

Exploring Trends in Low-Carbon, Climate-Resilient Development

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Executive Summary

In recent years, the concept of low-carbon, climate-resilient development (LCCRD) has emerged as a key way of framing policy and action to address climate change, capturing the need for mitigation and adaptation efforts to be fully integrated into development planning and implementation. Climate policy solutions that seek to complement sustainable development objectives are increasingly bringing people together to leverage scarce financial and human resources and attracting partners that historically have not been actively engaged in contributing to climate solutions. The opportunities for LCCRD policies to jointly contribute to achieving the social, economic and climate change goals of many developing countries are substantial and should be more effectively captured moving forward.

Yet despite considerable mobilization, the scope of the climate challenge still far outweighs the level of effort and investment being made in solutions. A number of critical barriers remain, both conceptually and practically, to scaling up actions that support LCCRD. To overcome these barriers, we need to better understand the various drivers of and obstacles to progress, share information and early lessons, and build capacity.

In response to those needs, this policy paper aims to better understand current shifts towards LCCRD and the trends that are shaping this evolution. As such, this paper begins by identifying key principles and elements that contribute to current understandings of LCCRD at both the theoretical and practical levels. It then identifies two key drivers—governance and finance—that further define the broad context from which many of these LCCRD strategies are emerging. Finally, the paper analyzes several specific trends in key areas that are influencing LCCRD development, including Nationally Appropriate Mitigation Actions (NAMAs), adaptation monitoring and evaluation, and online knowledge brokering.

Through identifying the context of each trend, exploring the state of play and highlighting key lessons learned and challenges therein, a number of action points and recommendations are offered for further consideration by policy-makers. Looking across each trend, two cross-cutting recommendations emerge. First, development partners, relevant stakeholders and developing country governments should continue to support the development of LCCRD strategies where they do not already exist. These strategies have significant potential to help developing countries onto a pathway that will enable their development aspirations while actively tackling the fundamental drivers of climate change and adapting to its impacts. Second, capacity building remains a fundamental first-order need. It is critical to identify and support the creation of the necessary enabling conditions for LCCRD implementation, including through technical support and financing. An emphasis must be placed on translating plans and strategies into actions moving forward.

Recommendations related to each trend examined also emerge. On the key issues of governance and finance:

- Coordination of the disparate patchwork of governance models and approaches being applied at various levels around the world must be strengthened. Policy-makers should seek to identify opportunities for better linkages between diverse approaches while scaling up action and sharing lessons learned. Coherent LCCRD governance will better enable the achievement of the shared goals of ambitious mitigation and adaptation action in support of sustainable development.
- In future climate finance discussions, a greater focus should be placed on identifying the necessary capacity-building needs and enabling factors required for developing countries to effectively plan for, attract, establish and program various domestic and international financing flows in the implementation of priority LCCRD

activities. There is also a strong need to further embed financing tools into national LCCRD planning processes in developing countries, while encouraging developed countries to provide public support, particularly for adaptation.

Some conclusions about key areas influencing LCCRD include:

- NAMAs are of critical importance for LCCRD given the potential for strong linkages to be made to both mitigation and adaptation, and for additional developmental co-benefits to be achieved through their implementation. As learning occurs and more NAMAs are developed, the architecture under the United Nations Framework Convention for Climate Change can be further established. In the interim, there is a need to share experiences, add to the information base, build capacity and significantly scale-up financing for implementation. Making progress toward implementation is of critical importance to truly test the current process of NAMA development and planning.
- Capacity to monitor and evaluate adaptation actions can be improved by more closely aligning these efforts with existing monitoring frameworks and indicator systems being used in other fields by policy-makers, researchers and practitioners to track progress.
- Online platform and network developers need to place greater emphasis on enhancing their understanding of the needs of their anticipated users and improving the quality of existing resources, as opposed to developing new platforms and networks. Better communication and collaboration between existing networks and platforms can help avoid duplicating effort or overstressing limited capacity.

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List of Acronyms

CCAP	Center for Clean Air Policy
CDKN	Climate & Development Knowledge Network
DEFRA	Department of Environment, Food, and Rural Affairs (U.K.)
GHG	greenhouse gas
IEA	International Energy Agency
IPCC	Intergovernmental Panel on Climate Control
Gtco ₂ e	gigatonnes of carbon dioxide equivalent
LCCRD	low-carbon, climate-resilient development
LDC	least developed country
M&E	monitoring and evaluation
NAMA	Nationally Appropriate Mitigation Action
NAPA	national adaptation programs of action
OECD	Organisation for Economic Co-operation and Development
REDD+	reducing emissions from deforestation and forest degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries
SIDS	Small Island Developing States
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
WRI	World Resources Institute

Introduction

In recent years, the concept of low-carbon, climate-resilient development (LCCRD) has emerged as a key way of framing policy and action to address climate change, capturing the need for mitigation and adaptation efforts to be fully integrated into development planning and implementation. Climate policy solutions that seek to complement sustainable development objectives increasingly are bringing people together to leverage scarce financial and human resources and attracting partners that historically have not been actively engaged in contributing to climate solutions. The opportunities for LCCRD policies to jointly contribute to achieving the social, economic and climate change goals of many developing countries are substantial and should be more effectively captured moving forward.

Yet despite considerable mobilization, the scope of the climate challenge still far outweighs the level of effort and investment in solutions. A number of critical conceptual and practical barriers remain to scaling up actions that support LCCRD. To overcome these barriers, we must better understand the various drivers of and obstacles to progress, share information and early lessons, and build capacity.

In response to that need, this policy paper aims to contribute to a better understanding of current shifts in developing countries towards LCCRD by more closely considering the trends shaping this evolution. As such, this paper begins by identifying key principles and elements that help contribute to current understandings of LCCRD at both the theoretical and practical levels. It then identifies two key drivers—governance and finance—that further define the broader context from which many of these LCCRD strategies are emerging. Finally, the paper analyzes several specific trends in key areas that are influencing LCCRD development—including Nationally Appropriate Mitigation Actions (NAMAs), adaptation monitoring and evaluation, and online knowledge brokering.

Each chapter follows a similar format, setting out the context of the trend, exploring the state of play, and identifying key lessons learned and challenges therein. Each concludes by identifying action points for further consideration by policy-makers, and provides a list of sources for further in-depth analysis.

Despite key challenges around capacity, financing and scaling up, this report shows that action is indeed taking place on the ground, unprecedented amounts of financing has been committed to LCCRD actions and understanding of best practices is growing. Many of the trends highlighted in this report are likely to continue to define policy and action moving forward. They are thus important to policy-makers and practitioners in furthering knowledge and building capacity in support of the paradigm shifts necessary to truly achieve LCCRD in the future.

1.0 *The Proliferation of Strategies, Planning and Thinking about LCCRD in Developing Countries*

1.1 Context

As developing countries strive to achieve their development objectives, they must simultaneously respond to the challenges and opportunities posed by climate change. While the need to integrate climate change mitigation and adaptation into development has been recognized for about a decade, a number of efforts currently focus on implementing this goal through country-driven processes.

1.2 State of Play

The interplay between climate change mitigation and adaptation and sustainable development has been recognized and analyzed for several years now, such as in the Intergovernmental Panel on Climate Change's (IPCC) Fourth Assessment Report.¹ In recent years, though, this theoretical discussion has transitioned to operationalization of actions through LCCRD frameworks. Conceptual understanding of the need to mitigate and adapt to the impacts of climate change is increasingly being translated into national and regional planning processes.

This shift is based on the key premise that addressing climate change in the context of development is not about adaptation or mitigation, but instead a context-specific balance between the two. When taken together, there are additional benefits that can be captured and maximized, as well as trade-offs that need to be considered. This process has been driven by various factors. On one hand, many international organizations and donor countries have encouraged the development of coherent national strategies to help ensure more coherent and effective financial and technical support. On the other hand, many developing countries are becoming increasingly aware of the adverse impacts of climate change on development, perhaps most acutely for small islands states. In addition, there is a global expectation that, as economies continue to grow, so do responsibilities to address the causes of climate change. This observation is of particular relevance for major emerging economies that are also major emitters. Finally, many developing countries also recognize that significant technical, financial and policy capacity needs to be built in order to absorb existing external support and to ensure the long-term viability of LCCRD planning processes that are aligned with their needs and not exclusively donor driven.

Within this context, a LCCRD pathway generally consists of the following elements:

- **Sustainable development** – Achieving sustainable development should be at the forefront of all climate actions; development success depends on responding to the challenges posed by climate change.
- **Adaptation** – Reducing vulnerability to climate change, making sure that the impacts are avoided or cushioned, and enabling people to mitigate climate risks and move toward a climate-resilient society.
- **Mitigation** – Taking actions, where possible, to encourage a lowering of greenhouse gas (GHG) emissions relative to business-as-usual projections, and reducing the human causes of emissions by moving toward a resource-efficient economy that is as low-carbon as possible.

¹ In particular, see Chapter 4: Adaptation and mitigation options and responses, and the interrelationship with sustainable development, at global and regional levels (http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr.pdf).

While these three elements provide a broad conceptual basis, LCCRD planning and implementation have taken on a number of different forms and there is no clearly agreed-upon definition or approach to achieving LCCRD. This is understandable given that capacities, priorities and development objectives vary across countries, along with the fact that the concept has emerged from various sources over time.

Generally speaking, LCCRD can be enabled through a number of different mechanisms in developing countries:

- **Guiding national strategies and planning frameworks:** Various developing countries around the world have undertaken national LCCRD processes, often with financial and technical support from bilateral and multilateral sources. These plans take a variety of forms, including overarching economy-wide development frameworks, green growth plans, climate change action plans, low-emissions development strategies, and so forth. Such plans are underway in Antigua and Barbuda, Bahamas, Bangladesh, Belize, Brazil, China, Colombia, Costa Rica, Dominica, Ethiopia, Grenada, Guyana, India, Indonesia, Kenya, Maldives, Mexico, Nauru, the Philippines, Rwanda, Saint Lucia, Singapore, South Africa, South Korea and Vietnam, among many others.
- **Specific planning and implementation vehicles:** Several other planning and implementation vehicles have also emerged on a sector-specific or more focused basis. For example, mechanisms like NAMAs, reducing emissions from deforestation and forest degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries (REDD+), national adaptation plans or other national sector-based strategies can complement broader LCCRD aspirations. In many cases, these specific plans predate or pre-empt the establishment of a broader LCCRD framework. It is therefore not necessarily the case that a coherent LCCRD strategy is guiding action, but rather that these other planning vehicles can be leveraged or taken together in support of a country's overarching development goals. Similarly, it should not be assumed that mitigation and adaptation are addressed within each of these mechanisms. For example, there has been limited effort to look at the emissions implications of planned adaptation actions. Nonetheless, in partnership with a sector-specific mitigation plan (for example), they can help address national-level mitigation and adaptation in a more balanced way.
- **Embedding LCCRD responsibilities across various government departments and sectors:** Operationalizing linkages between adaptation and mitigation priorities is strengthened in a couple of ways. Climate change planning can be embedded in mandates across government departments, and/or coordinating units, secretariats or task forces responsible for overseeing implementation. Traditionally, climate change was the sole responsibility of the Ministry of Environment or a related ministry/department. While many coordinating bodies still struggle to achieve the level of influence required to affect significant changes, the heightened profile of the climate issue and high-level buy in from some government leaders has strengthened the role of these bodies in recent years.

1.3 Lessons Learned

Varying national approaches and priorities continue to ensure that LCCRD processes are country-specific, and thus the benefits and challenges experienced vary by country and region. Despite this diversity, a number of lessons are emerging.

Many national LCCRD policy frameworks are nascent, and there are gaps between planning and implementation.

At the country level, policy documents and plans have been developed to more clearly and pragmatically align climate change priorities with development objectives. However, in many cases these high-level strategies (be they climate change action plans, low-carbon development strategies or national adaptation plans) are either not yet fully developed, or they have not yet been coupled with effective implementation plans. Countries may therefore be missing the “hook” at the national level to guide planning and ensure the effective funnelling of financing flows toward target priority development, mitigation and/or adaptation actions.

Linking adaptation and mitigation is not easy in practice. Early experiences have highlighted the challenges associated with trying to address climate change in an integrated way. Adaptation and mitigation require different metrics, types of expertise, methods of delivery and financing tools. While LCCRD frameworks can provide a useful umbrella for guiding adaptation and mitigation action, the degree of emphasis on one versus the other will be influenced by national circumstances and differences in priority climate change interventions, capacity issues and financing needs. Additionally, many policy-makers are realizing the need to be realistic about the extent to which mitigation and adaptation can actually be linked in practice. Experience to date has demonstrated that opportunities for promoting significant synergies between mitigation and adaptation benefits can be found in a relatively limited number of sectors. These sectors include: land-use sectors such as agriculture, agroforestry, forestry and wetlands management; energy infrastructure and energy efficiency, particularly in relation to decentralized renewable energy; urban spatial planning and development, including infrastructure development; waste treatment; and water management (Illman, Halonen, Rinne, Huq, & Tveitdal, 2012; Klein, Schipper, & Dessai, 2005; Swart & Raes, 2007).

Identifying and reconciling priority actions across government ministries, the private sector and relevant stakeholders can be very difficult. Policy planning and prioritization exercises can often be highly political and challenging to undertake. Different mandates, an understanding of the issues and levels of expertise all shape the extent to which relevant actors are able to effectively participate in a national planning process. The capacity of a central government ministry to undertake a broad consultative process in the first place may also be limited in many developing countries. Nonetheless, stakeholder engagement and the sensitization of other ministries not historically engaged in climate change issues (finance, planning, infrastructure, etc.) from the outset is critical to ensuring the implementation of frameworks once developed (Organisation for Economic Co-operation and Development [OECD], 2009).

Costing of policies and actions remains challenging. As a relatively new (and complex) policy area, data availability and costing methodologies for climate change mitigation, and especially adaptation, remain weak in many developing countries—and in least developed countries (LDCs) in particular. These challenges can be even more acute when seeking to address mitigation and adaptation in a holistic manner, given the challenges of quantifying relationships, co-benefits, tradeoffs and so forth. Understanding financing needs is also a matter of recognizing the elements of national development plans and budgets that have climate change benefits but may not be counted as “climate finance” per se. This recognition can be difficult when knowledge of climate change is limited (personal communication, D. Kaluba, principal economist and national coordinator [PPCR], Ministry of Finance and National Planning, Zambia, April 29, 2013).

Many countries have limited human resources and capacity. In many developing countries (particularly LDCs and Small Island Developing States [SIDS]), there are only a small number of highly capable and qualified staff working on climate change in key government ministries, non-governmental agencies and civil society organizations. This situation exists even in cases where countries have developed climate change strategies. In addition, many developing countries have experienced a “brain drain” effect, whereby their most qualified individuals are recruited to other countries or international organizations, further limiting in-country capacity. Overcoming these barriers requires a continual effort to sensitize and educate relevant ministries and implementing partners.

There are significant benefits to pursuing LCCRD planning. Despite the numerous challenges, emerging trends show that there are also clear benefits to pursuing LCCRD planning. These may include enhancing sustainable development at the national level, improving the lives of the poor and vulnerable, reducing disaster risks, and increasing capacity and expertise (Murphy, 2012). Importantly, the development of national strategies and LCCRD frameworks is also a key lever for attracting international climate finance, leveraging private sector investment and demonstrating global leadership (Murphy, 2012).

1.4 Action Point

Development partners, relevant stakeholders and developing country governments should support the continued development of LCCRD strategies where they do not already exist. But there is an immediate need to identify and support the creation of necessary enabling conditions, including through capacity building, technical support and financing, to ensure an emphasis on translating plans and strategies into actions moving forward.

1.5 Resources

TABLE 1. LCCRD RESOURCES

RESOURCE	PRODUCED BY:	AVAILABLE AT:
Global Environmental Outlook	OECD	http://www.oecd.org/environment/indicators-modelling-outlooks/oecdenvironmentaloutlookto2050theconsequencesofinaction.htm
Assessment, Methodology and Special Reports	IPCC	http://www.ipcc.ch/publications_and_data/publications_and_data_reports.shtml
The Economics of Low Carbon, Climate Resilient Patterns of Growth in Developing Countries: A Review of the Evidence	Stockholm Environment Institute	http://sei-international.org/mediamanager/documents/Publications/Climate/economics_low_carbon_growth_report.pdf
LEDS Global Partnership Knowledge Portals and Tools	Low Emission Development Strategies (LEDS) Global Partnership	http://ledsgp.org/home
Low-Emission Development Strategies (LEDS): Technical, Institutional and Policy Lessons	OECD & International Energy Agency	http://www.oecd.org/environment/cc/46553489.pdf
Developing a Low-Carbon Growth Plan - Volume 1 on Climate-Compatible Development	McKinsey & Company	http://ec.europa.eu/europeaid/infopoint/documents/presentations/presentation2_15_07_2010_en.pdf
Preparing Low-Emission Climate-Resilient Development Strategies	United Nations Development Programme	http://www.undp.org/content/dam/undp/library/Environment%20and%20Energy/Climate%20Strategies/UNDP-LECRDS-Guidebook-v17-web.pdf
Scoping Study on Financing Adaptation-Mitigation Synergy Activities	Nordic Council of Ministers	http://www.norden.org/en/publications/publikationer/2013-902
Planning for a Low Carbon Future: Country Case Studies Report: Lessons Learned from Seven Country Studies	Energy Sector Management Assistance Program	https://www.esmap.org/sites/esmap.org/files/ESMAP_LCD-LessonsLearned_2012_0.pdf
Low Carbon Resilience - Clever Idea or Climate Panacea?	Thompson Reuters	http://www.trust.org/item/?map=low-carbon-resilience-clever-idea-or-climate-panacea
Drivers and Challenges for Climate Compatible Development	Climate & Development Knowledge Network (CDKN)	http://cdkn.org/2013/02/paper-drivers-and-challenges-for-climate-compatible-development/?loclang=en_gb

2.0 International Governance: Moving from Top-Down to Bottom-Up

2.1 Context

The international community has recognized the United Nations Framework Convention on Climate Change's (UNFCCC) limitations in addressing the full scope and scale of the climate change challenge. This recognition has been a catalyst for change, inspiring new alliances, partnerships, forums and networks involving a mix of developed and developing country governments, the private sector and civil society organizations. Working in parallel with the UNFCCC process, this diversification of efforts increases the capacity to address the breadth and scale of the climate change challenge.

2.2 State of Play

Growing understanding of climate change as a fundamental development issue, coupled with the slow pace at which the international negotiations have progressed in recent years, has resulted in a patchwork of initiatives and actions that reflect a “bottom-up” governance structure. Increasingly, addressing the challenges posed by climate change requires a broad and complex set of tools, mechanisms, policies and approaches, all of which must be nationally appropriate and reflect various economic, social and environmental realities.

While the formal negotiations remain an important catalyst and platform, action taken through the UNFCCC remains insufficient to meet both mitigation requirements and adaptation needs. Even with commitments under the Copenhagen Accord, the United Nations Environment Programme (UNEP) *Emissions Gap Report 2012* estimates that the difference between what is likely to be achieved and what is required to keep warming below the 2°C target is in fact growing rather than decreasing.² A 2010 World Bank study concluded that the cost to developing countries of adapting to climate change could reach US\$70 billion–\$100 billion per year between 2010 and 2050, noting the particularly acute needs of many LDCs and SIDS. Yet the majority of finance and programming remains focused on mitigation in emerging economies.³

As such, it is becoming increasingly clear that “all of the tools in the toolbox” are needed and that additional actions outside of the negotiations are a key way to supplement and complement UNFCCC processes while supporting LCCRD more broadly. In many ways, initiatives outside of the negotiations at the international, regional, national and subnational levels are driving action today. A number of initiatives are often cited as key in this respect, including:

- **Coordinated actions by major companies and private sector actors**, such as under the World Business Council for Sustainable Development and the Business Partnership for Market Readiness.
- **International coordination among subnational governments**, such as the C40 Cities Group, the Climate Group and the Network of Regional Governments for Sustainable Development.

² According to UNEP's *Emissions Gap Report* (2012), the estimated emissions gap between what is needed to stay below the 2°C target and where global GHG emissions are likely to be in 2020 is now 8–13 gigatonnes of carbon dioxide equivalent (GtCO₂e), as compared to 6–11 GtCO₂e in the 2011 gap report (UNEP, 2012).

³ In an indicative review of the largest climate finance funds, the online research tool Climate Funds Update estimates that (including REDD+) climate finance for mitigation stands at nearly 75 per cent of all funding, with less than 20 per cent going towards adaptation. Though the allocation of climate finance between developed and developing countries is currently relatively balanced (44 per cent going to developing countries), it is unbalanced between developing countries. Emerging economies, namely Brazil, China and India, are key recipients as well as domestic sources of this climate finance to date (Buchner, Falconer, Hervé-Mignucci, & Trabacchi, 2012).

- **Regional policy and regulatory initiatives**, including those led by subnational governments such as the Western Climate Initiative.
- **Major donor initiatives** including Germany's International Climate Initiative and the CDKN, which is supported by the United Kingdom and the Netherlands.
- **Voluntary carbon markets**, offset and certification mechanisms such as the Verified Carbon Standard or Climate, Community and Biodiversity Alliance certification.
- **Sectoral approaches** to mitigation actions (such as aviation, maritime transport, cement, agriculture or forestry) or policy initiatives to address specific issues like fossil fuel subsidies.
- **Actions on energy efficiency and renewable energy** solutions such as through the World Bank's program, Scaling Up Renewable Energy in Low-Income Countries.
- **Political commitments to climate change** made within international forums such as the G-8, G-20 or World Economic Forum and the establishment of high-level climate initiatives such as the Climate and Clean Air Coalition or the Major Economies Forum on Energy and Climate.

In recent years, many of these activities have been shaping the landscape of climate governance. In turn, the negotiations around a post-Kyoto agreement (under the Durban Platform) to the UNFCCC are necessarily beginning to reflect the need to make space for broader and more bottom-up governance structures. For example:

- **NAMAs** are explicitly intended to provide a flexible framework for supporting mitigation actions in developing countries in ways that are both nationally driven and reflective of particular priority actions in key sectors. They do not necessarily rely on the UNFCCC to catalyze climate finance, as a variety of sources can be used.
- Similarly, **REDD+** has emerged as a key framework for addressing deforestation and forest degradation with enough flexibility to enable the development of national programs and governance arrangements that best reflect national capacities and priorities.
- **Framework for Various Approaches** discussions are squarely centred on developing a mechanism under which both UNFCCC market mechanisms and flexible/decentralized approaches could be considered for parties' actions under a future agreement.
- **International Cooperative Initiatives** are also explicitly included in UNFCCC discussions as an option for increasing pre-2020 ambition.

2.3 Lessons Learned

As discussions around a future climate change agreement continue under the UNFCCC, and a proliferation of related initiatives, tools and policies is being seen outside of the negotiations, a number of key dynamics are emerging.

A piecemeal and patchwork approach can be both positive and negative. The diverse policies, tools and mechanisms for addressing climate change that are emerging around the world reflect nationally appropriate actions, the establishment of coalitions of interested parties and first-movers capitalizing on opportunities. Many of these dynamics are positive and there are opportunities for coordination, integration and the scaling up of actions. However, the challenges associated with ensuring consistent and comparable efforts remain significant. These challenges have real consequences, including limited private sector engagement given a lack of policy certainty at the international level

and economic/competitiveness impacts between jurisdictions, as seen in the contentious debate over the applicability of the European Union Emissions Trading System's aviation levies.

The inclusion versus ambition challenge. In the context of the UNFCCC, while the options on the table for a post-Kyoto climate change agreement exemplify a likely shift to a broader and less stringent governance framework, a number of divisions remain and a delicate balance must be achieved. To ensure that all major emitters are included under the "mitigation tent" of a future agreement, the terms will need to reflect diverse national circumstances as well as compliance flexibility. By extension, a legally binding protocol (similar to the Kyoto Protocol) is very unlikely to succeed, as key emitters such as the United States and China would not sign on. Some parties (most vocally, many LDCs) fear that a less stringent or non-binding option (as seems to be emerging) could lead to agreement only at the level of the lowest common denominator. They are also concerned that approaches "outside of the Convention" could circumvent strong action under the UNFCCC, culminating in a lack of overall ambition. However, in learning the lessons of Kyoto, the trade-off may be that key major emitters do not participate in a future agreement, which would have an even more negative impact on the overall goal of achieving meaningful mitigation and adaptation actions.

The elements of bottom-up initiatives and approaches that make them so attractive and potentially effective are the same factors that make them challenging to formalize. Outside of the negotiations, many voluntary groups of willing parties are active in particular sector or policy area initiatives. By their nature, most do not have a strong (or any) focus on mandatory measurement, reporting or stringent transparency measures. Broad participation can be achieved given their non-binding nature. Imposing more formality could reduce effectiveness, as key actors may be less willing to participate. For example, when discussions are brought under the UNFCCC, many parties presume that additional transparency or commitment will be applied, resulting in commensurate reporting requirements.

Methodological issues pose challenges for making sure there is a level playing field in a bottom-up world. Inconsistent accounting, measurement and reporting methodologies further complicate the governance landscape. For example, it is difficult to determine what subnational or city-level initiatives can be considered "additional" based on national-level reporting, just as it can be difficult to capture the full scope of private sector emission reductions in national communications. The challenges in designing effective methods of measurement and accounting are of particular concern in the context of carbon markets. The potential for a credit to be double or even triple counted becomes more likely as processes become more bottom-up and complex.

The extent to which the smallest and most vulnerable states and actors are able to participate in bottom-up approaches is a real concern for many developing countries. Reviewing the various initiatives, networks and markets at play outside of the negotiations, it is clear that the majority are focused on mitigation actions in developed countries or major emerging economies. The ability of many LDCs, SIDS and other countries that are among the most vulnerable to the impacts of climate change to develop and/or participate in such approaches is often limited due to a number of persistent capacity, institutional, technological and scale issues. For many of these countries, the UNFCCC's top-down approach and its related mechanisms remain particularly important in the context of the "one country, one vote" policy and in ensuring that the disproportionate adaptation needs of these countries are heard at the global level. The UNFCCC also plays an important facilitative role in the context of adaptation financing that cannot be discounted.

Some combination of top-down and bottom-up governance will likely define progress moving forward. In order to reach the levels of ambition required, the UNFCCC and various other forums and approaches need to play a key role. The formal negotiating process will play an important role moving forward in terms of providing the general principles,

guidance and governance frameworks that can help guide and catalyze various other actions outside of the formal process. At the same time, nationally driven and/or internationally coordinated actions centred on particular sectors, policies or groups of countries also play critical roles in supplementing and strengthening implementation of agreed-upon priorities (under the UNFCCC) and spurring new action. In both cases, the overarching goal should be using all possible tools and innovative approaches to achieve ambitious mitigation and adaptation action in support of broader LCCRD.

2.4 Action Point

Coordination must be strengthened within the disparate patchwork of governance models and approaches being applied at various levels around the world. Policy-makers should seek to identify opportunities for better linkages between diverse approaches while scaling up action and sharing lessons learned. Ensuring that LCCRD governance takes the form of a more coherent quilt will promote the shared goal of ambitious mitigation and adaptation action in support of sustainable development.

2.5 Resources

TABLE 2. SHIFTING CLIMATE GOVERNANCE RESOURCES

TITLE	PRODUCED BY	AVAILABLE AT
Bridging the Greenhouse-Gas Emissions Gap	K. Blok, N. Höhne, K. van der Leune & N. Harrison	http://www.nature.com/nclimate/journal/v2/n7/full/nclimate1602.html#access
Subnational Governments: Key Actors in Climate Action	Nrg4SD	http://www.nrg4sd.org/sites/default/files/default/files/content/public/29-climatechange/advocacy/subnational_govs_towards_cp17_advocacy_paper_final_20110608.pdf
The Clean Revolution: Leadership from the World's States and Regions	The Climate Group	http://www.theclimategroup.org/_assets/files/StatesRegions_web.pdf
Charting a New Low-Carbon Route To Development: A Primer on Integrated Climate Change Planning for Regional Governments	United Nations Development Programme (UNDP)	http://www.undpcc.org/undpcc/files/docs/publications/Charting_carbon_route_web_final%20(2).pdf
Verified Carbon Standard	Verified Carbon Standard	http://v-c-s.org/
Climate and Clean Air Coalition	Climate and Clean Air Coalition to Reduce Short-Lived Climate Pollutants	http://www.unep.org/ccac/
Commitment to Phase-Out Fossil Fuel Subsidies	G-20	http://www.canadainternational.gc.ca/g20/summit-sommet/g20/declaration_092509.aspx
REDD+ Partnership	Various	http://reddpluspartnership.org/en/
Cement Sustainability Initiative	World Business Council for Sustainable Development	http://www.wbcsdcement.org/
Global Reporting Initiative	Global Reporting Initiative	https://www.globalreporting.org/Pages/default.aspx

3.0 Increasing the Scale and Scope of Climate Finance in Support of

LCCRD

3.1 Context

Growing understanding of the needs of developing countries to plan for and implement LCCRD strategies has led to the mobilization of financing flows (both domestic and international) to support this shift. Largely catalyzed by public fast-start financing commitments at the Copenhagen Climate Change Conference in 2009, climate finance flows from a variety of sources have increased substantially in recent years, along with considerations around access, absorptive capacity and governance issues in developing countries. The end of the fast-start period in 2013 brings uncertainty about the extent to which climate finance will continue to increase in the future and the sustainability of current LCCRD planning approaches in the absence of scaled-up support.

3.2 State of Play

In *Landscape of Climate Finance 2012*, Buchner, Falconer and Trabacchi (2012) estimate that overall global climate finance flows reached between US\$343 billion and US\$385 billion in 2010–2011, from both public and private sources. As attempts to track climate finance have only really come about since Copenhagen, it is difficult to get a picture of longer-term trends. However, the 2013 *Landscape* report finds that global flows plateaued at US\$359 billion (Buchner et al., 2013) in 2012.

Despite notable progress, the amount of funding flowing to, and mobilized within, developing countries to help meet their climate change needs remains significantly below expected requirements. The International Energy Agency (IEA) has projected that, in order to limit global average temperature increase to below 2°C, the incremental investment in the energy sector alone would need to reach US\$36 trillion over the period 2012–2050 (IEA, 2012). A World Bank (2010) study concludes that the cost to developing countries of adapting to climate change could reach US\$70 billion–\$100 billion a year between 2010 and 2050.

The significant increases in the amounts of climate finance realized in recent years illustrates not only the dedication of resources explicitly to adaptation and mitigation actions, but also to a broadening out of the approaches and tools that constitute climate finance. Most conceptions of climate finance now encompass a more holistic suite of activities and mechanisms, from traditional bilateral and multilateral development assistance to private sector investment in low-carbon technologies, to new and innovative approaches aimed at leveraging private sector investment through targeted public funding mechanisms and/or fiscal policy interventions. Similarly, approaches to climate finance are shifting away from project-based interventions to broader programmatic approaches that encompass a range of activities including capacity building, policy planning *and* project-level implementation.

However, future trends remain unclear. As noted above, overall flows remain inadequate to meet current and projected needs. There is a lack of clarity about future public sector commitments with a gap between the end of the formal fast-start period and an agreement to future financing under the UNFCCC. Few countries have yet to step forward with interim commitments. Private sector investment continues to face persistent challenges around assumptions of risk, rates of return, commercial viability of technologies and limited enabling environments in many countries.

A number of additional challenges characterize the current climate finance landscape, limiting the extent to which finance can be effectively matched with priority areas for support. These include:

- **A very significant imbalance between mitigation and adaptation finance flows.** The Copenhagen Accord included a political commitment to balance allocations of climate finance between adaptation and mitigation, including under fast-start financing. However, current trends show such equity is far from being achieved. According to Buchner et al. (2013), the share of global finance flows (from both public and private sources) directed towards adaptation is estimated at just 6 per cent of the total. In looking at the dedicated international climate funds (both under and outside of the UNFCCC umbrella), the share is better, though still likely around only 14 per cent (Climate Funds Update, 2013).
- **There are very few examples of adaptation-mitigation synergy activities being financed as such at the donor level.** Maintaining distinct financing for mitigation and adaptation is critical to ensuring that a more balanced allocation of support continues to be sought and the needs of the most vulnerable are met. But there is also a need to identify opportunities to finance adaptation-mitigation synergy activities and to build such considerations into funding decisions. That is to say, the dynamic relationship between mitigation and adaptation should be reflected in funding choices and mechanisms. However, recent analysis and observation show that currently there are “no funding instruments with explicit and systematic aims to harness synergies... nor are there systemic screening of projects or programmes and policies to avoid trade-offs” (Illman et. al., 2013).
- **Similarly, at the domestic level in developing countries, LCCRD frameworks and related policies are just beginning to play a role in directing finance flows, including through national budgets.** At the country level, various policy documents and plans have been (or are in the process of being) developed to more clearly align change priorities with development objectives. But in many cases, they are nascent and not yet coupled with effective implementation plans to ensure that national financing mechanisms accurately reflect LCCRD aspirations. Many countries are therefore missing the “hook” at the national level to effectively funnel financing flows in ways that target priority mitigation and/or adaptation actions consistent with development efforts; as such, status quo approaches continue.
- **Public and private sectors continue to struggle to speak the same language.** Both public and private financial flows will play a critical role in supporting shifts to low-carbon and climate-resilient futures. While some governance models provide opportunities for greater integration between the public and private sectors (e.g., the Private Sector Facility now under development within the Green Climate Fund), these sectors still largely function independently in the climate finance space. The opportunities to leverage private investment through targeted public interventions and policies is increasingly understood, though few examples of success exist in practice.⁴ The examples that do exist are mainly limited to mitigation activities—a situation that also speaks to the broader lack of private sector engagement in adaptation finance.

⁴ Policy and fiscal tools such as the phasing out of fossil fuel subsidies, the use of aviation levies or government issuing of green bonds interventions are often cited as examples, yet their application in practice remains very limited.

3.3 Lessons Learned

A number of lessons can be drawn from the current state of climate finance, particularly when taking the above-mentioned trends into consideration.

Continued development of LCCRD frameworks should be supported at the national level. The extent to which climate finance can be effectively programmed is often directly related to existing guiding LCCRD frameworks and related policies. Such plans can identify programmatic points of entry for specific financing flows and mechanisms. It is imperative that the “financeability” of LCCRD strategies remains a core consideration through their planning and development process. While many key donors and developing countries are beginning to think in a more holistic and programmatic way, there is a strong need for continued support for the development of nationally appropriate overarching strategies and for coherent implementation and financing plans that complement these strategies.

Many climate financing challenges are a question of absorptive capacity. Increasingly, the relevant “enabling conditions” for climate finance at the national level must be considered, including the presence of guiding policies and frameworks as well as broader legal, institutional and infrastructure requirements. The capacity requirements for creating these enabling conditions are diverse and often country-specific. Commonly cited capacity-building needs include climate change training in key ministries, financial governance and management, investment costing and prioritization, and increased human resources (Boyle, Parry, Harris, Gass, & Sawyer, 2013).

Realistic opportunities for financing adaptation-mitigation synergies need to be harnessed. As previously highlighted, there is limited financing for activities that explicitly capture mitigation and adaptation synergies in a planned manner. The role that climate finance can play in incentivizing synergy activities needs further consideration, as do the challenges associated with actually measuring trade-offs and benefits. At both the donor and national-planning levels, further consideration of these dynamics will play an important role in shaping future understandings of LCCRD and realistic opportunities for scaling up the as-yet anecdotal examples of financing for synergy activities (Boyle et al., 2013).

There is still a critical need for separate financing streams, and scaled-up adaptation finance in particular. As current trends show, the vast majority of climate finance flowing into developing countries is dedicated to mitigation activities in emerging economies, meaning that many of the adaptation needs of the most vulnerable populations are not being met (particularly in many LDCs and SIDS). Politically and practically, a disproportionate focus must be kept on meeting those needs by responding to the current financing imbalances and significant capacity-building needs.

Increasing the scope and scale of climate finance is not without significant methodological and political challenges. While the use of various financing flows, tools and approaches to support LCCRD is by and large a very positive trend, it is certainly not without its challenges and legitimate concerns. For example, as lessons from fast-start financing continue to emerge, it is clear that in the context of scaled-up finance, the relationship between climate finance and traditional development aid is complex; the question of whether or not climate finance is “new and additional” to Official Development Assistance remains open. In a similar vein, the broadening of the concept of climate finance is also being met with some resistance, as some developing countries and actors worry it could shift the onus from the public sector to the private sector or lead to ambiguous commitments. Continued discussions around long-term climate finance governance should focus on integrating a broadened scope and scale with increased accountability and transparency.

3.4 Action Point

In future climate finance discussions, a greater focus should be placed on identifying the necessary capacity-building needs and enabling factors required for developing countries to effectively plan for, attract, establish and program various climate finance flows (both domestic and international) in the implementation of priority LCCRD activities. Financing tools must be further embedded into national LCCRD planning processes in developing countries, and developed countries must be encouraged to provide public support, particularly for adaptation.

3.5 Resources

TABLE 3. CLIMATE FINANCE RESOURCES

TITLE	PRODUCED BY:	AVAILABLE AT:
Global Landscape of Climate Finance 2013	Climate Policy Initiative (CPI)	http://climatepolicyinitiative.org/publication/global-landscape-of-climate-finance-2013/
Catalyzing Climate Finance Guidebook	UNDP	http://www.undp.org/content/dam/aplaws/publication/en/publications/environment-energy/www-ee-library/environmental-finance/low-emission-climate-resilient-development/in-focus/catalyzing-climate-finance/UNDP-Financing-v3-web.pdf
Scoping Study on Financing Adaptation-Mitigation Synergy Activities	Nordic Council of Ministers	http://www.norden.org/en/publications/publikationer/2013-902
Climate Finance Options	UNDP and World Bank	http://www.climatefinanceoptions.org/cfo/index.php
Climate Funds Update	Overseas Development Institute (ODI)	http://www.climatefundsupdate.org/
Summary of Developed Country 'Fast-Start' Climate Finance Pledges	World Resources Institute (WRI)	http://www.wri.org/publication/summary-of-developed-country-fast-start-climate-finance-pledges
Measuring the Effectiveness of Public Climate Finance Delivery at the National Level	ODI	http://www.odi.org.uk/publications/7342-measuring-effectiveness-public-climate-finance-delivery-national-domestic-level
Greenhouse Gas Markets 2012	International Emissions Trading Association (IETA)	http://www.ieta.org/ieta-greenhouse-gas-market-2012
Investigating the Opportunities of a Low-Carbon Economy: Decisive Insights for Forward-Looking Investment Strategies	Allianz	https://www.allianz.com/oneweb/cms/www.allianz.com/media/responsibility/documents/analysis-and-trends-low-carbon-economy.pdf
Moving the Fulcrum: A Primer on Public Climate Financing Instruments Used to Leverage Private Capital	WRI	http://pdf.wri.org/moving_the_fulcrum.pdf
The Green Investment Report: The Ways and Means to Unlock Private Finance for Green Growth	World Economic Forum and Green Growth Action Alliance	http://www3.weforum.org/docs/WEF_GreenInvestment_Report_2013.pdf

4.0 *NAMAs as a Key Vehicle for Promoting Mitigation Activities in Developing Countries*

4.1 Context

Developing countries, their development partners and other actors are working to operationalize the concept of NAMAs given their potential to leverage climate finance through carbon markets and bilateral and multilateral support. NAMAs are becoming a key planning vehicle for developing countries who wish to voluntarily implement GHG mitigation actions in support of sustainable development (Sawyer, Dion, Murphy, Harris, & Steibert, 2013). NAMAs are a central element of the LCCRD process in that they require a focused assessment to identify actions that support development objectives and can be implemented within local realities.

Development of a NAMA framework can help developing countries to:

- **Identify** and prioritize GHG emission mitigation opportunities that meet their needs
- **Align** mitigation efforts with national and sectoral policy frameworks
- **Attract funding** from international donors and through climate finance
- **Achieve** adaptation and other sustainable development co-benefits

4.2 State of Play

NAMAs are expected to be an important building block of a future agreement under the UNFCCC. At present, however, there is no guidance from the UNFCCC regarding the modalities for NAMAs as negotiations on this topic continue. Consequently, NAMAs are still at a “proof of concept” stage in many respects (Boyle et al., 2013). Only broadly agreed-upon guidance is available at the international level and no standardized approach across donors and national planning processes has emerged. However, given that NAMAs are inherently bottom-up mechanisms, a lack of overall clarity is not necessarily negative at this stage of their evolution (Sawyer et al., 2013).

As such, countries are working to operationalize the concept and gain experience that can inform the content of the UNFCCC negotiations. Two tracks of NAMAs development can broadly be observed in thinking and practice at the national level:

- **Standalone:** Some countries are identifying individual NAMA actions in a particular sector or multiple sectors that align with existing policies and have clear mitigation benefits. The highest distributions of standalone NAMAs are in the energy supply, transport and waste sectors (van Tilburg, Röser, Hänsel, Cameron, & Escalante, 2012).⁵
- **Integrated:** Given their flexible nature, some countries are using the NAMA frameworks to develop broader low-carbon development strategies at sectoral or economy-wide levels. This process can more easily support the design of NAMAs that capture not only mitigation, but adaptation and other co-benefits.

⁵ Forestry, agriculture, buildings and industry are also key sectors where several NAMA activities have been identified. For a current sectoral distribution of NAMAs, see van Tilburg et al. (2013, p 11).

As of October 2013, a few NAMA submissions had been made to the UNFCCC NAMAs registry.⁶ The registry distinguishes between NAMAs seeking support for preparation and those seeking support for implementation. Formal submissions have been made by Chile, the Cook Islands, the Dominican Republic, Dominica, Ethiopia, Indonesia, Jordan, Mali, Serbia and Uruguay. Much more activity is reported in an informal NAMA database hosted by Ecofys,⁷ where 80 NAMAs and 32 feasibility studies in 34 countries have been identified. The majority of the submissions are from Latin America (56 per cent), with the remainder from Africa and the Middle East (24 per cent), Europe (13 per cent) and Asia (7 per cent) (van Tilburg, Bristow, Röser, Escalante, & Fekete, 2013).

Although these NAMAs have been submitted, it is unclear how implementation will be financed. The Cancun Agreements (UNFCCC, 2010) recognized two types of NAMAs: **unilateral NAMAs**, which are domestically funded and unilaterally implemented by developing countries, and **supported NAMAs**, for which developing countries request international support in the form of financing, technology transfer or capacity building. Also under consideration are **credited NAMAs**, wherein developing countries could earn credits that can be sold in the global carbon market by reducing emissions below an agreed crediting baseline. The German and United Kingdom governments recently partnered to establish the NAMA Facility—initially contributing a combined €70 million for NAMA development and implementation (UNFCCC, 2013). The facility recently opened a call for proposals of NAMA support projects from developing countries. While the functionality and funding decisions of the NAMA Facility remain to be seen, its establishment is an important next step in supporting a shift from NAMA planning to actual implementation.

In order to receive financing support, NAMA developers must demonstrate that the action meets ambitious GHG and national sustainable development goals, has high-level support, and will effectively use and leverage funding (Comstock, Davis & Wyns, 2012). Achieving these expectations requires substantial capacity building with stakeholders inside and outside of national governments. To fulfill these capacity-building needs, a number of NAMA tools and guides have been developed by several international actors in recent years. Table 4 summarizes a number of these resources.

⁶ See <http://www4.unfccc.int/sites/nama/SitePages/Home.aspx>

⁷ See <http://www.nama-database.org/>

TABLE 4: KEY NAMA GUIDES AND TOOLS

TITLE	PRODUCED BY:	AVAILABLE AT:
Developing Financeable NAMAs: A Practitioners Guide	IISD	http://www.iisd.org/publications/pub.aspx?pno=2784
NAMAs Registry	UNFCCC	http://unfccc.int/cooperation_support/nama/items/7476.php
NAMAs Pipeline	UNEP Risø	http://unfccc.int/cooperation_support/nama/items/6945.php
NAMA Academy	UNEP Risø	http://www.namacademy.org/Our%20Courses.aspx
NAMAs Database	Ecofys	http://www.nama-database.org/
NAMAs: Steps for Moving a NAMA from Idea towards Implementation	GIZ	http://mitigationpartnership.net/nama-tool-steps-moving-nama-idea-towards-implementation
On Developing a NAMA Proposal	ECN	http://www.ecn.nl/docs/library/report/2011/o11053.pdf
Linking Mitigation Actions in Developing Countries with Mitigation Support	OECD & IEA	http://www.oecd-ilibrary.org/docserver/download/5k455r1485q4.pdf?expires=1384532171&id=id&ccname=guest&checksum=28821AA8B6B39CF76705F29167F3E503
Discussion Draft: Criteria for Evaluating Supported NAMAs	Center for Clean Air Policy (CCAP)	http://ccap.org/assets/Criteria-for-Evaluating-Supported-NAMAs_CCAP-Oct-2012.pdf
From NAMAs to Low Carbon Development in Agriculture	Food and Agriculture Organization	http://www.fao.org/docs/up/easypol/881/nationally_appropriate_mitigation_actions_NAMAs_103EN.pdf
Handbook on Renewable Energy NAMAs	International Renewable Energy Agency	http://www.irena.org/DocumentDownloads/Publications/Handbook_RE_NAMAs.pdf
Data and Capacity needs for Transportation NAMAs	CCAP	http://ccap.org/assets/Data-and-Capacity-Needs-for-Transportation-NAMAs-Report-3-Capacity-Building-Needs_CCAP-November-2010.pdf

4.3 Lessons Learned

As NAMAs continue to take shape, a number of key lessons are emerging from early experiences.

The future stability of NAMA finance sources remains unclear. Despite a number of active donors (such as Germany and the United Kingdom), support for readiness and planning activities remains limited. This is in large part due to continued uncertainty about the timing and scope of a future international climate agreement, which could otherwise serve to drive further NAMA planning and financing. Support for NAMA readiness activities may also be an early focus of the Green Climate Fund, though this remains to be seen. Until a sufficiently ambitious global agreement is in place or NAMAs are linked with other carbon market mechanisms, securing significantly scaled-up financing for NAMAs and attracting private sector financing may be difficult.

There is an advantage to being an early mover. As NAMAs are still in an early stage of development, current work and emerging lessons will inform how this mechanism ultimately takes shape. Consequently, a first-mover advantage

exists both for developing countries taking leadership roles in forming NAMAs and developed countries/organizations seeking to support these actions. Realized benefits from early actions include: using present NAMA funding to set up NAMA country funds (which aggregate and disburse a country's NAMA funding); building capacity to develop NAMA proposals and submit them to the UNFCCC registry; and building financial management and measurement, reporting and verification capacity. All of these valuable steps being taken at this initial stage will help inform future NAMA development.

National development plans and existing government priorities need to be the starting point. NAMAs are about leveraging existing approaches to identify discrete activities that have strong mitigation potential, as well as adaptation and other co-benefits. They are not about introducing new standalone processes and plans that are not aligned with national development objectives. However, efforts to align NAMAs with national processes and prioritize opportunities have not been an easy process and are often political.

High-level buy-in is needed. Senior-level champions help to maintain interest and momentum, as well as encourage buy-in across departments and ministries. To ensure the NAMA process is aligned with existing national development priorities, political support across a number of involved ministries or departments is fundamental (Murphy, 2012).

Stakeholder engagement is critical. Given that NAMAs are nationally driven, analysis and assumptions need to be verified and approved by local experts and stakeholders. Broader engagement can also improve the information base to plan, build awareness and capacity, and help ensure that the process and results are locally owned (Murphy, 2012).

The NAMA process can be a major catalyst in starting a conversation about how to think about low-carbon development more broadly. The identification and prioritization of NAMAs can help policy-makers and stakeholders begin discussions around the need for LCCRD, particularly when a broad consultation is undertaken and adaptation co-benefits are considered. The process can also help sensitize various sectors and encourage cross-departmental and government-wide approaches to LCCRD planning (Sawyer et al., 2013).

4.4 Action Point

NAMAs are of critical importance for LCCRD, given the potential for strong linkages to be made between mitigation and adaptation, and for additional developmental co-benefits to be achieved through their implementation. As learning occurs and more NAMAs are developed, the NAMA UNFCCC architecture can be further established. In the interim, experiences must be shared and added to the information base, capacity must be built and financing towards implementation must be significantly scaled up. It is critically important to make progress in implementation to truly test the current process of NAMA development and planning.

4.5 Resources

TABLE 5. NAMA RESOURCES

TITLE	PRODUCED BY:	AVAILABLE AT:
Supporting the Enhancement of NAMA Capacities in Congo Basin Countries	IISD	http://www.iisd.org/climate/developing/
Low Carbon Development Strategies: A Primer on Framing NAMAs in Developing Countries	UNEP Risø	http://namapipeline.org/Publications/LowCarbonDevelopmentStrategies_NAMAprimer.pdf
NAMA factsheet	GIZ	http://mitigationpartnership.net/nationally-appropriate-mitigation-actions-namas-0
NAMAs: Perspectives and Activities	UNEP	http://www.unep.org/climatechange/mitigation/sean-cc/Portals/141/doc_resources/Network%20meetings/Third-Meeting/S5_NAMAs_Garg.pdf
NAMAs - Key Issues for Consideration	UNDP	http://www.undpcc.org/docs/Bali%20Road%20Map/English/BRM%202009_Nationally%20Appropriate%20Mitigation%20Actions_web.pdf
Mitigation Talks: Series on Nationally Appropriate Mitigation Actions	The Energy and Resources Institute	http://www.teriin.org/projects/nfa/cc2bwp1.php
General design requirements for the Prototype of the NAMA registry	UNFCCC	http://unfccc.int/files/cooperation_support/nama/application/pdf/design_requirements.pdf
A Registry of Nationally Appropriate Mitigation Actions: Goals, Outcomes, and Institutional Requisites	B. Linner & N. Pahuja	http://link.springer.com/article/10.1007%2Fs13280-011-0241-6
NAMAs in Developing Countries: Challenges and Opportunities	H. van Asselt, J. Berseus, J. Gupta, & C. Haug	http://www.rivm.nl/bibliotheek/rapporten/500102035.pdf
NAMAs by Developing Countries: Architecture and Key Issues	CCAP	http://mitigationpartnership.net/ccap-2011-nationally-appropriate-mitigation-actions-developing-countries-architecture-and-key-issues
Financing Supported NAMAs: Discussion paper	ECN/Ecofys	http://www.ecn.nl/docs/library/report/2012/012019.pdf
Overview of NAMA Financial Mechanisms	CCAP	http://ccap.org/assets/Overview-of-NAMA-Financial-Mechanisms_CCAP-July-20121.pdf

5.0 A Growing Emphasis on Monitoring and Evaluating the Outcomes of Adaptation Investments⁸

5.1 Context

To facilitate the urgent necessity to invest in a wide range of adaptation actions, there is a need to better understand which investments will be most efficient and effective in reducing vulnerability to the impacts of climate change in the near, medium and long terms. Governments and donors have consequently expressed greater interest in evaluating the effectiveness of adaptation investments to better guide the allocation of resources and prioritize future actions.

5.2 State of Play

First efforts to understand adaptation needs focused on improving the existing knowledge base through actions such as scientific analyses, vulnerability assessments, portfolio screenings, creation of appropriate tools, promotion of knowledge sharing and the development of adaptation plans (e.g., national adaptation programs of action [NAPAs] in LDCs). Building on these foundations, national governments are increasingly translating knowledge into action and beginning to implement priority adaptation measures. The result has been a substantial increase in investments in adaptation actions in recent years (Schalatek, Nakhoda, Barnard, & Caravani, 2013).

Parallel to this rise has been an increasing desire to develop appropriate systems to monitor and evaluate the effectiveness and efficiency of adaptation actions. Monitoring and evaluation (M&E) aims to provide accountability for meeting commitments, expectations and standards (Pringle, 2011) using procedures that follow agreed rules of conduct. Particularly in a time of fiscal constraint, this information is important for development assistance organizations tasked with ensuring that tax dollars invested in developing countries are providing cost-effective, demonstrable results.

In the context of climate adaptation, these M&E systems specifically aim to achieve three major objectives:

- **Monitor whether adaptation actions are reducing vulnerability to climate change.** We must first understand the factors that influence the vulnerability of people and societies—that is to say, their sensitivity and adaptive capacities—and then select indicators and targets to monitor how implemented adaptation activities are affecting these factors, thereby helping to reduce vulnerability (Spearman & McGray, 2011).
- **Assess performance and maintain financial accountability.** Implemented adaptation actions need to be assessed in terms of their relevance for the stakeholders and for involved agencies; the *effectiveness* of the actions in reaching adaptation targets; the *efficiency* of created outputs compared to used inputs; the *sustainability* of the implemented actions over time;⁹ and equity—ensuring that different social groups (especially the most vulnerable) are benefiting from the actions and their risks are reduced (Pringle, 2011).
- **Enable continuous learning** (Pringle, 2011). Monitoring systems should provide *feedback* to clarify possible improvements in implemented adaptation actions and should themselves be *forward looking* to allow their use in prioritizing future adaptation needs and actions (Prabhakar & Srinivasan, n. d.; Srinivasan, 2008).

⁸ Written by Livia Bizikova, Jo-Ellen Parry and Anne Hammill

⁹ Summarized in Spearman & McGray (2011) on inputs from OECD (n.d.).

With these objectives in mind, a number of initiatives have been launched in recent years by development assistance agencies, non-governmental organizations and research organizations to develop different M&E frameworks. Different approaches to M&E impacts have been tested, often building on those already in use by the evaluation community, such as results-based or outcome-based monitoring systems, participatory evaluation and multi-criteria assessment. So far, these M&E approaches have most commonly focused on initiatives in agriculture, flooding and water management (Mullan, Kingsmill, Kramer, & Agrawala, 2013; Pringle, 2012; Biesbrook et al., 2009). They have been used at different times (i.e. before, mid-term and after the implementation of adaptation actions) and at different scales.

At the **project and program levels**, M&E tools are often results-based and use logical framework approaches and matrices (Spearman & McGray, 2011). Indicators at the **household and community levels** are used to assess vulnerability to climate change, help prioritize actions that improve adaptive capacity and evaluate the outcomes of these actions when implemented. At the **national level**, the focus is on measuring and evaluating whether activities outlined in national strategies and plans (such as adaptation strategies and NAPAs) are being implemented, often using outcome/result-based indicators. Countries with such indicator systems include Finland, Germany, Mozambique, Nepal and the United Kingdom.

Specific examples of M&E frameworks established include:

- The World Bank’s economic evaluation approach, intended to assess the impacts of adaptation projects, primarily those in the agriculture sector.
- The U.K. Department of Environment, Food and Rural Affairs’ (DEFRA) framework on measuring adaptation actions to assess their effectiveness, to build capacity and to gain an understanding of what additional actions are needed.
- The World Resources Institute’s National Adaptive Capacity Framework, designed to help governments assess how well they are considering climate change in the way they manage risks and the levels of available capacities to deal with these risks.
- The International Institute for Environment and Development’s Tracking Adaptation and Measuring Development framework, which aims to assess the management of climate risks at different scales and whether adaptation actions are supporting climate resilient development.

From these examples, M&E for adaptation in developing countries seems to be largely shaped by the interests of multilateral and bilateral development assistance agencies. National governments are adopting these systems to ensure accountability of the adaptation strategies and practical actions being developed and implemented.

Efforts to date have demonstrated that creating a set of indicators to monitor and evaluate adaptation is very challenging. Like efforts to measure the impact of policies and programs for multifaceted issues like environmental management, equity and poverty reduction, establishing M&E systems for adaptation is challenging in: the *attribution* of specific actions directly to changes in the system (especially when there is a considerable *time lag* between the undertaken action and its impacts—as is often the case when assessing the impact of adaptation actions); the *lack of baseline information*; and the inherent complexity and *multiscale* nature of biogeophysical and human systems (Rauschmayer, Paavola & Wittmer, 2009).

More unique challenges to establishing M&E systems for adaptation include:¹⁰

- **Uncertainty** due to the wide range of climate change impacts and of required adaptation actions; the infrequency of extreme events, which makes adaptation actions moot if the events do not occur; and the challenges of assessing the **level of risk** over the long term.
- **Reverse logic**, as successful adaptation results in the avoidance of impacts.
- A **shifting baseline**, as the climate and the socioeconomic circumstances change in relation to the adaptation actions being evaluated.
- Lack of **agreed metrics** to measure the effectiveness of adaptation actions.

M&E systems for adaptation also must be able to cover a wide range of different type of actions—from physical infrastructure development to process changes such as those related to governance and institutional structures.

Given these obstacles, it is perhaps not surprising that interest in developing M&E approaches is lagging behind adaptation strategy development; the development of M&E strategies is at an early stage even in developed countries that have prepared detailed plans with specified actions, responsibilities and timescales (Mullan et al., 2013). These systems are expected to become more robust in the future, however, as investment in adaptation increases. New approaches will need to be explored and lessons learned will need to be shared between practitioners in developed and developing countries.

5.3 Lessons Learned

Knowledge is increasing of possible and appropriate means of establishing M&E systems for adaptation, with several lessons emerging.

Build on the experience of related sectors. While establishing M&E frameworks for adaptation presents some unique challenges, many are shared with other complex issues. Experience with monitoring systems in integrated resource management, for example, means that there is no need to start from scratch. Rather, emphasis needs to be placed on assessing existing M&E systems for their ability to monitor adaptation efforts and identify ways to modify them to meet the need to track adaptation actions.

Build on existing indicator sets when possible. A range of existing social, economic, ecosystem and equity indicators can be incorporated into emerging frameworks for measuring adaptation actions. Targeted indicators can be added to these established systems to capture knowledge specifically required to measure progress on adaptation. Developed countries are using this relatively light-touch approach of trying to integrate adaptation monitoring into existing M&E frameworks. In contrast, it appears that developing countries are pursuing more involved and onerous processes. This difference might stem from the absence of robust indicators systems into which adaptation indicators can be integrated in some developing countries. Practical monitoring processes that reflect developing countries' more limited access to information, funding and expertise must be promoted as much as possible.

M&E systems need to be context specific. Adaptation to climate change occurs at different scales and involves different actors aiming to meet different demands. M&E systems therefore need to be flexible—so that they can be adjusted to

¹⁰ Compiled by Gianoli, Grafakos, Olivotto and Haque (2012) based on international and national agencies such as the Global Environment Fund, United Kingdom Climate Impacts Programme, United Nations Development Programme, UNFCCC and the World Bank.

different scales, areas and stakeholders groups—and designed to match accountability needs at the scale and in the context in which they are being applied. By extension, M&E systems cannot be expected to allow for comparability of adaptation actions in different regions, and it is difficult to generalize indicator sets from the local to the national level.

M&E systems for adaptation should emphasize participatory engagement. Given the very context-specific nature of adaptation, frameworks used to assess adaptation actions should be combined with process-based participatory approaches that ensure the involvement of diverse stakeholders. These systems should also be designed to bridge the needs of end users and consider the feasibility of their implementation.

Systems should promote future learning. Given our nascent understanding of the appropriate processes and requirements for establishing M&E systems for climate adaptation and the evolution of our understanding of the potential impacts of climate change and appropriate response strategies, frameworks should be designed in a way that allows for future improvements in adaptation processes. M&E outcomes and indicators should be available to stakeholders as learning tools to help practitioners understand aspects of undertaken adaptations, the interactions between them and other processes, and the challenges they present.

5.4 Action Point

The capacity to monitor and evaluate adaptation actions can be improved by more closely aligning these efforts with existing monitoring frameworks and indicator systems being used in other fields by policy-makers, researchers and practitioners to track progress.

5.5 Resources

TABLE 6. M&E OF ADAPTATION RESOURCES

TITLE	PRODUCED BY:	AVAILABLE AT:
Synthesis report on efforts undertaken to monitor and evaluate the implementation of adaptation projects, policies and programmes and the costs and effectiveness of completed projects, policies and programmes, and views on lessons learned, good practices, gaps and needs	UNFCCC	http://unfccc.int/resource/docs/2010/sbsta/eng/05.pdf
Measuring Adaptation to Climate Change: A Proposed Approach	DEFRA	http://archive.defra.gov.uk/environment/climate/documents/100219-measuring-adapt.pdf
Economic Evaluation of Climate Change Adaptation Projects Approaches for the Agricultural Sector and Beyond	World Bank	http://siteresources.worldbank.org/ENVIRONMENT/Resources/DevCC1_Adaptation.pdf
An Operational Framework for Tracking Adaptation and Measuring Development	International Institute for Environment and Development	http://pubs.iied.org/10038IIED.html

6.0 *A Rapid Increase in the Establishment of Online Knowledge Platforms and Networks*

6.1 Context

Complementing the increase in LCCRD planning processes at the national level has been an exponential growth in the number of networks, knowledge platforms and communities of practice working to facilitate the sharing of lessons learned, tools and resources related to low-carbon development and adaptation across sectors and regions.

6.2 State of Play

As the number of stakeholders and actors engaged in LCCRD grows, so too does the need for practitioners to have opportunities to interact and share knowledge and resources. Given our hyper-connected world, it is perhaps not surprising that online knowledge networks, forums and tools have emerged as a key way for practitioners to connect and support the operationalization of LCCRD. These mechanisms increasingly play “an important role in managing gaps between research, policy and practice” (Hammill, Harvey, & Echeverria, 2013).

Institutions and/or online initiatives have established platforms that support “knowledge brokering”—or the process of linking knowledge production and use—to facilitate information sharing and capacity building (Coordinated Low Emissions Assistance Network, 2011). Key climate knowledge brokers include multilateral organizations such as the UNFCCC and UNEP; local and international civil societies like Africa Adapt, SPDA Actualidad Ambiental and the CDKN—some of which are funded by bilateral and multilateral donors; academic organizations like the Institute of Development Studies at the University of Sussex; and national government initiatives like the India Environmental Portal. These platforms often include user-based elements that enable the sharing of best practices through newsletters, listserves, blogs, webinars, workshops and online peer-to-peer or member forums. They can also include data aggregation, tools, policy analysis and training sessions along with other capacity-building activities.

The focus and degree of knowledge sharing differs among climate knowledge broker platforms. The focus may be on mitigation, adaptation or a combination of both. Users may have a passive role in receiving information through a one-way flow of knowledge—such as through listserves, newsletters and data aggregation—or they may be able to actively share their experience and knowledge through a two-way flow of information through blogs and forums.

Many online hubs and networks are proving valuable and can play an important role in facilitating and supporting action, including by:¹¹

- Consolidating otherwise disparate information within or between communities of practice.
- Establishing avenues for peer-to-peer information sharing and diffusing lessons learned.
- Developing tools and frameworks to support policy development and implementation.
- Expanding and strengthening networks between developed and developing country experts.
- Supporting the streamlining of donor resources within particular networks or platforms.
- Providing venues for strengthened action either in the absence of or in addition to a comprehensive governing framework elsewhere at the international level.

¹¹ Adapted from Coordinated Low Emissions Assistance Network (2011) and Hammill et al. (2013).

6.3 Lessons Learned

As information needs and methods of communication continue to shift, so too does understanding of climate change and the availability of tools to address this challenge. In this respect, a number of key lessons are emerging.

It has quickly become apparent that quantity does not necessarily mean quality. The term “Portal Proliferation Syndrome” (Barnard, 2001) has been used to characterize the challenges associated with the exponential growth in climate knowledge broker platforms. A number of research organizations, donors and other organizations have supported the development of these platforms and various tools, sometimes without a clear sense of user needs, intended value add or what is needed to ensure the platform is effective, relevant and not duplicative.

The establishment of knowledge platforms may be supply-driven. Many climate-focused networks and platforms developed by donors and research organizations in developed countries often struggle to gain effective participation by intended users in developing countries. This situation stems in part from a disconnect between the content on the platforms and the needs of these users. To increase use, we must improve understanding of the behaviours and information needs of users (Hammill et al., 2013).¹² For example, a lack of regionally or locally focused research can inhibit policy-makers’ and practitioners’ access to information relevant to their countries’ needs.

Online knowledge platforms have not fundamentally shifted research or policy-making approaches, and connections between online and offline functions could be strengthened. While platforms can play a helpful role, they have not changed the way users initiate searches for information (i.e., use of online search engines or specific institutional websites), nor have they shifted demand away from “traditional” (i.e., written) forms of information sharing, such as reports, policy briefs or journal articles (Hammill et al., 2013). In order to move beyond strictly facilitating information exchange to influencing decision-making and fostering change, many online platforms would be best served to blend online and offline functions (i.e., connecting people to knowledge and to one another), recognizing, for example, the importance of those who may act as “online followers and offline leaders” (Hammill et al., 2013; Cranefield, Yoong, & Huff, 2011).

There are opportunities to capitalize on existing LCCRD linkages and treat “Portal Proliferation Syndrome.” It is useful for existing communities of practice to maintain individual spaces, but in the absence of connections between platforms, there is a tendency to perpetuate silo thinking. Networks and platforms can link to one another to avoid duplicating efforts and confusing users. Improving linkages between existing platforms and networks could be more beneficial than creating new ones.

6.4 Action Point

Online platform and network developers should focus on understanding the needs of their anticipated users and improving the quality of existing resources, as opposed to developing new platforms and networks. Better communication and collaboration between existing networks and platforms can prevent duplicating efforts or overstressing limited capacity.

¹² Hammill et al. (2013) included interviews and surveys with over 200 users of online climate change information and four in-depth case studies on discrete knowledge brokering platforms in their research.

6.5 Resources

TABLE 7. ONLINE KNOWLEDGE PLATFORM AND NETWORK RESOURCES

TITLE	PRODUCED BY:	AVAILABLE AT:
Understanding Needs, Meeting Demands: A User-Oriented Analysis of Online Knowledge Brokering Platforms for Climate Change and Development	IISD	http://www.iisd.org/publications/pub.aspx?id=2805
Review of Networks and Platforms for Low Emission and Climate Compatible Development Planning	Coordinated Low Emissions Assistance Network (now LEDS GP)	http://prod-http-80-800498448.us-east-1.elb.amazonaws.com/w/images/3/3e/LEDS_networks_and_platforms_rev_%2812-01-11%29.pdf
Seeking a Cure for Portal Proliferation Syndrome	CDKN	http://cdkn.org/2011/06/portal-proliferation-syndrome/
Climate and Development Knowledge Brokers Workshop Report	CDKN	http://cdkn.org/wp-content/uploads/2012/05/2012_Climate_Knowledge_Brokers_Workshop_Report3.pdf
Understanding Communities of Practice: An Overview for Adaptation Practitioners	Adaptation Partnership	http://www.adaptationpartnership.org/resource/understanding-communities-practice-overview-adaptation-practitioners

7.0 Conclusion

In recent years, LCCRD has emerged as a key way of framing policy and action to address climate change, capturing the need for mitigation and adaptation efforts to be fully integrated into development planning and implementation. This approach is likely to continue to shape the development and climate field in the coming years, given its capacity to jointly contribute to achieving the social, economic and climate change goals of many developing countries.

As development partners, relevant stakeholders and developing country governments continue to support development of LCCRD strategies, recommendations from this review of trends, challenges and opportunities should be kept in mind. First and foremost, the review highlights the first-order need for capacity building. Creating the necessary enabling conditions through technical support and financing is critical to ensuring an emphasis on translating plans and strategies into actions moving forward.

Other recommendations pertaining to each trend examined include:

- **Governance:** Coordination must be strengthened within the disparate patchwork of governance models and approaches being applied at various levels around the world. Policy-makers should seek to identify opportunities for better linkages between diverse approaches while scaling up action and sharing lessons learned. Ensuring that LCCRD governance takes the form of a more coherent quilt will better enable achievement of the shared overarching goal of ambitious mitigation and adaptation action in support of sustainable development.
- **Financing:** In future climate finance discussions, a greater focus should be placed on identifying the necessary capacity-building needs and enabling factors required for developing countries to effectively plan for, attract, establish and program various climate finance flows (both domestic and international) in the implementation of priority LCCRD activities. Financing tools need to be further embedded into national LCCRD planning processes in developing countries. They must also be encouraged to provide public support, particularly for the adaptation.
- **NAMAs:** NAMAs are of critical importance for LCCRD given the potential for strong linkages to both mitigation and adaptation, and for additional developmental co-benefits to be achieved through their implementation. As learning occurs and more NAMAs are developed, the NAMA UNFCCC architecture can be further established. In the interim, experiences must be shared and added to the information base, capacity must be built and financing towards implementation must be significantly scaled up. Making progress towards implementation is of critical importance to truly “test” the current process of NAMA development and planning.
- **M&E:** Capacity to monitor and evaluate adaptation actions can be improved by more closely aligning these efforts with existing monitoring frameworks and indicator systems being used in other fields by policy-makers, researchers and practitioners to track progress.
- **Online knowledge platforms and networks:** Developers of online platforms and networks need to place greater emphasis on understanding the needs of their anticipated users and improving the quality of existing resources as opposed to developing new platforms and networks. Better communication and collaboration between existing networks and platforms can help avoid duplicating effort or overstressing limited capacity.

For many countries, the twin objectives of development and addressing climate change are likely to become even more closely interwoven in the future. Though considerable challenges persist, as this report has shown, LCCRD policies and approaches offer opportunities to jointly contribute to achieving the social, economic and climate change goals of many developing countries.

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