs: "for El Salvador, the priority is addressing the country's high levels of environmental degradation which makes it particularly vulnerable to the impacts of climate variability and extreme weather events. Accordingly, El Salvador's efforts to reduce environmental degradation and vulnerability, (such as conservation and management of soil and water, expansion of agro-forestry systems and the promotion of sustainable agricultural practices), also highlights how these efforts increase the capture and storage of carbon as well as reducing greenhouse gases emissions. The adaptation-based mitigation approach seeks to engage and impact change at a landscape level, while requiring that the needs for adaption dictate the location and extent of mitigation efforts. This approach has been the basis for the design and implementation of the National Program for the Restoration of Ecosystems and Rural Landscapes (PREP) in El Salvador and the development of the country´s REDD+ preparedness proposal."[7]

6 Ibid.

7 CDKN (2014). 'Mitigación basada en adaptación frente al cambio climático – la experiencia centroamericana' (www.cdkn.org/2014/08/mitigacion-basada-en-adaptacion-frente-al-cambio-climatico-la-experiencia-centroamericana). See also PRISMA (2012). *Mitigación basada en la adaptación (MbA)*. San Salvador: PRISMA (www.cdkn.org/wp-content/uploads/2014/08/ApD_Mitigacion_basada_en_Adaptacion_02.pdf).

Energy access

Decarbonising the energy sector – that is, providing energy services via renewable resources – is an unavoidable step on the global pathway to a secure, net-zero emissions world, because energy currently contributes some 40% to the global footprint of greenhouse gas emissions (see *3 steps to decarbonizing development for a zero-carbon world*[8] and the IPCC's *Fifth Assessment Report*, volume III *Mitigation of climate change*).[9] Energy access also provides the entry point for a range of important policies that are 'climate compatible' in the fullest sense of delivering triple wins for development, climate adaptation and mitigation.

A range of CDKN-commissioned research and programmatic insights show how developing countries are successfully piloting low-emission, climate-resilient planning in the energy sector. These initiatives are often driven by the need to expand energy access in order to provide basic development benefits and to underpin economic growth, as in Tanzania, where a lack of reliable access to electricity is a significant barrier to economic development and job creation. Only 14% of the population has access to electricity; in rural areas the electrification rate is around 2%. Power outages are frequent – especially during droughts, which cripple the hydroelectric power on which most of the country depends. A CDKN Inside Story, *Achieving development goals with renewable energy: The case of Tanzania*, explores how the country's Small Power Projects (SPP) programme supports deployment of decentralised renewable energy solutions such as solar photovoltaic systems.[10] Although only running at a pilot scale, the programme has contributed to Tanzania's climate compatible development by improving access to reliable electricity, particularly in rural areas. Greenhouse gas emissions have been reduced, as the programme reduces reliance on diesel- and gas-powered generators during power outages, and climate resilience is strengthened because decentralised solar power provides an alternative to hydropower systems that are vulnerable to drought.

Because the robustness of energy generation and power transmission systems can be profoundly affected by climate impacts such as sea level rise, drought and high temperatures, it is important that countries assess the climate resilience of their energy systems as well as their emissions profile.

8 World Bank (2015). *3 Steps to decarbonizing development for a zero-carbon Future*. Washington DC: World Bank (www.worldbank.org/en/news/feature/2015/05/11/decarbonizing-development-zero-carbon-future).

9 IPCC (2014). *IPCC Fifth Assessment Report: Volume III 'Mitigation of climate change'*. Geneva: Intergovernmental Panel on Climate Change, Working Group 3 (www.ipcc.ch/report/ar5/wg3/).

10 Weischer, L. (2012). *Achieving development goals with renewable energy: The case of Tanzania*. London and Washington DC: CDKN (www.cdkn.org/wp-content/uploads/2012/05/Tanzania-Power-InsideStory_6pp_final_low-res1.pdf).

For this reason, a CDKN-supported project in Benin, Mali and Togo[11] has used a comprehensive planning tool, the TIPEE tool,[12] to rate energy development options for climate mitigation, adaptation and development benefits.

Box 1

NAMAs provide source of finance for improved energy services

The UNFCCC's invitation to developing countries to submit nationally appropriate mitigation actions (NAMAs) for consideration for donor funding has proven a further impetus for the development of programmes and projects in the energy sector. A NAMA is defined as "any action that reduces emissions in developing countries and is prepared under the umbrella of a national governmental initiative. They can be policies directed at transformational change within an economic sector, or actions across sectors for a broader national focus. NAMAs are supported and enabled by technology, financing, and capacity building and are aimed at achieving a reduction in emissions relative to 'business as usual' emissions in 2020".

CDKN has helped Kenya to develop a NAMA for the expansion of geothermal power and the Indonesian province of West Nusa Tenggara to develop a NAMA for renewable energy development, which are documented in the Inside Story *Nationally appropriate mitigation action to accelerate geothermal power: Lessons from Kenya*[13] and *Climate and development outlook: Indonesia special edition*.[14]

11 Labriet, M., C. Fiebig and M. Labrousse (2015). *Working towards a Smart Energy Path: Experience from Benin, Mali and Togo*. London: CDKN (www.cdkn.org/resource/inside-story-working-towards-a-smart-energy-pathway).

12 Helio International (2011). *TIPEE case study: Cameroon.* Paris: Helio International (www.helio-international.org/rapports/tipee-case-study-cameroon-2011/).

13 Falzon, J., D. Pols, S. King'uyu and E. Wang'ombe (2014). *Nationally Appropriate Mitigation Action (NAMA) to accelerate geothermal power: Lessons from Kenya.* London: CDKN (www.cdkn.org/resource/nama-geothermal-power-lessons-kenya).

14 Khan, D. and M. Indrawan (2015). *Climate and development outlook: Indonesia special edition*. London: CDKN (www.cdkn.org/resource/outlook-indonesia-edition). See also Ovais, F. I., L. Junghans, X. van Tilburg, J. Klarer, H. Bellfield, M. Indrawan, E. Wairate and S. Saud (2017). *Climate and development outlook: Indonesia special edition*. London: CDKN (www.cdkn.org/resource/climate-and-development-outlook-indonesia-special-edition).

Energy security

A country's or region's desire to reduce its dependence on expensive, imported fossil fuels is also a strong driver for climate compatible energy policies. Ellis, Cambray and Lemma describe how, "In the Caribbean, CDKN funded the development of an Implementation Plan for the Caribbean Community's (CARICOM) Regional Framework for Achieving Development Resilient to Climate Change. This was formally adopted by heads of state in 2012. Although the case for action was framed around adaptation and resilience, the consultation process revealed that some countries spend 30–40% of foreign exchange earnings on fossil fuels. Reducing the cost of energy, in particular for the poorest of those countries, was a key driver for action on climate compatible development" (*Drivers and challenges of climate compatible development*, 2013).[15]

Public health

The range and behaviour of disease vectors is altered by climate change. Effective medium- to long-term public health planning will need to take account of climate change impacts and, therefore, be more climate resilient than at present. For example, the geographic range of disease-bearing insects and parasites will change, as these species' distributions shift in a changing climate. Water-borne diseases may pose new risks to human populations as, for instance, increasing incidences of flood and drought threaten the provision of freshwater and sanitation. CDKN's Inside Story on participatory planning in Maputo, Mozambique describes exactly how local communities have identified the relation between solid waste, urban sanitation and flooding, and the consequences for diarrhoeal disease as a priority area for adaptation action.[16]

Climate mitigation programmes in the energy and transport sectors offer well-documented gains for public health (reduced asthma and lung disease, etc.) via improved air quality – this is the case whether polluting vehicles are replaced with low-carbon ones in an urban setting, or whether indoor air pollution from fires and traditional cook-stoves is reduced through low-emission alternatives. There may be additional co-benefits depending on the mitigation intervention involved, such as reduced traffic congestion and improved economic productivity in the case of low-emission transport systems, or improved personal security and reduced risk of violence against women and girls for those householders who no longer have to walk far to collect firewood. All of these

15 Ellis, K., A. Cambray and A. Lemma (2013). *Drivers and challenges for climate compatible development*. London: CDKN. (www.cdkn.org/wp-content/uploads/2013/02/CDKN_Working_Paper-Climate_Compatible_Development_final.pdf).

16 Castán Broto, V., E. Boyd, J. Ensor, D. A. Macucule and C. Allen (2014). *A local vision of climate adaptation: Participatory urban planning in Mozambique.* London: CDKN (www.cdkn.org/resource/urban-planning-mozambique).

have aspects that further improve people's wellbeing. Some of these benefits may be quantifiable in economic terms or other quantitative indicators, such as the increased number of 'disability adjusted life years' for a healthier population with less disease. Other quality of life benefits may not have a price tag but could help overcome resistance to climate compatible development policies and provide rallying cries for alliance building.

The risks of low-emission action must also be carefully evaluated by decision-makers, as in other sectors. For example, incentivising bicycle use boosts zero-carbon transport and exercise, both of which are good for public health, but without enforcement of traffic regulations and safe places for cycles to operate, the incidence of road traffic accidents involving cyclists could increase.

Freshwater access and management

Many of the projected increases in extreme weather and climate events will have a direct impact on water resources, for example:

- It is likely that the frequency of heavy precipitation will increase in the 21st century over many regions.
- There is evidence, providing a basis for medium confidence, that droughts will intensify over the coming century in southern Europe and the Mediterranean region, central Europe, central North America, Central America and Mexico, north-east Brazil, and southern Africa. Confidence is limited because of definitional issues about how to classify and measure a drought, a lack of observational data, and the inability of models to include all the factors that influence droughts.
- It is very likely that average sea level rise will contribute to upward trends in extreme coastal high-water levels causing coastal flooding and saltwater intrusion into the groundwater.
- Projected precipitation and temperature changes imply changes in the frequency and severity of flood events in many regions of the world.

In Africa, parts of the continent already face acute water shortages. CDKN has been helping the African Ministers Council on Water and the Global Water Partnership to meet the Sharm el-Sheikh Declaration on Water and Sanitation adopted by African governments in 2010, which pledged to accelerate action to improve people's access to drinking water and sanitation.[17] Through the Water, Climate and Development Programme (WACDEP),

17 CDKN (2015). 'AMCOW Capacity Building – Building capacity for climate resilient decision-making in water investments'. London: CDKN (www.cdkn.org/project/amcow-capacity-building-building-capacity-for-climate-resilient-decision-making-in-water-investments).

they aim to increase African countries' capacity and knowledge to integrate water security and climate resilience into development planning.

From 2011 to 2013, the partners produced a framework to help decision-makers to develop finance strategies and investments that would promote water security in a changing climate. They also created a technical tool, users' guide, capacity-building plan and policy briefs to help policy-makers apply the framework. The framework has guided a pilot phase of WACDEP in eight countries – Burkina Faso, Burundi, Cameroon, Ghana, Mozambique, Rwanda, Tunisia and Zimbabwe. In these countries, the framework has helped define national water planning. For example, WACDEP has helped Cameroon's Ministry of Water to create a climate-resilient, five-year 'Integrated water resources management' action plan. The Programme also supports the Ministry of Environment in integrating water security issues into the 'National vulnerability and risk analysis report'.

CDKN is supporting the next stage of the programme, which aims to strengthen the institutional capacity to put the framework into practice among ministries and local governments in WACDEP countries.

Food security

A changing climate leads to changes in the frequency, intensity, spatial extent and duration of weather and climate events, and can result in unprecedented extremes, both through slow onset disasters (e.g. consecutive years of drought) and extreme events (e.g. heavy flooding). Many such events will have a direct impact on agricultural systems now and in the future, including through increased duration, frequency or intensity of heatwaves, increased frequency of heavy precipitation in many regions, intensified droughts across some areas, upward trends in extreme coastal high-water levels, and changes in flood patterns.[18] Crops, livestock and people will all be affected.

Agriculture is among the sectors most vulnerable to the impacts of climate change and weather extremes because of its dependence on natural resources such as water and ecosystem services. Water supply for agriculture, for example, will be critical to sustain production and even more important to provide the increase in food production required for the world's growing population.

Transformational approaches will be required in the management of natural resources, including new climate-smart agriculture policies, practices and tools, better use of climate science information in assessing risks and vulnerability, and increased financing for food security. 'Low regret' adaptation options typically include improvements to coping strategies (i.e. strategies to

18 Norrington-Davies, G., C. Cameron, E. Back and T. Mitchell (2012). *SREX: Lessons for the agricultural sector.* London: CDKN (www.cdkn.org/resource/srex-lessons-for-the-agricultural-sector).

overcome adverse conditions and restore basic functionality in the short to medium term) or reductions in exposure to known future threats, such as better forecasting and warning systems. Other short-term adaptation strategies include diversifying livelihoods to spread risk, farming in different ecological niches, and risk pooling at the regional or national level to reduce financial exposure. Longer-term strategies include land rehabilitation, terracing and reforestation, measures to enhance water catchment and irrigation techniques, and the introduction of drought-resistant crop varieties.

In Nepal, farming has become a feminised occupation, as men migrate to the cities for work; farming has also become more difficult due to increasingly erratic rainfall and high temperatures. The threats of climate change to food security have therefore risen up the political agenda and have stimulated new government and donor investments (see Box 2 below).

Box 2

Climate impacts on food security: A driver for new agriculture practices in Nepal[19]

"Climate-smart agriculture is really important for Nepal because it helps us to reconcile the two goals of food security and adaptation to climate change," explains farming expert Bikash Paudel in a CDKN documentary film, *Farmers of the future*. The threat of drought to crop yields and food security emerged as a major development concern and political priority during the Government of Nepal's assessment of the economic impacts of climate change (see p. 38 above) and a CDKN project to promote the uptake of climate-smart agriculture was one of the results. Thanks to the project, 300 women farmers from the high mountains, mid hills and Terai plains of Nepal are now being mentored in water-saving and climate-resilient practices, such as rainwater harvesting and drip irrigation systems; the latter have cut water use by 30%. Solar-powered pumps have revitalised irrigation systems and made fields far more productive, while also doing away with the need for polluting diesel pumps. The introduction of biofertilisers and bio-pest control has increased the yields, in some fields, by 15 to 20 percent.

19 For more information about the project, and to view the film, please visit www.cdkn.org/2017/02/film-farmers-of-the-future-new-film-shows-nepals-women-farmers-leading-on-climate-smart-agriculture

Water-energy-food nexus

It is important to plan for increasing pressure on natural resources and resource scarcity in a changing climate, and the implications of these trends for the 'Water-energy-food' nexus. Why are these three sectors together referred to as a 'nexus'? Provision of food and freshwater to human populations depends intrinsically on the availability of freshwater as well as, to a certain extent, land for crops and water storage. Many energy systems that rely on water for power generation (such as hydropower) or for cooling may compete, in specific geographic areas, over the use of water. It is important for stakeholders to collectively recognise the changes in climate-related risks across these sectors and for robust institutional and governance processes to guide societies through the trade-offs in prioritising resource use.

Box 3

Better governance of water-energy-food sectors can benefit Amazon security

A CDKN-supported project in the Amazon region is framing the food–water–energy nexus in terms of regional and global security. As habitat destruction interacts with climate change, the concern is that the Amazon will be caught up in a set of 'feedback loops' that could dramatically speed up the pace of forest loss and degradation and bring the Amazonian biome to a point of no return. In an exclusive interview, Yolanda Kakabadse, senior strategic advisor to CDKN said:

> "Climate change is the greatest challenge we will face in this century. Especially because it will impact health, water, food and energy security, and will increase vulnerability and risk for the region's growing economies and populations. Climate change will transform the Amazon ecosystem. If climate impacts are not managed to avoid getting caught in a set of feedback loops, the transformation will be amplified until there is a point of no return. If we do nothing, climate change will bring devastating consequences and neither the Amazon nor the world will be as we know it. If we avoid this scenario and work together to build a resilient ecosystem, Amazonia can help us adapt better to climate change.
>
> "A rainforest not only stores carbon, it has a natural ability to regulate and stabilise the climate. Just imagine the power of Amazonia, the largest rainforest on Earth. Protecting the Amazon

can protect climate. In fact, that is precisely what the Amazon Vision seeks: to strengthen the protected areas systems of Amazonia shared by Brazil, Bolivia, Colombia, Ecuador, Guyana, Peru, Suriname and Venezuela, in order to increase the ecosystem's resilience to the effects of climate change and to maintain the provision of environmental goods and services benefiting biodiversity, local communities and economies. The 'Amazon security agenda' will contribute to tackling climate change since it intends to guarantee water, food, health, energy and, of course, climate security throughout the Amazon biome.

"… All nine countries must have a pan-Amazon vision rather than a narrow country-focused one. This means sharing information to help informed decision-making, mapping and monitoring areas where water, energy, food or health security are most vulnerable, creating a regional development agenda, strengthening protected area systems, having common basin management policies and a joint zero-net deforestation target, among others. Only by having a common and coherent agenda they will be able to overcome all the pressures the Amazon is facing and ensure the wellbeing of the region."

Reconstruction

Reconstruction after disaster (including after climate-related disasters) can provide the entry point for climate compatible development policies and programmes. When UNFCCC executive secretary Christiana Figureres visited Pakistan in the wake of the country's devastating 2010 floods which displaced 20 million people, she urged the government to "build back better" – replacing previously vulnerable housing and rural infrastructure with more climate-resilient designs. A CDKN pilot project in Punjab province aimed to do exactly this (see Box 4 on the following page).

Indeed, when unavoidable weather-related disasters occur, some analysts have even suggested that reconstruction provides the entry point for GDP growth and job creation, when managed carefully, even if extreme weather does not strike again for some years. In *The triple dividend of resilience* (2015),[20] Tanner et al. argue that "existing methods of appraising disaster risk management

20 Tanner, T., S. Surminski, E. Wilkinson, R. Reid, J. Rentschler, and S. Rajput (2015). *The triple dividend of resilience.* London and Washington DC: Overseas Development Institute and World Bank (www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/10103.pdf).

investments undervalue benefits associated with resilience. This is linked to the common perception that investing in disaster resilience will only yield benefits once disaster strikes. Decision-makers then view disaster risk management investments as a gamble that only pays off in the event of a disaster."

When more sophisticated economic assessment is applied, decision-makers can identify more clearly the three dividends of investing in climate resilience and disaster risk management, namely:

- avoiding losses when disasters strike;
- stimulating economic activity thanks to reduced disaster risk; and
- achieving development co-benefits from specific disaster risk reduction investments.

The first dividend, the desire to avoid losses in the event of a repeat disaster, is a common motivation for climate-resilient investments. As an example of the second dividend, the authors note that the mere possibility of a disaster causes risk-averse households to stymie their entrepreneurship and long-term planning activities – whereas, diminishing the spectre of disaster can unleash some of this potential. On the third dividend, it is slowly becoming more widely recognised that investments in disaster reduction infrastructure can provide many worthwhile development benefits irrespective of when disaster strikes again: for instance, storm bunds may double as walkways.[21]

Box 4

Building back better after the Pakistani floods[22]

CDKN supported the Punjab Provincial Disaster Management Authority (PDMA) to prepare guidelines for rebuilding housing and infrastructure in rural areas that it is more resilient to climate extremes and disasters. It is not just about climate resilience and disaster response though, the project also sought ways to integrate climate adaptation with low-carbon growth.

Pakistan has some history of including disaster risk-reduction measures in its building codes: after the 2005 earthquake in northern parts of the country, aspects of earthquake resilience were addressed. But national and provincial building codes have never got to grips with the risks from floods, temperature increase, energy shortages

21 Ibid.

22 To find out more about the project, please visit www.cdkn.org/regions/pakistan

and extreme climate events. Rural areas are particularly lacking in such guidance and regulation.

With CDKN's support and the expertise of engineering experts Mott MacDonald, the PDMA of Punjab oversaw development of rurally appropriate, climate compatible construction guidelines. These provide local planners with basic options for layout and building designs to reduce vulnerability and exposure to natural hazards, and improve the energy efficiency of buildings.

By engaging key authorities and stakeholders in the process, the PDMA has triggered communication across government departments on rural–urban planning issues and by-laws for local construction. A full consultation and consensus-building process is now taking place with district authorities and community planners.

Recreation and tourist amenities

Policies to bolster the recreational amenity of an area – for its own residents' enjoyment or for its tourism value – may provide entry points for climate compatible development policies. CDKN-supported research and learning has documented this policy driver in the burgeoning 'green tourism' sector in Thailand and Viet Nam. In Chiang Mai, northern Thailand, as described in CDKN Inside Story *Catalysing sustainable tourism: The case of Chiang Mai*, a technical research team identified a range of options to decrease tourism-related greenhouse gas emissions in the city.[23] Then a reference group representing local interests was consulted on the options. The group voted for options that married greenhouse gas reduction with local job security and also with cited motivations such as cleaner air, less motorised traffic congestion, green recreational spaces and even pride in a 'green city'. Local deliberations recognised that a 'green city' is not only a valued commodity for local residents themselves, but also one of the principal attractions for the tourists on which much of the local economy (including sustained employment) depends.

Local priorities, local relevance

For local and subnational innovations in climate compatible development (or, alternatively, when it comes to delivering national mandates at local level, as further explored in Chapter 5), the relevance of the climate programme to

23 Kusakabe, K., P. Shrestha, S. Kumar, and T. Suwanprik (2014). *Catalysing sustainable tourism: The case of Chiang Mai, Thailand.* London: CDKN (www.cdkn.org/resource/sustainable-tourism-thailand).

local concerns is paramount. The case study of mainstreaming climate change into South Africa's municipal development plans delivers a strong lesson about communicating local relevance: "Climate change considerations must be shown to be relevant to local priorities and circumstances. Developing country governments face many social, economic and environmental challenges and framing climate change action as a response to these challenges enables decision-makers to see such action as contributing to – rather than constraining – development."[24]

When stakeholders define the problem together, they have a basis for tackling the problem together

Ultimately, stakeholders need a participatory process to assess the costs and benefits associated with different options. One approach which has proven effective at doing so is the 'Mitigation action plans and scenarios' (MAPS) methodology. In the MAPS approach, 'Learning and doing in the global South',[25] the facilitators explain how it "explores future pathways through the building of mitigation scenarios, and aims to create a better understanding of the economic, social and environmental implications of these different mitigation pathways. The researcher and stakeholder team seek to develop credible evidence that uses the specifics of their country's political economy, and delivers scenarios to achieve relevant development goals (including mitigation)." The MAPS process has, at its heart, the 'co-generation' of knowledge so that researchers (scientific experts) and stakeholders (interest groups) go through a facilitated process to reach a common understanding of the different options for climate compatible development in their country – and their feasibility.

In Peru, the government decided to address climate change challenges through the project Planning for Climate Change (PlanCC), which adopts the MAPS process. PlanCC aims to build the technical and scientific bases, as well as capabilities, to explore the feasibility of 'clean' or 'low-carbon' development in Peru and incorporate climate change approaches in the country's development plan. Phase I of the project generated qualitative and quantitative evidence

24 Parramon-Gurney, M., A. Gilder and E. Swanepoel (2012). *South Africa's municipal integrated development plans.* London: CDKN (www.cdkn.org/resource/inside-story-south-africas-municipal-integrated-development-plans).

25 Boulle, M., M. Torres, L. Kane, M. du Toit, H. Winkler and S. Raubenheimer (2015). *The MAPS approach: Learning and doing in the global South.* Cape Town: SouthSouthNorth (www.mapsprogramme.org/wp-content/uploads/The-MAPS-DNA_02-07-2015_Final-.pdf).

on possible climate change mitigation scenarios for the 2021–2050 period. In addition, it estimated the costs and potential for reducing emissions, co-benefits or indirect opportunities for society, environment and economy (e.g. alternative employment, reduction of pollution).

PlanCC has a strong ministerial mandate. It is chaired by a steering committee formed by the Ministry of the Environment, the Ministry of Foreign Affairs, the Ministry of Economy and Finance and the National Center of Strategic Planning (CEPLAN). In common with other parts of the MAPS Programme, PlanCC is seeking to establish a methodology for generating the evidence base for a long-term transition to robust economies that are both carbon efficient and climate resilient.[26]

As a result of the initial phases of the process, 77 sectoral mitigation actions were proposed and validated by the stakeholder group, of which 33 were prioritised and presented to the government. Prioritisation was on the basis of co-benefits, feasibility and their contribution to poverty reduction. Mitigation options in solid waste, agriculture and transport have been selected and validated by a high-level inter-ministerial committee of the government. Some of this evidence has been considered and included in the country's INDC as part of the UNFCCC process.

Manuel Pulgar-Vidal, the president of COP20 and Peruvian Minister of Environment, set out the importance of a consultative approach to planning as follows:

> "The national contributions for 2015 need to be agreed in each country through national debate and within a solid policy framework that allows for full accountability over time."[27]

The right stakeholders must be at the table

Efforts to plan climate compatible development that involve the stakeholders affected by climate change and by climate policies have a significantly higher chance of success. Involving affected groups in vigorous public consultation and debate makes a tangible and positive difference to how policies are designed. Policies developed in this way are also more likely to win public support and be taken up and implemented.

26 MAPS (2015). 'MAPS programme'. Cape Town: MAPS Programme (www.mapsprogramme.org).

27 CDKN (2017). *Plan CC: Tackling climate change in Peru* (film). London: CDKN (www.cdkn.org/2017/02/film-plan-cc).

Good consultation and participation in decision-making are nothing new. They are fundamental principles for environmental decision-making and for sound development. Such principles were enshrined in the Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters or 'Aarhus Convention' (1998).[28] With its 46 signatories among European governments plus the European Union, the Aarhus Convention has provided a guiding framework for donor governments' environment-related policies (see also 'Aarhus Convention as a tool for enhancing the role of the public in tackling climate change' by Jeremy Wates).[29] The principles of deep civil society engagement in sustainable development decision-making were further underlined in the Rio+20 outcome document, signed by the world's governments in Rio de Janeiro in 2012 (see Box 5 below).

Box 5

'Future We Want – Outcome Document' of the Rio+20 Summit on Sustainable Development

"We underscore that broad public participation and access to information and judicial and administrative proceedings are essential to the promotion of sustainable development. Sustainable development requires the meaningful involvement and active participation of regional, national and subnational legislatures and judiciaries, and all major groups: women, children and youth, indigenous peoples, non-governmental organizations, local authorities, workers and trade unions, business and industry, the scientific and technological community, and farmers, as well as other stakeholders, including local communities, volunteer groups and foundations, migrants and families as well as older persons and persons with disabilities. In this regard, we agree to work more closely with the major groups and other stakeholders and encourage their active participation, as appropriate, in processes that contribute to decision-making, planning and implementation of policies and programmes for sustainable development at all levels.

28 UNECE (1998). *Convention on access to information, public participation in decision making and access to justice in environmental matters.* Geneva: United Nations Economic Council for Europe (www.unece.org/fileadmin/DAM/env/pp/documents/cep43e.pdf).

29 Wates, J. (2009). 'The Aarhus Convention as a tool for enhancing the role of the public in tackling climate change' (presentation). Bonn: United Nations Framework Convention on Climate Change (www.unfccc.int/files/cooperation_and_support/education_and_outreach/application/pdf/aarhus_convention.pdf).

> "… We acknowledge the role of civil society and the importance of enabling all members of civil society to be actively engaged in sustainable development. We recognize that improved participation of civil society depends upon, inter alia, strengthening access to information and building civil society capacity and an enabling environment."
>
> *– Future We Want – Outcome Document*[30]

However, there is a risk that principles of thorough public consultation and participation in decision-making could be cast aside as aid agencies, private businesses and governments grapple with climate change. That is because the pressure to act on climate change is immense and is growing every day – there is a risk of hurtling headlong into mitigation solutions that will deliver greenhouse gas emissions savings quickly and at least cost. But if programmes are not carefully designed, they could act to the detriment of human development needs and even undermine people's capacity to adapt to climate impacts. These risks make it especially important to embrace the principles of public consultation, and participation of affected stakeholder groups in decision-making when it comes to climate compatible development.

Like many other forms of development, climate compatible development involves trade-offs. It takes a dialogue process among affected parties to address these difficult issues for present day needs, as well as information on how climate change could affect these resources in the future. For instance, many mitigation solutions – such as biofuel expansion, certain forms of hydropower and geothermal energy – demand land and water resources. How should this competition for scarce natural resources be weighed up against immediate human needs for food production, freshwater for drinking and sanitation, and land for settlement?

Several cases from CDKN's experience illustrate how consultation with the general public, or with specific representatives of affected stakeholder groups, can influence the design of policies – and make them attractive to a broader cross-section of social groups.

In Togo, HELIO International worked with the Government of Togo to devise a 'smart energy path' to increase access to energy in a low-carbon, environmentally sustainable way. The process invited stakeholder groups to debate, agree on priorities and plan a new programme to increase access to energy services.

30 UNDESA (2012). *Future we want – Outcome document.* New York: United Nations Department of Economic and Social Affairs (sustainabledevelopment.un.org/futurewewant.html).

The facilitators of the process expected the participants to prioritise electricity supply to households (a conventional approach to rural electrification). However, household electricity came only in fourth place; the top three priorities ranked by stakeholders were all related to nutritious food and personal health: energy for access to clean water, electrification of health centres, and clean and efficient solutions for cooking and heating water (*Working towards a smart energy path: Experience from Benin, Mali and Togo*, 2015).[31]

An innovative approach to urban planning in Maputo, Mozambique helped communities rank their development priorities in the context of a changing climate. The participatory process materially influenced the public understanding of climate impacts and 'problems', and the prioritisation of solutions (see Box 6 below).

Box 6

Public Private People Partnerships for Climate Compatible Development – Maputo, Mozambique

The Public Private People Partnerships for Climate Compatible Development (P4D) project led a participatory urban planning process that recognised the capacity of citizens living in settlements to develop a collective vision for the future of their neighbourhood. They formed a community planning committee which produced a 'Community plan for climate change adaptation' – with Maputo-based facilitators who received training to play this role. The facilitators provided check points, but the communities developed proposals, wrote the plan, presented it to other actors and made follow-up approaches to institutions for further support.

Neighbourhood residents showed what was really important to them: they proposed measures to improve the *bairro*'s waste management and drainage through community organisation, repairing networks to improve the water supply and improving waste management through a recycling centre. They also suggested the promotion of environmental education to, for example, learn about waste management and emergency responses to flooding. What is distinctive about all these home-grown solutions suggested by residents is that they identified interventions that would reduce the occurrence of urban flooding, spread

31 Labriet, M., C. Fiebig and M. Labrousse (2015). *Working towards a Smart Energy Path: Experience from Benin, Mali and Togo*. London CDKN (www.cdkn.org/resource/inside-story-working-towards-a-smart-energy-pathway).

of disease and threats to clean water during floods – issues that are core to their quality of life. They rejected the option of relocation because they believed it would have an unbearable impact on their livelihoods. The project created a shift away from passive participation in neighbourhood planning to active leadership and mediation.

The neighbourhood's proposals have been presented to government institutions and private firms in Maputo and created opportunities for dialogue, in both informal meetings and public forums. Some policy-makers responded enthusiastically. There is no evidence of policy impact yet, but the municipality has embarked on deeper climate change planning processes following this project. Mozambique's disaster management agency staff acknowledged that they have gained confidence in the way such participatory methods can involve local residents in climate change adaptation planning decisions. The project also highlighted that participatory planning requires sufficient allocation of time and money to undertake meaningful community consultation and a detailed scientific assessment of climate impacts.

Knowledge partnerships are essential for creating climate solutions

The Maputo example above shows how a common understanding of historic climate trends and future scenarios can provide the foundation for developing climate-resilient and low-carbon plans among affected stakeholders and decision-makers. Among the CDKN projects we reviewed, the most progress in planning for 'future climate-proofed' development was achieved where knowledge partnerships were established among experts both within and outside affected communities. It is important that local people, who are familiar with recent climate patterns and existing adaptive responses, are recognised as experts in their own right. Most of the cases analysed were distinguished by the presence of bridging institutions, or 'knowledge intermediaries', that helped to demystify and translate concepts of climate impacts, vulnerability and longer-term climate trends and solutions. In the Maputo case, the knowledge intermediaries were UK- and Maputo-based universities, which played a facilitation role with local leaders and community members.

In another example, the Regional Institute for Population Studies at the University of Ghana has played an instrumental role in translating concepts

about climate trends and vulnerability for local communities (literally, from English to local languages, as well as by framing technical language in more accessible terms) (see Box 7 below).

The role of bridging institutions or knowledge intermediaries can include making climate science accessible to non-specialists (see 'Knowledge brokers', Chapter 2). Scientific knowledge on climate change hazards and the likely impacts at the subnational level often resides with national authorities and agencies. Making it easier for local actors and affected groups to access and understand the relevance of such information in the local context helps them to feed into decisions more effectively. How can this be done? The answer lies in finding engaging communications tools and messages that are appropriate to the audience.

In the city of Cartagena, Colombia, research partners behind the vulnerability assessment produced effective data visualisations that showed how much of the city's historic and commercial property would be inundated by sea level rise in a matter of decades. They used these to engage business and local government leaders (see CDKN Inside Story *Embedding climate change resilience in coastal city planning* and Plan 4C).[32]

Box 7

Knowledge partnerships assist urban development policy in coastal Ghana

The University of Ghana has been working to promote the use of climate change risk information in the country's development strategies. A project team supported by CDKN sought to tackle the following hurdles:

- Decisions on climate risk reduction and planning are too often top-down and so lack the local context and ownership that would be necessary to lead to effective action at the grassroots level.
- There are weak links between the national policy framework and district-level planning.
- There is a lack of clear policy directives or implementation plans for tackling climate risks at the district level.

32 Adams, P., J. Castro, C. Martinez and P. C. Sierra-Correa (2013). *Embedding climate change resilience in coastal city planning: Early lessons from Cartagena de Indias, Colombia.* London: CDKN (www.cdkn.org/resource/embedding-climate-change-resilience-in-coastal-city-planning-early-lessons-from-cartagena-de-indias-colombia). See also CDKN (2015). *Plan 4C climate change plan of Cartagena de Indias* (film). Quito: CDKN (www.cdkn.org/2016/01/video-cartagena-thriving-in-the-face-of-climate-change).

Through approaches including multi-stakeholder workshops and field trips, the project helped national-level decision-makers to connect and empathise with local contexts and challenges, and communities to feel meaningfully included in policy design. On the basis of the research and round table discussions, three focal communities prepared contingency plans for dealing with climate and disaster risk. These community-level contingency plans are intended to inform district and regional preparedness plans and, ultimately, to contribute to national-level disaster risk management, helping make the process bottom-up as well as top-down.

Researchers and policy-makers did not prescribe adaptive practices. Rather, coastal communities were helped to define their own adaptation and resilience pathways through community-based 'reciprocal learning' processes.

A community-based risk screening tool, 'Adaptation and livelihoods', empowered local participants to articulate climate-related disaster risk reduction and planning. In turn, these co-productive learning activities validated and increased ownership over the emerging research results. Policy-makers and practitioners were not simply lectured on climate-related risk management, but had to think through challenges with activity-based, 'learning by doing' and dialogue-based round tables.

Participants used diverse communications tools and participatory methods, including drama, discussions, films, animations and environmental objects, to debate the challenges of coastal climate change impacts and form recommendations for mainstreaming climate disaster risk management into policy.

There are some early signs of the project influencing policy, and it seems to have achieved some success in changing the mindsets of key individuals at national level and even beyond. It is not yet possible, however, to ascertain what real impact this project will have. A crucial piece of learning from the experience is that stakeholder engagement in itself is not enough – the timing and nature of that engagement also plays a large part in determining a project's success.

Women need to be empowered as equal partners with men, and socially disadvantaged groups should have a place at the planning table

The IPCC concludes that people who are socially, economically, culturally, politically, institutionally or otherwise marginalised in society are often highly vulnerable to climate change. Climate change impacts will slow economic growth, make poverty reduction more difficult, further erode food security, and prolong existing poverty traps and create new ones, particularly in urban areas and emerging hunger hotspots.

In India, the 'National action plan on climate change' recognises that women, already disadvantaged by the gender gap, will be particularly affected by climate change. However, it fails to include the gender dimension in its eight action-focused 'missions' that encompass both mitigation and adaptation strategies to deal with climate change.

CDKN partner Alternative Futures assessed four state action plans on climate change – Uttar Pradesh, Madhya Pradesh, West Bengal and Uttarakhand – through a gender- and rights-based lens. The project engaged with key stakeholders including officials, legislatures and the public to raise awareness of the gender dimension of climate change through robust research. The project was successful in getting the agreement of the central Ministry of Environment and Forests to incorporate gender dimensions in all state action plans. Some of the research material was included in the Government of India's official submission to COP18 with respect to advancing gender balance in bodies established by the Convention and Kyoto Protocol and was included in the COP decision.

A parallel documentary film project, which invited Indian women to film each other talking about climate impacts, shows the resourcefulness of women within the context of poverty and socio-cultural constraints. The film is called *Missing* because women are currently 'missing' from the climate action plans. However, it illustrates that if women were to become full partners in climate change planning, their wellbeing, and that of broader society, would be substantially improved.[33]

A comprehensive research study commissioned by CDKN into the role of gender-sensitive approaches in delivering climate compatible development in Kenya, India and Peru (2015–16) found that when it comes to assessing vulnerability to climate change impacts and planning climate resilience interventions, gender-sensitive approaches are vital in recognising different people's needs:

33 CDKN (2014). *Missing: The forgotten women in India's climate plans* (film). London: CDKN (www.cdkn.org/resource/missing-the-forgotten-women-indias-climate-plans).

> "[Gender-sensitive] analysis not only provides a more in-depth understanding of the effects of climate change. It also reveals the political, physical and socioeconomic reasons why men and women suffer and adapt differently to everyday climate-related challenges, extreme events and longer-term environmental changes."[34]

For example, according to Kratzer and Le Masson,[35] in Peru, attention to gender-sensitive approaches allowed for better analysis of men's and women's roles and the physical, political and economic factors that make them more or less climate-vulnerable. Climate change may cause men to leave their families and migrate to find livelihood alternatives in urban areas. These movements cause changes in gender roles as women become fully responsible for taking care of the family's basic needs, while the men risk becoming isolated or exploited in their new environments.

Farmers of the future, a documentary film exploring the increased agricultural burdens on women in Nepal and the opportunities for women to lead in climate-smart agriculture solutions, reflects similar dynamics.[36] A short collection of video interviews with CDKN's strategic advisors from Uganda, Ethiopia, India, Indonesia and Peru explores the differential impacts of climate change on women and the opportunities offered by gender-sensitive climate planning.[37]

It is important to have the right planning tools

Over the past five years, there has been a proliferation in the number of climate compatible development planning tools. Such is the array of tools – ranging from complex, interactive online decision support systems to simple spreadsheet-based tools – that CDKN commissioned an analysis of the tools available.[38] CDKN also worked with the Institute of Development Studies (IDS)

34 Kratzer, S. and V. Le Masson (2016). *10 Things to know: Gender equality and achieving climate goals.* London: CDKN. This synthesis report was underpinned by the longer technical reports on the findings of research into gender-sensitive approaches in Kenya, India and Peru, all available by visiting www.cdkn.org/resource/report-10-things-know-gender-equality-achieving-climate-goals

35 Ibid.

36 CDKN (2017). *Farmers of the future* (film). London: CDKN (www.cdkn.org/2017/02/film-farmers-of-the-future-new-film-shows-nepals-women-farmers-leading-on-climate-smart-agriculture).

37 CDKN (2014). *The gender dimensions of climate compatible development* (https://cdkn.org/resource/ccd-gender-video).

38 CDKN (2011). *Choosing the best tools for climate compatible development planning*. London: CDKN (www.cdkn.org/project/user-orientated-comparative-analysis-of-climate-compatible-development-planning-methodologies-and-tools).

to produce a digital guide to some of the planning tools available, searchable with simple, drop-down menus.[39] This work has since been merged with an even more ambitious guide to climate-smart planning tools developed by the World Bank and a broader range of knowledge partners.[40] Now the growing communities of practice that comprise the Low Emissions Development Strategies Global Partnership (LEDS GP) is creating its own guidance to climate compatible planning tools for different sectors such as transport.[41] A new 'Development Impact Assessment toolkit' helps users to find out which tools are available to evaluate the particular economic, social and environmental impacts of different low-emissions or 'LEDS' approaches.[42]

The importance of having the right planning tools available is illustrated by the experiences of the small island states in the Caribbean. For decision-makers in the Caribbean, the impacts of climate change are all too apparent. In recent years, the region has suffered at the hands of climate-related extreme weather events such as hurricanes and flooding, and other climate-driven changes such as sea level rise and ocean warming. From infrastructure projects, through town planning and fisheries management, to tourism development, the question of how to continue to prosper in the face of climate change is a primary concern for policy-makers in the region. Integrating considerations of climate risk into the decision-making processes for legislators, planners, policy-makers and project leaders is a considerable challenge.

In order to provide some answers to these challenges, the Caribbean Community Climate Change Centre (CCCCC), with support from CDKN, designed the Caribbean Climate Online Risk and Adaptation TooL (CCORAL), a web-based tool designed to help decision-makers in the Caribbean integrate climate resilience into their decision-making and planning processes. The tool's development included a thorough consultation process involving significant inputs from across the region. Critical inputs have been provided by government ministries in the four CCORAL pilot countries (Barbados, Belize, Jamaica and Suriname), non-governmental and civil society organisations, business and financial services sectors, universities and research institutions,

39 CDKN and IDS (2011). 'Climate planning: Climate compatible development tools: A guide for national planning'. London and Brighton: CDKN and the Institute of Development Studies (www.climateplanning.org).

40 World Bank (2014). 'Climate-smart planning platform'. Washington DC: World Bank (www.climatesmartplanning.org).

41 LEDS GP (2017). 'Low Emission Development Strategies Global Partnership'. London and Golden, Colorado: Low Emission Development Strategies Global Partnership (www.ledsgp.org).

42 LEDS GP (2015). 'Development Impacts Assessment (DIA) toolkit'. London and Golden, Colorado: Low Emissions Development Strategies Global Partnership (www.ledsgp.org/development-impact-assessments-tools).

and development partners. The new online support tool is an important step towards increasing the climate resilience of the region.

Training on CCORAL has taken place in 14 Caribbean countries to date. Grenada has integrated the use of CCORAL in its decision-making for capital projects since 2014. CDKN, Global Water Partnership and CCCCC have also supported development of the related CCORAL-Water tool, to apply risk management criteria to investment decisions in the climate-vulnerable water sector.

Box 8

Building capacity to withstand climate-related shocks in Central America

The accumulated effects of climate change are already clear in Central America's 'Dry Corridor' – a subtropical highland area stretching from Guatemala to Costa Rica. A recent report states that an estimated 3 million Central Americans are struggling to feed themselves as a result of falling crop production, which is linked to drought, floods, extreme temperatures and sea level rise.

The CDKN-supported Climate Resilience and Food Security in Central America (CREFSCA) project has developed tools to help communities identify their climate vulnerabilities and take action to address it.[43] The project's main outputs were two decision-support tools, designed to enable community members and policy-makers to assess the vulnerability and resilience of food systems, develop resilience actions and generate indicators to monitor that resilience over time. The tools were developed and tested through an iterative process grounded in practical field applications.

"Food security is looked upon from a systemic perspective where issues like storage, related infrastructure, and other supporting natural and built-in elements are taken into account. The conceptual framework and CRiSTAL food security tool[44] were very useful to identify and understand the impacts chains, how the climate impacts cascade through the food system," said Alicia Natalia Zamudio of lead organisation

43 Gutierrez, M. (2015). 'Making Central America's food systems more climate-resilient'. London: CDKN (www.cdkn.org/2015/03/feature-making-central-americas-food-systems-climate-resilient).

44 IISD (2012). *CRiSTAL user's manual version 5: Community-based risk screening tool – adaptation and livelihood.* Winnipeg: International Institute for Sustainable Development (www.iisd.org/cristaltool).

the International Institute for Sustainable Development. "With this systems-conceptual approach, we also produced the FIPAT [Food Security Indicator & Policy Analysis Tool],[45] which focuses its analysis on the national and subnational levels, including public policies and their capacity to support resilience."

During the project, local and regional governments received training to use these tools in their contexts, improving both their knowledge on climate change and their understanding of key concepts. "The communities we worked with were empowered by their better understanding of food security issues. They became more aware of some linkages and answers to questions that were not explicit before," Zamudio said.

For example, users developed indicators to help them measure their resilience to climate change shocks, including: percentage of households with family orchards or gardens, which could determine the level of vegetable consumption and the diversity of food produced and eaten; percentage of households with more than one storage facility or percentage of households with refrigerated storage, which is linked to access to electricity and whether they can refrigerate and cook food; and percentage of paved roads, which increases access to food, as unpaved roads are even more vulnerable to climate shocks.

The tools were used to analyse climate risks to the food system, the results of which were used to design policies for the Mancomunidad Montaña El Gigante (Guatemala), a rural community that depends almost exclusively on agriculture.[46] In Honduras, use of CRiSTAL has spread beyond the original project communities, because it is being used more widely by NGOs. The tools could soon be incorporated in the university curriculum of the Universidad Autónoma de Honduras (UNAH).[47]

45 Echeverría, D. and M. Keller (2014). *FIPAT guidebook: Food security indicator & policy analysis tool*. Winnipeg: International Institute for Sustainable Development (www.iisd.org/library/fipat-guidebook-food-security-indicator-policy-analysis-tool).

46 CDKN (2014). 'Seguridad alimentaria y sinergias institucionales – el caso de la comunidad "Montaña El Gigante" en Guatemala'. Quito: CDKN (www.cdkn.org/2014/01/seguridad-alimentaria-y-sinergias-institucionales-el-caso-de-la-comunidad-montana-el-gigante-en-guatemala).

47 UTV (2014). *UTV: Resiliencia climática y seguridad alimentaria* (film). Tegucigalpa: Universidad Nacional Autónoma de Honduras (www.youtube.com/watch?v=GpWslZqa26I).

Developing countries must plan for tomorrow's climate, not yesterday's

When it comes to adapting to climate change, some governments and businesses are responding to the climate impacts felt today. They are increasing the climate resilience of building and infrastructure design and of development programmes – often in response to climate-related disasters. But this does not mean that they are looking ahead to anticipate the greater climate changes expected over coming decades. They need climate information and planning tools that will help them to build resilience to the likely challenges in the climate over the next 5–40 years, which is the horizon for major infrastructure investments being made today.

A study of how African governments are using climate information to shape development planning found that most projects focus on reducing existing vulnerabilities, rather than dealing with future risks. In general, "there are significant opportunities for integrating longer-term climate projections into policies and programmes," the authors concluded.[48] In Gorakhpur district, India, the Gorakhpur Environmental Action Group has been working closely with government officials for decades to increase awareness of climate impacts on development.[49] The group has been successful in convincing officials to integrate climate-related concerns into disaster risk management – the evidence that floods harm the property and livelihoods of the local population with increasing frequency, is clear 'on the ground': "Recent studies in the area, and climate projections indicate that the patterns of extreme rainfall are increasing. For example, one analysis shows an increase in the intensity of rainfall events by up to 33%, especially for longer duration events." However, the team's greater challenge was that, "To be effective, disaster management planning must include both current and projected climate change impacts." A CDKN-supported project, documented in a film, *For a safer future – Climate resilience in India*, has supported secondments of climate resilience experts to district government and a series of round table dialogues to deepen understanding and action on future climate planning.[50]

48 Jones, L., E. Carabine, J. P. Roux and T. Tanner (2015). 'Promoting the use of climate information to achieve long-term development objectives in sub-Saharan Africa'. London: CDKN (www.cdkn.org/wp-content/uploads/2015/02/CDKN_FCFA_synthesis.pdf).

49 Wajih, S. A., and S. Chopde (2014). *Integrating climate change concerns into disaster management planning: The case of Gorakhpur, India*. London: CDKN (www.cdkn.org/resource/integrating-climate-change-into-disaster-planning-gorakhpur).

50 CDKN (2015). *For a safer future – Insights on climate resilience from India* (film). London: CDKN (https://cdkn.org/2015/08/film-for-a-safer-future-insights-on-climate-resilience-from-india).

Early pilot initiatives in developing countries to 'climate proof' – or 'future proof' – development must share their lessons widely to enable broader awareness and uptake of such approaches: future proofing approaches must become *de rigeur* for development investments in the years ahead. The costing of such adaptation and resilience measures inevitably emerges as a concern in project planning; in CDKN's experience, the most promising pilot initiatives stress 'low regret' and 'no regret' adaptation investments, i.e. those which deliver both safeguards against future climate impacts and present-day development benefits (see also Tanner et al. *Triple dividend of resilience*, which is discussed on pages 67–68).

Box 9

Future proofing Rwanda's tea and coffee sectors

The Future Climate for Africa' programme, a four-year, £20 million programme funded by the UK Government (2016–19), is supporting the generation of new climate information and decision-support tools to rise to these challenges.[51] The programme includes researching and publishing leading-edge climate projections for the continent – as explained in the recent *Africa's climate* report[52] – and road-testing the information and tools at numerous demonstration sites across Africa.

The future could look quite different to today: in Africa, the climate can be expected to be significantly different 40–50 years from now. Under a high-emissions scenario, average temperatures will rise more than 2°C, the threshold set in current international agreements, over most of the continent by the middle of the 21st century.[53] Average temperatures will rise by more than 4°C across most areas in the late 21st century.

Until recently, Rwanda's policies addressed the present 'climate adaptation deficit', based on current climate variability.[54] These include floods and landslides, but also the effects of rainfall variability

51 FCFA (2017). 'Future Climate for Africa'. Cape Town: Future Climate for Africa. (www.futureclimateafrica.org).

52 FCFA (2016). *Africa's climate: Helping decision-makers make sense of climate information.* Cape Town: Future Climate for Africa (2016report.futureclimateafrica.org).

53 Carabine, E. and A. Lemma with M. Dupar and L. Jones (2014). *The IPCC's Fifth Assessment Report: What's in it for Africa*. London: CDKN and Overseas Development Institute (www.cdkn.org/ar5-toolkit/ar5-africa).

54 FCFA (2015). *Final report: Rwanda pilot.* Cape Town: Future Climate for Africa (www.cdkn.org/wp-content/uploads/2014/05/Rwanda-FCFA-final-report-vs-2.pdf).

on agriculture, such as soil erosion and droughts. These impacts were recognised and have been integrated into national policy. In 2011, Rwanda launched a National Strategy for Climate Change and Low Carbon Development; the country has an operational climate and environment fund (called FONERWA for its French acronym, see Chapter 4); and the Government is also mainstreaming climate change into national and sector development plans.

Since 2015, a leading-edge pilot study has been underway in the country's tea and coffee sectors to apply what is being termed a 'decision-first' approach to climate change adaptation.[55] Tea and coffee crops are particularly physically vulnerable to temperature swings and rainfall extremes – and changes in the future climate could jeopardise the Government of Rwanda's plans for doubling the land area under tea and coffee cultivation. The Tea and Coffee Climate Mainstreaming Project has been developing a pragmatic approach to 'climate-proofing' tea and coffee sector plans from early design, through the implementation and project finance stages.[56]

Multi criteria decision analysis can optimise outcomes for climate and other sustainable development goals

While the above outline of economy-wide and sectoral entry points highlights the driving forces for many interventions, where climate compatible development goals may be pursued, decision-makers are still in need of tools that can help them select among multiple development options and navigate some of the inevitable trade-offs among social, economic, environmental and political-institutional outcomes that are inherent in different choices. Multi criteria decision analysis is a practical tool to support such decisions. The approach is discussed here with reference to a framework developed

55 Watkiss, P. (2015). *Mainstreaming climate information into sector development plans: The case of Rwanda's tea and coffee sectors.* Cape Town: Future Climate for Africa (www.futureclimateafrica.org/resource/mainstreaming-climate-information-into-sector-development).

56 FCFA (2016). *Adapting Rwanda: Growing Rwanda's tea and coffee sectors in a changing climate* (film). Cape Town: Future Climate for Africa (www.youtube.com/watch?v=QAI18ao1XiU).

and illustrated by Khosla et al.[57] A similar multi criteria approach has been developed and applied in West Africa's energy sector by HELIO International (see p. 61). Khosla et al. note that in India, several national studies have tracked the achievement of multiple climate and environment, social and economic objectives once a development programme is underway, but "the primary challenge is to move to a methodology that allows an *ex ante* focus during decision-making."

Demonstrating how this might be done, they apply the multi criteria decision approach to India's cooking sector. The methodology requires decision-makers to state the policy objective – in this case, provision of cooking fuel to the millions of rural Indian households without reliable energy access. Associated objectives must then be defined, such as the desire to reduce greenhouse gas emissions via unsustainable fuelwood harvesting and to minimise women's and children's drudgery in seeking fuel wood, and decision-makers must weight all of these in terms of relative importance. Defining the primary policy goal and associated goals and weightings provides the opportunity for a consultative decision-making process with affected stakeholders.

A decision tree showing the multiple objectives for the India cooking sector case study is shown in Figure 1 (below) and a preliminary spider diagram illustrating the economic, institutional, environmental and social outcomes of the alternative policy options in Figure 2. The larger the area created by the polygon, the better the policy option is at fulfilling multiple objectives.

57 Khosla, R., N. Dubash, S. Dukkipati, A. Sreenivas and B. Cohen (2015). *An approach to sustainable development based energy and climate policy.* New Delhi: Centre for Policy Research (www.cprindia.org/research/reports/approach-sustainable-development-based-energy-and-climate-policy).

Figure 1

Comparing the outcomes of different policy options in India's cooking sector[58]

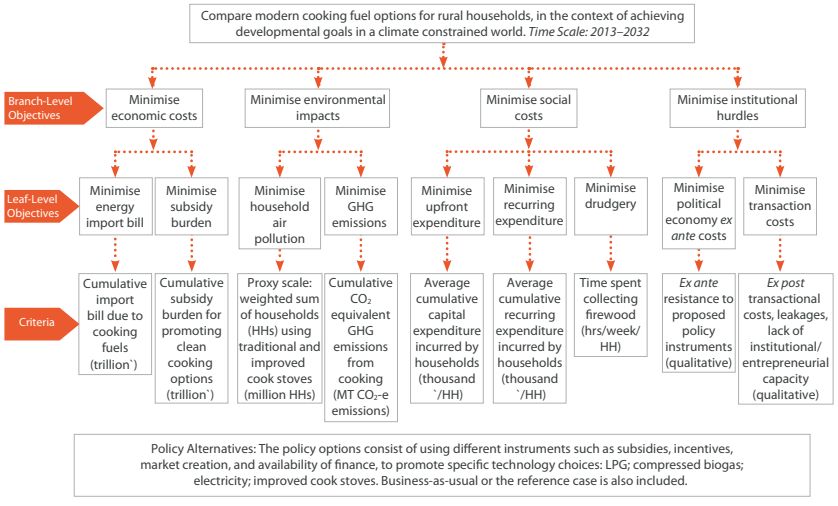
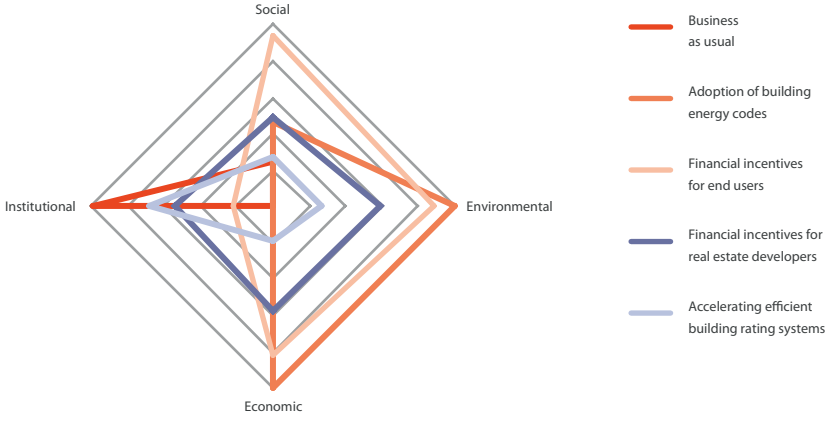


Figure 2

A multi criteria decision analysis applied to India's cooking sector[59]



58 Ibid.

59 Ibid.

Existing laws and policies can reinforce or undermine climate compatible development

Countries' environment laws – and other relevant pieces of legislation – if properly enforced can play a fundamental role in achieving climate compatible development (see, for example, CDKN's Inside Story on *Bolivia's Mother Earth law*).[60] By the same token, a country's laws and policies often undermine climate compatible development. Mapping a country's existing laws and policies and their effects on climate emissions and resilience are an essential part of the planning process.

The International Law Organization mapped Kenyan laws and policies as part of developing a national climate change action plan, part-funded by CDKN. This established that existing laws and policies, if properly resourced and implemented, can underpin environmental sustainability.

A case study of the Philippines' climate change legislation found that the country's Climate Change Act includes many far-sighted elements that aim to mainstream climate resilience into development.[61] However, the authors find that "The success of the Climate Change Act in achieving climate compatible development depends on the interface between the Act and policy and legislation in related sectors." In the Philippines' case, mining projects, many of which may have taken place with inadequate consultation or without the consent of affected communities, run counter to the objectives of climate change legislation. "Negative social and environmental impacts on poor communities increases their vulnerability to climate change," say the authors. "The Government continues to promote investment in coal, particularly by foreign investors, countering other mitigation aspects of the Climate Change Act. These conflicts are not addressed by the Climate Change Act, nor the National Climate Change Action Plan."

The Future Climate for Africa scoping phase found "many initiatives aimed at promoting socioeconomic development can, whether intentionally or not, play a central role in tackling the root causes of vulnerability to climate change.[62] For example, in Zambia the National Climate Change Secretariat and the 'Pilot

60 DeAngelis, K. (2013). *Building resilience to climate change through indigenous knowledge – the case of Bolivia*. London: CDKN (www.cdkn.org/resource/building-resilience-to-climate-change-through-indigenous-knowledge-the-case-of-bolivia).

61 Lofts, K. and A. Kenny (2012). *Mainstreaming climate resilience into government: The Philippines' Climate Change Act* (www.cdkn.org/resource/cdkn-inside-story-mainstreaming-climate-resilience-into-government-the-philippines-climate-change-act).

62 Jones, L., E. Carabine, J. P. Roux and T. Tanner (2015). *Promoting the use of climate information to achieve long-term development objectives in sub-Saharan Africa*. London: CDKN (www.cdkn.org/wp-content/uploads/2015/02/CDKN_FCFA_synthesis.pdf).

Project for Climate Resilience' are seen as the most prominent actors driving the climate agenda forward. Yet other initiatives and investments, by a wide range of civil society and private sector entities in Zambia (most notably mining and real estate developers), are playing a central role in determining the vulnerability and ability to adapt to climate change of different social groups. Such companies' activities are overlooked in high-profile national climate change planning. With this mind, any consideration of climate information in long-term decision-making has to recognise the role and interplay of climate change with wider drivers of development."

Supportive public expenditure and fiscal policies are integral to climate compatible development

Climate change needs to be seen primarily as an economic concern that warrants attention by national ministries of finance and planning, and local counterparts. Fiscal policies play an important role in guiding investment decisions towards low-emissions and climate-resilient options.

As the organisers of the Green Growth Knowledge Platform Conference (2015) on fiscal policies said, "By reflecting the cost of externalities from natural resource use in the prices of goods and services, fiscal policy sends the right signal to the market. Such signals then stimulate a shift in production, consumption and investment to lower-carbon and socially inclusive options. Moreover, fiscal reforms aimed at removing perverse subsidies to polluting activities and unsustainable use of limited resources can not only create fiscal space for investing in development priorities, but can also generate revenues for nurturing the environment."[63]

This certainly holds true in most low-income countries where the use of fiscal instruments to meet environmental objectives has been rather limited. In many cases, the approach to pollution monitoring and control has mostly been in the form of legislation-based command-and-control measures. Fiscal instruments help implement such policies and can also address issues of fairness and equity, and provide incentives for behavioural change. This needs to be supported by an integrated and consultative approach reflecting good governance principles. In the long run, fiscal policies need popular support and trust. There were calls for sequenced introduction of policies rather than shock therapy, which in most cases has not worked unless the hardest hit have been properly compensated.

63 Bickersteth, S. and A. Huhtala (2015). 'Fiscal policies support climate compatible development'. London: CDKN (www.cdkn.org/2015/02/opinion-fiscal-policies-climate-compatible-development).

CDKN's Inside Stories on the expansion of renewable energy in Thailand[64] and the support for solar power in India[65] show how government investment in nascent green industries can support a marked shift in private investments.

Thailand was among the first countries in Asia to introduce incentive policies for the generation of electricity from renewable energy sources, leading to rapid growth, particularly in the solar power sector. Programmes for small and very small power producers created predictable conditions for renewable energy investors to sell electricity to the grid. The 'Adder', a feed-in premium, guarantees higher rates for renewable energy, making the investments profitable. Thailand also regularly updates technical regulations, provides preferential financing, and invests in research and training. Civil society involvement strengthened and improved renewable energy policies. Outside expertise and links to international networks brought by civil society experts were crucial for the design and approval of the incentive measures.

A study of India's Jawaharlal Nehru Solar Mission, which represents a national commitment to a secure investment regime for solar energy, showed that such a commitment can encourage project developers and financial institutions to take the early risks necessary for rapid diffusion of solar technology. Competitive bidding can rapidly drive down solar tariffs. However, the way that the pilot phase of the mission was designed led to a profusion of bids including some from under-qualified firms. This yielded some important lessons about the design of such financial incentives, including the finding that bidding conditions should be designed to ensure the selection of developers who are qualified and best able to innovate.

Box 10

Public expenditure supports climate action from national to local level: The case of the Philippines[66]

The Philippines' national Climate Change Commission developed a National Framework Strategy on Climate Change in 2010 and a 'National climate change action plan' in 2011. The framework strategy

64 Weischer, L. (2013). *Pioneering renewable energy options: Thailand takes up the challenge.* London: CDKN (www.cdkn.org/resource/pioneering-renewable-energy-options-thailand-takes-up-the-challenge).

65 Saito, Y. (2011). *Transforming India into a solar power.* London: CDKN (www.cdkn.org/resource/cdkn-inside-story-transforming-india-into-a-solar-power).

66 Lofts, K. and A. Kenny (2012). *Mainstreaming climate resilience into government: The Philippines' Climate Change Act* (www.cdkn.org/resource/cdkn-inside-story-mainstreaming-climate-resilience-into-government-the-philippines-climate-change-act).

provides a roadmap for increasing the country's social and economic adaptive capacity, the resilience of its ecosystems, and the best use of mitigation and finance opportunities. The action plan outlines programmes of action for climate change adaptation and mitigation, with seven priority areas: food security, water sufficiency, ecosystem and environmental stability, human security, sustainable energy, climate-smart industries and services, and knowledge and capacity development. The initial period (2011–2016) is focused on vulnerability assessments, identifying 'ecotowns' (places where climate compatible development can be modelled and demonstrated) and undertaking research and development to support renewable energy and sustainable transport systems. Implementation of this agenda requires government financing, multi-stakeholder partnerships and capacity building.

A key part of the action plan is support for local governments to design and deliver local climate change action plans. The national commission is tasked with helping these local governments to meet the human resource and financial challenges – for which it extends direct technical assistance and funding; local governments are also expected to redirect a portion of their annual internal revenue allocation to general programming.

The Climate Change Act requires government financial institutions to provide local government units with preferential loan packages for climate change activities. The Disaster Management Assistance Fund offers loans to local governments at low rates (3–5%). It aims to provide timely financial support for initiatives to manage disaster risk and damage. (This fund is additional to a Local Disaster Risk Reduction and Management Fund, the bulk of which comes from general appropriations or the national budget and local governments' allocation of internal revenue.)

Source: Excerpted from Lofts, K. and A. Kenny (2012).[67]

67 Ibid.

Labour policies can accelerate climate compatible development

CDKN's Inside Stories that document large-scale sectoral transitions highlight the need for labour market policies to support such transitions. This is almost the reverse of the preceding point about possibilities for knowledge partnerships and co-creation of appropriate technologies at local levels. When it comes to larger-scale industrial transitions that involve the adoption of new technologies – particularly in manufacturing and service sectors – the domestic skills base and requirements for worker training are important considerations.

India's energy efficiency programme (mentioned above) benefits not only from the extensive history of related policy and regulation on which it was built, but also from the considerable human resource base that exists to support it. The author found that "existing capacity – a result of efforts over the last 25 years – provided a pool of experts to tap during planning and implementation" of this energy efficiency initiative (CDKN Inside Story *Creating market support for energy efficiency: India's Perform, Achieve and Trade scheme*).[68]

By contrast, Kenya's recent experience with trying to ramp up its installed geothermal power capacity has revealed challenges. A very limited pool of workers with the requisite specialist skills has proved a constraint to the sub-sector's development, as described in the CDKN Inside Story *Harnessing geothermal energy: The case of Kenya*.[69] Even if bringing in foreign talent is an option in the short term, it is not desirable; targeted labour and education policies will be needed to address the skills shortfall in the medium to long term.

A CDKN case study on developing a NAMA in West Nusa Tenggara, Indonesia documents how independent power producers have requested training support to be ready to bid for government tenders in small-scale distributed renewable energy.[70]

68 Singh, N. (2013). *Creating market support for energy efficiency: India's Perform, Achieve and Trade scheme.* London: CDKN (www.cdkn.org/resource/creating-market-support-for-energy-efficiency-indias-perform-achieve-and-trade-scheme).

69 Kollikho, P. and B. Rivard (2013). *Harnessing geothermal energy: The case of Kenya.* London: CDKN (www.cdkn.org/resource/harnessing-geothermal-energy-the-case-of-kenya).

70 Indrawan, M., R. Muchtar, L. Cameron and N. Arumdati (2016). *Supporting the subnational development of renewable energy: Lessons from West Nusa Tenggara, Indonesia*. London: CDKN (www.cdkn.org/resource/inside-story-supporting-subnational-development-renewable-energy-lessons-west-nusa-tenggara-indonesia).

REGIONAL REFLECTION

Africa

By Carl Wesselink, CDKN Regional Director, Africa

Despite a tendency for people who do not live in Africa to see the continent as one giant, uniform, country, it is of course extremely diverse, not least in terms of its political structures and climate. When talking about climate compatible development in Africa, we need to be mindful of this diversity. There is no standard approach to climate adaptation or mitigation, and policy responses will vary across the continent according to different countries' and regions' capability to respond.

But while climate change policies are common in Africa, they exist in parallel to what policy-makers and business leaders perceive to be the 'real' economy, and are thus largely ignored. Most African countries are driving economic development, but are not doing so in a climate compatible way. Rather, most are progressing along a path that focuses on immediate economic gains, regardless of sustainability and climate change. With few exceptions, African countries have not begun the tough conversation they need to have about long-term economic trade-offs and climate compatible development.

The need for climate finance

The opportunity exists to 'do development better' and integrate climate considerations within mainstream economic decision-making, but increased finance is needed to drive this. Despite the diversity across Africa, one common aspect is African countries' legitimate expectation that large amounts of finance will be provided to fund adaptation and mitigation actions. These might be for investments in land-use management, climate-smart agriculture or energy supply infrastructure, among other sectors.

This financial flow can come from the private sector, as illustrated recently by South Africa's successfully commissioning 5,000 megawatts (MW) of renewable energy infrastructure. For the most part, however, public financial flows will be necessary for investments that *avoid* 'business as usual' development pathways that embed emissions and increase vulnerability to climate change.

In reality, the 'carrot' of climate finance is often an important driver – some say the primary driver – of the climate response in Africa. Crudely put, this political economy analysis explains the motivation to engage in climate change policies, including the submission of Intended Nationally Determined Contributions (INDCs) as a strategy to avoid being left out (politically and economically), rather than as a domestically championed, long-term economic blueprint.

However, a small group of African states is leading a shift in this narrative and embedding a long-term economic vision of sustainability and resilience in decision-making. Rwanda and Ethiopia are cases in point, where political leadership has helped integrate climate change into the domestic development

agenda. In Rwanda, the Fund for Environment and Climate Change (known by its French acronym FONERWA) is an example of a financing mechanism that has been established (see Chapter 4). The fund now supports the implementation of a small but growing programme of development projects nationally. Even in countries where the vision around climate change is less well articulated politically, this agenda has started gaining traction. Entry points and champions exist at subnational levels, in devolved government structures and in specific sectors.

While climate compatible development is not yet uniformly supported, African decision-makers and political leaders are increasingly comfortable with a framing approach that:

- puts development first;
- acknowledges the importance of climate change in informing economic planning and decision-making (even in the short-term);
- focuses on avoiding future emissions and recognises a globally shared responsibility; and
- invests in resilience and promotes adaptive capacity for an uncertain future climate.

The challenge

In Africa, we have made progress around providing information and public engagement, but have yet to grapple with the trade-offs and decisions that drive action on climate change – and, for the most part, we lack the political will to use this awareness to drive the agenda. Africa has, on the whole, a complex, competing and largely unenforced and uncertain policy and regulatory space that, at best, allows for procrastination on the climate question.

Another challenge is engaging the private sector. If climate policy in Africa is largely about chasing public financial flows – and money is the incentive that drives action on climate change – we have to acknowledge that the public sector is not always good at spending money wisely. When it comes to driving change, we need to build an investment case that includes the public sector but also attracts private sector resources. To do so, we will have to identify the revenue streams (or at least related opportunities) that make private sector investment possible. In Kenya, for example, there is strong demand for generating the business case for action in the geothermal energy sector and in climate-smart agriculture. In response to this, CDKN will support Kenya to articulate its investment case for specific adaptation interventions.

Progress

There is a growing realisation among African decision-makers that climate change is costing – and will continue to cost – African economies and businesses. Importantly, this includes the realisation that climate compatible development is part of good development practice, and that governments and the private sector are beginning to spend significant portions of their budget on climate-related costs. These costs can be categorised as linked to adaptation, which opens the door to more nuanced access to climate finance to complement committed treasury spending. It also prompts the need for economy-wide analyses and decision-making, informed by long-term strategic options.

Climate compatible development, then, opens up the opportunity for a more sophisticated approach to development spending and resource mobilisation. Under this approach, government expenditure, private sector investment and climate finance play a mutually enforcing role in developing new pathways towards realising economic opportunities.

CDKN's focus areas in Africa

CDKN's programme in Africa moved from building evidence and raising awareness into supporting policy design. Now, the focus is on implementing those policies. So far, this has centred on building the institutional architecture and identifying priorities. It is now moving into gathering the evidence and carrying out the analysis necessary for making a convincing business case or investment proposal.

In particular, CDKN's activities will focus on stakeholder engagement. This includes:

- building understanding and awareness of the impacts of climate change, and the role of climate compatible development in combating it;
- framing policies and building an evidence base for policy decisions;
- articulating practical approaches that garner local and subnational support;
- shifting from a single-ministry focus to government-wide awareness and action; and
- helping to communicate Africa's position on the global stage.

CHAPTER 4

Resourcing climate compatible development

Introduction

With the IPCC's *Fifth Assessment Report* (2014) showing that resources to address climate change must be significantly scaled up, the issue of climate finance had a significant role in shaping the outcome of the UN Climate Talks in Paris 2015.[1]

At the 2009 UN climate change conference in Copenhagen (COP15), developing countries were promised US$30 billion in 'fast-start financing' to invest in low-carbon infrastructure and adaptation measures by 2012. This commitment was largely met – but by 2020 these climate finance flows are due to reach a minimum of US$100 billion per annum.

Investment in development that is climate compatible must be in the trillions – not millions – of US dollars

Although this US$100 billion target may sound a lot, it is less, for example, than the cost of bailing out the UK banks in the wake of the 2008 banking crisis (at its peak, government support for the banking sector totalled £1,162 billion). What is more, according to UNEP, "investment in development that is climate compatible must be in the trillions – not millions – of dollars."[2]

The United Nations Financing for Development Conference, held in Addis Ababa in July 2015, and the summit to adopt the post-2015 development agenda (the SDGs), in New York in September 2015, both reaffirmed the commitment by developed-country parties to the UNFCCC to a goal of mobilising jointly US$100 billion annually by 2020 from all sources to address the needs of developing countries in the context of meaningful mitigation actions and transparency on implementation. In the Addis Ababa Action Agenda, all parties agreed that the overall focus is not just on aid, but on domestic finance, foreign direct investment and other 'means of implementation', including trade and technology.[3]

1 Barua, D., L. Chingambo, P. Frankel, R. J. Garrido Vázquez, L. Gómez-Echeverri, E. Haites, Y. Huang, R. Kopp, B. Lefèvre (2014) 'Climate change 2014: Mitigation of climate change: Cross-cutting investment and finance issues.' Geneva: Intergovernmental Panel on Climate Change (www.ipcc.ch/pdf/assessment-report/ar5/wg3/ipcc_wg3_ar5_chapter16.pdf).

2 NAO (2017) 'Taxpayer support for UK banks: FAQs'. London: National Audit Office (www.nao.org.uk/highlights/taxpayer-support-for-uk-banks-faqs/). UNEP (2014). *Aligning the financial system with sustainable development. Nairobi: United Nations Environment Programme* (http://unepinquiry.org/wp-content/uploads/2014/06/Aligning_the_Financial_System_with_Sustainable_Development_1_An_Invitation.pdf).

3 UNDESA (2015). 'The Addis Ababa Action Agenda of the Third International Conference on Financing for Development, draft outcome'. New York: United Nations Department of Economic and Social Affairs. (www.un.org/esa/ffd/ffd3/wp-content/uploads/sites/2/2015/07/Addis-Ababa-Action-Agenda-Draft-Outcome-Document-7-July-2015.pdf).

The UNFCCC's COP21 launched a process of Nationally Determined Contributions (NDCs) that outlines goals for each country for their mitigation and adaptation action, often with different levels of ambition, with and without external support. Mobilising resources for the integration and implementation of these NDCs will be one of the key challenges for developing countries in the coming years, and one of key drivers for selection of projects for financing by the Green Climate Fund (GCF) and a wide range of other sources of bilateral and multilateral development finance.

Box 1

CDKN, finance and climate negotiations

Developing countries need a clear roadmap regarding the type and scale of climate finance they can expect to have access to in the coming years. This will be crucial for planning and prioritising climate change projects and programmes, and determining the scale and speed of integrating the climate change challenge into national strategies. CDKN has strengthened the voice of the most climate vulnerable countries in designing international climate finance architecture, including the Climate Finance Advisory Service (CFAS) which has supported developing country members of the Green Climate Fund and Adaptation Fund Boards and UNFCCC Standing Committee on Finance.[4]

As discussed in the Chapters above, climate change will – unless checked – undermine the economic and social development of low- and middle-income countries, putting years of investment at risk. A key challenge, therefore, is to find solutions that stimulate private sector action and investment to support climate compatible development.

National planning customarily looks back in time to help guide decision-making for the future. This approach to policy development is no longer adequate, however, given the high level of climate-related risk and uncertainty. This is already placing a strain on public finance management systems – systems that are not particularly robust in many developing countries.

Finance strategies and policies for inclusive green growth that address risk and uncertainty must therefore be developed and implemented and become an integral part of the vision for economic policy. Public sector support at a market level is required in order to facilitate additional private finance. This in turn will

4 For more information, please visit www.cfas.info

necessitate changes in the approaches used for collection and dissemination of investment data at a national, regional and international level.

Climate change is a crisis-multiplier and CDKN suggests climate change should be seen primarily as an economic concern that calls for '3As' – attention, acknowledgement, action – from both the public sector (including national finance and planning ministries and local governments) and businesses.

What form does climate finance take?

The 2014 Biennial Assessment and Overview of Climate Finance Flows, prepared for the UNFCCC Standing Committee on Climate Finance, frames the concept as follows: "Climate finance aims at reducing emissions, and enhancing sinks of greenhouse gases and aims at reducing vulnerability of, and maintaining and increasing the resilience of, human and ecological systems to negative climate change impacts."[5] It can be interpreted to include international and domestic public finance for, and private investment in, climate specific mitigation and adaptation activities to enable the transition towards climate compatible development.

Where will this money come from?

The challenge is to make all development expenditure climate compatible. At a time when industrialised countries are largely focused on deficit reduction and/or austerity measures, high-income countries are determined that only limited amounts will come via the taxpayer. The need to look beyond traditional aid mechanisms towards wider development finance has never been greater and the expectation – or perhaps hope – is that much of it should come from the private sector. At the same time, low- and middle-income countries are demanding additional resources, not just cash redirected from existing aid budgets.

Yet low-emission, climate-resilient development often requires upfront investments that, initially at least, can be costlier than conventional options. Moreover, current funding is largely directed at project interventions rather than programmatic approaches which would catalyse greater amounts of funding from public *and* private sources.

In middle-income countries, an immediate concern is to identify mitigation actions that will reduce carbon emissions, across energy, industrial, transport and land use sectors. These actions will require tailored funding strategies to secure private sector investment. In contrast, in low-income countries where

5 UNFCCC Standing Committee on Finance (2014). '2014 Biennial assessment and overview of climate finance flows report'. Bonn: United Nations Framework Convention on Climate Change (www.unfccc.int/files/cooperation_and_support/financial_mechanism/standing_committee/application/pdf/2014_biennial_assessment_and_overview_of_climate_finance_flows_report_web.pdf).

per capita greenhouse gas emissions are low but the impacts of climate change are already felt, public expenditure is required to fund adaptation strategies, particularly to address the needs of poor and vulnerable people.

Although we are only just beginning to appreciate the true costs associated with responding to climate change, the ability to mobilise and leverage additional sources of domestic and international finance – for adaptation and mitigation – will be key. Given the scale of the challenge, international climate funds alone will never form the bulk of investment in low-carbon pathways or resilient infrastructure. Rather, they are a catalyst to shift resource allocation from many other diverse sources, in this direction.

Strong public sector leadership is required

As discussed elsewhere in this book – and also when it comes specifically to mobilising finance – there is a need for strong awareness in the public sector of the cost of inaction on climate change. This, coupled with leadership and innovative interventions by government, is required to stimulate private sector action and investment in climate compatible development.

The global landscape of climate finance 2015 by the Climate Policy Initiative draws together climate finance data from numerous sources to present policy makers with the most comprehensive information available about the scale, key actors, instruments, recipients and uses of finance supporting climate change mitigation and adaptation.[6]

In 2014, annual global climate finance flows totalled approximately US$391 billion, an increase of 18% from 2013 levels. Public finance continues to drive private investment and grew steadily. Most came from development finance institutions which provided 33% of total climate finance flows. Private investment surged 26%. A total of 74% was spent in the country where it originated, which indicates a strong role for domestic resource mobilisation. Public support is significant but still totals less than a third of government subsidies for fossil fuel consumption which reached around US$490 billion in 2014.

Transformational change is far more likely when public finance leverages significant private finance, and the reality is that some 85% of all finance to

6 Buchner, B., C. Trabacchi, D. Abramskiehn, D. Wang and F. Mazza (2015). *Global landscape of climate finance 2015*. San Francisco: Climate Policy Initiative (www.climatepolicyinitiative.org/publication/global-landscape-of-climate-finance-2015). The report does not estimate the value of public budgets dedicated to domestic climate action. Inconsistencies between budget systems and cycles, and differences in how climate action and associated resources are tracked and reported, make it difficult to aggregate information meaningfully. However, we estimate the value of public budgets dedicated to domestic climate action not captured in the report may reach at least US$60 billion Of the smaller volume of international flows (North to South), the majority originates from public sources.

address climate change will need to come from the private sector. There are, however, several constraints to private sector investment:

- domestic policy barriers;
- domestic market risks;
- lack of 'investment ready' low-emission, climate-resilient, projects; and
- the low price of carbon and resultant uncertainty in carbon markets.

This is why strong public sector leadership and innovative interventions are therefore required in order to stimulate private sector investment in climate compatible development. CDKN suggests a number of complementary strategies for overcoming the barriers to private sector investment including:

- using public funds to support early entry projects at the national level that will be of sufficient scale to help transform markets and pave the way for further private investment; and
- catalysing private capital with innovative tools that will attract the private sector as a large-scale investor.

Almost three-quarters of climate finance flows were invested with the expectation of earning commercial returns. This demonstrates that investment environments that are more familiar and perceived to be less risky dominate investment decisions. It also highlights the importance of domestic policy frameworks in unlocking climate finance. A study of climate change in key sectors of Uganda – a low-income country – found that by 2050, without the necessary adaptation measures, the costs of inaction on climate change by 2025 are 20 times the costs of adaptation (see also Chapter 2). Most crops would show reductions in total production. For example, yields of staple crops such as sweet potato and cassava could reduce by 40%; reductions of up to 75% in yields of its principal export crops, tea and coffee, are possible. These represented about 50% of Uganda's export values in 2013. A major deficit of biomass could occur over the period 2010–2050 due to surplus demand and deforestation (the deforestation rate is currently 1.8% per year). These losses, together with reduced water available for hydropower, mean that Uganda must transition rapidly to obtain more power from low-carbon forms of energy, including renewable electrical power. Deficits in water supply may also occur; a conservative estimate puts losses at US$5.5 bn and they could be as high as US$50.3 billion.[7]

7 Markandya, A., C. Cabot-Venton and O. Beucher (2015). *Economic assessment of the impacts of climate change in Uganda*. Kampala: Baastel Consortium (www.cdkn.org/wp-content/uploads/2015/12/Uganda_CC-economics_Final-Report2.pdf).

Strong rates of return on adaptation activities, however, mean these offer very 'bankable' investments. An existing government of Uganda programme to increase the efficiency of water use by households – which simultaneously increases clean water access to households that have lacked it – shows excellent economic returns.[8] Such facts can help engage a Ministry of Finance to address resource allocation across different sectors to address and prepare for the different impacts of climate change.

A CDKN-supported report on public–private partnerships for climate resilience identified six success factors for policy-makers to bring private businesses and other actors on board: 1. Build on a foundation of local engagement and trust; 2. Start small and local, but position for scale and replicability; 3. Integrate skill building to maximise community ownership; 4. Build adaptive capacity by strengthening businesses and livelihoods; 5. Create partnerships along – or across – value chains; and 6. Find innovative alternatives to traditional infrastructure.[9]

As described in a CDKN Inside Story *Harnessing geothermal energy: The case of Kenya*, renewable energy development in that country is financed by the government, development partners and the private sector.[10] The government finances energy development via the national budget, while development partners provide loans and grants. Alternatively, the private sector uses debt and equity to fund its geothermal projects. Debt financing occurs when a firm raises capital by selling bonds, bills or notes to investors; in return for lending money, the creditors are promised repayment of the principal and interest. Equity financing raises money for company activities by selling stocks to investors.

8 Ibid.

9 Becker-Birck, C., J. Crowe, J. Lee and S. Jackson (2013). *Resilience in action: Lessons from public-private collaborations around the world*. Boston, Massachusetts: Meister Consultants Group, Inc. (www.cdkn.org/wp-content/uploads/2013/08/MCG_ResilienceinActionReportweb.pdf).

10 Falzon, J., D. Pols, S. King'uyu and E. Wang'ombe (2014). *Nationally Appropriate Mitigation Action (NAMA) to accelerate geothermal power: Lessons from Kenya*. London: CDKN (www.cdkn.org/resource/nama-geothermal-power-lessons-kenya).

Box 2

A new paradigm for national climate finance[11]

Shifting the global economy onto a 2°C trajectory requires a rapid shift of existing investment patterns and far reaching transformation in technology, infrastructure and practices, including the adoption of new financing and business models. A key challenge for developing countries is how to develop a national climate agenda that is fully integrated with social, economic and environmental objectives.

A CDKN-funded research programme on national financing pathways for climate compatible development was implemented by E3G in Colombia, Chile and Peru in 2013. Based on discussions with representatives in the three countries, the authors identify issues, frameworks and tools that may influence these pathways. They highlight the inter-dependencies between public, private and international sources of finance in delivering scaled-up investment. The interplay between national policy objectives and institutional frameworks in turn influences the shape and pace of green growth.

A key finding is that approaches will differ in line with country specific priorities, goals and contexts, with the structure and maturity of the local financial sector being an important factor. It is also evident that developing countries are taking a leadership role in considering how to draw upon available sources of international climate finance more dynamically. This helps shift the more traditional 'supply-side' focus on climate finance to a 'demand-side' or needs-based approach. The process of developing financing pathways can therefore be useful in helping to identify and communicate how international climate finance can be effective in financing a new development paradigm.

11 CDKN (2013). 'National financing strategies for implementation of low carbon development.' London: CDKN (www.cdkn.org/project/national-financing-strategies-for-implementation-of-low-carbon-development-strategies).

Box 3

Developing a climate finance strategy at the national level[12]

Colombia is currently one of the most progressive countries in terms of mainstreaming climate change in the development agenda. Climate change was included in the 2010–2014 National Development Plan and is currently one of the priorities for the 2014–2018 Plan that was already approved by the Law 1753/2015. The country's climate change strategy, which includes a REDD+ programme, Low Carbon Development Strategy and National Adaptation Plan, needs to guarantee financial resources for implementation now and in the future. The Government of Colombia identified the urgency for a comprehensive finance strategy that would allow the country to better address this climate policy challenge.

CDKN has supported the Government's Climate Finance Committee to develop a framework for a national climate finance strategy including a Climate Public Expenditure and Institutional Review. The committee includes various Ministries, the Colombian Adaptation Fund, the National Development Cooperation Agency and institutions from the public and private financial sector. The challenge is to find and develop financial mechanisms with both a national and subnational perspective, assess available funding sources and design the necessary institutional arrangements.

The international community has responded favourably to Colombia's effort. Germany's Environment Ministry (BMU) has selected Colombia for its Climate Finance Readiness Program, including financial support of US$1.6 million for a two-year project (2014–2016) to ready itself to receive monies from the GCF and leverage public and private domestic funds.

12 CDKN (2017). 'Business competitiveness, green growth and climate change in Colombia.' London: CDKN (www.cdkn.org/project/project-business-competitiveness-green-growth-and-climate-change-in-colombia).

There is a significant gap in support to decentralised and smaller-scale innovations

A number of innovative projects have been launched to develop, test and scale up resource mobilisation from the private sector for adaptation and mitigation action. These include payments for ecosystem services, making use of the carbon market in developing countries, and introducing new types of insurance schemes.

For example, 'index-based insurance' for livestock mortality has helped herders in Mongolia to build their resilience against extreme weather events. Traditional insurance is often not available in large, sparsely populated areas like Mongolia, but index-based insurance provides financial security.[13]

In Bolivia and other Latin American countries, deforestation in upper river basins causes problems downstream, including soil erosion and declining water quality. A CDKN-supported project in the Bolivian Department of Santa Cruz – whose methodology has been widely replicated in other Latin American contexts – explored the potential to tackle these issues together through Reciprocal Water Arrangements.[14] These enable land managers in upper catchments to receive in-kind compensation, designed to boost incomes and livelihood prospects, in exchange for conserving forest lands. Since the first such agreement was developed, over 50 municipal governments and water cooperatives across the Andes joined the movement and thousands of downstream users are now compensating upstream families for protecting 210,000 hectares. These schemes are thus unlocking vital resources for upland farmers who otherwise risked becoming increasingly marginalised by their lack of capital. State law-makers from Bolivia's Santa Cruz Department produced a draft 'Sustainable Santa Cruz' law to promote watershed protection, climate change adaptation, mitigation and economic development, based on this experience.[15]

13 Index-based insurance programmes aim to make payouts based on an index of aggregated criteria, such as livestock losses over a geographical area. DeAngelis, K. (2013). 'Index-based livestock mortality insurance in Mongolia'. London: CDKN (www.cdkn.org/resource/index-based-mortality-livestock-insurance-in-mongolia).

14 Asquith, N. (2016). *Watershared: Adaptation, mitigation, watershed protection and economic development in Latin America.* London: CDKN (www.cdkn.org/resource/inside-story-watershared-adaptation-mitigation-watershed-protection-economic-development-latin-america).

15 Villanueva, J. (2014). 'Reciprocal watershed agreements: Alternative to traditional payments for environmental services in Latin America.' London: CDKN (www.cdkn.org/2014/05/reciprocal-watershed-agreements-alternative-to-traditional-payments-for-environmental-services-in-latin-america).

In Veracruz, Mexico, expansion of sugar cane production, cattle ranching and urban development threatens the tropical rainforest that serves as habitat for numerous species of key migratory bird species. A social marketing campaign was launched to motivate landowners to join a network of conservation areas in exchange for ecosystem payments under the country's national payments for ecosystem services programme. Initial results indicate the application of social marketing methods facilitated a social change, enabling the protection of more than 1,500 hectares of previously unprotected forest.[16]

There remains, however, a significant gap in support to the diffusion of decentralised and smaller-scale innovations, including technological innovations. This is particularly relevant for Africa. Consistent across energy and agriculture sub-sector case studies, the greatest private financing gap was found to be the lack of resources for widespread diffusion of small-scale technologies (both *hard*, such as distributed generation, and *soft*, such as conservation agricultural practices), which are particularly relevant to least developed country contexts.

Targeting smaller business requires a focus on different financial instruments, moving from a few large allocations of project financing to many small applications of working capital loans, lines of credit, venture capital, loan-to-own of consumer goods, etc. It also requires domestic financial institutions to broker such financial services at reasonable transaction costs at scale.

Using public resources to mobilise the financial sector and private economic choices for diffuse small-scale technological change also effectively serves the dual ambitions of climate compatibility and poverty alleviation, which are at the core of many public institutions.

A CDKN-supported study by Dalberg on micro, small and medium-sized enterprises (MSMEs) concluded that MSMEs have an important role to play in climate action as they account for 90% of enterprises in developing countries.[17] Three key areas require attention to increase access to climate finance for MSMEs: improving the enabling environment; increasing knowledge and awareness of MSME climate finance opportunities; and providing tailored financial products. High transaction costs are a fundamental barrier to MSME investing – finance providers should work through local financial intermediaries and MSME aggregators to maximise their reach and efficiency. The vast majority of MSMEs in developing countries are in the informal sector – finance providers

16 Green, K. M., A. DeWan, A. B. Arias and D. Hayden (2013). 'Driving adoption of payments for ecosystem services through social marketing, Veracruz, Mexico' in *Conservation Evidence* 10 (2013) 48–52 (www.rare.org/papers).

17 Marsh, E. and J. Eustace (2015). 'Increasing access to climate finance for small and medium businesses.' London: CDKN (www.cdkn.org/2015/10/opinion-increasing-access-to-climate-finance-for-small-and-medium-businesses).

should test and expand use of alternative credit worthiness assessments and alternative collateral approaches to reach informal businesses. Based on market projections for MSME climate technology sectors in developing countries, wastewater, small hydropower, and water technologies will support the highest number of MSMEs, so support to these businesses will be crucial.

National and international private sector investment should be driven by clear national priorities

The challenge is to allocate and prioritise resources towards climate compatible options, and the focus should be on strengthening national systems to ensure effective and efficient management of public capital.

This mirrors the many years of international assistance to improve national budgetary systems, and climate finance adds to the necessity of these reforms. Governments must 'own' their national climate finance strategies, with key public institutions on board. At the same time, climate financing strategies should be aligned with national spending agendas and matched to the readiness level and prevailing conditions in country. In many developing countries, significant public expenditure on adapting to climate change is taking place through national budgets.[18] CDKN is supporting countries like Colombia and Peru to develop a framework for national climate finance strategies with a view to speeding up the shift to domestic resource flows towards climate compatible investments (see see Boxes 2 and 3).[19]

Unfortunately fossil fuel subsidies still hold sway, however. They represent a drain on national budgets and undermine international efforts to avert dangerous climate change. Phasing out these subsides by 2020 for G20 countries (and globally by 2025) would eliminate the perverse incentives that drive up carbon emissions, create price signals for investment in a low-carbon transition and reduce pressure on public finances.[20] A CDKN feature on escaping the fuel subsidy trap in Indonesia highlights the importance of building up the domestic energy infrastructure and systems for reducing the country's dependence on

18 Bird, N. (2014). *Fair share: Climate finance to vulnerable countries*. London: Overseas Development Institute (www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/9164.pdf).

19 Amin, A. L, C. Naidoo and M. Jaramillo (2014). *Financing pathways for low emissions and climate resilient development*. London: E3G (www.cdkn.org/resource/financing-pathways-for-low-emissions-and-climate-resilient-development).

20 Whitley, W. (2013). *Time to change the game: Fossil fuel subsidies and climate*. London: Overseas Development Institute (www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/8668.pdf).

imported oil and truly breaking free from the fuel allowance trap.[21]

When governments establish strong institutions *and* commit their own national budgets to climate-related action, this will boost international climate finance flows (e.g. through the Green Climate Fund, GCF). CDKN is helping, for example, the Ethiopian and Rwandan governments to develop their institutional and fiduciary approaches to managing climate finance flows. A CDKN-funded research report by Germanwatch *Learning from direct access modalities in Africa*[22] provides valuable lessons from the accreditation process of National Implementing Entities (NIE) for the Adaptation Fund in enhancing developing countries' direct access to the GCF. CDKN's experience in supporting Ethiopia in building capacity to gain accreditation to the GCF and Adaptation Fund is summarised in the Box 4, below.

Box 4

Five key lessons from Ethiopia's accreditation process[23]

Ethiopia identified the GCF and Adaptation Fund as important sources for financing potential resilience and green growth interventions in Ethiopia, and initiated the process of becoming accredited for both funds. Five important lessons from this accreditation process are highlighted below.

1. A pre-accreditation exercise to identify and address gaps is essential
An important first step in NIE accreditation is to initially carry out a gap analysis that identifies what needs to be improved in order to meet fund requirements. This exercise will also help develop a 'blueprint' on how to approach the actual accreditation work and associated processes. In hindsight, a comprehensive gap assessment early in the process (i.e. pre-accreditation application) would have been beneficial.

21 Khan, D. (2015). 'Escaping the fuel subsidy trap in Indonesia'. London: CDKN (www.cdkn.org/2015/04/escaping-fuel-subsidy-trap-indonesia).

22 CDKN (2015). 'Project: Adaptation Fund NIEs in Africa: Independent insight'. London: CDKN (www.cdkn.org/project/adaptation-fund-nies-in-africa-independent-insight).

23 Redda, R. (2016). 'Ethiopia's investment in climate compatible development'. London: CDKN (www.cdkn.org/2016/03/feature-ethiopias-investment-in-climate-compatible-development).

2. Prior experience in similar process is critical to fast-track accreditation

The Ministry of Finance and Economic Cooperation's previous experience in putting in place, refining and implementing improvements to meet specific fiduciary requirements of various funds (e.g. Global Fund), and multilateral and bilateral donors (e.g. the World Bank, the African Development Bank, the UK Department for International Development (DFID), etc.) was particularly relevant in demonstrating the existing capabilities of the Ministry in meeting the GCF's and Adaptation Fund's requirements. It was also possible to expedite the GCF accreditation process, as the Ministry had already begun preparing for Adaptation Fund accreditation, so could draw from this existing experience.

3. Accreditation involves assessing the existing national fiduciary system

The accreditation process to international climate funds requires an assessment of a country's fiduciary management and understanding of several aspects for which the National Implementing Entity (NIE, i.e. the institution that is proposed to be accredited for direct receipt of GCF and Adaptation Fund monies) is not the lead competent national institution. These include aspects such as audits, ethics, anti-corruption, anti-money laundering, procurement, and environmental/social safeguards. This is why it is important to bring on-board all lead nationally competent institutions such as the Office of the Federal Auditor General, the Federal Ethics and Anti-Corruption Commission, the Public Procurement and Property Administration Agency and others early in the accreditation process. A strong national fiduciary and governance system becomes a prerequisite to fulfil these accreditation requirements.

4. A holistic operational competency of the proposed National Implementing Entity (NIE) is critical

The assessment for an NIE accreditation is not just about demonstrating the existence of working and operational documents, but also the demonstration of their operationalisation and use. In this regard, Ethiopia's NIE was able to demonstrate the use of the existing systems and operational documents 'on the ground' and in a cascaded manner at the different levels of its operational units.

5. Accreditation requirements often don't reflect the institutional and operational realities of budgets and government institutions in least developed countries

During the accreditation process, it was sometimes difficult to understand and relate fund requirements to the Ministry's operational modalities and existing processes. While the Ministry of Finance and Economic Cooperation demonstrated the rigorous processes required from a budgetary/government institution, some of fund requirements mainly considered financial institutions and banks.

This meant substantial effort was required to demonstrate the Ministry's existing systems, and strong communication with the funds' secretariats was needed. Both the Ministry of Environment, Forest and Climate Change (as the designated national authority for these funds), and the Ministry of Finance and Economic Cooperation (as the NIE) engaged consistently with the GCF and Adaptation Fund, which helped them respond quickly to their requests.[24]

National Climate Change Funds (NCCFs) have so far not played a significant role in global climate change financing and have often been unable to mobilise sufficient resources to achieve their goals. NCCFs accounted for less than 0.2% of global climate finance flows in 2013. The majority of NCCFs have received less than US$100 million in lifetime capitalisation. Following a CDKN-supported study by Dalberg, it is clear that successful resource mobilisations often comprise three common elements: 1. Well-defined vision and theory of change; 2. Clear analysis of institutional capacities, gaps, and requirements; and 3. Systematic approach to investor engagement.[25]

Adaptation and mitigation funding are often on different tracks and this can lead to projects that are at cross-purposes to each other. A CDKN-supported research project by Germanwatch[26] concludes that in the case of financing for climate-smart agriculture and food security, the answer could lie in establishing

24 Excerpted directly from Redda, R. (2016). 'Ethiopia's investment in climate compatible development'. London: CDKN (www.cdkn.org/2016/03/feature-ethiopias-investment-in-climate-compatibledevelopment).

25 Dalberg (2015). *Evaluating the resource mobilisation strategies and sustainability of national climate change funds.* Geneva: Dalberg (www.cdkn.org/wp-content/uploads/2015/08/CDKN-Dalberg-NCCF-Resource-Mobilization-Report_final.pdf).

26 Dupar, M. (2014). 'Agriculture needs streamlined approach to climate finance'. London: CDKN (www.cdkn.org/2014/01/feature-agriculture-needs-streamlined-approach-to-climate-finance).

so-called 'national gatekeeper institutions' with the primary objective of channelling climate finance for agriculture and food security – without separating mitigation and adaptation funding. These gatekeeper institutions would ensure that the joint mitigation and adaptation potential of agriculture projects was spotted and pursued at country level. Such national institutions might also be best attuned to a country's diverse farming types. For example, they might be better than international financial institutions at supporting smallholder farmers who depend heavily on their agricultural lands for food security.

In addition, local government should play a crucial part in any national response to climate change. This requires:

- strengthened flows of funding to subnational bodies;
- subnational strategies and governance to be aligned with national ones; and
- subnational entities to be empowered to mobilise and deliver resources for climate compatible development investments, including reallocating existing resources.

For CDKN, climate finance readiness includes the introduction of models for national climate finance delivery, testing innovative schemes for raising and distributing revenue, and improving developing countries' abilities to reallocate national resources and tap international support for low-emission and climate-resilient investment options. However, even when the necessary institutional and fiduciary capacities are in place for identifying required interventions and managing domestic and international financing, readiness support programmes have frequently identified the lack of a portfolio of bankable projects as a key obstacle to success. This reflects weak capacity in technical preparation, risk assessment, consultative processes and financial engineering for projects that would be based on the needs and priorities of the requesting country/city and in line with the criteria of potential sources of funds.

The term 'bankable' means different things to different people and in different contexts. At heart bankability refers to the ability of a funder to finance an investment, having weighed up its expected risks and returns. However, the range of possible funders varies widely in the climate and development context, ranging from commercial banks and pension funds to international climate funds and national governments. The criteria and thresholds contributing to bankability vary depending on the type and source of finance pursued. A number of factors particularly relevant to the bankability of investments and projects in the climate and development context include: vision and transformation, time and scale, cost-benefit trade-offs, and leadership and government ownership.

By combining these characteristics and aligning them with conducive national and subnational policies and regulations, developing countries will be in a position to mobilise the resources necessary for implementing and increasing the ambition of their Nationally Determined Contributions (NDCs) agreed to at COP21 in Paris.

Box 5

A new climate fund – A game changer in Rwanda

In 2013, the Government of Rwanda signed an historic agreement with the UK to capitalise its new national climate fund, Fonds National de l'Environnement (FONERWA), with £22.5 million support from DFID, making it the largest demand-based climate fund in Africa.[27] CDKN is supporting this initiative by building capacity in the private sector, civil society and government agencies in various districts.[28] Several other sources have provided additional funds since.

FONERWA is designed as a 'basket fund' in which diverse sources of finance can be pooled. It will be the primary vehicle through which Rwanda's climate and environment finance is channelled, disbursed and monitored. The Fund is an instrument to access international climate finance and streamline existing domestic revenue streams. Line ministries, government agencies and districts, civil society, academic organisations and the private sector can access the Fund. At least 20% of the fund is earmarked for the private sector and at least 10% for Rwanda's local districts.

Rwanda is now starting to finance climate change interventions that support the country's national development agenda. Key to the Fund's success is ensuring that governance and administration capacity exists within the public and private sector to access the Fund. Potential beneficiaries must also understand how climate finance works, how to scope eligible projects and how to structure successful proposals. These are seminal in allowing governments to access climate funding: they afford governments the opportunity to implement projects that facilitate climate compatible development.

27 MINECOFIN (2013). 'Government of Rwanda and United Kingdom sign a £22.5million FONERWA fund'. Kigali: Ministry of Finance and Economic Planning, Republic of Rwanda (www.minecofin.gov.rw/index.php?id=119&tx_ttnews%5Btt_news%5D=68&cHash=ada1189130f28df783e7a7a8b08055c6).

28 CDKN (2015). 'Project: FONERWA capacity building.' London: CDKN (www.cdkn.org/project/fonerwa-capacity-building).

Developing countries are able to access, for example, the Adaptation Fund and Green Climate Fund via accredited implementing entities, multilateral, regional or national. To date, a number of National Implementing Entities in Africa have commenced the process of programming direct access to the Adaptation Fund; moreover, domestic climate funds in several African countries, including Rwanda, are similarly grappling with this challenge. This will help determine how the provision of innovative financing mechanisms and direct access funding instruments will work in practice. In July 2015, the host ministry of FONERWA, the Ministry of Natural Resources, was accredited as a National Implementing Entity for the GCF, paving the way for direct access to support national initiatives.

Box 6

Harnessing private enterprise for climate compatible development – Key messages from a CDKN-hosted event, May 2015[29]

Actions by the government and the non-profit sector are necessary but insufficient to address society's greatest challenges, including climate change. "Business, the most powerful man-made force on the planet, must create value for society, not just shareholders. Systemic challenges require systemic solutions and the B Corp movement (known as Sistema B in Latin America) offers a concrete, market-based and scalable solution", said Pedro Tarak, co-founder of Sistema B,[30] which makes up a part of the movement that is transforming the way companies do business.

Although Sistema B only started 36 months ago, it is now active in five countries in South America with over 160 certified B Corps [members] and more than 500 companies in the process of application. In December 2014, Brazil's top cosmetics, fragrance and toiletries maker, Natura, became the largest – and first publicly traded – company to attain B Corp certification, and consumer goods giant Unilever is considering becoming the next one.

29 CDKN (2015). 'Event report: Harnessing private enterprise for climate compatible development.' London: CDKN (www.cdkn.org/wp-content/uploads/2015/05/CDKN-B-Corp-event-report.pdf).

30 For more information, please visit www.sistemab.org/ingles/home

"But what is even more staggering is the scale that can be achieved through changes to procurement policies along the supply chain. Many large companies are looking to use the integrated B Impact Assessment tool to measure the degree of sustainability of procurement policies of thousands of suppliers" said Mr Tarak. "These companies might become cutting edge competitors in emerging markets thanks to the catalytic and market networking role of Sistema B."

In Sub-Saharan Africa, CDKN's Business Partnership programme[31] is supporting an innovative business and investment initiative for climate compatible development: the provision of renewable off-grid energy for irrigation and telecommunications, two key issues for rural development. Although renewable power systems have been developed and tested in Africa, no one has created a viable business model to provide remote off-grid community power without subsidies.

To achieve this CDKN has been working with Africa Power, an independent provider of power systems in rural areas of emerging economies; Sunflower Pump; and Sincronicity Power, which installs and maintains power systems for cell-phone towers. The initiative has tested the cost model for providing renewable off-grid power systems to: power a village cell-phone tower; a solar powered drip-irrigation system; and 200 hundred solar household power systems for lighting and cell-phone charging. These companies are also looking at the financial sustainability of the creation of, and investment in, an off-grid power company – a completely new business venture.

31 CDKN (2015). 'Project: Business Partnerships Programme'. London: CDKN (www.cdkn.org/project/business-partnerships-programme-2).

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CHAPTER 5

Delivering climate compatible development

Introduction

As countries move forward to deliver their NDCs and associated programmes and policies for climate compatible development, it is not just about getting the right finance in place (Chapter 4). It is also about getting the right 'people skills' in place and the right institutional structures. This is the case whether a government wants to implement a nationwide climate compatible development policy, or whether it is about expanding a successful local pilot initiative to deliver at greater scale.

Deepening people's capacity and skills is important because climate change and its impacts on development are evolving fast – and so, too, is our understanding of how we should respond. Good flows of information and appropriate institutional structures and mandates are also vital because climate change cuts across geographies and sectors, affecting many facets of development and its delivery. This chapter is about what it takes to deliver results in climate compatible development and to build upon success.

Coordination across government is vital to delivering policies effectively

Achieving results calls for a commitment to cross-government working, driven from the highest political levels and reinforced by institutional arrangements, training and targets for government departments.

Rwanda's Government, driven by the President's office and championed by the Ministry of Environment, has made considerable efforts to craft new institutional arrangements to help put its Green Growth and Climate Resilience Strategy into action. New cross-cutting bodies were created to drive forward, support and monitor climate-related policies.[1] Setting up these new bodies has helped different government departments to avoid overlap, especially when it came to donor reporting, and to make the most of their given resources. In Kenya, the process of developing the National Climate Change Action Plan (NCCAP) helped to raise awareness on climate change across ministries, including the Ministry of Planning. This included the appointment of individuals focal points on climate change in different ministries. The NCCAP engagement process helped to make linkages between climate change and planned development activities, including medium- and long-term planning.[2]

1 Caldwell, D., J. Dyszynski and R. Roland (2015). *Climate compatible development in the 'Land of a Thousand Hills': Lessons from Rwanda*. London: CDKN (https://cdkn.org/resource/working-paper-climate-compatible-development-in-the-land-of-a-thousand-hills-lessons-from-rwanda).

2 CDKN Annual Review, 2014 (internal document).

A case study from the Philippines tells a similar story from a city-level perspective. The city of Malabon is in Metro Manila, the national capital region of the Philippines. Malabon is one of the most densely populated cities in the country and its low-lying, flat terrain makes it prone to frequent flooding, especially during high tides, heavy rains and when rivers and dams overflow. Malabon's vulnerability to the impacts of climate change, and its achievements in building resilience demonstrate how the involvement of, and coordination among, different levels of government – from national to subnational and even to village level – yields more positive results. A CDKN Inside Story by the Partners for Resilience describes how local officials not only coordinated across jurisdictions to plan and implement an early warning system for hazardous floods in the city, but also worked to make development in the low-income neighbourhoods more climate-resilient by discouraging settlement and working to improve sanitation in the most flood-prone areas.[3] The authors conclude, "The strong relationships among the members of the Partners for Resilience programme; the *barangay* council of Potrero and its committees; national Government and line agencies; and even partnerships with contiguous Local Government Units within the same river basin, all contributed to the successes of this project." Another subnational example comes from the city of Cartagena de Indias, Colombia (see Box 1 below).

Box 1

Coordination across government for climate compatible development in Cartagena, Colombia [4]

Cartagena's municipal government took the lead when a vulnerability assessment, supported by CDKN, indicated that projections of climate impacts to the year 2040 showed how the coastline of Cartagena will move several hundred metres inland, affecting most of the coastal areas where human settlements and the main economic activities are situated (hotels, industries, ports, airport, and tourism in the Old Town centre and islands). This will impact all people from the poorest to the wealthiest, and jeopardise investment in the long run in a World Heritage Site. Cartagena's authorities, together with actors from its main economic

3 Arcilla, M. J. D. and D. M. Lagdameo (2015). *Understanding the risk of flooding in the city: The case of Barangay Potrero*, Metro Manila. London: CDKN.

4 Martinez-Zuleta, C. and M. Lacoste (2014). 'Plan 4C: Building a competitive and climate compatible future. London: CDKN (https://cdkn.org/2014/08/feature-cartagenas-plan-4c-building-a-competitive-and-climate-compatible-future).

sectors, the Ministry of Environment and Sustainable Development, the Chamber of Commerce of Cartagena, the Marine and Coastal Research Institute (INVEMAR) and CDKN have engaged in preparing for the Cartagena of the future by developing 'Plan 4C: Cartagena de Indias competitiva y compatible con el clima' (competitive and climate compatible Cartagena).[5]

The development of Plan 4C has transcended different political administrations and leaderships, to position climate compatible development as a long-term strategic pillar for city planning. Five different administrations have played a crucial role in developing Plan 4C to ensure that a local government decision turns into a city policy that transcends political leaders and their administrations.

Time and again lessons from CDKN experience show that coordination across sectors and across different levels of government is more likely to deliver results.

Legislation helps lock in commitment to climate action

Legislation on climate change plays two critical functions at national level. First, when climate change laws are passed, they provide the basis for long-term commitment to action. Although no decision in politics is truly irreversible, to a certain extent legislation can lock in a direction of travel and counter the vicissitudes of political turnover and change. Depending on the nature of a country's political landscape, and assuming a multi-party democracy, the passage of climate laws also involves rigorous parliamentary debate and often a degree of cross-party consensus on the issues.

Second, climate change legislation can provide a framework and departure point for the development of further policies, regulations and voluntary measures for climate compatible development at a country level (and in federal systems, at state level).

CDKN has assessed key lessons learned from the processes of mainstreaming climate change into medium-term economic and development planning in Rwanda, Kenya, Ethiopia and Mozambique. According to CDKN Africa's Lisa McNamara, who has managed this process, "political will and

5 For more information, please visit http://www.plan4c.com

active government champions are the main drivers behind Rwanda's climate compatible development strategies. In addition, environment and climate legislation created a critical, political enabling environment for the development and implementation of progressive climate compatible institutional arrangements, policies and strategies.

"Both the Rwanda and Kenya cases highlight how *both* good leadership and strong institutional and legal frameworks for climate compatible development are necessary for climate action, and are mutually supportive. Leadership in an institutional vacuum, or where institutional frameworks don't support decision-making for climate compatible development through the clear allocation of mandates and responsibilities, isn't as effective. In fact, institutionalisation may be a key indicator of government ownership and the strategic importance of climate compatible development, relative to other pressing issues."

In Chapter 7, we explore how national climate legislation can act as a building block and a political impetus for greater ambition for countries – individually and collectively – in the international climate negotiations.

Box 2

Kenya's Climate Change Act: A springboard for greater society-wide progress on climate compatible development[6]

On 6 May 2016, Kenya's Climate Change Act, 2016 became law.[7] President Uhuru Kenyatta assented to Kenya's Climate Change Bill, 2014 after it was approved by both houses of Parliament (the National Assembly and the Senate). This Act provides a framework for action that promotes low-carbon, climate-resilient development in Kenya, and is an important milestone on the country's path towards developing its economy while simultaneously reducing greenhouse gas emissions.

The outcomes will include:

- mainstreaming climate change responses into development planning, decision-making and implementation;
- formulating programmes and plans to enhance the resilience and adaptive capacity of human and ecological systems to the impacts of climate change;

6 King'uyu, S. (2016). 'Kenya: Spearheading low emission development in Africa.' London and Golden, Colorado: LEDS GP (http://ledsgp.org/2016/06/kenya-spearheading-low-emissions-development-africa).

7 Republic of Kenya (13 May 2016). *Climate Change Act*. Nairobi: Government of Kenya (http://kenyalaw.org/kl/fileadmin/pdfdownloads/Acts/ClimateChangeActNo11of2016.pdf).

- reinforcing climate change disaster risk reduction in strategies and actions of public and private entities;
- mainstreaming intergenerational gender equity in all aspects of climate change responses;
- providing incentives and obligations for private sector contributions to achieving low-carbon climate-resilient development;
- promoting low-carbon technologies to improve efficiency and reduce emissions intensity;
- mobilising and transparently managing public and other financial resources for climate change responses;
- providing mechanisms to facilitate climate change research and development, training, and capacity building;
- mainstreaming the principle of sustainable development into planning and decision-making on climate change responses; and
- integrating climate change into the exercise of power and functions of all levels of governance, and enhancing cooperative climate change governance between national and county governments.

The Act establishes a National Climate Change Council, chaired by the President, and provides an overarching national climate change coordination mechanism.

A major lesson learned from the process of developing Kenya's Climate Change Framework Policy and Bill is the importance of stakeholder involvement and engagement. Governments often focus on stakeholders from outside government at the expense of those within government. The Kenyan experience underlines the importance of bringing on board both categories of stakeholders. Within government, the involvement of Parliament, county governments, and key national government ministries such as the National Treasury, and Devolution and Planning, have proved invaluable. It is also informative that membership of the National Climate Change Council cuts across the whole spectrum of stakeholders, with representation from both government and non-state actors.[8]

8 Excerpted directly from King'uyu, S. (2016). 'Kenya: Spearheading low emission development in Africa.' London and Golden, Colorado: LEDS GP (http://ledsgp.org/2016/06/kenya-spearheading-low-emissionsdevelopment-africa).

Capacity development plays a role for government workers

Delivering climate compatible development policies may call for information campaigns and even specialist training for personnel in government departments and a country's civil service, if they are to deliver on national commitments. Governments' self-identified need for awareness-raising and more specialist training has come up in the context of CDKN's demand-driven way of working (we ask governments what they need to be able to design and deliver climate compatible development and then identify and mobilise the expertise, as requested). The need for capacity strengthening is also considered so vital by government representatives that this requirement forms a key pillar of the Paris Agreement. This emphasis in the Agreement has spawned a supporting Coalition on Paris Agreement Capacity Building.[9]

> ***"Article 11: 1. Capacity building under this agreement should enhance the capacity and ability of developing country Parties, in particular, countries with the least capacity such as the least developed countries and those that are particularly vulnerable to the adverse impacts of climate change, such as the small island developing States, to take effective climate action including, inter alia, to implement adaptation and mitigation actions, and should facilitate technology development, dissemination and deployment, access to climate finance, relevant access to education, training and public awareness, and transparent, timely and accurate communication of information."***
> – Paris Agreement (December 2015)[10]

In developing countries, as in developed ones, the skills base for transitioning to a more climate-resilient, low-carbon economy is weak. The number of trained personnel with the understanding to 'climate-proof' investments for future climate-resilience and to design and shepherd low-carbon policies through implementation is generally low, and clustered in a few government departments in capital cities. Even if ministers and technical experts working at national level are well versed in the issues, it can be a significant job to educate

9 Coalition on Paris Agreement Capacity Building (http://capacitybuildingcoalition.org).

10 UNFCCC (2015). *Paris Agreement.* Bonn: United Nations Framework Convention on Climate Change. (http://unfccc.int/files/essential_background/convention/application/pdf/english_paris_agreement.pdf).

and upskill the larger national, provincial and municipal government apparatus to deliver climate-related policies.

> ***"Sustainable Development Goal 13: Take urgent action to combat climate change and its impacts.***
> ***"Target 3.b Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning."***
> – Sustainable Development Goals (2015)

Notwithstanding decades of structural adjustment programmes, most developing countries still have a sizeable civil service. It is often to these government departments that the main burden of implementation falls – including branches at state, provincial and district levels. The important point here is that when training and capacity support are mobilised, whether it comprises local or foreign support, it must be well-grounded in local political realities.

> ***"CDKN has learned that you can 'fly in' the knowledge or experts but not much changes unless and until it builds on local capabilities and capacity."***
> – Sam Bickersteth, CDKN Chief Executive

In the state of Madhya Pradesh, India, government departments were charged with delivering the State Climate Change Action Plan. However, the state government lead on climate change recognised that one of the greatest challenges to uptake of the action plan was civil servants' low awareness and commitment. CDKN worked with the state government to produce policy briefs tailored to each economic sector[11] and helped them to disseminate the briefings to the relevant departments. The Madhya Pradesh Climate Change Knowledge Portal[12] presents the action plan as a compelling resource and toolkit for a range of government and public audiences.

11 State of Madhya Pradesh. Madhya Pradesh Climate Change Knowledge Portal: Policy Briefs (http://www.skmcccepco.mp.gov.in/en/knowledge-resources/policy-briefs).

12 State of Madhya Pradesh. Madhya Pradesh Climate Change Knowledge Portal (http://www.skmcccepco.mp.gov.in).

Training programmes aimed at building the skills of government planners for investment decisions in climate-proofing may be helpful. A regional initiative in Africa has recognised that comprehensive capacity building is needed in government to make water sector management more climate compatible. CDKN has been supporting the African Ministers' Council on Water (AMCOW) and the Global Water Partnership[13] to meet a commitment to improving freshwater and sanitation access for their citizens by delivering the Water, Climate and Development Programme (WACDEP). The programme aims to increase African countries' capacity and knowledge to integrate water security and climate-resilience into development planning.[14]

From 2011–2013, the partners produced a framework to help decision-makers develop finance strategies and investments that would promote water security in a changing climate. They also created a technical tool, users' guide, capacity-building plan and tailored policy briefs to help policy-makers apply the framework. The framework has guided a pilot phase of the Water, Climate and Development Programme in eight countries – Burkina Faso, Burundi, Cameroon, Ghana, Mozambique, Rwanda, Tunisia and Zimbabwe. In these countries, the framework has helped define national water planning. Two critical elements come into play in defining this initiative: it has political backing through the ministers of the AMCOW alliance, which provides the space, time and resources needed for civil servants to take initiatives forward.

A learning brief about the Water, Climate and Development Programme capacity initiative underscored the importance of political backing, and drew a second, important conclusion: "by having programme management located in each country, it is possible to close the gap between training and participants' work duties. This enables capacity development to be a process that slides in between training and implementation, and over time, support activities can turn into tangible outcomes and impacts."[15]

Monitoring and evaluation work by CDKN indicates that in many contexts evidence of real change emerges when training programmes are twinned with longer-term mentorship and partnership arrangements. In other words, as Nigel Simister, CDKN's senior monitoring and evaluating advisor has said, "Mentoring and accompaniment are often the more important skills that can foster capacity development; in many places, the key seems to be long-term, systemic partnership" (for more detail, see Box 3). Such is the case in CDKN's

13 CDKN (2015). 'AMCOW capacity building' (https://cdkn.org/project/amcow-capacity-building-building-capacity-for-climate-resilient-decision-making-in-water-investments).

14 Water, Climate and Development Programme (http://www.gwp.org/wacdep).

15 African Ministers' Council on Water (2016). *Climate resilience development: Experience from an African capacity development programme.* Abuja: African Ministers' Council on Water (https://cdkn.org/wp-content/uploads/2016/07/WaterCapacity_Final_WEB.pdf).

technical support programme to the Government of Ethiopia, where advisors are available to give rapid support on, for instance, options for national response to international policy and finance opportunities.

Box 3

Developing the capacity for climate compatible development[16]

Change in capacity occurs when you get:

- Motivated individuals and institutions who are eager for change (character)
  + quality inputs (applied, experiential, contextual) from trusted suppliers/staff
  + the responsibility and opportunity to take action
  + link with key stakeholders in the system.

CDKN works in partnership with agencies and individuals, which already helps create the conditions for capacity to grow. Our aim is that all our projects: are locally owned and demand-driven; use local suppliers where appropriate, which helps adapt projects to local contexts and supports follow-through; encourage accompanied, ongoing engagement; and encourage collaboration among key external stakeholders.

What do we see as 'quality' inputs to cultivate capacity? To catalyse genuinely sustainable change, we and others must:

- focus on where there is already commitment and movement toward climate compatible development outcomes;
- take an experiential approach that is rooted in the local culture and context;
- appreciate the interrelationship among individual, organisational and systemic forms of change;
- involve learning from peers or local resource people rather than international experts;
- use mentoring (or 'accompanying') support to provide ongoing follow-up;
- provide opportunities for longer-term engagement, not just one-off, one-year projects; and

16 Source: Rick James, INTRAC, report for CDKN on capacity development (unpublished).

- promote inter-organisational linkages with key actors in the wider system.

Cultivating capacity is about leaving individuals and organisations better able to support climate compatible development in the future. Like many other donor programmes, CDKN is concerned about what is left after CDKN support. We therefore assess carefully and monitor regularly whether our well-intentioned interventions are actually supplanting or undermining the growth of independent local capacity.

Box 4

Large-scale capacity building in Bangladesh[17]

Bangladesh is one of the most advanced countries in the world when it comes to mainstreaming climate resilience measures in national policies, as documented in the CDKN Inside Story *Bangladesh's Comprehensive Disaster Management Programme*.

Since 2007, over 25,000 officials from the national to the local level have received disaster management training. In addition, the Comprehensive Disaster Management Programme (CDMP) established numerous collaborations and training partnerships to enhance the technical capacity of government officials. The government is also engaging Bangladeshi universities in the development of disaster management curricula. Fourteen national universities had been engaged by the end of the first three years.

Capacity building is also taking place at the local level. For example, the Livelihood Adaptation to Climate Change (LACC) programme, which focuses on areas prone to drought and saline intrusion, helps rural communities adapt to climate change. Since 2009–2010, LACC has been directly implemented by the Department of Agricultural Extension, exemplifying the institutionalisation of CDMP goals throughout the government. These, and other CDMP initiatives, are designed to increase the nation's capacity to proactively address its vulnerability to natural

17 Luxbacher, K. (2011). *Bangladesh's comprehensive disaster management programme*. London: CDKN. (https://cdkn.org/resource/cdkn-inside-story-bangladesh%E2%80%99s-comprehensive-disaster-management-programme/?loclang=en_gb).

hazards and threats. Although it is too early to tell whether they will have a long-lasting impact, the final evaluation of Phase I (to 2009) found that the Disaster Management Information Centre played an important role in information management during Cyclone Sidr and floods in 2007. Effective early warning systems coupled with public awareness campaigns and evacuation systems are credited with keeping the death toll from Cyclone Sidr below 4,000.

China's embrace of the Clean Development Mechanism (CDM) provides a large-scale case study. Belinda Kinkead describes how the Chinese Government was at first slow to respond to the market opportunity provided by the CDM. However, once it committed to engaging, the government endorsed several donor-led capacity-building initiatives to raise awareness and capacity in its regions. It mobilised its large civil service apparatus to establish and support provincial CDM service centres to identify opportunities and provide project assistance. [18]

Secondments and fellowship programmes pay dividends

Internship, fellowship and secondment programmes have all been incorporated as important features to encourage policy delivery in CDKN focal countries. In Rwanda, in spite of good progress in implementing the Green Growth and Climate Resilience Strategy, "National and subnational agencies still struggle with nascent institutional arrangements for environment and climate issues, and they have limited capacity to implement national policies and plans", find Caldwell, Dyszynski and Roland in their country study.[19]

One of the approaches trialled in Rwanda, which has helped address the skills shortage, is the Rwanda Environment and Management Authority internship programme that "places talented young graduates with relevant

18 Kinkead, B. *Harnessing market mechanisms to promote sustainable development: Lessons from China*. London: CDKN (https://cdkn.org/resource/cdkn-inside-story-harnessing-market-mechanisms-to-promote-sustainable-development-lessons-from-china).

19 Caldwell, D., J. Dyszynski and R. Roland (2015). *Climate compatible development in the 'Land of a Thousand Hills': Lessons from Rwanda*. London: CDKN (https://cdkn.org/resource/working-paper-climate-compatible-development-in-the-land-of-a-thousand-hills-lessons-from-rwanda).

experience as environment and climate focal points in key ministries and districts." In fact, it has been so helpful that Caldwell et al. recommend that the programme should be expanded and institutionalised.[20]

And this is not the only place where this approach has proven fruitful. An action research project in Gorakhpur – a flood-prone district of Uttar Pradesh, India, described in a CDKN Inside Story – found that by seconding a technical expert from a local non-governmental organisation (NGO) to the District Disaster Management Authority for the entire project duration, the programme established an effective mechanism for day-to-day coordination of its activities. This helped integrate climate change concerns with existing disaster management activities, including flood risk reduction.[21]

Gender-sensitive approaches to implementation yield better results

> ***"Had women not participated actively, the outcomes would have been considerably less, maybe around 10–20% of what was achieved. It is largely because of women … that the project has been sustainable so far, as well as effective in resilience building."***
> – ACCCRN project staff, India[22]

A three-country comparative research project into the outcomes of gender-sensitive approaches for development and climate programme goals, found that gender-sensitive approaches lead to more sustainable outcomes in terms of the length and effectiveness of activities (see Box 5 on the following page for a definition of terms).[23] When decision-making processes have been opened up to include women, as in Peru, initiatives tend to be better organised, and results to be more transparent and comprehensive. In these cases, initiatives have more detailed information on the day-to-day climate change and poverty challenges families and communities face. By contrast, the evidence base presented by

20 Ibid.

21 Wajih, S. A., and S. Chopde (2014). *Integrating climate change concerns into disaster management planning: The case of Gorakhpur, India.* London: CDKN (https://cdkn.org/resource/integrating-climate-change-into-disaster-planning-gorakhpur).

22 Ibid.

23 Kratzer, S. and V. Le Masson (2016). *10 Things to know: Gender equality and achieving climate goals.* London: CDKN (https://cdkn.org/wp-content/uploads/2016/05/10-things-to-know_Gender-equality-and-achieving-climate-goals_WEBfinal.pdf).

this project revealed that where women's active involvement was lacking, it negatively affects the implementation, monitoring and overall sustainability of interventions to enhance people's climate resilience.

Box 5

Key definitions of gender approaches in climate compatible development[24]

Projects and programmes should at minimum adopt a 'gender-sensitive' planning, implementation, monitoring and evaluation approach. On a scale from weakest to strongest gender approaches, we may define projects and programmes as:

Gender-blind
Project description/proposal does not refer to any particular gender aspects or differences between men and women.

Gender-aware
Project description shows an awareness of gender issues by mentioning differences that need to be taken into consideration, but actual activities do not follow a gender approach consistently, from design to implementation to monitoring and evaluation.

Gender-sensitive
Project follows a gender-sensitive methodology (gender-analysis, gender-disaggregated data are collected, gender-sensitive indicators in monitoring and evaluation, etc.) and aims to promote gender equality.

Gender-transformative
Project follows a gender-sensitive methodology, aims to promote gender equality and also to foster change and challenge gender discriminatory norms and/or root causes of vulnerability to climate change, and of unsustainable development. In other words, the project aims to address the underlying causes of environmental or development issues.

24 From the CDKN-commissioned project 'Gender equality and climate compatible development' (https://cdkn.org/project/gender-equality-climate-compatible-development) and cited also in Sogani, R., K . R. Viswanathan and B. Clements (2016). *How do gender approaches improve climate compatible development: Lessons from India*. London: CDKN (https://cdkn.org/wp-content/uploads/2016/05/India-gender-brief-FINAL.pdf).

The social impacts of policies must be monitored

It is essential to monitor the impacts of policies on women and socially disadvantaged groups – and adapt policies if needed. Ongoing social impact assessment is not only important for tracking poverty reduction outcomes. It is also important for making sure there are not social biases in policy implementation which undermine the achievement of climate and environmental goals.

Two desk studies by the Women's Environment and Development Organization (WEDO) for CDKN demonstrate how programmes for climate compatible development were not achieving as well as they could, due to lack of gender sensitivity – once these aspects were addressed, the results improved.

Mali's Household Energy and Universal Rural Access Program – a renewable energy initiative backed by the Global Environment Facility – aimed to reduce poverty and boost economic growth. In its initial years, however, fewer women than men sought electricity for small enterprise development. A programme assessment recommended that more female extension agents should be involved to target women-run businesses and provide them with access to microfinance. The 'missed opportunity' identified by programme managers provided important lessons for future renewable energy programmes in Mali. The Malian agency concerned "developed a partnership with UN WOMEN to work jointly on promotion of income generating activities for individuals through the rational use of energy sources and technologies, and on increasing the availability of functional equipment tailored to needs of women and men. The findings of the gender assessment were also integrated in the preparation of the Scaling Up Renewable Energy (SREP) investment plan [in Mali]."[25]

In another example, a programme in Nepal aimed to replace unsustainable fuelwood use with renewable biogas for household use. The Nepal Biogas Support Program (BSP) – supported by the Government of the Netherlands and non-governmental organisation SNV – was intended to increase household access to energy services while tackling deforestation and land degradation. The programme had great potential to alleviate women's hardship:

> "Since women are primarily responsible for household cooking and fuel supplies, they benefit significantly from the BSP – especially through time savings (less wood collection), reduced workloads and improved energy

25 CDKN, Global Gender and Climate Alliance and Women's Environment Development Organization (2014). *Financing mitigation: Exposing gender gaps in financing mitigation and proposing solutions* (http://www.wedo.org/wp-content/uploads/financial-mitigation-factsheet.pdf).

services. This opened up more opportunities for women to earn income and increase their economic contributions to the family."[26]

Reaching women to encourage them to join the programme was therefore of great importance. Following an evaluation of gender aspects, programme leaders recognised that more female extension agents were needed to reach out to women – for awareness-raising, training in the biogas stove systems and to test the suitability of new designs with them. At the time of writing, the BSP was on track to deliver its targets of 50,000 tonnes of carbon dioxide equivalent avoided every year. Reaching 250,000 households as of 2011, it is one of the largest biogas programmes globally.[27]

Policy change may be needed in light of market response to subsidies

As discussed in Chapter 3, fiscal policy measures in the form of taxes, charges, subsidies, incentives and budget allocations can help generate revenue for environmental and social purposes, shift behaviour towards low-carbon activities and stimulate green investment by pricing environmental externalities. However, economics is an inexact science and the effectiveness of all these measures in attaining their goals is influenced by producer and consumer behaviour – as well as unforeseen external economic shocks such as the dramatic rise or fall of global oil prices.

CDKN analysis shows how producers have responded to levels of subsidy and economic incentive and how this, in turn, has led policy-makers to fine-tune fiscal instruments to accelerate uptake of green behaviour. The CDKN Inside Story on the expansion of renewable energy technologies in Thailand documents how the Government of Thailand's favourable feed-in tariff rates led to very high and effective levels of uptake of solar photovoltaic technology – to the extent that the subsidy payouts created a burden on the country's Treasury.[28] Programmes for small and very small power producers created predictable conditions for renewable energy investors to sell electricity to the grid. The feed-in premium guarantees higher rates for renewable energy, making the investments profitable. The Thai Government is now adapting its policies to take account of recent technological progress and market growth. It is considering a sophisticated feed-in tariff to better

26 Ibid.

27 Please visit www.bspnepal.org.np for more details.

28 Weischer, L. (2013). *Pioneering renewable energy options: Thailand takes up the challenge*. London: CDKN.

control costs, while continuing to offer an enabling environment for renewable energy investments.

In Zambia, a research study explored how a reliable, cost-effective and equitable carbon offset scheme could be devised, using a randomised controlled trial with smallholder farmers.[29] The project, implemented by the NGO Innovations for Poverty Action, aimed to shed light on the factors that determine in which ways climate-smart agricultural technologies are adopted by smallholder farmers in developing countries. It teased out the causal relationship between input costs, offset incentives and farmer characteristics on the one hand and outcomes, including programme take-up and tree survival rates, on the other. The Government of Zambia's Department of Forestry is taking the research results into account in the implementation of a very large-scale tree-planting programme across the country – considering how to re-design the input and reward schemes associated with tree planting.

29 CDKN (2014). 'Offsetting carbon for Zambia's smallholder farmers.' London: CDKN (https://cdkn.org/project/offsetting-carbon-for-zambias-smallholder-farmers). Also, Jack, K. et al. *Encouraging the adoption of agroforestry: A case study in Eastern Province, Zambia*. Medford, Massachussetts: Tufts University (http://www.poverty-action.org/sites/default/files/in-depth_research_results_2013.pdf).

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REGIONAL REFLECTION

Latin America and the Caribbean

By Consuelo Espinosa, CDKN Regional Director, Latin America and the Caribbean

The richness of heterogeneity

The 42 countries in Latin America and the Caribbean are home to 595 million people. After almost two decades of economic growth, 34% of this population are considered middle-class, but 25% still live below the poverty line and a further 38% are at risk of sliding back into poverty. In addition, growing urbanisation has meant that 78% of the population now live in cities. The social and cultural composition of the countries is also highly diverse.

The countries vary greatly in terms of size and landscapes. A bird's-eye view of the region represents a journey over heterogeneity: the large green and brown spots are the forest ecosystems, most notably the Amazon basin; the blue and crystal-green are waters such as the Caribbean Sea and Lake Titicaca; long, serpentine rivers include the Amazon; vast mountain ranges include the Andes and there are immense deserts such as El Desierto Patagónico. The region's richness in natural resources is similarly well known: around 23% of the world's forests are found here; it has 31% of the world's fresh water; and six of the world's 17 most mega-diverse countries are here.

Economy, finance and investment

There is also considerable diversity in terms of economic development. Brazil is the world's seventh largest economy, while Haiti is ranked among the 20 poorest countries worldwide. In terms of income distribution, Latin America and the Caribbean is the most unequal region in the world. However, the region as a whole is ranked as middle-income and, as a consequence, has been excluded from the priority lists for international cooperation in support of environmental and climate change action.

Economists in the region largely agree that 2014 represented the breaking point for the economic growth in the region after almost 20 years; the subsequent decline is due to the cyclical nature of the region's economy. Governments generally have an inadequate understanding of the links between climate change and development and will have to make increasingly tough decisions about investments on national priority issues in the context of decelerating economies.

However, CDKN's experiences in the region show that governments and the private sector are willing to invest in climate change action when they have a reliable, initial partner. Financial backing has helped to generate data to underpin policy frameworks and decision-making processes for climate compatible development. Rather than presenting climate change as a barrier to development, we should be incorporating it as a variable in decision-making processes and directing our efforts towards a better

understanding of the different options that exist for sustainable development in a changing climate.

It is important to encourage this change of perspective by helping governments to explore innovative approaches for putting climate compatible development into practice. This will involve specific roles for actors and institutions at local levels. Building links between subnational frameworks and national ones is the next logical step, one that will determine the way climate finance can be utilised at local levels. And since the phenomenon of climate change has highlighted the links between different economic sectors and the natural world, integrated approaches that examine the links and trade-offs among water, energy and food can also help to deal with climate-related challenges in the region.

The basis for low-emission development

The total carbon footprint of Latin America and the Caribbean has decreased by about 11% since the start of the 21st century, largely due to decreased rates of deforestation and improvements in energy efficiency. Some countries have also taken interesting steps toward low-emission development strategies (LEDS) at national, subnational and sectoral levels. Chile, Colombia and Mexico are preparing national LEDS, while Brazil is leading the way on urban LEDS; Costa Rica is developing a strategy to reduce emissions from some 70% of its livestock over the next 10–15 years.

Alongside these LEDS, other initiatives are underway. Peru has committed to zero net emissions for the land use and forestry sectors by 2021; Chile aims to generate 20% of its energy from renewable sources by 2020; and the Caribbean Community and Common Market has committed to implementing an energy policy to help its members transition to renewable energy. Chile, Colombia, Costa Rica and Mexico are actively addressing emissions from their transport sectors.

Notwithstanding this progress, a forthcoming study by CDKN and Fundación Futuro Latinoamericano will warn that, without further action on climate change, SDGs on ending poverty, clean water, health and wellbeing, terrestrial ecosystems, zero hunger, sustainable cities and accessible energy will not be met. Data submitted to the UNFCCC (and readily accessible via cait.wri.org), demonstrate that although emissions from the forest sector have decreased by up to 50% between 1990 and 2013, emissions from bunker fuels, industrial processes, waste and energy have increased significantly in the same period. Thus, any strategy countries put in place for the achievement of SDGs will have to be accompanied by further efforts to reduce the carbon footprint of the region. The region will have to strengthen efforts in sectors such as agriculture, energy, inclusive cities and resilient infrastructure to ensure a sustainable and climate compatible development.

CDKN focus areas in Latin America and the Caribbean

Due to the heterogeneity of the region, it is important for programmes like CDKN to keep a balanced portfolio of climate compatible development initiatives, in order to support both middle-income countries like Peru and developing countries like El Salvador. This portfolio should include both early interventions and innovative approaches. Early interventions require investing and supporting ideas that traditional donor partners may be unwilling to support.
It is important that the region improves its capacity and develops stronger governance structures at the city and state levels. For example, the city of Cartagena in Colombia faces immediate and future threats from a changing climate, including rising temperatures and increases in the frequency and severity of flooding and storms. These are destroying beaches and corals, driving the spread of disease, and increasing the risk of human displacement. These threaten the city's social, economic and public health sectors, putting climate change on the agenda of the city's government.

Climate compatible development policies tend to have longer-term targets, tackling challenges that lie beyond those faced by current governments. These can be tackled by including other actors in decision-making processes. For example, Cartagena's civic leaders, non-governmental organisations, businesses and the city government worked together to assess and understand the city's climate impacts and prepare a climate vulnerability assessment and adaptation plan. This demonstrates how diverse actors' comparative strengths – in technical, financial and human resources, and in local knowledge – can blend to achieve policy progress.

Civil society participation is a significant feature in the region and has demonstrably contributed to building legitimate processes. Promoting broader participatory processes should hence be an integral component of any climate compatible development programme. Furthermore, the generation and use of information from research is instrumental in ensuring the use of the results of multi-sectoral and multi-stakeholder processes in decision-making at the government level.

CDKN's primary areas of focus in Latin America and the Caribbean relate to:

- supporting climate compatible development methods and tools;
- generating data and applying research findings;
- building a trusted environment for implementation of climate compatible development policies; and
- helping governments explore innovative climate compatible development approaches.

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CHAPTER 6

Scaling up climate compatible development

Introduction

How do countries build on success and scale up climate compatible development initiatives? Most practitioners interviewed for this book expressed a healthy degree of scepticism when asked, "What does it take to scale up a successful climate compatible development pilot?" That's because, "Climate compatible development requires such a specific approach in each place," said Patricia Velasco, Latin America coordinator. It is no surprise people wonder how approaches can be copied from one place to another: each community or country faces complex trade-offs among resource uses, among beneficiaries of new approaches and policies, and those who do not benefit but must be compensated.

Notwithstanding these caveats, in its five years of experience, CDKN has seen climate compatible development scale up in several different ways:

- principles rather than specific steps are developed and spread from one place to another;
- a successful project or programme forms the basis for new policies or programmes on a larger scale (province or country-wide); and
- green growth or climate-resilience measures in one sector of an economy (subnationally or nationally) raise awareness of and interest in climate compatible development more broadly in society, catalysing climate measures in other sectors or walks of life.

This chapter explores some of the supporting measures that may be made at national level to support the scale-up of successful pilot projects. It also looks into some of the proactive measures that leaders in climate compatible development can take to promote good practices more widely.

Adjustment of national policies may be needed to support innovations at the local level

Piloting climate compatible development can highlight gaps in the policy framework which need to be addressed before results can be sustained – and before any meaningful scaling up can be achieved. This is the case in Western Province, Sri Lanka, where CDKN supported action research into the benefits of urban agriculture and forestry (see *Integrating urban agriculture and forestry*

into climate action plans: Lessons from Sri Lanka[1] and *Background paper comparing the Sri Lankan experience with that of Rosario, Argentina*[2]*).*

Urban agriculture and forestry are promising approaches to tackling the triple challenges of climate change mitigation and adaptation and food security for the vulnerable residents of cities in developing countries. The research by the RUAF Foundation documents how urban agriculture and forestry can help cities to tackle these challenges simultaneously by:

- reducing vulnerability and strengthening adaptive management by diversifying urban food and income sources and reducing dependency on imported foods;
- maintaining green open spaces and enhancing vegetation cover in the city with important adaptive (and some mitigation) benefits; and
- reducing cities' energy use and greenhouse gas emissions by producing fresh food inside and close to the city and enabling the recycling of urban resources (e.g. organic waste) in agriculture.

Western Province is the first provincial government in Sri Lanka to include urban and peri-urban agriculture and forestry in its climate change adaptation action strategy. The province is promoting the rehabilitation of flood zones through farming as a strategy to improve storm water infiltration and mitigate flood risks. It also supports local agriculture to reduce dependency on imports; lower greenhouse gas and energy requirements for food production, transport and storage; and improve food security and livelihoods.

However, the research team found that future scaling up of these interventions will need new urban design concepts and the development of a provincial climate change action plan, in parallel with a revision of local and national policies. Until now, national policy has posed an obstacle to scaling up these new practices.

The national Paddy Act has allowed for paddy cultivation only in assigned areas. The Act needs to be revised to promote and support new production models for mixed cultivation of rice and vegetables that can increase income and promote more environmentally sustainable and climate-compatible forms of production. These would include traditional saltwater-resistant rice varieties and measures to maintain the natural drainage functions of paddies. The process

1 Dubbeling, M. (2014). *Integrating urban agriculture and forestry into climate change action plans: Lessons from Sri Lanka.* London: CDKN (www.cdkn.org/resource/integrating-urban-agriculture-and-forestry-into-climate-change-action-plans-lessons-from-sri-lanka).

2 Dubbeling, M. (2015). *Integrating urban agriculture and forestry into climate change action plans: Lessons from Western Province, Sri Lanka and Rosario, Argentina.* London: CDKN (www.cdkn.org/wp-content/uploads/2015/02/SriLanka_Argentina_BackgroundPaper_FINAL_WEB.pdf).

of policy revision is currently under way and builds on awareness-raising, impact monitoring and broad stakeholder participation.

Decision-makers need to be convinced by good documentation and first-hand experience

Effective documentation of success factors in pilot projects is essential if local achievements are to leverage larger-scale changes in policy and practice. Quantitative measures ('killer statistics') work the best. CDKN's best examples of scaling up are from projects that have demonstrated lives and assets saved in the face of extreme weather events, and greenhouse gas emissions saved at low or no cost, or with financial gains. It is not surprising that these metrics would make a compelling case.

An example from India shows how careful monitoring and documentation of quantitative results – and the effective presentation of these metrics to government policy-makers – has proven decisive in moving from the pilot project level to policy, or even legislative, reform.

In the city of Ahmedabad, Gujarat, scientific assessment of the effects of extreme heat on excess morbidity and mortality, together with extensive engagement efforts by the research and non-governmental partner organisations, has proven definitive in changing government actions during heatwaves. Extreme heat presents a significant threat to the health, lives and livelihoods of residents, especially of those living in slum communities or working outdoors.

Compared to floods or earthquakes, extreme heat is a 'quiet hazard'. Before 2010, a lack of awareness about heat-related health risks among government officials and citizens alike meant that little was done to tackle the threat. Then, a punishing heatwave hit the city in May 2010, and a project by the Natural Resources Defense Council, Indian Institute of Public Health–Gandhinagar and the Public Health Foundation of India was able to demonstrate that 1,300 excess deaths occurred during the heatwave period. Following the heatwave, the partners held workshops with municipal officials to raise awareness of its impact on the city.

Working closely with the city government, the project assessed the potential risks from extreme heat over the coming decades in the context of climate change, especially for the most vulnerable groups, and developed a set of innovative strategies to tackle the problem. *Risk-informed decision-making* by CDKN's Emily Wilkinson and Alonso Brenes of the Facultad Latinoamericana

de Ciencias Sociales details this experience,[3] as does the CDKN documentary film *Beat the heat*.[4]

With no temperature gauge in the city, and no system in place to monitor heat impacts on health and mortality, city officials were not fully aware of the extent of the heatwave's impact until presented with heat- and mortality-correlated data. This information then prompted action. Thanks to the project in Ahmedabad, extreme heat has been recognised in Indian national policy as a disaster risk, and this should improve awareness across the country. CDKN is among several donors supporting a scaling up of such analysis and policy engagement in other Indian cities.[5] CDKN's India programme manager says that the Inside Story on Ahmedabad's experience, which systematically documents the steps taken, is a major communication asset in bringing the lessons to other cities. The partners say a major challenge remains: it tends to take an extreme event and preventable deaths to gain the attention of city officials elsewhere. They are working hard to convince other city governments to put disaster preparedness measures in place before another deadly heatwave strikes.

Box 1

Scaling up community-based adaptation: Lessons from CDKN experience

A CDKN working paper, 'How to scale out community-based adaptation', pulls out the following key elements as having been pivotal to successful scaling up in adaptation projects:

- **Documenting evidence and learning** – having a strong monitoring, evaluation and learning framework in place in order to present compelling evidence of achievement, which makes the case for action elsewhere.
- **Ensuring the core objective of building adaptive capacity remains** – taking care to retain successful elements of the initial

3 Wilkinson, E. and A. Brenes (2014). *Risk-informed decision-making: An agenda for improving risk assessments under HFA2*. London: CDKN (www.cdkn.org/wp-content/uploads/2014/04/CDKN-Guide_RiskAssessment_FINAL_WEB.pdf).

4 CDKN (2017). *Beat the Heat* (film). London: CDKN (www.cdkn.org/2017/03/film-beat-heat).

5 Jaiswal, A. and M. Connolly (2015). 'Putting heat adaptation plans into action: Ahmedabad shares lessons with leading Indian cities'. New York: National Resources Defense Council (https://www.nrdc.org/experts/anjali-jaiswal/putting-heat-adaptation-plans-action-ahmedabad-shares-lessons-leading-indian).

project that emphasised the development of the community's local capacities for adaptation.

- **Networks and partnerships as the cornerstone** – linking community practitioners with external organisations, research institutes and businesses (domestic or international) that have the ability to spread good ideas beyond the original project area.
- **Finding cost-effective institutional channels and finance mechanisms for scaling out** – looking not only to government schemes and policies as a potential route for scaling out, but also to the private sector, which may offer even more effective networks and capability.[6]

CDKN and its partners have also found that giving political leaders a first-hand experience or 'witness trip' to see problems and solutions provides a strong impetus for climate-related policies (see Box – 2 below).

Box 2

Action for Climate Change Resilience in Africa (ACCRA) improves prospects for remote communities through active engagement of national policy-makers

Bundibugyo is located in the western region of Uganda. It is so mountainous that the area is prone to immense soil erosion and destructive landslides. In recent years, flooding has become more common as a result of climate change – and causes further landslides. Poor land-use practices such as large-scale deforestation, burning vegetation, and lack of soil conservation structures make landslides worse.

6 Gogoi, E., M. Dupar, L. Jones, C. Martinez and L. McNamara (2014). *How to scale out community-based adaptation to climate change.* London: CDKN (www.cdkn.org/wp-content/uploads/2014/03/CDKN_Working_Paper_community_adaption_Final_web-res.pdf).

Backed by CDKN, ACCRA carried out a study which showed that district development plans did not reflect the challenges posed to communities by climate variability, disasters and change.[7] Most importantly, the district development plan is a key instrument in determining funding allocations from local and national sources.

District plans lacked climate-resilience because they were disconnected from national frameworks such as the Disaster Management Policy and the National Adaptation Programme of Action (NAPA). District government staff were neither aware nor involved in the development of the national policies. ACCRA also found that district planning was carried out in isolation from line ministries with no technical support. The funds from central government are conditional on districts' meeting five national priorities and it is difficult to mobilise such funds to address emerging local crises.

As part of the capacity-building activities, ACCRA facilitated a community-level field visit to Bundibugyo for six key ministry representatives, aimed at increasing national-level understanding of climate adaptation issues on the ground, and strengthening the linkages between national- and local-level governments.[8] "The visit to Bundibugyo allowed us to see the impact of climate change and understand what is needed," commented Annunciata Hakuza of the Ministry of Agriculture. "The research results will help inform our future policy."

ACCRA also funded training of the district planning teams on integrating climate adaptation and disaster risk reduction (DRR) into their sector plans. These measures were later included in the five-year District Development Plan. The planning exercise was facilitated by representatives from the Ministry of Water and Environment and the Ministry of Local Government, the National Agricultural Research Organisation and the Office of the Prime Minister. For the first time, all 11 sectors and specific department heads in the district gathered to discuss and plan together. The result was a comprehensive five-year District Development Plan (2011–2015) integrating adaptation and DRR measures.

7 CDKN (2011). 'Africa Climate Change Resilience Alliance (ACCRA): Helping policy-makers understand rural adaptation.' London: CDKN (www.cdkn.org/project/helping-policy-makers-understand-rural-adaptation).

8 CDKN (2014). 'Africa Climate Change Resilience Alliance (ACCRA) – Phase 2.' London: CDKN (www.cdkn.org/project/africa-climate-change-resilience-alliance-phase-2).

Jockas Matte, the district senior environment officer commented, "Before, my colleagues thought that climate change was just an environmental issue. Now all of us planned together, [and] as a result, we now have a plan that addresses climate change and we share responsibility." Crucially, the district staff found it was possible to plan and implement climate adaptation and DRR activities within existing budget frameworks.

The chief administrative officer noted that, "with support from ACCRA and the links it helped create with Ministry of Water and Environment, we have been able to attract additional NAPA funding of 123 million Uganda Shillings". It is expected that implementation of the NAPA will touch the livelihoods of the most vulnerable. Some of the planned activities include soil and water conservation (terraces, tree planting), formulation of by-laws, fuel-saving stoves, as well as learning visits and awareness-raising.

The district has become a learning lab for national ministries and neighbouring districts which have closely followed the process. "ACCRA has had a profound impact on our district," commented David Okuraja. "Our district has generally been viewed as isolated, affected by war and stigmatised by disease outbreaks such as cholera and Ebola. Few national-level decision-makers ever came here. But ACCRA helped put Bundibugyo on the map. Now we talk directly to ministers!"

In Latin America, a CDKN team is following an approach to documentation called *sistematización de experiencias* (roughly translated as 'systematisation' in English). "[Its] fundamental principle is the importance of the collective construction of knowledge that is based on the value of generating learning experiences for people and groups," says Maria Jose Pacha, the Latin American knowledge and learning coordinator. "To transform this learning knowledge (which most often goes unnoticed by the actors themselves), it is necessary to develop a methodology aimed at fostering recognition, reflection and developing lessons learned."

The method promotes encounters among actors to analyse their experiences, review the rationale behind them, and foster lessons learned. The technique emerged in Latin America in the mid-1970s and integrates learning concepts from popular education and tools for social intervention, such as participatory action research. It encourages critical and reflective interpretation of the processes of transforming behaviour, where the processes are as important as the product. Knowledge emerging from

collective reflection is packaged into neat, sharable products. The triple advantage of this approach is that it:

- allows professionals and communities working in projects to draw conclusions from their own experiences;
- helps identify lessons learned about what works and does not work;
- develops capabilities that support monitoring and dissemination of projects.

In mid-2015, CDKN convened practitioners from 10 climate compatible development projects around Latin America and the Caribbean to reflect on their experiences in urban climate-resilience, using this methodology.[9] The event generated cross-cutting learning and created the crucible for an emergent community of practice for Latin American urban resilience practitioners. In the words of one participant, "It is encouraging to meet people with the same vision and is important to maintain and nurture links, which can lead to impact with the authorities or local actors."

Narratives from high-profile leaders promote success

As discussed in the Box 2, there is a role for political champions in demanding accountability for the delivery of climate compatible development. We have also noted the importance of political champions in scaling up successes. Three city-level examples from Latin America, and a nationwide example from the Caribbean, are instructive. The capital cities of Bolivia, Ecuador and Peru are vulnerable to climate change, partly due to their dependence on water from retreating Andean glaciers for human consumption, industrial use, hydropower production, agriculture and other uses. A project supported by CDKN and the Development Bank of Latin America assessed the cities' carbon and water footprints and then the municipalities prepared action plans and pilot projects to tackle the most critical issues.

The project team for the Andean Cities Footprint Project noted the role of local political leaders in celebrating success.[10] They say, "Mayors and other high-level officials in the three cities are talking in terms of footprints and how having generated carbon and water-use data – data which didn't exist

9 Pacha, M. J. (2015). 'La construcción colectiva de conocimiento para enfrentar al cambio climático.' Quito: CDKN (www.cdkn.org/2015/09/opinion-la-construccion-colectiva-de-conocimiento-para-enfrentar-al-cambio-climatico).

10 Rodriguez Tejerina, M. (2015). *Assessing carbon and water footprints in Andean cities.* London: CDKN (www.cdkn.org/resource/inside-story-assessing-carbon-and-water-footprints-in-andean-cities).

before – enables more informed decision-making oriented towards climate compatible development."

In La Paz, the mayor hosted a public event where he presented the 10 actions to reduce municipal government footprints, providing investments in prioritised areas such as the municipal slaughterhouse. He, and other high-level city officials, were satisfied with the results of the project, since it confirmed that current efforts in the transport, residential and waste sectors were well-directed, not only from the traditional standpoint of development, but also for climate change mitigation and adaptation.

In Quito, the footprint 'language' has been appropriated by the mayor and high-level city officials, and has influenced various city plans related to water, land use and carbon in forests. Offset mechanisms for the carbon and water footprints of the city, developed with public and private actors, are in the design phase. The footprints also catalysed the mayor's proposal to create public–private partnerships as a strategy for city development, and companies on the frontline of climate change efforts have been officially recognised. The city has set a target to reduce its carbon footprint by 5% by 2019.

In Lima, during preparations for COP20 in December 2014, the Cities Footprint Project organised events with Peru's Ministry of Environment. The COP20 agenda was influenced by including 'cities' as one of the five main discussion topics. The project is believed also to have influenced the decision to launch the National Programme for Sustainable Cities by the Ministry of Environment. Finally, financing for urban climate compatible development projects is starting to gain momentum with the municipal government. Insights from La Paz, Quito and Lima are all brought to life in the CDKN film *Cities Footprint Project: Urban impact.*[11]

A CDKN Inside Story on the extensive uptake of solar water heating in Barbados documents how long-term fiscal and regulatory certainty for manufacturers and customers has been fundamental to uptake.[12] However, there were initially cultural barriers and unfamiliarity with the technology which hampered customer acceptance. The author concludes that, "Persuasive champions who are able to speak to communities, together with effective marketing strategies, are vital for consumer acceptance of the technology." As a result of this combination of stable and certain government policy and championship by the prime minister and other high-profile people, more

11 CDKN (2017). *The 'Cities Footprint Project' – Urban impact* (film). London: CDKN (www.cdkn.org/2017/02/film-cities-footprints).

12 Bugler, W. (2012). *Seizing the sunshine: Barbados' thriving solar water heater industry.* London: CDKN (www.cdkn.org/resource/cdkn-inside-story-seizing-the-sunshine-barbados-thriving-solar-water-heater-industry).

than 50,000 systems have been installed in this small country and they save consumers US$11.5–16 million per year.

Professional regulations and codes help scale up climate-compatible development

Successful pilot projects can provide the test beds for developing climate adaptation and mitigation measures, and these can drive the development of technical regulations and codes which embed the climate measures more broadly in sectoral practice. An example is the Sheltering from a Gathering Storm project, which led to the adoption of new housing codes in Da Nang, Viet Nam.[13]

Shelter accounts for the highest monetary losses in climate-related disasters and is, therefore, a significant cost for governments and other stakeholders working on disaster risk reduction or reconstruction. Shelter is also often the single largest asset owned by individuals and families, so the failure of shelters to protect people from hazards is a significant risk to lives and livelihoods. Sheltering from a Gathering Storm was a two-year research programme targeting peri-urban areas in India, Pakistan and Viet Nam. It identified practical solutions for resilient shelters, and conducted research on long-term economic returns of investing in such shelters, focusing on cities at risk from typhoons, flooding and extreme heat. The project was led by ISET-International in partnership with Hue University (Viet Nam), Gorakhpur Environmental Action Group (India), ISET-Pakistan and ISET-Nepal. Among other things, this research demonstrated that simple, resilient housing designs and features cost-effectively reduce losses suffered by vulnerable communities from floods, storms and extreme heat. A lack of access to affordable financing, coupled with limited awareness and training of builders, were identified as primary barriers for vulnerable populations to access climate-resilient designs.

In Viet Nam, the research programme worked closely with a Rockefeller Foundation-funded project facilitated by the Women's Union of Da Nang, which provides loans to low-income households (mostly women) to build climate-resilient shelters. The innovations identified during the project informed the loan programme, and 244 homes with typhoon-resilient features had been built in the city with affordable financing well before the end of the project. When Typhoon Nari hit the city in 2013, all 244 homes built as part of the programme withstood the storm, while hundreds of other homes nearby were heavily damaged.

13 CDKN (2014). 'Sheltering from a gathering storm'. London: CDKN (www.cdkn.org/project/sheltering-from-a-gathering-storm).

These visible increases in disaster resilience prompted the Da Nang City Government's decision to integrate climate resilience into its building regulations. The policy requires all new housing programmes within the city limits to apply climate-resilient principles. This decision was taken on the basis of the research findings, the high degree of engagement with stakeholders throughout the project, and the demonstrated short-term benefits of investing in climate-resilient structures.

Professional networks catalyse action through learning and peer exchange

National or international networks of local actors can form communities of practice – sometimes on a quite technical level – and trial approaches that are then modified and replicated within and across borders (often with external public and private funding). In this way, climate compatible development initiatives are piloted at local level and inspire replication at similar scale elsewhere – for example, city-to-city learning. Examples are the Urban Low Emission Development Strategies (LEDS) initiative spearheaded by ICLEI – Local Governments for Sustainability, or the Rockefeller Foundation-backed ACCRN network (the influence of which has been documented in the CDKN-supported case study on the flood-resilience project in Gorakhpur, India).[14]

The Low Emission Development Strategies Global Partnership (LEDS GP) is a vibrant example of a community of practice, now in its fourth year, which has US Department of State funding for sectoral working groups and regional platforms to explore many facets of LEDS.[15] The working groups and platforms develop joint tools, knowledge-sharing webinars and events, and provide technical assistance to developing country members. More than 180 organisations and individuals are members of the partnership.

The Latin American Platform on Climate (LAPC),[16] created in January 2009 with support from the AVINA Foundation, gathered 20 civil society organisations from 10 countries of the region (Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Paraguay, Peru, Costa Rica and Uruguay). LAPC seeks convergence, dialogue and coordination among diverse stakeholders committed to finding

14 Wajih, S. A. and S. Chopde (2014). *Integrating climate change concerns into disaster management planning: The case of Gorakhpur, India*. London: CDKN (https://cdkn.org/resource/integrating-climate-change-into-disaster-planning-gorakhpur).

15 LEDS GP (2017). 'Low Emission Development Strategies Global Partnership'. London and Golden, Colorado: Low Emission Development Strategies Global Partnership (www.ledsgp.org).

16 Intercambio Climático (2010). 'Latin American platform on climate'. Quito: Intercambio Climático. (www.intercambioclimatico.com/en/about-lapc.html).

answers to the challenges – those that call for radical changes – which humankind is now facing. The LAPC is leading the construction of a more equitable world that acknowledges the boundaries of nature, to overcome the threat of climate change and construct new ways of living on this planet. CDKN is supporting the platform through a project that focuses on five Latin American countries (Bolivia, Brazil, Costa Rica, Paraguay and Uruguay) and aims to strengthen civil society capacities and generate adequate space to build national climate change agendas in a participatory way and through multi-sectoral approaches. This process will also provide learning with regard to the tools and conditions as well as key success factors that should be considered when developing multi-sector, participatory processes for tackling climate change.

Technical tools support scaling up

Technical tools for measuring climate vulnerability and resilience, or for measuring greenhouse gas emissions, can provide a basis for climate compatible development decisions. Such tools are normally developed with a view to replication elsewhere. The practitioner network LEDS GP, described above, runs sectoral working groups which provide the focus for extensive peer exchange and learning on practical aspects of LEDS. It is notable that such a strong focus of these international working groups should be the development of tools, and also of 'toolkits' or 'tool filters' which allow technical users to select the most appropriate from a variety of tools available. Participant feedback indicates that decision support tools can provide the helpful guidance necessary to catalyse new climate activities beyond initial pilot levels.

This is precisely the case for a CDKN-supported project to carry out participatory carbon and water footprint assessments for the local governments and the metropolitan areas of three Andean cities.[17] CDKN supported a project team at Servicios Ambientales S.A., Bolivia to work with the municipalities of Quito (Ecuador), La Paz (Bolivia) and Lima (Peru) in the Cities Footprint Project in 2012–2015 – as detailed above. The results of these assessments led to the development of various action plans for each municipality, with specific footprint reduction targets for carbon and water use.

The project found that citywide carbon and water footprints "have proven useful for decision-making in urban planning and management to help define footprint-reduction goals and project portfolios" (a CDKN Inside Story describes the tool and process in some detail).[18]

17 Rodriguez Tejerina, M. (2015). *Assessing carbon and water footprints in Andean cities.* London: CDKN (www.cdkn.org/resource/inside-story-assessing-carbon-and-water-footprints-in-andean-cities).

18 Ibid.

As a result of project implementation, demand for similar assistance has come from several cities in the region. The team concludes that producing a Spanish-language toolkit that presents the methodologies used for the carbon and water footprint and the results of its application, has been instrumental in generating this broader demand.[19]

Programmes should be planned from the beginning for scaling up

The mainstreaming of disaster risk reduction and climate change adaptation across government agencies is a slow process. The design of Bangladesh's Comprehensive Disaster Management Programme (CDMP) in two phases acknowledged this reality (see CDKN Inside Story *Bangladesh's Comprehensive Disaster Management Programme*).[20] In the two and a half years that Phase I was active, it piloted programmes that could be scaled up as they became feasible. Phase II, designed as a four-year programme, will continue to scale up these programmes to achieve its strategic outcomes.

One of the most important findings from CDKN's evaluation of its own overall programmatic impact is that individual initiatives, however innovative and effective, are rarely successful at scaling out or up unless this has been built into project design right from the beginning. This is a key message if we are to achieve transformational change at scale.

In Bolivia, a small pilot-scale project to pay land managers for maintaining ecosystem services was initiated with a view to expanding rapidly in other localities. It has succeeded in doing so, and now stands on the brink of becoming law in one Bolivian department (equivalent to a province).

As in many other Latin American countries, deforestation in Bolivia's upper river basins has caused a lot of environmental problems with local to global impacts – from soil erosion and declining water quality to greenhouse gas emissions. A CDKN-supported project in the Bolivian Department of Santa Cruz is helping to tackle all these problems at once, by enabling land managers in the upper catchments to receive compensation for conserving forest lands (see also

19 Huella de Ciudades (2014). 'Toolbox'. La Paz: Huella de Ciudades (www.huelladeciudades.com/toolbox.html).

20 Luxbacher, K. (2011). *Bangladesh's comprehensive disaster management programme.* London: CDKN (https://cdkn.org/resource/cdkn-inside-story-bangladesh's-comprehensive-disaster-management-programme).

Chapter 4).[21] The Reciprocal Water Arrangements (known as 'ARA' for the Spanish acronym, Acuerdos Recíprocos por Agua) commit land managers to a range of eco-friendly practices. These include conserving the forest, stopping polluting livestock practices and enhancing the biodiversity and forest carbon of their land. In exchange, they receive in-kind compensation that boosts their incomes and significantly improves their livelihood prospects.

ARAs are private agreements between water cooperatives and landholders in priority catchment areas that are designed, managed and monitored locally. The improved land use practices that have resulted from these agreements are helping to tackle climate change, and the incentives built into the schemes have made them particularly successful: downstream water users are benefitting from better water quality and upstream participants are reaping material rewards. In the past two years, local and donor funds have compensated landowners' conservation efforts with barbed wire, cement, fruit tree seedlings (e.g. apples and plums), beekeeping equipment, plastic piping, water tanks and roofing materials. The ARA schemes are thus unlocking vital resources for upland farmers who otherwise risked becoming increasingly marginalised by their lack of capital. Since the first Bolivian ARA was developed in Los Negros, more than 50 municipal governments and water cooperatives across the Andes have joined the movement. According to the architects of the scheme, the built-in simplicity of the schemes makes them suitable for replication.

In contrast to other Payments for Ecosystem Services schemes, ARA schemes do not rely on extensive hydrological and economic studies to define the right payment levels, writes Asquith, in his case study report. Instead, they "attempt to formalise pro-conservation norms by publicly recognising individuals who contribute to the common good by conserving their 'water factories.' They respond to one of the key findings of behavioural economic theory, which is that 'money is the most expensive way to motivate people. Social norms are not only cheaper but often more effective as well.'"[22]

At sectoral level in Colombia (see Box 3 on the following page), a methodology was developed and piloted for one agricultural area of the country with a view to applying lessons elsewhere – it has now been rolled out successfully in other parts of the country and has informed a national adaptation plan for agriculture.

21 Asquith, N. (2016). *'Watershared': Adaptation, mitigation, watershed protection and economic development in Latin America.* London: CDKN (www.cdkn.org/resource/inside-story-watershared-adaptation-mitigation-watershed-protection-economic-development-latin-america).

22 Ibid.; and Ariely, D. (2008). *Predictably irrational: The hidden forces that shape our decisions.* New York: Harper Collins cited in Asquith, N. (2016).

Box 3

Developing ways to measure vulnerability and scale up adaptation in Colombia

In Colombia, the Second National Communication has identified the agricultural sector as one of the sectors to receive the greatest impacts of climate change. This is especially important as the agricultural sector represents 9.1% of the nation's GDP. The Ministry of Agriculture together with the Ministry of Environment decided to undertake a vulnerability analysis in the Upper Cauca region – one of the most important agricultural regions of Colombia – to pilot a methodology for the country. This analysis was conducted by the International Center for Tropical Agricultural (CIAT in Spanish), National Centre of Coffee Research (CENICAFE in Spanish) and the universities of Cauca and Caldas with the support of CDKN, and involved more than 600 experts and representatives of the agriculture and climate change sectors. The project generated the first multi-dimensional methodology to understand the climate vulnerability of six crops at municipal and departmental levels.

The Upper Cauca River basin was chosen for this exercise due to its combination of four factors:

- **Economic importance:** The Upper Cauca region is the top producer of sugar cane in Colombia and also includes the coffee region of Colombia. It generates a significant percentage of the country's GDP.
- **Vulnerability:** The region hosts agricultural sub-sectors identified as highly vulnerable and representing production systems from small subsistence farms to much larger enterprises with high technology, as well as diverse temperatures ranges of the altitudes characterising Colombia's Andean and inter-Andean zones. These include sub-sectors growing cocoa, potatoes, beans, coffee, rice, sugar cane and, fruits, and pastures for different types of livestock, as well as forests, including bamboo, for timber and derivatives. This area has some of the most diverse ecosystems in Colombia including Páramo and snow peaks as well as lower lands, all highly vulnerable to climate change.
- **Poverty:** This area features large agricultural companies as well as indigenous and rural communities of low-income families who live on what they can grow on their small farms. This area is part of the Coffee Belt and has the country's highest unemployment rates. In turn, the

department of Cauca has the most extreme conditions of poverty among Colombia's departments. The Human Development Index averages 0.76 for the whole country, but only 0.68 in Cauca.[23]

- **Institutional capacity:** The area has strong agricultural and research institutions capable of undertaking climate vulnerability research. Another consideration taken into account was the institutional strength of the federations representing production sub-sectors such as coffee, cacao, sugar, rice and other cereal grains, cattle, fruits and vegetables, timber and bamboo and their derivatives. They all contributed with information, human and logistical capacity, and in-depth knowledge on their sub-sectors.

The AVA project (Adaptation, Vulnerability and Agriculture) resulted in a complex model for the six crops, five departments and 99 municipalities involved. This robust analysis is now being used for other regions and further development of adaptation models for the agricultural sector. The AVA methodology was scaled up, refined and used in other regions of the country through a cooperation agreement between CIAT and the Ministry of Agriculture. (For more information see Inside Story *Analysing vulnerability: A multi-dimensional approach from Colombia's Upper Cauca River basin*[24] and web platform www.ava-cdkn.co.)[25]

23 UNDP (2017). *Human Development Index (HDI)*. New York: United Nations Development Programme (http://hdr.undp.org/en/content/human-development-index-hdi).

24 Peterson, C., A. Nowak, A. Jarvis, C. Navarrete, A. Figueroa, N. Riano and J. Vargas (2012). *Analysing vulnerability: A multi-dimensional approach from Colombia's Upper Cauca River basin*. London: CDKN (www.cdkn.org/resource/analysing-vulnerability-a-multi-dimensional-approach-from-colombias-upper-cauca-river-basin).

25 AVA-CDKN (2017). 'Agricultura, Vulnerabilidad y Adaptación'. Colombia: AVA-CDKN (www.ava-cdkn.co).

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CHAPTER 7

Connecting national to global ambition

Introduction

Climate change is a global market failure – and a global public goods issue. Historic and current emissions produced by any country may affect the climate anywhere in the world, so climate change should both influence international relations and inform national debate.

> ***"The impact of climate change is posing a growing challenge to peace and stability. That is why we need a new culture of international cooperation: affected states need to be involved at an early stage, and state resilience needs to become a leitmotif of foreign policy."***
> – Frank-Walter Steinmeier, German Foreign Minister, 2005–2009; 2013–2017[1]

In December 2015 in Paris, 195 countries reached agreement on how to halt dangerous climate change, for the first time. They secured an ambitious long-term goal, universal commitments, regular review, and a raft of necessary instruments, including finance for both mitigation and adaptation. The Paris Agreement frames future economic development pathways for the least developed and most climate-vulnerable countries as an element of the Sustainable Development Goals (SDGs). It is intended to increase the flow of additional public and private finance for vulnerable countries for both low-carbon and climate-resilient investments. Ambition, including the pathway towards a possible 1.5-degree limit and five-yearly reviews, will be played out through the national climate plans: the NDCs.

A top-down, bottom-up approach works

Paris was a 'bottom-up' based treaty: the NDCs now need to be integrated into national policies and implemented. Several of the Least Developed Countries and Small Island Developing States acted as 'lighthouse' countries by presenting ambitious (I)NDCs that aim to demonstrate the economic and social benefits of implementation. Ethiopia has set a target to reduce emissions by 64% versus what its 2030 'business as usual' levels would be, while the Republic of the Marshall Islands pledges to reduce emissions by 32% below 2010 levels by 2025. These are some of very few INDCs that

1 Frank-Walter Steinmeier is President of the Republic of Germany at time of writing in March 2017.

were rated as 'sufficient' in making a fair contribution to staying below 2°C warming (Climate Action Tracker).[2]

When governments gathered in Rabat, Morocco in October 2015 to review the aggregate effect of all submitted INDCs, a consensus prevailed that the INDC process has sown the seeds for greater action in the future. In the best cases, the INDC preparation process has led to a diverse set of domestic actors engaging with the climate change agenda: strengthening the institutional and political architecture around climate change; increasing the potential for cooperation to deliver action either through the market or other means of implementation; and affirming that governments can apply robust climate science to national policy-making.[3]

Integration comes next. NDCs have – in many cases – been a powerful tool for engaging all ministries across government and all sectors of society. This had been important for building strong domestic support for climate change nationally, which in turn itself is an important foundation for international diplomatic efforts.

INDC processes set up governments for the current delivery phase. Countries took a range of approaches to preparing their INDCs. As the UNFCCC did not define a precise template for countries' submissions, countries were free to use the methods and metrics of their choice to make climate mitigation pledges.[4] Adaptation commitments were not required, although a large number of developing country governments chose to include these.

Once the Paris Agreement was signed and countries' 'intended' contributions were expected to become 'implemented', the ease with which national governments have managed to move forward their commitments depends in large part on the degree of domestic buy-in they were able to cultivate before the Paris Summit. For those national governments that engaged in deeper, consultative processes in society to set national climate targets, the foundation stones for implementation can be considered to have been 'well laid';[5] it is also fair to say that in some countries, the Paris Summit followed some years of domestic

2 Climate Action Tracker (2017). 'Climate Action Tracker.' Berlin: Climate Action Tracker (www.climateactiontracker.org).

3 Sura, K. (2015). 'Bridging the gap: INDCs fail to deliver sufficient ambition.' London: Climate and Development Knowledge Network (www.cdkn.org/2015/10/opinion-bridging-the-gap-indcs-fail-to-deliver-sufficient-ambition).

4 CDKN (2015). 'Resource guide helps least developed countries navigate Intended Nationally Determined Contributions'. London: CDKN (www.cdkn.org/resource/resource-guide-helps-least-developed-countries-navigate-intended-nationally-determined-contributions-indcs). See also www.cdkn.org/indc

5 Dodwell, C., E. Holdaway, K. Sura and H. Picot (2015). *Supporting ambitious Intended Nationally Determined Contributions: Lessons learned from developing countries*. London: CDKN (www.cdkn.org/resource/supporting-indcs-lessons-learned).

strategy development, public consultation and legislative process to integrate climate resilience and low-carbon approaches in development – the Paris Agreement simply gave further momentum to an ongoing process. Such was the case in Kenya, for example, whose Climate Change Act had been long deliberated and was signed into law five months after the Paris summit (see Chapter 5).[6]

In other countries, the relatively short time granted by the UNFCCC for INDC submission meant that the process for preparing the national commitment was rushed, and perhaps included less consultation, both inside and outside government. In such cases, governments have a steeper hill to climb in terms of building constituencies of support for the NDC, after Paris.

The vagaries of domestic politics also inevitably play a role in how quickly and how deeply the NDCs pledged in Paris are acted upon: some countries faced domestic elections right after the Paris Agreement and the degree of political support for climate action cannot be guaranteed from one administration to another. Such was the case, for instance, in Peru, where elections in early 2016 led to a complete change in administration and farewell to the team in the Environment Ministry that had led COP20 and acted as 'midwives' to the Paris process. Strong domestic capacity amongst NGOs, think tanks and other programmes, much of it embedded through the Plan CC (Peruvian Climate Change Mitigation Plan), has enabled much of the learning, analysis and commitment to transfer into the policies and plans of the new government.[7]

Self-interest drives countries' national climate ambitions

For the more progressive and ambitious developing countries, INDCs arguably provided an important vehicle for showcasing their plans for low-carbon and climate-resilient growth – for demonstrating leadership on the global stage. However, climate ambition at national level is often a result of national self-interest rather than because of any global concerns or pressure. The actions China is taking to tackle the impacts of climate change are driven purely by national interest: tackling chronic pollution on the one hand, developing new markets in renewables, for instance, on the other. The actions taken, however, have a positive global impact and strengthen China's negotiating position.

6 Kamau, M. (2016). 'After Paris: "Going from intended to implemented, that is the question"'. London, CDKN (www.cdkn.org/2016/03/opinion-after-paris-going-from-intended-to-implemented-that-is-the-question-says-margaret-kamau-kenya).

7 Bickersteth, B. and M. Dupar (2016). 'After Paris: Developing countries look first to their own resources.' London: CDKN (www.cdkn.org/2016/04/opinion-paris-developing-countries-look-first-resources-deliver-agreement). See also CDKN (2017). *Plan CC: Tackling climate change in Peru*. London: CDKN (www.cdkn.org/2017/02/film-plan-cc).

In Mexico, climate change advocates in government exploited the global attention they received in 2010 (through hosting COP16) to pursue ambitious national climate targets. Peru used the same opportunity in 2014 (COP20) to stimulate national debate. Ethiopia, an energy-deficient country, is ambitious in its plans to be carbon neutral by 2025 and is using climate change as a trigger to leverage international attention and finance.[8] This two-way approach pays dividends.

What it will take for NDC implementation: capacity, finance, data

When it comes to implementing the bottom-up pledges of the Paris Agreement, the initial signs for G20 economies are positive. PwC's Low Carbon Economy Index found in late 2016 that major economies are decarbonising at 2.8% per year – the highest rate since 2000, more than double the business-as-usual average.[9]

For developing countries, including the least developed, the progress on initiating, implementing and mainstreaming the Paris Agreement pledges in national economic development is less clear. Where CDKN works, we have observed that significant enablers for NDC implementation are capacity building, data and finance.

Many countries lack enough staff, or enough skills training, across both public and private sector to make the necessary changes. Data gaps and data availability hampered developing countries' INDC preparations and could now stymie accelerated progress toward meeting adaptation and mitigation goals, too.

Few NDCs can be regarded as investment-ready yet. The current pipeline of finance-ready projects is often a result of earlier development work and not necessarily transformational enough to achieve a real paradigm shift in infrastructure investments towards low-emission and climate-resilient options. For developing countries, transformative NDC implementation will only materialise when the requisite financial and capacity support is in place. Securing this support from donors and other investors over the long term is the priority ahead.

8 Redda, R. and R. Roland (2016). *Becoming a climate-resilient green economy – Planning for climate compatible development in Ethiopia*. London: CDKN (www.cdkn.org/resource/becoming-climate-resilient-green-economy-planning-climate-compatible-development-ethiopia).

9 PwC (2016). 'The Low Carbon Economy Index 2016.' London: PricewaterhouseCoopers (www.pwc.co.uk/services/sustainability-climate-change/insights/low-carbon-economy-index.html).

Capacity remains an issue, however, especially for developing countries. Going forward, these countries will require substantial international support to implement their contributions in the form of finance, technology transfer and capacity building. It is widely accepted that the climate finance target agreed by Parties to the UNFCCC in 2009 – to deliver US$100 billion per year by 2020 – is a drop in the ocean compared to the financing that will be required to deliver the energy transformation needed to put us on a 2°C pathway. Innovative and alternative sources of climate finance will be required to meet this investment gap.

The initial NDCs are just the beginning of a cycle of increasing ambition

The Paris summit provided limited clarity and guidance on the preparation of emissions reductions pledges beyond what the INDCs (with their variable levels of national ambition, quality of analysis and data, and political and economic realism) in the future or on the accounting and reporting mechanisms. Countries agreed in Paris to review targets and 'ratchet' them up to higher levels of ambition every five years.

Most of the NDCs to date have set out the 'low-hanging fruit' – the easier to achieve emissions reductions opportunities. A large agenda is in front of the UNFCCC and the negotiators to gain greater clarity on data requirements, accounting, format and time frames for future rounds of INDC pledges that may help to unlock greater action.

In subsequent five-year cycles towards 2030, ramping up ambition effectively will be a really challenging process. Steps to establish mid-century or long-term pathways to decarbonisation are being taken amongst larger emitters and industrialised economies such as France.

Technical and financial support will not only be needed to assist developing countries to implement low-carbon and climate-resilient investments and enable the enhanced ambition. Knowledge and financial transfer may also be needed (not just North–South but also South–South) to assist developing country governments to roll back polluting policies such as fossil fuel subsidies. As Kiran Sura highlights in her article on the aggregate effect of INDCs, phasing out of fossil fuel subsidies (what the IMF calls the "$5.3 trillion energy subsidy problem") would contribute greatly to closing the 'emissions gap'.[10]

10 Sura, K. (2015). 'Bridging the gap – INDCs fail to deliver sufficient ambition.' London: CDKN (www.cdkn.org/2015/10/opinion-bridging-the-gap-indcs-fail-to-deliver-sufficient-ambition).

"The system of INDC pledges and revisions will evolve. The first round of INDCs will be a confidence-building exercise, keeping everyone on board and with time, I imagine in subsequent periods parties will exert peer pressure on each other [to revise their contributions upwards]. While this is not sufficient, it definitely sets us in the right direction.

"The regime we are building is in many ways an incentive, it's a bottom-up process. It's a representation of countries' own contributions, fully taking into account their political realities. That's already an incentive for parties to implement [them]."

– Giza Gaspar Martins, former Chair of the Least Developed Countries Group of Negotiators, UNFCCC, September 2015

Domestic legislation and an enhanced role for legislators are key

There is a correlation between strong domestic climate change legislation and international ambition at the UNFCCC. Although the factors that determine a country's negotiating position are complex, domestic climate change legislation has a positive influence.

National climate change legislation is not just something that should underpin an international agreement, rather it helps create the political space for a deal.

Climate legislation is spreading: the GLOBE Climate Legislation Study charts legislation in 66 countries in its 2014 edition, double the number in the previous year's edition.[11] CDKN argues that governments should:

- support international processes for engaging legislators, to help inform the development of climate change legislation, promote good practice and develop peer groups;
- routinely engage with legislators before, during and after the annual UNFCCC meetings (as a minimum) to exchange views and build common understanding; and

11 Nachmany, M., S. Fankhauser, T. Townshend, M. Collins, T. Landesman, A. Matthews, C. Pavese, K. Rietig, P. Schleifer and J. Setzer (2014). *The GLOBE climate legislation study: A review of climate change legislation in 66 Countries.* London: London School of Economics, Grantham Institute (www.lse.ac.uk/GranthamInstitute/wp-content/uploads/2014/03/Globe2014.pdf).

- encourage the creation of cross-party parliamentary groups on climate change, supported with policy and analytical capacity.

The INDCs are going through different domestic processes of national level endorsement but have provided a significant boost to parliamentary engagement in climate legislation. The current ratification process in each country is an opportunity to engage a wide cross section of policy-makers, public opinion and legislators around climate goals. Kenya's Climate Change Bill was approved in May 2016, paving the way for new institutional arrangements to manage climate change, and other countries including Peru are taking legislation forward.

> ***"Domestic legislation on climate is the absolutely critical, essential linchpin between action at the national level and international agreements."***
> – Christiana Figueres, Former Executive Secretary of the UNFCCC, speaking at the 1st GLOBE Climate Legislation Summit, London, 14 January 2013

Moral leaders have made the ethical case for action

Calls for ambitious global action came from somewhat unexpected sources during the run-up to the Paris Summit, as leaders of the Catholic Church and the world's Muslim communities articulated the moral case for action on climate change. The adoption of climate action as a mainstream concern by religious leaders signals an important shift for global public opinion, which supports implementation efforts in the wake of the Paris Agreement.

In his Papal encyclical on the environment, Pope Francis warned of "serious consequences for all of us" if humanity fails to act on climate change and pointed to the "very consistent scientific consensus" that human behaviour is contributing to dangerous levels of warming.[12]

He also took aim at the weakness of collective political responses to date, saying: "It is remarkable how weak international political responses have been.

12 Pope Francis (2015). 'Encyclical letter laudato si' of the Holy Father Francis on care for our common home.' Vatican City: The Holy See (w2.vatican.va/content/francesco/en/encyclicals/documents/papa-francesco_20150524_enciclica-laudato-si.html).

The failure of global summits on the environment make it plain that our politics are subject to technology and finance. There are too many special interests, and economic interests easily end up trumping the common good and manipulating information so that their own plans will not be affected."

He cast the entire challenge as one of global justice, where the 'common home' of the world's people has been degraded to a 'pile of filth' and the world's rich have created an immense 'social debt' to the world's poor.[13]

These outspoken words have deep implications for the world's 1.2 billion Catholic faithful, most of whom live in developing countries. The papal guidance "plays an important role in society and in generating public opinion particularly in Latin America and the Caribbean where most of the population is considered Catholic, to a greater or lesser degree. Brazil, for example, is the country with the largest number of Catholics (139.5 million people)," said Maria Jose Pacha, CDKN's knowledge management coordinator in the region. It is more likely, now, she said, that "priests and bishops of the Catholic Church may also be agents of change to the faithful, aware that our common home care is everyone's responsibility."

An Islamic Declaration on Climate Change could cause an equivalent change among the world's Muslim communities, according to CDKN's senior advisor for Indonesia, Mochamad Indrawan.[14] The declaration, signed in Istanbul in August 2015, encourages political leaders throughout the Muslim world to take a more proactive stance in tackling the challenges of climate change and even goes so far as to propose that oil-producing countries should curb fossil fuel extraction by 2050.

Writing in partnership with Fachruddin Majeri Mangunjaya, vice chairman of the Centre for Islamic Studies, Universitas Nasional, Indonesia, Indrawan says that this kind of religious guidance may be the tonic that is required to shift unsustainable behaviour at the grassroots level – where government regulation alone could not reach. "For instance, the predominantly Muslim Riau province is continuously threatened by forest fire and smoke that spreads to other provinces and even to neighbouring countries," they write. "Extraordinary advocacy, including from the *ulemas* or Muslim scholars, will be needed to stem this kind of unsustainable practice; for instance, from the Indonesian Council of Ulemas and targeted towards governments at national and local levels. In this context, the Declaration may be used as an effective campaign tool."

13 Kirchgaessner, S. (2015). 'Pope's climate change encyclical tells rich nations: pay your debt to the poor'. London: Guardian (www.theguardian.com/world/2015/jun/18/popes-climate-change-encyclical-calls-on-rich-nations-to-pay-social-debt).

14 Islamic Climate Change Symposium (2015). 'Islamic Declaration on Global Climate Change.' Istanbul: International Islamic Climate Change Symposium (www.islamicclimatedeclaration.org/islamic-declaration-on-global-climate-change).

Non-state actors play a critical role in the implementation of the Paris Agreement

As noted above, non-state actors have a fundamental role to play in creating the political momentum for global, collective ambition on climate change. Coalitions of civil society organisations – backed by tens of millions of individuals – mobilised in the run-up to the ultimately disappointing COP19 in Copenhagen in 2009. That the upswell of citizen demand for climate action ultimately failed to deliver a meaningful deal in Copenhagen is perhaps a sign that civil society mobilisation alone (although necessary) is not sufficient for ambitious outcomes.

When the Copenhagen meeting failed to deliver a 'FAB' (fair, ambitious, binding) global deal to succeed the first commitment period of the Kyoto Protocol, international climate activism took a back seat in global media headlines (although anyone who has subscribed to the massive online movements 38 Degrees and Avaaz.org will know that the citizen movement kept its vitality during these years and was simmering in the background). A gathering of international climate diplomats, policy advisors to climate negotiators and opinion leaders met in late 2012 to debate what it would take to deliver an ambitious global deal in Paris in 2015.[15] Several speakers concluded that civil society pressure had tailed off, perhaps as a side effect of the global financial crisis; a constant refrain in the room was: "Why is civil society so quiet and muted since Copenhagen?" However, as the watershed year 2015 approached and unfolded, the drumbeat of civil society demand for global climate ambition gradually got louder. Two weeks before COP21, a popular concert and rally, '24 hours of reality and live earth', were staged across multiple continents and time zones; it highlighted the millions of petition signatures calling for political leadership on climate change and the millions of citizen actions taken to curb greenhouse gas emissions.[16] It was a statement, once more, from NGOs and individuals to politicians and negotiators: we want global ambition.

Just as non-state actors were critical to achievement of the Paris outcome, their role will be critical in the achievement of the Paris temperature goals. Non-state actors, mayors, business leaders and ordinary citizens did much to convince political leaders to agree in Paris and to drive the subsequent rapid ratification. Now that the agreement is in place they can do much to sustain the momentum and they are already mobilising at city and sub-national levels to

15 CDKN (2012). 'Join in the dialogue on whether global climate consensus can save the planet via our webcast'. London: CDKN (www.cdkn.org/2012/10/can-global-climate-consensus-save-the-planet).

16 Climate Reality Project (2016). '24 hours of reality.' Washington DC: Climate Reality Project (www.24hoursofreality.org).

prevent backsliding on the agreement as the global political environment shifts. Coalitions such as *Under2* led from the State of California and now including 167 subnational governments and cities (encompassing 1 billion people), and business alliances such as 'We Mean Business' (including 680 companies and investors with combined revenue of $8.1 trillion) are leading the way in pushing for implementation.

Even if we consider the emissions gap that must be closed between countries' climate mitigation pledges and the further cuts needed to limit warming to 2 degrees – let alone the aspiration of limiting to 1.5 degrees of warming – ambitious leadership and action is needed by non-state actors. "Non-state actors (the private sector, cities, regions and other subnational actors like citizen groups) can cut several gigatonnes off the gap by 2030 in areas such as agriculture and transport, provided the many initiatives meet their goals and do not replace other action," said the United Nations Environment Programme (UNEP) on the launch of its Emissions Gap Report 2016.[17]

The Global Commission on the Economy and Climate has also highlighted how international partnerships and cooperation could help to catalyse emissions reductions while simultaneously delivering economic growth – 'better growth'.[18]

Some of the Global Commission's report's recommendations around cities, infrastructure, agriculture, forestry, and clean and efficient energy have been captured in submitted NDCs. But official governmental pledges may not have captured all the potential action from non-state actors or from multi-stakeholder partnerships among government and non-governmental actors such as the business and investor communities. National government pledges also tend to omit the emissions reduction potential in the maritime or aviation sectors, which have until now been very difficult to attribute to territories.

Least developed countries' voices must continue to be heard

Throughout much of this period, many developing countries have been doubly disadvantaged – suffering some of the worst effects of climate change, they

17 UNEP (2016). 'World must urgently up action to cut a further 25% from predicted 2030 emissions, says UN Environment report.' Nairobi: United Nations Environment Programme (web.unep.org/newscentre/world-must-urgently-action-cut-further-25-predicted-2030-emissions-says-un-environment-report).

18 The Global Commission on the Economy and Climate (2015). *Seizing the global opportunity – partnerships for better growth and a better climate: The 2015 New Climate Economy report*. Washington DC: The Global Commission on the Economy and Climate (http://newclimateeconomy.report/2015).

have also had the least capacity to negotiate effectively to secure a sustainable solution. Typically arriving in small numbers for UN meetings, they were unable to prepare as effectively as their more developed counterparts and their voice was rarely influential.

Over the past decade, various donor agencies and private foundations and funders have provided assistance to these countries to try to redress this imbalance. These negotiation-support projects have ranged from providing financial support to enable delegations to attend negotiations, to building their technical capacity to help them develop negotiating strategies and influence final agreements.

In 2011, the UK's Department for International Development (DFID) responded by appointing CDKN to manage the Climate Advocacy Fund, which aims to enhance the capability of negotiators from the least developed, small island and African nations. Since then, CDKN has supported the wider climate diplomacy efforts of these groups and countries providing training provision, strategy development, research, and media advice – and matched up sub-contracted innovators, researchers, lawyers and facilitators working with the developing country negotiators. In Paris and the preceding UNFCCC negotiations, backed by effective teams and clear strategies, the Least Developed Countries, the Small Island Developing States and the African Group of Negotiators emerged strongly. Previous Least Developed Country (LDC) Group Chairs Giza Martins (from Angola) and Pa Ousman Jarju (from Gambia) and Foreign Minister of the Marshall Islands, Tony de Brum, played key roles in shaping the text, bridging differences between Parties and informing the media. Minister de Brum in particular stood out in his role as a leader of the High Ambition Coalition that emerged in Paris and led to the game-changing result of keeping the pathway towards a 1.5 degree limit with ratcheting five-yearly reviews.

CDKN's first tranche of support for climate negotiators focused on strengthening delegations, primarily by providing financial support to enable delegates to attend negotiations. More recent support has placed a greater emphasis on building capacity through three drivers of influence:

1. strengthening delegations;
2. developing negotiation strategies; and
3. sharing in and shaping international negotiations.[19]

19 CDKN (2015). *CDKN annual report 2015: Climate compatible development – delivering results*. London: CDKN (www.cdkn.org/resource/cdkn-annual-report-2015-climate-compatible-development-delivering-results).

This is formally done through support programmes to the Alliance of Small Island States (AOSIS), LDC Group and the African Group of Negotiators (AGN)[20] from CDKN and other donors, and also through a variety of NGOs and their networks, including the International Institute for Environment and Development and the Climate Action Network.

CDKN has supported these negotiation efforts by enabling specific areas of support, including climate finance advice and an award-winning legal advice resource, the 'Legal Response Initiative' (LRI), which utilises 150 pro-bono lawyers specialising in international law. It was awarded 'Best education or campaign initiative' at the UK Climate Week Awards in 2014.[21]

Engaging the media is also vital for effective climate diplomacy. Climate diplomats require appropriate communication skills to engage effectively with the media. Another area of support, therefore, lies in enabling developing countries to build the case for action at national, regional and international levels.

> ***"One of my goals upon becoming Secretary of State was to take diplomacy out of capitals, out of government offices, into the media, into the streets of countries."***
> – Hillary Clinton, former US Secretary of State; Democratic Presidential candidate, 2015

Developing countries have used this wide range of support offered by CDKN and others to raise their collective voice and demand climate justice.

20 For more information on these respective negotiations groups, please visit www.aosis.org; ldcclimate.wordpress.com/about-the-ldc-group and www.uneca.org/climatechangenegotiations/pages/climate-change-negotiations

21 Dupar M. and N. Schweimler (2014). 'News: Legal Response Initiative (LRI) wins Climate Week Award'. London: CDKN (www.cdkn.org/2014/03/news-legal-response-initiative-shortlisted-for-climate-week-awards).

Box 1

Progressive political alliances can drive higher global ambition

A report by Louise van Schaik used international relations theory to analyse the EU's alliance with groups of developing countries in December 2011.[22] This alliance facilitated an agreement on the Durban Platform for Enhanced Action, which commits UNFCCC Parties to agreeing an inclusive global climate deal by 2015.

The Durban Platform was negotiated during all-night discussions at the end of the meeting, which prevented the climate negotiations from falling apart. The roadmap was agreed largely because the EU was able to form an alliance with AOSIS and the LDC groups, as well as other members of the Cartagena Dialogue (a gathering of 45 nations committed to progressive outcomes in the negotiations). The strength of this alliance made it more difficult for China and India, among others, to dissent.

Box 2

Effective support to climate negotiators from least developed countries addresses multiple drivers of change

Negotiation support projects target three broad areas to enhance the participation and influence of the poorest and most vulnerable countries in multilateral climate negotiations:

- Projects strengthen delegations by providing financial assistance to enable the poorest and most vulnerable countries to send representatives to negotiations, and by supporting activities that enhance their negotiating and technical skills.
- They help these countries to develop strategies, including clear national positions, to enable them to articulate their interests in negotiations.

22 van Schaik, L. (2012). *The EU and the progressive alliance negotiating in Durban: Saving the climate?* London: CDKN and Overseas Development Institute (www.cdkn.org/resource/the-eu-and-the-progressive-alliance-negotiating-in-durban-saving-the-climate).

- They help the poorest and most vulnerable countries to shape international negotiations by identifying opportunities for collective action where there is common ground, and equipping negotiators with the skills to set and influence agendas in negotiations.

All three drivers interact against a set of external factors that can be unpredictable and difficult to influence. These include the countries' relative economic and geopolitical power and the degree of national support for addressing the issues under negotiation.

A CDKN study, *Supporting international climate negotiators,*[23] assessed the different forms of support to LDC negotiators and found that those deemed 'successful' by recipients of assistance, had in common the following features:

- The projects addressed a combination of the drivers of influence, confirming that negotiations support has moved beyond just assisting delegates to attend the negotiations.
- Recent projects place greater emphasis on developing national positions on priority technical issues, and on increasing power and influence through building alliances with other nations. Comparatively fewer case studies focused on shaping the agenda of negotiations.

One critical element of least developed and climate vulnerable countries' concerns is that of climate-related loss and damage: which pertains to damages suffered as a result of climate change impacts, which cannot be avoided by climate change adaptation and mitigation measures.

The surge in political attention to loss and damage led to the agreement at COP19 (2013) of the 'Warsaw international mechanism for loss and damage associated with climate change impacts'. The controversial nature of the topic is indicative of the significant implications in global climate change negotiations. It is evident, therefore, that a better understanding of approaches to address loss and damage is required. Policy-makers will need to explore, develop and implement comprehensive frameworks that address risk reduction, risk transfer such as insurance, and risk retention such as contingency funds and social safety nets.

23 Hamza-Goodacre, D., S. Jefford and N. Simister (2013). *Supporting international climate negotiators: A monitoring and evaluation framework*. London: CDKN (www.cdkn.org/resource/supporting-international-climate-negotiators-a-monitoring-and-evaluation-framework).

Box 3

The evidence base on climate-related loss and damage is growing

CDKN has been working with research teams from Bangladesh and elsewhere to provide better knowledge about the nature of loss and damage and to develop assessment methodologies. An example is the district of Satkhira in coastal Bangladesh, which is vulnerable to both sea level rise and cyclones. Both can increase salinisation, which has significant implications for rice cultivation, the mainstay of the local economy and staple of the local diet. Residents of four villages in Satkhira reported rising salinity levels on the land they farm in the last two decades. To adapt to salinisation, many of the farmers planted new saline-tolerant rice varieties, which was successful until the arrival of cyclone Aila in 2009. The cyclone caused a further and dramatic increase in soil salinity; as a consequence, the value of national rice production loss between 2009 and 2011 was US$1.9 million. More case studies and reports are available on www.lossanddamage.net.[24]

Climate diplomacy is a potent mix of climate and foreign policy

Climate diplomacy has the potential to advance multilateral action on climate change, inside and outside of the UNFCCC process. Successful climate diplomacy starts by gaining support from key national stakeholders – states are recognising how climate action serves their own and other countries' core interests and are using that insight to underpin diplomatic engagement.

Governments that see this diplomacy as a way of securing national-level benefits are also more likely to promote progressive outcomes in the UNFCCC itself. Least developed and most climate-vulnerable nations, such as the Marshall Islands (which has placed climate change at the heart of its foreign policy) are now using climate diplomacy on the international stage.

COP21 was the culmination of years of diplomatic engagement on climate change, taken up by France, Peru as the president of COP20 and various other

24 A CDKN film on climate change and migration in Bangladesh also highlights some of the saltwater intrusion and crop productivity losses highlighted in this box. See CDKN (2014). *Living on the go – Climate change and migration in Bangladesh* (film). London: CDKN (www.cdkn.org/2014/06/film-climate-change-and-migration-in-bangladesh-living-on-the-go).

actors. The Cartagena Dialogue and various multi-stakeholder fora contributed to facilitate climate diplomacy. At COP21 the High Ambition Coalition appeared and played a key role in retaining the ambition for a 1.5 degree limit in warming. The Agreement followed almost 20 years of complex and at times acrimonious negotiations. As Simon Maxwell wrote at the time:

> "In the end, the diplomatic process has fulfilled its principal function, bringing all countries together in shared recognition that 'something must be done'. … [The] process has created a platform and incentivised change in the real world. That is a real success."[25]

Special Climate Envoy of the Gambia, Minister Pa Ousman Jarju spent the last few years engaging with diplomatic partners around the world and has argued that the success of any agreement reached in Paris would be judged on its response to the needs of the most vulnerable. He believes that the Paris Agreement has enshrined three issues of great importance to the world's least developed countries (LDCs).[26]

First, nations will pursue efforts to limit temperature increase to 1.5 degrees Celsius. Scientists indicate that an average global temperature rise that exceeds this limit will drastically impact the lives and livelihoods of the nearly 1 billion people living in the LDCs, as well as those living in small island developing states. Agreeing to a 1.5 degree threshold sets the parameters for a world that gives the LDCs the best possible chance at a sustainable future.

Second, the Paris Agreement also commits the world to averting, minimising and addressing the permanent losses and damage associated with the adverse effects of climate change.

Third, nations have recognised the specific needs and special situations of the LDCs. The preamble of the Paris Agreement acknowledges the specific funding and technology transfer needs of the LDCs, and its Articles, specifically those relating to capacity building and transparency, further elaborate them.

CDKN works with this interface between national interest and international cooperation. Kiran Sura and Nadia Schweimler have put forward a three-point plan for making the most of climate diplomacy's potential to maximise national and international responses to climate change – especially for LDCs:

25 Maxwell, S. (2015). 'Advice for negotiators at COP21: Get it done and let's get back to work.' Washington DC: Devex (www.devex.com/news/advice-for-negotiators-at-cop21-get-it-done-and-let-s-get-back-to-work-87352).

26 Jarju, P. O. (2016). *A diplomatic approach to raising climate ambition*. London: CDKN (www.cdkn.org/2016/02/opinion-a-diplomatic-approach-to-raising-climate-ambition-pa-ousman-jarju).

- Raise awareness on the home front of how climate action serves the national interest – how deep cuts in greenhouse gas emissions by large emitting nations, and efforts to build resilience by the poorest, are critical for citizens' wellbeing and survival.
- Understand how foreign governments can see action on climate change as being in the national interest and develop ways to deploy these arguments in a diplomatic context.
- Train the diplomatic corps of LDCs on key climate issues and educate climate experts to communicate in accessible ways.[27]

The world is ready for a new climate change narrative

2015 was about ambition and setting a pathway, and from 2016 on, it is about the hard reality of integrating climate change into national priorities of economic growth, employment, and poverty reduction by working across sectors and different levels of government while addressing the many challenges of political economy. Much is underway and building blocks are being put in place in many countries as they normalise climate change into the business of government and private enterprise. However, there is much yet to do to deliver transformative change at the scale and speed that is required or even as stated within the NDCs.

Two narratives that have been dominant in the past are now out of date. Pa Ousman Jarju, the Minister of Environment of the Gambia and the first LDC climate envoy (see p. 174), has said categorically, "There are better stories to tell. The first, out of date narrative focused heavily on the LDCs' extreme vulnerability rather than the actions they undertake to confront climate change. That all changed in 2011 when we adopted a new strategy: 'victims becoming heroes'."[28] According to the former chair of the LDC Group, Giza Gaspar Martins of Angola, it is no longer 'after you', but 'follow us'. The LDCs take climate action seriously. They are willing to contribute their share to move others forward, provided this does not undermine their efforts towards poverty eradication and sustainable development. Together, the LDCs and AOSIS, along with vulnerable African countries, have a strong moral voice which is adding momentum to the global response to climate change.

27 Sura, K. and N. Schweimler (2013). *Revealing the potential of climate diplomacy to boost poor countries' interests*. London: CDKN (www.cdkn.org/resource/revealing-the-potential-of-climate-diplomacy-to-boost-poor-countries-interests).

28 Jarju, P. O. (2014). 'Climate action – Diplomats' discussions yield four themes for 2014.' London: CDKN (www.cdkn.org/2014/06/opinion-climate-action-diplomats-discussions-yield-four-themes-for-2014).

The second old narrative says that action to address climate change is too expensive. The 2014 and 2015 reports of the Global Commission on the Economy and Climate demonstrate that the economic benefits of acting on climate change will outweigh the costs, even in the short and medium terms. On one side investment in renewable energy and green bonds is at record levels, and on the other side businesses are increasingly taking into account the cost of building resilience to climate change, as the G20 Task Force in Climate Related Financial Disclosures is demonstrating.[29]

Sustainable economic development that provides jobs, growth and trade in the context of a globalised economy will inevitably have to take into account climate change. As CDKN's Simon Maxwell writes, action on the scale required to tackle climate change requires a new industrial revolution, touching all countries.[30] This is the new narrative in which economies are greened and climate change is integrated into the mainstream, both public and private. Businesses are already taking climate action and the SDGs seriously as they assess the risks and realise opportunities.

New technologies, investments, financial instruments and industry initiatives are multiplying, often alongside governments who are providing support, policy and legal frameworks. But there are likely to be losers as well as winners in society from the disruption and innovation associated with climate action. For all these reasons, public policy shaped and connected nationally and internationally with strong multi-stakeholder processes can help deliver sustainable results.[31] By working together at national, regional and global levels we will all reap the benefits.

> ***"What was once unthinkable has become unstoppable."***
> – Ban-ki Moon, Secretary General of the United Nations, referring to climate change action in a press conference before the United Nations climate conference in Morocco, November 2016.

29 Financial Stability Board (2017). 'Task Force on Climate Related Financial Disclosures.' Basel: Financial Stability Board (https://www.fsb-tcfd.org; see also www.fsb.org).

30 Maxwell, S. (2017). *After Paris: Can the private sector deliver climate compatible development?* London: CDKN (www.cdkn.org/resource/opinion-can-private-sector-deliver-climate-compatible-development).

31 Ibid.

Glossary

AGN	African Group of Negotiators – a UNFCCC climate negotiations group
AOSIS	Alliance of Small Island States – a UNFCCC climate negotiations group
COP	Conference of the Parties – used in association with the UNFCCC in this context
GCF	Green Climate Fund
INDCs	Intended Nationally Determined Contributions – submitted to the UNFCCC by Parties in 2015
LDC	least developed countries
LDC Group	Least Developed Countries' Group – a UNFCCC climate negotiations group
NDCs	Nationally Determined Contributions – submitted to the UNFCCC by Parties after the conclusion of the Paris Agreement in December 2015
NGOs	non-governmental organisations
SDGs	Sustainable Development Goals
UNFCCC	United Nations Framework Convention on Climate Change

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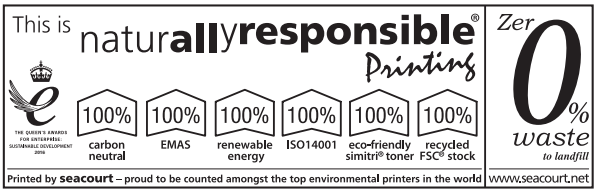

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