

Institutional aspects of NAMA development and implementation

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List of Acronyms

BAPPENAS	The National Development Planning Agency
BUR	Biennial Update Report
CCC	Council on Climate Change
CD	Capacity Development
CDM	Clean Development Mechanism
CICC	Commission on Climate Change
CO ₂ eq	Equivalent carbon dioxide
COP	Conference of the Parties
CTCN	Climate Technology Centre and Network
DCC	Climate Change Directorate
DGPCC	General Direction for Climate Change Policy (acronym for spanish: Dirección General de Políticas de Cambio Climático)
DIGEACA	Department of Environmental Quality Management
DNA	Designated National Authority
EC	Energy Commission
EC	Evaluation Committee
ENCC	National Climate-Change Strategy
EPA	Environmental Protection Agency
FCPF	Forest Carbon Partnership Facility
FONAFIFO	National Forestry Financing Fund
GCF	Green Climate Fund
GECCA	Ghana Environmental Conventions Coordinating Authority
GEF	Global Environmental Facility
GHG	Greenhouse Gases
GMeT	Ghana Meteorological Agency
GSGDA	Ghana's Shared Growth and Development Agenda
ICA	International Consultation and Analysis
ICCTF	Indonesia Climate Change Trust Fund
ICE	Costa Rican Electricity Institute
INECC	National Institute of Ecology and Climate Change
IPCC	Intergovernmental Panel on Climate Change
IPCC AR4	Intergovernmental Panel on Climate Change 4th Assessment Report
KP	Kyoto Protocol
LCDS	Low Carbon Development Strategies
LULUCF	Land Use, Land-Use Change and Forestry
MEST	Ministry of Environment, Science and Technology
MFA	Ministry of Foreign Affairs
MINAE	Ministry of Environment and Energy
MINAET	Ministry of Environment, Energy and Telecommunications
MLNR	Ministry of Lands and Natural Resources
MMDA	Metropolitan, Municipal and District Assemblies
MoEN	Ministry of Energy
MoFA	Ministry of Food and Agriculture
MoFEP	Ministry of Finance and Economic Planning

MoH	Ministry of Health
Mol	Ministry of the Interior
MOP	Meetings of Parties to the Kyoto Protocol
MRV	Measurable Reportable Verifiable
NADMO	National Disaster Management Organization
NAMA(s)	Nationally Appropriate Mitigation Actions
NAP-GHG	National Action Plan of GHG Emissions Reductions
NAPA	National Adaptation Programme of Action
NC	National Communication
NCA	NAMA Coordinating authority
NCCAS	National Climate-Change Adaptation Strategy
NCCC	National Council on Climate Change
NCCP	National Climate-Change Policy
NCF	National Climate Funds
NDA	Nationally Designated Authority
NDE for CTCN	National Designated Entities for CTCN
NDE	National Designated Entity
NDPC	National Development Planning Commission
NGO	Non-governmental Organizations
OCIC	Costa Rican Office for Joint Implementation
OFF	Operational Focal Points
PDUDMO	Presidential Delivery Unit for Development Monitoring and Oversight
PoGh	Parliament of Ghana
RAD-GRK	Provincial Plan for Greenhouse Gas Reductions
RAN-GRK	National Plan for Green-house Gas Reductions
RCC	Regional Coordination Council
REDD	Reducing Emissions from Deforestation and Forest Degradation
REP	Rural Enterprises Project
SBI	Subsidiary Body for Implementation
SD	Sustainable Development
SETENA	National Secretariat on Environmental Issues
SINAC	National System for Conservation Areas
SNCC	National System for Climate Change
TEC	Technology Executive Committee
TNA	Technology Needs Assessment
TT	Technology Transfer
UNCSD	United Nations Commission for Sustainable Development
UNDP	United Nations Development Program
UNEP	United Nations Environmental Program
UNFCCC	United Nations Framework Convention on Climate Change
WRC	Water Resources Commission
WSSD	World Summit on Sustainable Development

Preface

Nationally Appropriate Mitigation Actions (NAMAs) have become a key concept for mitigation efforts in the context of the negotiations of a new global agreement under the United Nations Framework Convention on Climate Change (UNFCCC). NAMAs are therefore becoming a key tool for developing countries to structure and promote their potential emission reductions moving politically towards a low carbon development pathway. A number of countries, however, do not have the capacity and the resources to develop a national low carbon development strategy. Therefore many of these countries are taking action on NAMAs in a more individual manner, and many countries need urgently support for strategy development in the form of capacity development and structured international guidance.

This publication analyses how developing countries may arrange their institutional and organizational structures or enhance the existing ones in order to deal with these new developments under the international climate change mitigation regime. Focus is on how to ensure the implementation of NAMAs as vehicles for transformative and long lasting change. The publication presents an overview of the institutional challenges continuously posed to the Parties to the Convention when trying to internalize in national legal and regulatory frameworks the decisions during COP negotiations.

By discussing lessons learned and previous experiences with institutional development, the publication provides

ideas on how challenges can be addressed in order to strengthen or rearrange current institutional structures in a way that will be responsive to the climate regime while addressing development needs and provide longer term institutional stability. The understanding of international institutional structures is discussed in relation to their importance for national arrangements for NAMAs implementation. Case examples from Mexico, Costa Rica, Indonesia and Ghana are presented to illustrate innovative models for institutional structures for handling NAMAs in the context of sustainable development.

UNEP and its Risø Centre have over the last decade become a leading provider of capacity building and technical assistance to partner developing countries. In support of these efforts UNEP and the Risø Centre prepare guidance materials and practical tools in several areas of energy, climate change, sustainable development.. This publication aims to supplement the recently published "Guidance for NAMA design, building on country experiences" a joint effort by UNDP, UNFCCC and the UNEP Risø Centre. It is our hope that this publication will make a positive contribution to easing countries in their process of moving towards low carbon societies

John Christensen
Head of the UNEP Risoe Centre.

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Introduction

A key imperative for transition to low-emission pathways for all countries, including developing countries, is the significant global emissions reduction needed by 2050 to keep the increase in average global temperature below 2°C, a goal agreed by all countries under the UNFCCC. This requires immediate steps to integrate low-carbon emission options into sustainable development planning whilst developing capacities to manage national GHG emissions. Understanding and addressing the linkages between national development plans; LCDS; NAMAs and MRVs is critical to effectively achieve the 2°C goal in a nationally appropriate manner while satisfying international requirements. Countries therefore are faced with the need to develop institutional frameworks that encompasses national development priorities and deviation from BAU GHG emissions while satisfactorily report on mitigation achievements to the UNFCCC.

NAMAs are increasingly considered an important instrument for translating mitigation-related aspects of climate-change policy into implementation. As a piece of the mitigation puzzle NAMAs need to be set out in context and relating institutional arrangements should be articulated in a bigger setting. At the same time, the integration of climate change into broader development planning, having NAMAs at the core, implies considering legal instruments to be adopted or passed from the highest level¹ to ensure integrated approaches and sustainable and implementable outcomes. This may require that the responsibility for implementation lies with entities with sufficient enforcing role and responsible for framing the regulatory requirements for different sectors at the time of providing the implementation means.

Since the operating definition of NAMAs is quite broad, institutions should respond to country realities and political cultures. This publication presents some approximations on how integrated institutional arrangements can be made so that they are supportive of both national development priorities and international requirements to address climate change. Given that countries have a variety of political frameworks, we advocate focusing on distribution of responsibilities, functions and roles and enhance coordination rather than creating new institutions responsible for a single objective. The publication reflects on country experiences and desk research documentation and its main purpose is to add on international debate and help understanding of the complexities of organizational structures in a changing and dynamic world.

The publication is organized in 5 sections. Section 1 presents the framework for climate change, focusing on mitigation. Section 2 discusses the different elements considered for NAMAs operation while Section 3 introduces the different national challenges for institutionalizing NAMAs. Section 4 explores enabling institutional arrangements for NAMAs contextualized in a bigger national development context and finally Section 5 presents some country examples illustrating that there is no one-size fits all set of institutional arrangements but best practices that may not necessarily be replicated but be adapted into other national circumstances.

1 For example, the Mexican government has recently set a legal framework for tackling climate change by passing a General Climate Change Law. The legislation aims to regulate, encourage and make the implementation of the national climate change policy possible. It also incorporate a long-term, systematic, decentralized, participatory and integrated approach into adaptation and mitigation actions (Federal Government of Mexico, "National Climate Change Strategy. 10-20-40 Vision", 2013. http://mitigationpartnership.net/sites/default/files/encc_englishversion.pdf)

1. Framework for Climate Change Mitigation

1.1 Science and Policy of Climate Change Mitigation

Recognizing the imminent threat of climate change, the Parties to the United Nations Framework Convention on Climate Change launched a process in Bali to enhance implementation of the Convention. A key outcome of this process was recognition by Parties ‘that deep cuts in global greenhouse gas emissions are required according to science, and as documented in the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, with a view to reducing global greenhouse gas emissions so as to hold the increase in global average temperature below 2°C above preindustrial levels.’

The Emission GAP Report’s assessment (UNEP 2012) is that the median estimate of the emission level required in 2020 to provide the best opportunity to meet the 2°C target is 44 GtCO₂e (within a range of 42–47). This is already 14% higher than the median global greenhouse gas emissions for 2010, which is estimated at 50.1 GtCO₂e (with a 95% uncertainty range of 45.6–54.6). Adding to the sense of urgency, the following UNEP Gap Report (2013) stated that if the current gap is not closed, or significantly narrowed, by 2020, the door to many options limiting the temperature increase to 1.5° C at the end of this century will be closed.

The recent World Bank report (PIK 2013) highlights that ‘Without further commitments and action to reduce greenhouse gas emissions, the world is likely to warm by more than 3°C above the preindustrial climate. Even with the current mitigation commitments and pledges fully implemented, there is roughly a 20 percent likelihood of exceeding 4°C by 2100’.

The IPCC AR4 (IPCC 2008), based on a number of studies, reported that by 2020 developed countries will have to decrease their emissions by 25–40% below 1990 levels and developing countries achieve ‘substantial deviation from baseline in

Latin America, Middle East, East Asia and Central-Planned Asia’ to stabilize the GHG concentration at 450 ppm CO₂-equivalent (CO₂-eq). Stabilization at 450 ppm CO₂-eq implies a probability of about 30-75% of exceeding the equilibrium temperature threshold of 2°C above pre-industrial-level ranges.

To achieve this long-term goal, all Parties to the UNFCCC are called to pursue substantial efforts to cut their GHG emissions. The challenge for developing countries is to achieve sustainable growth while reducing emissions or decoupling GHG emissions from growth. For mitigation efforts to succeed in developing countries, national and local development needs and circumstances will have to be taken into account.

1.2 Mitigation outcomes for developing countries and their implications

The international political response to climate change challenges was the establishment of the UNFCCC (1992) in order to “stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system” (Art. 2). The UNFCCC provides a framework for negotiating specific agreements and review progress in dealing with climate change (CC) at the Conference of the Parties (COP), which takes place annually. The evolution of this international policy framework can be overviewed from two angles: the period prior to the Cancun agreement and after.

Before the Cancun decisions at COP 16, 2010, the key responsibilities for developing countries were to ‘Formulate and implement’ policies and measures to mitigate climate change but with no specific goals, mainly due to the recognition of the overriding priority of developing countries to address development and poverty. The Convention also recognizes that the extent to which developing countries will take measures is dependent on the provision of support provided by developed countries. Therefore, the identification, formulation

and implementation of national policies and measures were linked to the availability of international financial resources.

Finance as the main driver of policy-making

Influence on national policy-making regarding climate change came from the financing of climate-change projects through the Global Environment Facility (GEF), bilateral and multilateral agencies. The process was top-down and financing of climate change was based on pre-defined programmes (e.g. energy efficiency, technology demonstration for renewables, etc.), having both GHG emission reduction impacts, developmental and local benefit impacts. GEF funding was coordinated at the country level through the operational focal points (OFP). OFPs were responsible for endorsing project proposals to affirm that they were consistent with national plans and priorities and with facilitating GEF coordination and consultation at the country level. The GEF council defined the role of OFP as the principal contact point for all Implementing Agency activity in the country. It also provided feedback on GEF activities, reviewed project ideas and concepts, facilitated broad-based as well as project-related consultation and national interagency discussion on issues of substantive interest to the GEF. In a survey carried by the GEF, in some cases the OFP did undertake communication with other ministries and departments on international environmental issues and their implications for respective areas (GEF, 1998).

In the case of bilateral agencies, whose main driving force had been development and environmental support, climate-change financing was integrated into existing funding approaches by prioritizing climate change co-benefits as criteria for decision-making. The intervention by these agencies has largely been at the sectoral level and has focused on policies in specific areas. This did not require a wider consultation between the ministries and/or sectors.

In conclusion, the pre Cancun financing approach only ensured that countries take up programmes that are in line with national goals but did not foster any country-led approach to identifying priority mitigation areas.

Reporting Progress

One of the commitments for UNFCCC signatory nations was to establish national greenhouse gas inventories of greenhouse gas (GHG) emissions and removals. Consequently, developing countries are required to report measures taken through National Communica-

tions. To implement the international policy on reporting by countries, it was found necessary to establish a system to collect information on climate change policies and measures. Developing country governments responded to this requirement by appointing relevant ministries. As climate change used to be perceived as an environmental issue, in most developing countries the Ministries of Environment were assigned the responsibility of leading international policy discussions and national policy-making on climate change. Consequently, these ministries were also assigned the task of collating information on climate-change policies and measures and reporting them to UNFCCC. In some other countries, since climate change was considered more a science - or weather-related issue, the Ministries of Science and Technology or the Ministries of Meteorology were given the responsibility.

However reporting became irregular since it was tied to provision of financial resources and in most instances the information collation mechanisms were temporary and created for the sole purpose of preparing reports. Thus the reporting requirement did not engender any climate change integration into sectoral planning and policy formulation but did create awareness that programmes and plans with mitigation impacts should be identified.

In conclusion, in the early stages climate-change policy-making was driven by international agenda for reporting and providing financial support, but it lacked complimentary bottom-up approaches to enable the integration of climate-change policy-making with countries' development planning processes. Nor did this encourage coordination within the government, as support was provided to projects in areas previously identified and defined by financing entities.

Legal and regulatory frameworks

National legal and regulatory frameworks to address climate change in developing countries are driven mostly by international policies formulated under the UNFCCC. The lack of a goal for developing countries to address climate-change mitigation in the pre-Cancun period also implied that they were not required to make more comprehensive assessments of the opportunities for emission reductions while developing their national climate-change strategies. Thus, the legal and regulatory frameworks were limited to defining the roles and responsibilities of the institutions and organizations responsible for reporting to UNFCCC, which

are currently known as the UNFCCC focal points. Therefore, the international requirement seemed to be very general and lacking in goals, making subsequent negotiations push for a more comprehensive and integrated approach to addressing climate change.

The Role of CDM for enhancing internal coordination

The adoption of the Kyoto Protocol (KP) did not change international policy in relation to the obligations of the developing countries either, though the conditions for the Clean Development Mechanism (CDM) required countries to set up a national authority to certify that participation in CDM is voluntary and that the proposed CDM Project contributes to the country's sustainable development objectives. In this case also, in most countries the role of the DNA was assigned to the Environment Ministries. In other countries this led to establishing inter-ministerial coordination bodies to support DNA decision-making. The purpose of these committees was to ensure that the proposed CDM projects were in line with development objectives and that they met national environmental law, so the focus was placed more on development than on climate change. Likewise, the fact that the private sector was the prime driver of CDM implied that the ministries were not at the forefront of identifying mitigation opportunities and thus had no impact on attempts to integrate climate change at the sectoral level. However, this did make ministry representatives aware of climate change issues through their involvement in the inter-ministerial committees that countries set up to approve proposed CDM projects. CDM did foster some coordination, but its impact was limited, as the prime driver was the private sector.

New mitigation framework for developing countries

The Cancun COP in 2010 and Durban COP in 2011 have progressively clarified the new mitigation framework for developing countries. One of the decisions re-iterates that, 'in accordance with Article 4, paragraph 3, of the Convention, developed country Parties shall provide enhanced financial, technological and capacity-building support for the preparation and implementation of nationally appropriate mitigation actions of developing country Parties...'. The decision at Cancun (UNFCCC, 2010) adopted by Parties during COP16 distinguishes between internationally supported actions and domestic supported actions depending on whether they are implemented with or without international support. A key part of the decision is a common 'goal' for all developing countries to take actions such that their GHG emissions achieve a deviation in emissions rela-

tive to 'business as usual' emissions in 2020 (Sharma, S. and Desgain, D. 2013).

Nationally Appropriate Mitigation Actions (NAMAs)

The challenge for developing countries is to achieve sustainable growth while reducing emissions growth or decoupling GHG emissions from growth. For mitigation efforts to succeed in developing countries, national and local development needs and circumstances will have to be taken into account. In recognition of these principles, the concept of 'Nationally Appropriate Mitigation Actions (NAMAs) in the context of sustainable development' (1/CP.13, P.1 (b) (II)) calls for an integrated approach to mainstream climate change within frameworks of long-term national development plans, emphasizing national ownership and contributions to emission reductions under the unique conditions of each developing country (UNFCCC 2008).² The Cancun Agreement (UNFCCC 2011), in defining developing country mitigation responsibility, recognizes that 'social and economic development and poverty eradication are the first and overriding priorities of developing country Parties'. The Agreement also consolidates the Bali Action Plan such that 'developing country Parties will take nationally appropriate mitigation actions in the context of sustainable development, supported and enabled by technology, financing and capacity-building, aimed at achieving a **deviation in emissions relative to "business as usual" emissions in 2020.**'

NAMAs should be measurable, reportable and verifiable (MRV), this being a key additional element compared to the past obligations of developing countries. The decision at Cancun clarified that 'internationally supported mitigation actions will be measured, reported and verified domestically and will be subject to international measurement, reporting and verification in accordance with guidelines to be developed under the Convention.' Further, 'domestically supported mitigation actions will be measured, reported and verified domestically in accordance with general guidelines to be developed under the Convention'. The general

² Nationally Appropriate Mitigation Actions (NAMAs) are one of the cornerstones of the international climate negotiations. The term was first introduced in the Bali Action Plan of 2007, when all Parties to the United Nations Framework Convention on Climate Change (UNFCCC) agreed to negotiate on 'Nationally appropriate mitigation actions by developing country Parties in the context of sustainable development, supported and enabled by technology, financing and capacity building, in a measurable, reportable and verifiable manner.'

guidelines for domestic and international MRV of domestic and supported NAMA will be developed under the UNFCCC. International MRV of internationally supported NAMAs will be extracted from the information on NAMAs reported in biennial update reports (BURs), which will be subject to international consultation and analysis (ICA).

Reporting to UNFCCC by developing countries has also been enhanced, with developing countries required to submit BURs every two years. BURs will include information on GHG inventories as well as information on the progress and impacts of NAMAs implemented by the country. This in turn will require a certain level of coordination within the country on collecting information on NAMAs for preparing the BURs.

The new international mitigation policy for developing countries has evolved significantly in several respects:

- (i) It sets a goal for 2020, deviation from BAU emissions
- (ii) It urges countries to develop a low-carbon development strategy to underpin the short- and medium-term mitigation goals.
- (iii) It enhances monitoring of the mitigation actions and enhances regular reporting requirements.
- (iv) Most importantly, the onus of responsibility for the identification, development and implementation of the mitigation actions rests with national governments, which are responsible for adopting the international obligations.

The new agreement shifts the responsibility for planning and implementing mitigation actions to governments, as well as the focus of putting it in the context of national development strategies. Thus this enhanced obligation calls for greater coordination between the planning and implementation arms of the government institutions, enabling countries to have a clearer picture of their mitigation efforts. Further, enhanced monitoring requirements and regular reporting also require arrangements to be made for regular information gathering and assessments of climate change actions taken by governments that fulfil their international obligations to report.

1.3 Institutional challenges and responses from countries

Climate change regime and COP/MOP processes pose important challenges to countries in terms of policy and, consequently, institutional (re)arrangements and

reforms. At the same time, decisions at the negotiations are relevant drivers with regard to national climate-change policies, having incentivized even voluntary pledges for emissions reductions. Among emerging examples in that context are Costa Rica, Mexico, Chile, Brazil, China, India, South Korea and South Africa. (IETA 2012; Wang 2012).

Types of responses from developing countries

The institutional arrangements also are linked to the types of voluntary mitigation pledges that countries make. These range from pledges based on policies, sectoral and project-level actions in the context of sustainable development, economic growth and co-benefits (mostly middle- to low-income countries contributing less than 1%) to pledges formulated as quantitative emission reduction targets (e.g., Brazil and China).

Development as a driver of climate policy

For most developing countries development is the priority. Climate policy-making is driven by the 'development-first approach', where poverty eradication and economic growth are the overriding priorities. This approach is based on the pursuit of measures that promote sustainable development objectives while also yielding side benefits for mitigation (Davidson et al. 2003). Therefore, sustainable development benefits are set as the primary goals, and emissions reductions are a side benefit. This is clear from the way in which countries adopt national policies, for example, for energy security and/or energy efficiency (as a consequence of the growing demand for energy) that are not necessarily policies to address climate change but a development concern. Thus countries' long-term sustainable development strategies, such as low carbon/emission strategies, will govern climate-change mitigation policies.

Approaches to climate-change policy-making

Meanwhile, climate-change policy design and implementation have been promoted as being more effective through approaches that encourage democratic, participatory and bottom-up processes – especially after recognition by science (IPCC, multiple reports) that climate change is a long-term-multidimensional problem and, as such, a development concern. However, the methodology widely used in framing and implementing national policies has usually been top-down, preceded by a 'lab analysis' that generates a preliminary proposal. The proposal is then validated by the government and socialized a posteriori. Therefore, so far the dynamics of designing national climate-change policy has clearly not been a bottom-up process, especially because this is usually thought to generate more bottlenecks and stalling by conflicts of interest over multiple propos-

als. Nowadays, combining the top-down approach to provide and enable coherent national frameworks a bottom-up processes to push and support implementation and ownership is seen as a more effective and balanced way out.

Responsibility for climate change within government and interactions with UNFCCC

The overall implementation of the UNFCCC and subsequent decisions taken every year within the COP/MOPs has made countries continuously rethink and reshape the national governance and institutionalization of climate change. The challenge increases in complexity as the international community recognizes climate change as the very genesis of the real threats to development, requiring to be handled as a multidisciplinary and cross-cutting issue. However, responsibility for climate change has generally been placed within relevant line ministries (or related agencies) such as Environment, Foreign Affairs, Science and Technology, and Energy and/or meteorological agencies, but not in ministries of central planning, economy and finance or development. Regardless of the administrative structure, however, the main challenge for climate-change agencies has so far been the lack of appropriate allocation of resources; in most cases opportunistic political support from the top and loose authority to engage with other groups working in climate change across government.

In most cases, national climate policies have been designed and implemented by environment ministries as a logical extension of their focus on local environmental issues. In 1996, the 2nd session of the Conference of Parties (COP) established National Climate Change Focal Points to represent countries formally in the UNFCCC process. Similarly, the Marrakesh Accords established Designated National Authorities (DNAs), the national bodies responsible for assessing potential CDM projects with respect to their contribution to the sustainable development goals of the host country (UNFCCC 2002; Lecocq and Ambrosi 2007). In many developing countries, the UNFCCC Focal Points and the DNA were hosted by the same government agency, mostly an environment ministry, with these posts frequently being filled by the same persons. For the following decade, in most developing countries the UNFCCC focal points were the main 'owners' of the topic of climate change nationally, and climate-related activities such as programs and projects funded by the GEF were undertaken either by the focal points' government agencies or by technical staff in sector ministries such as energy.

1.4 New international support institutions and corresponding requirements

A number of new institutions have been created to enable implementation of the Convention. These institutions can be categorized according to their mandates as entities created to support the COP in its decision making and entities created to support developing countries implement the decisions.

a) COP decision-making support entities

Adaptation Committee

The adaptation committee is charged with the responsibility to promote the implementation of enhanced action on adaptation in a coherent manner under the Convention.

Technology Executive Committee (TEC)

The TEC is the policy arm of the Technology Mechanism, The Technology Mechanism's overarching goal is to sharpen the focus, step up the pace and expand the scope of environmentally sound technology development and transfer in a highly qualitative way. The adaptation committee and TEC are advisory bodies, and as such developing countries have direct interaction with them. But at the same time, these bodies have great influence over international policy-making through the COP. Thus countries must look at coordination within their own institutions and identify a process to feed into the discussion of these bodies. Likewise, dissemination of information regarding the discussions and recommendations of these bodies within the countries would be immensely helpful to entities within countries as climate change is integrated into developmental planning and implementation.

b) Developing country implementation support entities and tools

On the implementation side, the following entities have been created to support developing countries: the Climate Technology Centre and Network (CTCN), the Registry, and the Green Climate Fund (GCF).

Climate Technology Centre and Network (CTCN)

The CTCN was established to provide direct assistance to developing countries by supporting them in enhancing their clean technology capabilities and facilitating prompt action on the deployment of existing technologies in developing countries. Furthermore, the CTCN will encourage collaboration with the private and public sectors, as well as with academic and research institutions, in developing and transferring emerging technologies to the best effect. It will act as a service institution

Table 1. Summary of institutions created to enable implementation of the Convention

Entity	Characteristic	Functions
Adaptation Committee	Supporting COP decision-making	Inter alia: <ul style="list-style-type: none"> » Providing technical support and guidance to the Parties » Sharing of relevant information, knowledge, experience and good practices » Promoting synergy and strengthening engagement with national, regional and international organizations, centres and networks » Providing information and recommendations, and drawing on adaptation good practices, for consideration by the COP when providing guidance on the means to incentivize the implementation of adaptation actions, including finance, technology and capacity-building » Considering information communicated by the Parties regarding their monitoring and review of adaptation actions, support provided and received
Technology Executive Committee	Supporting COP decision-making	The key functions of the TEC are to consider and recommend actions related to: <ul style="list-style-type: none"> » promoting technology development and transfer in order to accelerate action on mitigation and adaptation; » providing an overview of technological needs; and, » catalysing the development and use of technology road maps or action plans at the international, regional and national levels through collaboration with relevant stakeholders, including governments, relevant international and regional organizations, the private sector, non-profit organizations, and academic and research communities to support action on mitigation and adaptation on the ground.

for developing countries in providing technological support, which the countries will channel through a national designated entity (NDE). The NDE will have a key role in coordinating requests that are in line with national priorities and strategies. Furthermore, it will be important for the entity to be capable of aligning itself with climate change actions (NAMAs, NAPAs, etc.) to ensure that the technological support is directed to the right areas.

The Green Climate Fund (GCF)

To provide financial support to developing countries to adopt adaptation and mitigation actions, COP established the Green Climate Fund (GCF) as an operating entity of the Financial Mechanism of the Convention. The objective of the GCF is to promote the shift towards low-emission and climate-resilient development pathways. Further, the GCF will enable and support enhanced actions on REDD-plus, technology development and transfer, capacity-building and the preparation of national reports (such as NCs, BURs) by developing countries. The GCF will have thematic windows, for adaptation and mitigation initially, but may add more

as needed. It will also have a facility to fund private-sector adaptation and mitigation initiatives. Countries will have to access to the fund through a Nationally Designated Authority (NDA).

The Registry

In order to facilitate provision of support to prepare and implement NAMAs, Cancun Agreements set up 'a **Registry** as a tool to record nationally appropriate mitigation actions seeking international support and to facilitate matching of finance, technology and capacity-building support for these actions'. The Registry is to be a dynamic, web-based platform managed by a dedicated team in the secretariat. Countries can present their NAMAs, both those seeking support and those seeking recognition, to the Registry. Furthermore, Registry will provide a platform for countries to advertise NAMAs that are seeking support for development or implementation, as well as those being implemented. Countries will have to designate a representative authorized to provide the information on NAMAs to the secretariat to be made available on the Registry.

Table 2. International entities supporting the national implementation of COP decisions

Entity	General functions	National Requirements
CTCN	<ul style="list-style-type: none"> » Manage and respond to requests from developing countries. » Foster collaboration and access to information and knowledge to accelerate technology transfer. » Strengthen networks, partnerships and capacity-building for climate technology transfers. 	Developing countries to set up a national designated entity (NDE), a body granted responsibility by a Party to manage technology related requests to the CTCN. The NDE will serve as the link between the CTCN and local stakeholders, including the private sector and government institutions. NDEs will have a key role in coordinating requests that are in line with national priorities.
GCF	<ul style="list-style-type: none"> » The Green Climate Fund (GCF) is a fund within the framework of the UNFCCC founded as a mechanism to transfer money from the developed to the developing world, in order to assist the developing countries in adaptation and mitigation activities to counter climate change. 	<p>Countries will have to access the GCF through a Nationally Designated Authority (NDA). The NDA is expected to have the following responsibilities:</p> <ul style="list-style-type: none"> » Program oversight, country programming, country level coordination and coherence with national climate change and development pathways; » Designation of implementing entities (IEs) ; » Approval of funding requests and no-objection procedures.
Tool		
Registry	<ul style="list-style-type: none"> » To record nationally appropriate mitigation actions (NAMAs) seeking international support, to facilitate the matching of finance, technology and capacity-building support with these actions, and to recognize other NAMAs. 	Developing countries can also establish a National Registry and/or nominate an entity or a focal point to carry out the uploading of a NAMA to the international Registry.

The three institutions are crucial to support actions related to climate change, especially the CTCN and GCF. The CTCN is a technical support institution to help address issues around the adoption and dissemination of technologies; as such it could be used to support the development of NAMAs as well. For taking full advantage of the CTCN, countries should ensure that NDEs coordinate closely with the entity responsible for coordinating NAMA activities in the country. By virtue of being an interface between the country and UNFCCC, a potential National Registry, an entity to be a repository for all NAMA-related activities in the country, should preferably be located in an entity coordinating NAMA development. A key role that the NDA to the GCF could play is to support the implementation of NAMAs, manage the use of sources of financing for NAMAs and work out how the GCF financing could be integrated

into a matrix of other sources in the country. Thus the NDA to the GCF could be closely associated with institutional arrangements for coordinating climate finance in the country. Irrespective of the location of the different focal points, a process of information flow between these three entities will be essential to ensure synergies and the optimal use of resources.

Countries will have to assess carefully where to place the different functions and responsibilities required of focal points for these three different international implementation support institutions and the level of coordination required among them, as well as determining national processes for the identification, development, implementation and assessment of climate-change actions.

2. NAMA operations

2.1 Governance of NAMAs

The Bali Action Plan (2007) called for developing country Parties to undertake Nationally Appropriate Mitigation Actions in the context of sustainable development, supported and enabled by technology, financing and capacity-building, in a measurable, reportable and verifiable manner. The BAP represents the legal basis for all subsequent discussions of NAMAs. Under the Copenhagen Accord, non-Annex I Parties to the UN Framework Convention on Climate Change (UNFCCC) committed themselves to implementing mitigation actions in the context of sustainable development. The Cancun Agreement, in defining developing-country mitigation responsibility, recognizes that 'social and economic development and poverty eradication are the first and overriding priorities of developing country Parties', and it also consolidates the BAP by aiming to achieve "a deviation in emissions relative to 'business as usual' emissions in 2020."

2.2 NAMAs and Sustainable Development

NAMAs are mitigation actions developed in the context of national development plans (UNFCCC 2008). NAMAs, first introduced in the Bali Action Plan of 2007, are voluntary mitigation actions for developing countries in line with the "principle of common, but differentiated responsibilities and respective capabilities". The overall goal of NAMAs is to be developed "in the context of sustainable development, supported and enabled by technology, financing and capacity-building, in a measurable, reportable and verifiable manner". At the Conference of the Parties at its sixteenth session in Cancun in 2010 it was further agreed that NAMAs should aim "at achieving a deviation in emissions relative to 'business as usual' emissions in 2020".

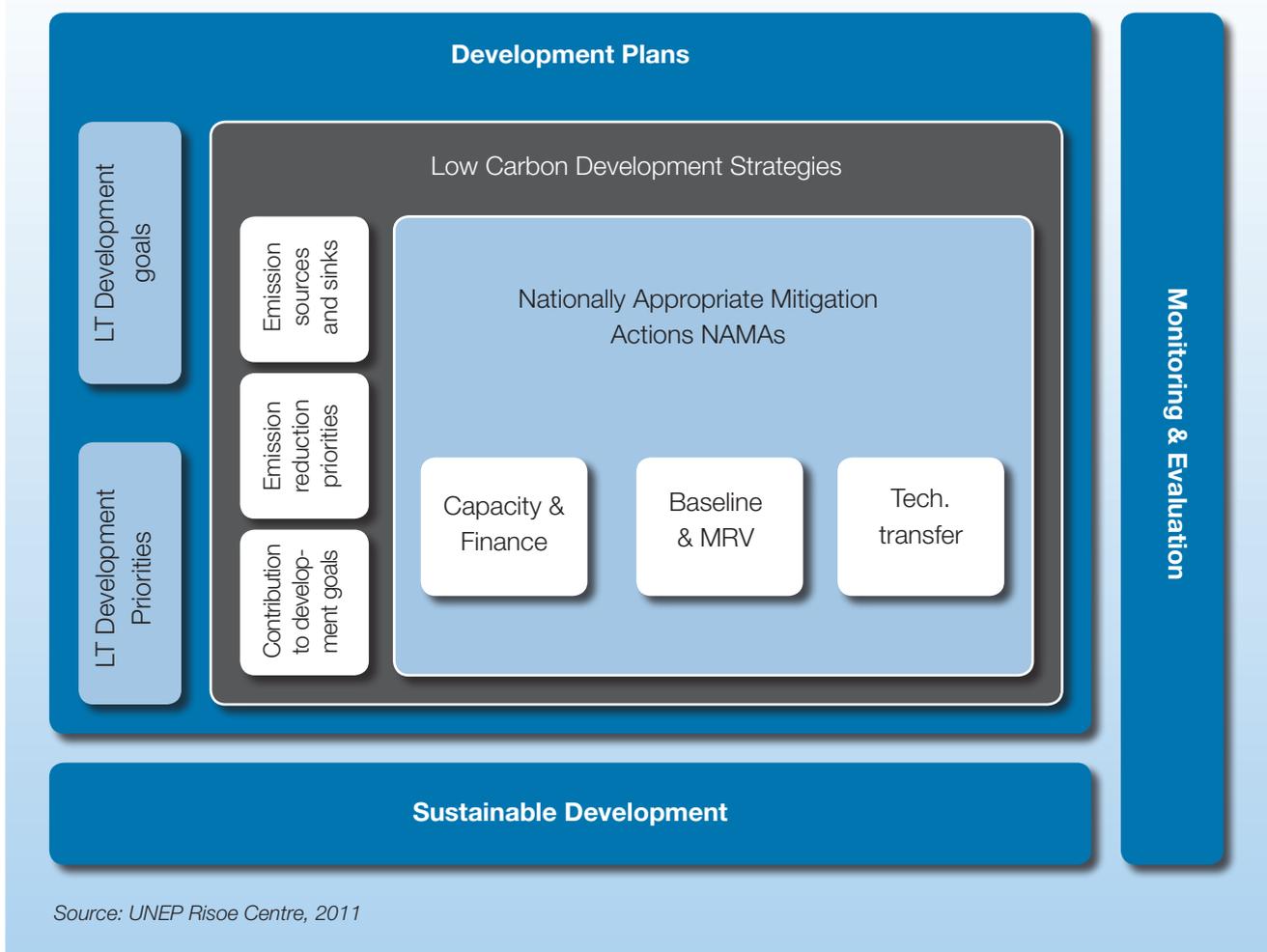
Thus, NAMAs are thought to enable and manage the social, economic, environmental dimensions of development needs while providing opportunities for developing countries to take action on their increasing emissions. Also, in order to decouple GHG emission growth from economic growth, countries are encouraged to develop national Low Carbon Development Strategies, LCDS (first introduced in the Copenhagen Accord (27CP.15 p.2) (UNFCCC 2009) and further reiterated in Cancun Agreements (1/CP 16, p.6)) as indispensable to sustainable development (UNFCCC 2011).

2.3 Integrating NAMAs with Low-Carbon Development Strategies

To attend to the need for overarching planning, emerging literature on NAMAs (Lütken et al. 2011; Cameron et al. 2013; Cerqueira et al. 2012; UNDP 2011) suggests that, ideally, its implementation should respond to low-carbon (or low-emission) development strategies (LCDS/LEDS) concerted with broader national sustainable development priorities.

Ideally, the LCDS should be a comprehensive, integrated and effective framework, including a road map of mitigation potentials and prioritized mitigation options throughout the economy, anchored in countries' sustainable development strategy and objectives. NAMAs could then be seen as vehicles to implement the LCDS, accounting for specific sustainable development benefits in terms of development goals and objectives and emission reductions. Preparing an LCDS is therefore an opportunity to consider how NAMAs could work in combination with a national strategy over a longer time frame. Yet, an LCDS can provide an overarching framework to identify and achieve emission reductions through NAMAs while framing the necessary MRVs, including sustainable development benefits.

Figure 1: Linkages between NAMAs, LCDS and long-term sustainable development



Therefore, Low Carbon Development Strategies (LCDS) aim to provide an overarching framework in which to design and fit Nationally Appropriate Mitigation Actions (NAMAs).

LCDS and NAMAs are not entirely new concepts, as they underpin the basic premise and foundations of the global climate negotiations twenty years ago that delivered Kyoto. The formulation of the text around NAMAs and that of the Convention itself are strikingly similar:

‘The Parties have a right to, and should promote, sustainable development. Policies and measures to protect the climate system against human-induced change should be appropriate for the specific conditions of each Party and should be integrated with national development programmes, taking into account that economic development is essential for adopting measures to address climate change’ (UNFCCC, Art. 3.4, 1992).

NAMAs are therefore one of the Parties’ commitments to the Convention (voluntary for developing countries) and, while the LCDS may provide the long-term direction – the low-carbon development pathway – for a national economy to meet its development goals and objectives, NAMAs can be considered to be one of the vehicles³ to implement this strategy, as well as other national and local climate-change action plans.

Therefore, in order to address the complex interconnectedness of mitigation and development, the new international climate policy instrument of support through NAMAs should ideally be explicitly framed in the context of national appropriateness and sustainable development. The UNFCCC currently advocates a ‘bottom-up’ approach to detailing supported NAMAs, inviting developing countries to define what nationally appropriate mitigation actions they could take and what the associated support needs are. Thus in organizing

³ In Costa Rica, for instance, other vehicles are promoting carbon neutrality in enterprises, namely regional governments and municipalities, coupled with creating national cap and trade systems.

institutional arrangements for NAMAs, countries would have to consider coordinating and integrating NAMA development with national sustainable development planning and low-carbon development strategies. This implies that NAMAs that deliver on development require national governments to assess highly context-specific impacts ex-ante and to implement actions effectively.

2.4 International requirements

2.4.1 REGISTRY

At the international level, countries claiming that they have contributed to mitigation through national policies and measures (actions) can communicate them through the so-called REGISTRY, a web-based platform established to record NAMAs and to facilitate the matching of finance, technology and capacity-building to support their implementation. Supported NAMAs might need to submit information such as estimated costs, estimated GHG emission reductions and the anticipated time frame for implementation. Countries may also submit information on unilateral NAMAs (those implemented using domestic support) to the Registry for recognition of their efforts. Through the Registry, developed country Parties are also invited to submit information on support (available and provided) for NAMAs to the UNFCCC Secretariat.

The Secretariat will record and regularly update this information on NAMAs seeking international support, availability of support, and support provided. Furthermore, in a separate section of the registry the UNFCCC Secretariat will record (FCCC/CP/2010/7/Add.1):

- (i) NAMAs to be implemented by Non-Annex I Parties as already communicated and contained in document FCCC/AWGLCA/2011/INF.1,
- (ii) Additional NAMAs submitted in association with voluntarily NAMAs (as stipulated in paragraph 50), and
- (ii) Internationally supported mitigation actions and their associated support.

The 2010 Cancun Agreements established a NAMA registry as follows: 'a registry would be set up to record NAMAs seeking international support and to facilitate matching of finance, technology and capacity-building to these actions' (FCCC/CP/2010/7/Add.1/paragraph 53). The COP, at its seventeenth session, decided to develop the registry as a dynamic, web-based platform. The Registry includes information as follows:

- (a) The registry database consists of the following sections:

- (b) NAMAs seeking international support;
- (c) Other NAMAs submitted for recognition;
- (d) Information on support for the preparation and implementation of NAMAs; and
- (e) Information on supported NAMA and associated support after matching has taken place.

Each section is expected to contain records for individual NAMAs or sources of support respectively. Furthermore, each record consists of individual fields, which contains descriptive information of a NAMA or a source of support. These fields have been defined following the guidance specified in decision 2/CP.17, paragraphs 46 and 48.

A submission tool enables the user to submit NAMAs and information on support to the registry. In order to enable the matching function of the registry to work optimally, users should provide sufficient descriptive information on their NAMAs or sources of support, for example, the relevant sector, the type of activity to be financed, etc.

The Registry is used to record the NAMA submission to the secretariat and allow a wider audience to browse its contents.

2.4.2 BUR and ICA

Domestic GHG emission reduction efforts are also communicated through National Communications (NCs) and now also through Biennial Update Report (BURs). Non-Annex I Parties should submit their NCs every four years and BURs every two years. In accordance with Decision 1/CP.16, paragraph 60 (c), 'biennial update reports containing updates of national GHG inventories including a national inventory report and information on mitigation actions, needs and support received should be submitted by developing countries, consistent with their capabilities and the level of support provided for reporting'.⁴

In Durban, the COP adopted guidelines for the preparation of BURs (UNFCCC, 2011). According to these guidelines, BURs will require developing country Parties preparing NAMAs to submit the following information:

- (i) National circumstances and institutional arrangements related to the preparation of national communications;
- (ii) National inventories;

⁴ For that reason, the COP has decided to enhance reporting of national communications (and inventories) from Non-Annex I Parties on mitigation actions and their effects, and support received. On this point, some flexibility will be given to the least developed country parties and small island developing states (FCCC/CP/2010/7/Add.1).

- (iii) Information on NAMAs and their effects, including methodologies, assumptions and progress towards implementation;
 - (iv) Finance, technology and capacity-building needs and support received; and
 - (v) Information related to domestic MRV.
- (vi) Developing country Parties are to submit their first BUR by December 2014.

A process for the International Consultations and Analysis (ICA) of biennial reports will be conducted under the Subsidiary Body for Implementation (SBI). This process may be done through: (i) analysis by technical experts in consultation with the Party concerned, and (ii) a facilitative sharing of views. This will result in a summary report, whose contents should include: i) the national greenhouse gas inventory report; (ii) information on mitigation actions, including a description, analysis of the impacts and associated methodologies and assumptions; (iii) progress in implementation and information on domestic MRV; and, (iv) support received. (FCCC/CP/2010/7/Add.1/ paragraphs 60 and 64).

2.4.3 MRVs

The Measurement, Reporting and Verification (MRV) of mitigation actions occupy a central position in the 2007 Bali Action Plan, the 2009 Copenhagen Accord and the 2010 Cancun Agreements simply because without MRV the effectiveness of mitigation actions cannot be determined. As a key element of NAMA, MRV of mitigation actions, other than being an international requirement under the UNFCCC, should be seen as an important management tool for countries to track their progress in transferring to a low-emission development path and achieving sustainable development goals.

In those lines, the MRV can serve a number of purposes, including tracking progress towards the achievement of mitigation actions and their desired effects; strengthening the understanding of global aggregate emissions reductions and whether they are adequate for meeting global temperature limits; avoiding double claiming of emissions reductions; assisting the design and implementation of NAMAs more effectively; understanding the cost-effectiveness of NAMAs; enhancing transparency and trust; lowering the risk of inaccurate assessment; and gaining an understanding of the provision of and needs related to support (Levin and Finnegan, 2011). In addition, MRV can assist in the identification and sharing of best practices and in securing international recognition of NAMAs.

MRV should also be seen as an important tool in assessing effectiveness in achieving the goals and objectives of climate-change policy. By measuring the emission reductions and quantifying the multiple benefits of mitigation actions an MRV system will provide information on whether existing mitigation actions are sufficient to achieve GHG emission reduction ambitions and sustainable development goals. Also, it can provide insights into the balance between support needed and support received. The details of MRV requirements in a post-2012 climate regime can have wide implications for the effectiveness of global mitigation efforts.

The Cancun Agreements and the Durban Outcomes define the requirements of MRVs of mitigation efforts undertaken by developing countries (UNFCCC:2011tn). The key elements are:

- All NAMAs, whether supported domestically or internationally, will be measured, reported and verified domestically.
- The domestic MRV of domestically supported NAMAs will be carried out in accordance with general guidelines to be developed and approved by the COP. Presently the Subsidiary Body for Scientific and Technical Advice (SBSTA) is tasked with the development of these guidelines, which were approved by the 19th session of COP. Though not explicitly stated, the outcomes and impacts of these NAMAs will be reported in the BURs, which will be subject to ICA.
- Internationally supported NAMAs will also be subject to international MRV, which itself will be in accordance with the guidelines developed for ICA adopted at COP17.
- Biennial Update Reports (BUR) will be the main channel for reporting (R) all the mitigation efforts in connection with domestically and internationally supported NAMAs made by developing countries to the UNFCCC. Least Developed Country Parties and Small Island Developing States have the flexibility to submit BURs at their discretion. Developing countries will be provided with support (financial and technical) by developed countries for the preparation of BURs.
- Information included in BURs will be subject to international consultation and analysis under the ICA. The ICA process is aimed at increasing transparency and trust among Parties to the UNFCCC.

Therefore, domestic MRV systems should meet international reporting requirements, such as: GHG inventories, BURs, and the MRV of NAMAs. Currently, setting up MRV systems that meet international requirements and national specific needs and circumstances is field-testing to be a challenging process, especially because of the diversity of national GHG emission sources associated to the variety and level of development of economic sectors. However, most countries are building on existing experience with mechanisms for monitoring and evaluation (M&E) of policy tracking, national GHG inventories and air quality measurement systems. Under the rationale of distributing responsibilities rather than establishing new institutions, suggested in this publication, these systems can be strengthened or adapted to respond to broader emerging MRV responsibilities.

A discussion on a suggested disposition for MRVs as integral part of an institutional arrangement for NAMAs is presented in section 4.3.

3. Institutional requirements for NAMAs: national challenges

Institutional arrangements are treated as different (in) formal regimes and coalitions for collective action and inter-agent coordination, extending from public-private cooperation and contracting schemes to organizational networking to policy arrangements (Elzen et al. 2004). A widely used definition is the one devised by North (1990): 'Identified with the "rules of the game" institutions are commonly interpreted as the formal and informal rules, including norms, customs beliefs, values, habits and behaviour'. Institutions have long been an obvious focus of many social science studies, not least in studies of the national management of environmental change, in which institutions are seen as playing a significant role as engines driving and/or steering actor behaviour (Young 2002). Likewise, institutional arrangements are unique to each country's political, cultural and socio-economic context and are ultimately associated with planning styles.

In line with the international requirements for NAMAs described above, developing countries and the required interactions with the international institutions created for supporting the NAMA process, developing countries may consider revising their current national institutional arrangements for climate change in such a way that they tackle climate change more effectively. This means that mainstreaming efforts should be enhanced and be more focused and articulated, both with international requirements and with national needs, taking into consideration planning styles, leadership, inclusiveness, participatory processes and ownership. For instance, sector-governing bodies' empowerment, leadership and ownership with regard to mitigation actions are claimed to be crucial factors of success. This is especially the case if they are gradually translated into national or sectoral mitigation strategies permeating stakeholders and forces in the sectoral chain.

However, without a leading entity promoting high-level political definitions for comprehensive mitigation actions it would be difficult to articulate and keep alive the interest of sector governments and businesses in

addressing climate change. Therefore, as mitigation actions may require multi-stakeholder involvement from planning to implementation, a particular institutional arrangement for NAMAs would require the adoption of a strong coordinating body with a clear level of authority to set rules, roles and responsibilities.

Reshaping institutional structures bearing in mind those reasons may involve discussions of the following aspects:

- NAMAs in the context of sustainable development
- Considering NAMAs as transformational drivers of development
- Planning NAMAs through a strong leadership and stakeholder-focused approach for identifying and prioritising Actions
- Visualising leadership and enhancing management
- Identifying clear roles for national and local governments
- Learning from DNAs – no need to reinvent the wheel

3.1 NAMAs in the context of SD

As discussed in sections 2.2 and 2.3, likewise, as the key objective of implementing mitigation actions is to achieve deviation from BAU emissions and in the long term decouple economic growth and GHG emissions, NAMAs are not expected to be stand-alone activities but to emerge from a more strategic long-term planning process for sustainable development strategies and ideally be embedded in LCDS. Institutional arrangements ensuring that NAMAs are aligned to the LCDS as well as to feedback from implementation of NAMAs to assess the implementation of the strategy are recommended. There would also be a need to ensure that individual NAMAs are synergistic. The development and implementation of NAMAs is likely to be distributed across various governmental organizations. Likewise, individual NAMAs would ideally represent concerted activities that include several different actions. Potential measures under a NAMA are various and can become a mixture of actions regarding various sectors, poli-

cies, measures and programmes. In many cases such concerted actions involve more than one governing institution and lead to activities that involve a range of different stakeholders. Thus coordination across NAMAs to ensure synergies would be an important aspect to consider.

In this context of LCDS and NAMAs being well integrated with the sustainable development objectives of the country and to ensure broad buy-in by all stakeholders, the process of voluntarily formulating a LCDS and implementing it through NAMAs should be a participatory, consultative and inclusive activity. This calls for significant levels of the integration and coordination of government institutions in order to bring different stakeholders into planning and implementation, as well as to monitor and review the progress of implementation. In the absence of an international mandate (like the one for the CDM, when countries had to designate a CDM national authority, the DNA), creating a strong coordinating mechanism and a participatory process will depend in practice on the political willingness and enforcement measures in order to put in place adequately functioning institutional infrastructure and capacities.

Another driving force in creating such an infrastructure will be internal demand from sectors, stakeholders and other practitioners willing to be engaged with NAMAs, mostly motivated by knowing the development benefits rather than emission reductions. Therefore, fulfilling technical needs and the strong organizational and coordination requirements associated with the mainstreaming of CC mitigation in development planning through LCDS and NAMAs call for a substantive reframing of institutional dimensions.

Likewise, a wide range of development goals may be contemplated when designing NAMAs, and benefits measuring can be carried out through the three main dimensions of sustainable development: the social, economic and environmental dimensions. A wide range of indicators for each of these dimensions is provided by a number of agencies (OECD; UNDP-HDI; GRI; National Communications Guidelines, UNFCCC; UNEP Risoe Centre's SD impacts of CDM Projects; GEF projects, etc.).

3.2 NAMAs as transformational drivers of development to low-carbon pathways

NAMAs are perceived as an approach to enable countries to transform their sustainable development goals and actions in the direction of low-carbon development pathways. As such NAMAs are expected to facilitate considerable transformational possibilities by enabling

conditions for sustainable development while reducing GHG emissions. Trade-offs between development priorities and GHG emission reductions have to be considered when formulating a NAMA or selecting a mitigation action. Though from an international perspective, GHG reduction is of primary importance, in a national context GHG mitigation is considered to be a co-benefit of national sustainable development benefits.

Once again, however, defining and assessing transformational change are not straight-forward and can be subjected to different interpretations. Beyond definition, what is more important is to determine the conditions needed to implement an action that will be conducive to a transformational change, including political will, institutional arrangements operating efficiently, prioritized allocation of resources and putting capacities in place.

Regardless of whether there is a definition, however, there can be different arguments supporting the *transformational impacts* of a NAMA, each being connected with the scope and the type of activity the NAMA envisages. Nonetheless, assessing a situation in which a *transformational change* has taken place or not may imply having to take into account similar considerations as for sustainable development, such as multidimensionality, the timeframe, the comparability of current and baseline conditions, etc. For instance, if a timeframe has been considered for the transformational aspect of a NAMA, the more suitable activity for a NAMA in enabling transformation could be one addressing the medium- and long-term impacts, such as a comprehensive programme or policy frameworks aimed at ambitious emission reduction targets while achieving substantive positive changes in sustainable development.⁵

Planned into the context of broader development priorities and LCDS, NAMAs can help national governments choose alternatives that enable them achieve their development priorities with lower emissions footprints. This is the essence of NAMAs for transformational changes through focused assessments to prioritize development needs while catalysing mitigation actions. This may need an extensive mapping out and revision of existing governance structures for low-carbon development. Efforts to integrate low-carbon strategies into development will also need high-level government leadership, effective stakeholder engagement, alignment with existing development plans and the involvement of relevant government ministries with a clear delineation of roles and responsibilities.

⁵ For more information on sustainable development and NAMAs, see Olsen 2013.

It is also expected that NAMAs could be conducive to transformations in a specific sector provided the action is envisaged to support the implementation of a broader mitigation programme designed for that sector, including changes in the prevailing sector's structures, overcoming the systemic barriers to emission reductions within the sector, the impact of future GHG emission reductions beyond the scope of the project, and replicability etc. For example, Costa Rica is currently developing a low-carbon development strategy for the housing sector which will be implemented through NAMAs that will address different actions, such as changes to construction patterns and norms, changes to construction materials and techniques, etc., to enable the construction sector to move towards more sustainable buildings.

To ensure that NAMAs deliver effectively on both national SD benefits and global GHG reduction benefits, as mentioned above countries will have to establish institutional arrangements for effective coordination on the one hand between NAMA development and its alignment with national SD strategy and LCDS, and on the other hand among different NAMAs to ensure synergistic actions. Establishing institutional frameworks and conducting processes for NAMAs should and will be country-driven, not only to ensure the national appropriateness of mitigation actions and to guarantee ownership, but more importantly to make sure that NAMAs are being achieved through a strong and sound institutional process. It is important to stress that participatory processes develop and retain institutional and individual capacities created throughout the process. Only those participating in the process will be able to guarantee successful implementation and provide continuity to the process towards improvements and the operationalization and consolidation of the institutions.

3.3 Planning and management: the importance of leadership and participatory processes

A key outcome in international climate policy is the recognition that climate is a development threat. Therefore scientific and political recommendation is towards integrating climate change into sustainable development planning as one of the important elements. This requires a top-down process to provide and enable coherent national frameworks for all elements of government to act on climate change in the context of their respective responsibilities, while a bottom-up process is advisable to push and support implementation and ownership. Bearing that in mind, whenever NAMAs are designed and implemented, they should be consistent

with sustainable development plans and ideally with LCDS (see Fig. 1 above).

At the same time, countries envisioning development plans to accommodate mitigation actions and to integrate low-carbon considerations will require high-level government leadership, effective stakeholder engagement especially of relevant government ministries with a clear delineation of roles and responsibilities. Experience has demonstrated that, whenever an initiative is built on the goodwill of politicians, strong leadership from high-level government officials permitting collaborative efforts and the rapid elimination of roadblocks is crucial for long-term sustainable impacts from short-term actions that have an immediately demonstrable effect. Current efforts to foster NAMAs are demonstrating that their development and implementation is a process requiring political back-up and stakeholder participation in order to garner support. Accordingly, awareness of policy-makers regarding NAMAs and LCDS is a crucial factor in laying the ground for an effective and inclusive process and frameworks embedded in national development policies, thus securing emission reductions beyond 2020.

Similarly, whenever a government considers launching a national LCDS and providing indicators to reduce emissions may require having the relevant government agencies develop concrete action plans, which can be NAMAs. This requires multiple interactions with a wide range of stakeholders in relevant economic sectors holding significant abatement potentials and benefits. Likewise, mitigation efforts and the implementation of NAMAs cannot simply be delegated to just one ministry; this must involve engaging relevant ministries and administrative apparatuses, including for governance and management. Consequently, a selected range of stakeholders should be involved in NAMA development processes, including experts from entities calculating GHG, managing data; developing baselines, as well as those in charge of establishing MRV systems. Depending on the scope of NAMAs, national, cross-sectoral, regional and local authorities should also be involved in the decision-making process regarding the determination of baselines, selecting emission reduction options and strategies, selecting relevant stakeholders and financing options.

In conclusion, one of the key functions in the effective implementation of climate mitigation strategies is the role of coordinating the development and implementation of NAMAs. To enhance the effectiveness and overall synergy of different NAMAs, an overall climate-mitigation strategy to anchor the NAMAs is essential.

Successful implementation also requires close cooperation among those selected group of stakeholders. Relevant authorities will have to map out the stakeholders to be involved, including private and public entities, such as, for example in the energy sector, the Ministry of Energy, utilities, energy regulators, generators, distributors, councils, local banks and financing entities, etc.

3.4 The role of national and local governments

Since NAMAs are centred, bottom-up regimes and are developing country-led, most policy decisions affecting actual implementation are left to national governments. Decision-makers have to identify, ex-ante, mitigation potentials, development impacts, suitable private-sector incentives and sources and mechanisms of support. Therefore, the primary responsibility for developing mitigation strategies and actions lies with national government, which also has the responsibility for defining the roles of different institutions and organizations in terms of identifying, developing and implementing NAMAs, as well as monitoring their implementation. The government also sets the framework for the participation of other stakeholders, such as the private sector, subnational authorities, etc., in implementing mitigation actions.

So far the most common approach adopted by Parties in handling climate-related activities is to nominate a climate-change focal point and to designate one responsible entity or ministry. In many cases, the Ministry of Environment is responsible for policy-making and implementation, budget allocations and international negotiations at the same time. However, quite often ministries of environment are seen as regulatory bodies that lack influence over the planning and implementation of policies and measures in important sectors of economy due to the mandate they hold. Likewise, climate-related knowledge and capacity are often concentrated in environmental ministries and climate-change focal points, which in most countries are understaffed and have limited resources and capacities, therefore representing major barriers to multi-stakeholder efforts towards the successful development and implementation of NAMAs.

Experience so far shows that the preparation and implementation of NAMAs requires integration not just horizontally (across different sectors or ministries) but also vertically (connecting central government and subnational authorities). Likewise, reducing emissions across all sectors requires a portfolio of policies, tailored to fit specific national/sub-national and sectoral circumstances and interests. Climate-change goals

(outcomes) are to be included in a wide variety of sectors and subnational entities and actors such as federal or regional governments, cities and districts. Development of climate policy should include full integration into national, provincial and district levels, as well as sectoral plans, budgetary frameworks and sound coordination mechanisms. Approaches focusing on MRV systems may also have to be identified to determine the circumstances in which stakeholders or sector experts should become involved.

The role of the government at various tiers depends on the responsibilities of the government and its jurisdiction over policy-making and regulation as the country's legal and political framework. Governments at the province and city/municipality levels could take responsibility for addressing emissions within their jurisdictional boundaries. Local governments can take part in GHG emission reduction in their areas through strategic planning, consensus-building and coordinating roles. Local governments also can encourage the involvement of public and private companies by raising awareness of climate-change impacts and facilitating PPPs (among other options). For example, in Indonesia the provincial government is responsible for making mitigation action plans for the provinces, in line with their local development priorities and plans, including the respective capability and capacity of each regional area.

Enabling implementation at various levels of government is useful in integrating mitigation actions into the development planning and implementation arrangements within the country. To be effective such distributed implementation would require a central coordinating mechanism to ensure synergies in mitigation action. Thus a key role that the national government has to play is to ensure the coordination of climate-change actions among various government institutions, as well as national, provincial and local governments. The consistency between climate objectives and other policy goals in the development of national strategies is thus the key to such coordination, which requires both setting a broad framework for all the actors to follow, as well as a body that can help undertake the assessment of actions by different actors to ensure coherence and consistency. Policy integration can be either cross-sectoral, or within and across government. In a recent study conducted by GIZ and Ecofys, the authors identify a number of subnational institutional barriers and early approaches to overcome them in the design and implementation of NAMAs⁶.

6 GIZ. 2013. Sub-national involvement in NAMA development Current and emerging practice towards vertical integration. http://www.ecofys.com/files/files/ecofys-giz-2013-sub-national-involvement-nama_02.pdf

3.5 Learning from CDM: no need to reinvent the wheel

Developing country governments would benefit from introspection, a critical look at what current governance can deliver, and what steps will need to be taken to capitalize to the maximum on the promise of support for planning and coordination (LCDS) and implementation (NAMAs). Gaining a good understanding of the current governance structures, their evolutionary development and effectiveness is essential before starting to develop NAMA proposals.

From a broader spectrum of possibilities and experiences, the institutional requirements for NAMAs may benefit from the climate governance structures that have been developed over recent years in developing countries, with the advantage of counting on current awareness of climate change and the increasing sensitization of the relevant stakeholders to emerging issues to tackle climate-change mitigation. Many issues that can arise in NAMA development and planning can be addressed from the position of previous experience of institutional capacity development under UNFCCC and Kyoto Protocol processes, and of CDM implementation in particular.

In particular, national institutional arrangements for NAMAs may benefit from the CDM experience gained over the past decade, using the institutional framework established for CDM Designated National Authorities (DNAs) and further developing it to accommodate NAMAs' specific requirements. The establishment of a National Designated Authority (DNA) for the Clean Development Mechanism (CDM), mandated by the UNFCCC, was a prerequisite for developing-country participation in the CDM. Starting from establishment itself, going through the operationalization and finally the consolidations of DNAs, developing countries have manoeuvred their institutionalism for the CDM for more than a decade.

Developing countries have adopted different models for their DNA, depending mostly on the size of their economies and potentials for the CDM. Small to medium-sized economies have preferred to nominate one ministry or a unit within a ministry to be the DNA. Larger economies have opted for a more complicated model such an inter-institutional and/or inter-ministerial commission including representatives from civil society and academia. Some countries' DNAs have created units or working groups both to give technical advice on regulation to the DNA and to promote CDM among industries and local enterprises with emission reduction potentials. Other countries have created CDM

offices whose main function is to promote the CDM and provide technical advice to project developers. Of the DNAs that have been created so far, all are hosted by the national government, and most have designated the Ministry of Environment or the equivalent (with some exceptions like the Ministry of Foreign Affairs or Meteorology) as the responsible party for their DNA. To begin with the institutional effort was undertaken by countries voluntary since initially there was no official requirement (Figueres, 2002), the DNAs being placed together with the focal points for climate change.

With the evolution of the CDM from single project to programmatic approach, more public-sector stakeholders were involved in them, revising the modalities and procedures with which to review and approve CDM projects and broadening the scope and coordination efforts of DNAs with respect to relevant sectors of the economy. Regardless of the institutional model adopted, developing countries may want to take advantage of the experience of the DNA and/or reform it to incorporate broader roles and responsibilities. There are certainly many aspects and much learning in that process that can leverage the institutionalisation of NAMAs:

1. National CDM Offices had become important advisors to potential investors and project developers in key issues like baselines, methodologies and emission factors. Local actors have confidence in National CDM Offices for methodology issues in specific sectors as well in negotiations along the whole project cycle. National CDM Offices are important sources of information and dissemination of knowledge and involving all the relevant actors.
2. In many instances, governments have highlighted that CDM has served as an instrument for improving the environmental performance of national firms. The possibility of taking advantage of participating in CDM served as an inventive avenue to implement improvements in processes and products from the environmental point of view.
3. There had been efforts to insert CDM in sectoral developing agendas in both the Public and Private Sectors.
4. CDM has also facilitated the creation of networks among relevant actors in key sectors, both nationally and internationally.
5. CDM process has facilitated the development of existing human capacities for conducting reviews

of emission reduction activities using national modalities and procedures.

6. Criteria established to assess the contribution of CDM to sustainable development that can certainly be improved and broadened to accommodate the requirement of NAMAs for sustainable development.

Further, with CDM-EB moving towards developing standardized baselines for specific measures on a country or group of country basis, the opportunity exists to create systems that benefit both CDM and NAMAs. DNA will have a key role in the development of standardized baselines for countries. Such standardized approaches may also be useful for measuring the GHG impacts of NAMAs.

There are also important aspects that did not work well with institutional infrastructure for the CDM that can be considered for NAMAs:

The long-term sustainability of CDM offices:

1. CDM offices are faced with difficulties in guaranteeing their long-term sustainability in the different dimensions involved. The most critical issues are financial, institutional and political. It is recurrently recognized that stronger institutional and political support is needed to guarantee continuity for both institutional development and the retention of personal capacity in order to ensure the strengthening of mitigation activities.
2. There has been no success on efforts to link CDM programmes more clearly with programmes related to climate change in a broader sense, taking into account that the latter is a long-term issue. This might constitute one way in which CDM programmes could obtain permanent funding to be developed.
3. National Offices could have taken advantage of different types of international cooperation. In this sense, the process of establishing strategic alliances in priority sectors could play a key role.

Barriers to CDM project activities formulation and development:

1. The main barriers to CDM project development were information, intricate international M&P, funding for project pre-investment and development. It is remarkable not only that some of these barriers are the same for many countries, but also

that some of them are common to all investment projects.

2. The need to coordinate inter-institutional mechanisms to identify and remove barriers to developing CDM projects, particularly related to inadequate or lacking normative and regulatory frameworks like, for example, renewable energy and cogeneration, or the adequate definition of property rights related to the process of the generation and distribution of CERs. Inter-institutional coordination was identified as a key factor to reach environmental objectives.

In conclusion, CDM DNA in countries have created a base for interlinking national sustainable development objectives to mitigation opportunities in the economy, as well as certain levels of expertise in mitigation issues. This knowledge base could be leveraged to coordinate and provide guidance on the development and implementation of NAMAs. Though countries may also need to take into account a key difference in CDM and NAMAs, in CDM, mitigation action did not directly emerge out of sustainable development plans but needed to conform to national SD goals. In the climate change context, countries may also want to take into account the role of the parent ministries in which the CDM DNAs are located.. For example, in many countries the Ministry of the Environment, which is responsible for international negotiations and reporting to UNFCCC through National Communications, hosted the DNA. In such cases, an additional element of reporting to UNFCCC will be on NAMA outcomes and impacts, a role that could be taken into account in leveraging the CDM DNA institution.

4. Exploring enabling institutional arrangements for NAMAs

In identifying the most appropriate governance structure for mainstreaming climate change into development and making the implementation of NAMAs more efficient, the following approach could be helpful:

- NAMAs are to be implemented in the context of national sustainable development goals and contribute to national climate policy goals;
- To ensure effective implementation of national climate policy, countries will need to develop an effective monitoring system which could also serve the MRV of NAMAs; and,
- Coordinate different streams of finance for mitigation actions, including national financing through budgets to avoid duplication of effort.

Specifically, if governments were willing to embrace a model in which NAMAs have a transformational role and support the implementation of broader low-carbon development strategies embedded in national development planning, re-arranging and strengthening current climate-change institutional structures may be required. This could be necessary especially so that countries are empowered with capacities and skills for conducting dialogue and consultation while effectively coordinating NAMA development, submissions, finance and MRV processes. Therefore, in the absence of a UNFCCC mandate for countries to nominate an entity to oversee NAMAs nationally, countries may want to consider distributing roles and responsibilities rather than creating or establishing new bodies. Therefore, we recommend concentrating on four coordination bodies, which would also facilitate the identification and organization of functions:

- (i) Climate-change policy-coordination.
- (ii) Coordination of NAMA management development and implementation
- (iii) MRV management and international reporting. This institute is responsible for MRV as well as preparing BUR. Internally it feeds information into climate

policy-making for that institute to evaluate the progress.

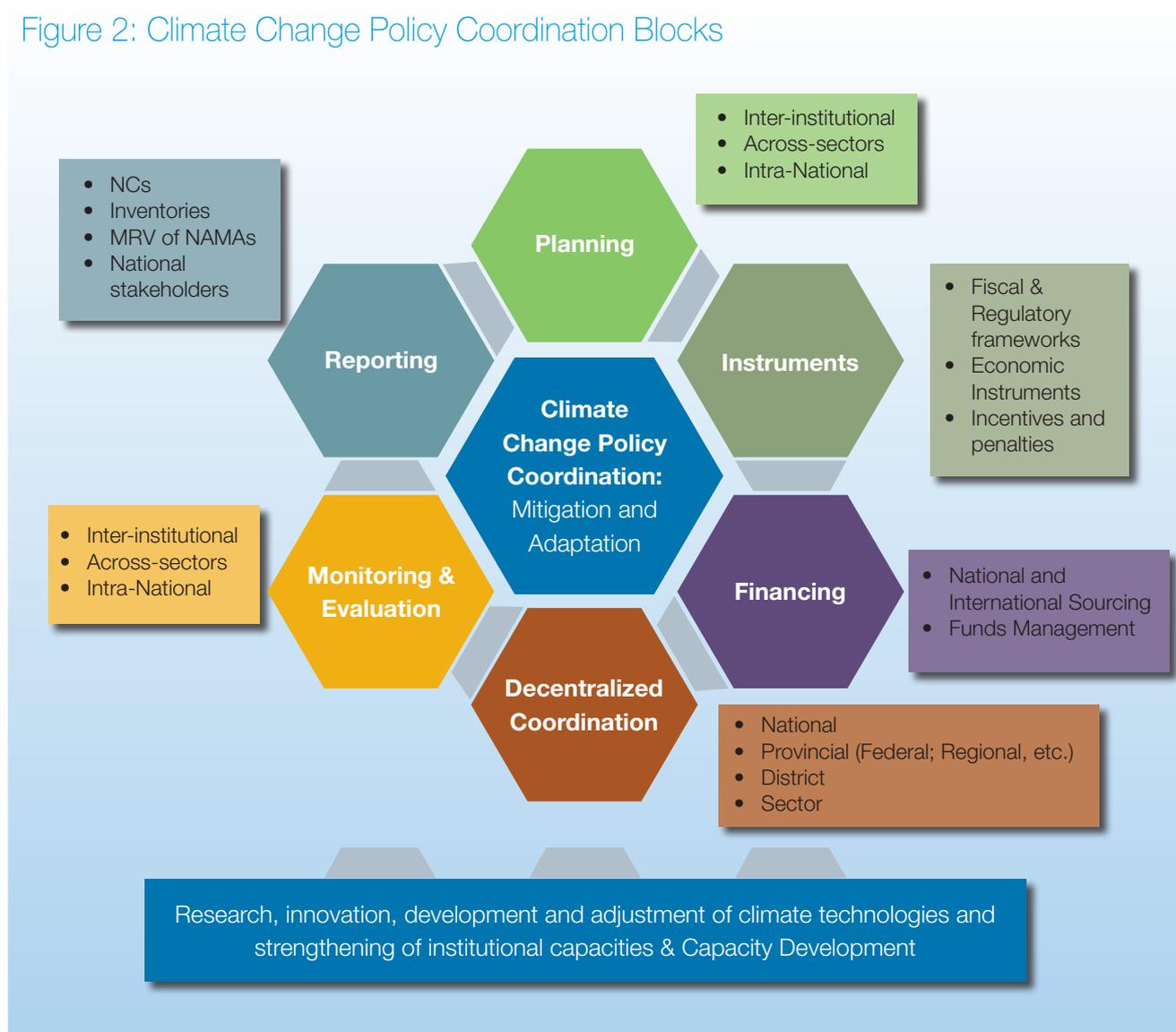
- (iv) Climate finance coordination. This looks at allocating resources to NAMAs and coordinating international climate-change finance.

4.1 Climate-change policy-coordination

The entity takes the responsibility for establishing the national climate-change policy and also evaluating progress in policy implementation and revision based on information received. Figure 2 illustrates the different blocks to consider designing and maintaining a climate change policy and implementation.

As discussed above, management of national GHG emissions in the context of sustainable development is critical in the long run to enable the world to keep within the goal of limiting the increase in temperature to below 2°. This is also why NAMAs should be transformational to enable countries to move towards low-carbon development pathways. In this context a national strategy or policy on climate change is an important tool for building a consensus among stakeholders and across relevant organizations, as well as providing political backing at the highest level. Thus, climate-change policy is an instrument to set the goals for the medium to long term in managing national GHG emissions, as well as the impacts of climate change. This provides a coordinating framework for various climate change-related actions in different sectors and at different levels of government, including the establishment of a comprehensive MRV system.

Figure 2: Climate Change Policy Coordination Blocks



Suggested roles and tasks for climate-change policy-coordination

- Planning on a long-term basis, including specific short-term actions that have an immediate demonstrated effect
- Providing guidance to facilitate the mainstreaming of mitigation into all stages of policy-making
- Establishing adequate coordination mechanisms across sectors and levels of government in addressing climate change.
- Providing guidance to ensure the alignment of NAMAs with national development priorities
- Providing a framework for allocating sufficient technical and financial resources for climate-change actions.
- Applying economic instruments as incentives to ensure financial sustainability, such as taxes, quotas and/or subsidies
- Providing adequate incentives for private-sector participation (e.g. performance-based contracts and competitive tendering
- Creating awareness of NAMAs and their upgrades through information campaigns to gain buy-in
- Setting out clearly the roles and responsibilities of different ministries and relevant stakeholders
- Setting up a comprehensive MRV system in order to manage GHG emissions and comply with international reporting requirements: BURs, NCs and MRV of NAMAs.
- Overseeing the application of relevant methodologies for assessments of emissions reductions from concrete project activities
- Collaborating with line ministries and recording the effects of regulatory initiatives compared to baseline scenarios (e.g. policy NAMAs that are actions in themselves)
- Supporting national (and/or international) verification teams
- Engaging the research community in order to continuously rely on scientific inputs and data for climate change policy direction

- Reviewing the overall implementation of climate-change policy, the refinement of policy based on implementation feedback, international developments and other relevant factors.

4.2 NAMA management: coordination of development and implementation

The **multi-stakeholder nature of identification process and implementation of NAMAs** calls for an organizational arrangement that may require a management unit consisting of, for example, an inter-institutional steering committee⁷ supported by technical working groups, designated focal points in relevant economic areas or sectors, advanced coordination mechanisms and decision-making tools, and the adoption of an M&E approach in order to track and evaluate outputs, mainly development benefits and GHG emission reduction.

Decentralized identification and implementation of NAMAs may benefit from common guidance on their identification and development. Since NAMAs should contribute to the implementation of climate-change policy, implementing institutes would also benefit from guidance on integrating such policy into sectoral or regional development planning. Likewise, collating information from NAMA implementation would be required to enable the implementation of climate-change policy to be reviewed. Thus an entity for overall coordination and oversight, especially in countries with existing and/or conducting clear definitions of priorities and declared ambitions, will be necessary. It will also be the host country that defines the responsibilities and procedures for authorizations of NAMAs.

As argued in section 4, as government actions, **NAMAs require political engagement, decisions and a certain level of political support**.⁸ Ambitious NAMAs may require senior-level government commitment at a national level and from the sector(s) that will implement them, as well as from other affected ministries and budget-forming institutions. Senior-level political commitment is likely to be easiest to achieve if the NAMAs are in line with, or an extension of, existing sectoral development aims and strategies and are coordinated at all levels of climate governance. NAMA development involves many stakeholders, each with their own roles

and responsibilities. Their actions in developing NAMAs form the nationally integrated process. Therefore, guidance will be one of the key elements in ensuring synergies of actions both internally and with the LCDS.

Having reflected on crucial issues above and taken into consideration that institutional arrangements are entirely dependent on the country's circumstances and political contexts, a specific organizational arrangement for NAMAs may now be considered. Two broad options for organizing the coordination can be suggested:

- (i) Distributed responsibility for development and implementation with central coordination to provide guidance on integrating climate policy into development planning; guidance on the identification and development of NAMAs; and collating information on progress in implementing NAMAs; or,
- (ii) A central institution responsible for the identification, development and implementation of NAMAs.

Concentrating on option one above it could be feasible through the establishment of a **coordinating authority for NAMAs (NCA)**. The NCA could be centrally placed close to a ministry of the country's choice and accountable to the climate change policy coordination. Ideally, the institution in charge of national development planning should be a logical place to host NAMA/LCDS work, since climate-change policies and measures should theoretically be integrated with national development programs, as stipulated in the convention. Presently in many countries the responsibility for international climate-change policy engagement rests with the Ministry of the Environment, which is also the authority with responsibility for reporting on countries' actions to UNFCCC. Since in practice reforms envisaging such an arrangement may take some time, as a review of the existing legislative and administrative framework may be required,⁹ most probably the Ministry of Environment will be given the responsibility for acting as the NCA. However, countries may actually use the opportunity to create the NCA at the development planning level, with reporting links to the Ministry of Environment or any other similar arrangement that would oversee NAMAs and coordinate actions between line ministries, NAMAs

⁷ This has been effective in Costa Rica and has achieved good results. Country stakeholders admit that a special ability is required to separate the need to advance on political and finance issues with more technical ones, such as, for instance, baselines and mitigation scenarios. The recommendation is still that a strategic map or at least a sectoral transformational framework analysis prioritizing measures and costs is made available for a comprehensive framework for NAMAs.

⁸ This is in contrast with expressions of political will for CDM projects, which are actions driven by the private sector and in many cases require formal approval from the DNA and no further political involvement or support.

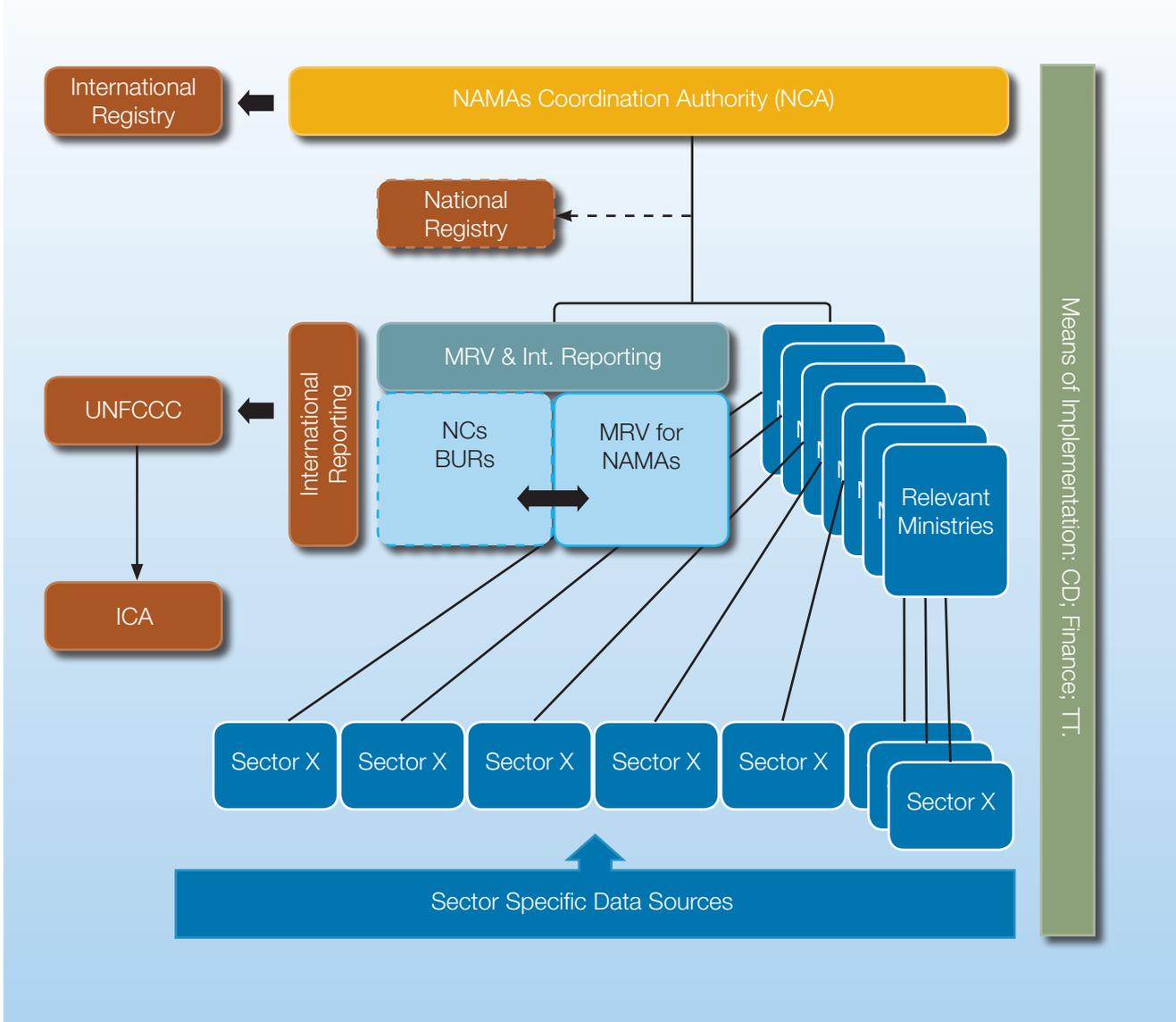
⁹ The revision may consider putting in place transformational legislative and/or regulatory frameworks. In such instances, the first step in implementation might be the launch of a legislative process or regulatory framework. This may include a drafting process for the new enabling policies or frameworks. A review of similar policies or frameworks introduced elsewhere beforehand may also need to be conducted. A second step could be the elaboration of a timeline for the introduction of these new policies or frameworks, including the legal process and a description of the entities involved in these processes. In some cases, the actual operation of the NAMA will start only after new regulations and policies have been established and/or the relevant institutional framework has been set up, e.g. for governance, MRV etc.

formulators, and verifiers of emissions reductions and development benefits. See Figure 3 for illustration.

Structuring a centralised NAMA coordinating authority may find some initial basis in the design of DNAs, or else these may be strengthened or reframed, as many developing countries have board members from all relevant sector ministries, which mirror the diverse areas of intervention for emissions reduction. The NCA is likely to be a sizeable organization, though its structure may vary significantly according to national circumstances. The institutional structure may involve line ministries or sector institutions that are well positioned to extract quantitative information related to the implementation of activities.

The NCA may adopt several models, such as inter-institutional committees, inter-ministerial committees, a NAMA taskforce or even a NAMA office which requires authority to influence policy development and not only determine the compliance of projects or activities with national priorities. The NCA might also take the form of a ‘clearing central’ where essential analysis and information is gathered on the coordination and prioritizing of emissions reduction options from different sector ministries, while at the same time retaining current board structures for high-level prioritization processes. Mexico for example has established a voluntary National Registry for NAMAs. See Section 5 for more details. Figure 3 illustrates how the NCA could be organized.

Figure 3: NAMAs Coordinating Authority (NCA) – Main institutional elements and interrelations



Suggested roles and tasks for the NCA

Elaborating on a publication by the UNEP Risoe Centre (Hinojosa, et al.), where considerations are suggested for institutional arrangements, the following issues should be considered when identifying roles, responsibilities and tasks for the NCA, which could handle the following:

- Guidance on integrating climate-change policy into sectoral, regional and ministerial development processes to coordinate mitigation actions across sectors;
- General guidance to the NAMA identification and development process, including approach or methodology for identifying and agreeing on benefits, costs, actions and milestones;
- Keeping a national registry of NAMAs and of the submission of NAMAs to the international UNFCCC Registry;
- Coordination of NAMA formulation and implementation processes;
- Channelling technical and financial support;
- Guidance for the accounting of emissions reductions to avoid their double counting for related NAMAs;
- Establishment of extensive communication with the private sector in implementing NAMAs, including, probably, an approval process and national oversight of NAMA portfolios;
- Incorporation of reporting from all line ministries and their regulatory bodies and keeping an updated registry of relevant actions (e.g. policies and projects);
- Collection and aggregation of information on mitigation actions;
- Reflection on progress and adjustment to new circumstances;
- Maintenance of the national registry and registration with the international NAMA registry of UNFCCC;
- Communicating NAMA proposals and requests for funding, providing information linkages between donor funding, actual disbursement for activities and emissions reductions achieved – functions that are similar to those proposed for NCF structures;
- Reporting on the financial flows to policy schemes from both national and international sources (e.g. the Green Climate Fund), including actual disbursements.

4.3 MRV management and international reporting

As both the nationally and internationally supported NAMAs will have to be MRV-ed domestically, countries will need to establish MRV systems consisting with

national needs and circumstances but also according to international reporting requirements, namely BURs; NCs; and MRV of NAMAs. Therefore, a country's entire suite of MRV systems includes all MRV activities related to climate change at different levels, including the coordination of these activities (PMR, 2014).

As part of reporting process from Parties, countries will have to report key information through BUR including progress, outcomes and impacts of NAMAs. This will need coordinating the flow of information from individual NAMAs into a collective assessment of impacts and multiple benefits of policies, strategies and actions. This collation and assessment of NAMA implementation is also an important device for communicating transparently to national stakeholders.

Another important element of international reporting is national GHG inventories¹⁰, which are also an important tool for the management of national GHG emissions. National GHG inventories a key element of National Communications to UNFCCC. For the effective use of GHG inventories as a management tool, countries will have to develop systems of regular data collection with effective quality control and quality assurance systems to ensure a reliable estimate of GHG inventory. Data collection as part of NAMAs could also help in preparing GHG inventory estimates.

The guidelines for the preparation of national communications from non-Annex I Parties contained in annex to decision 17/CP.8 assume that there are existing institutional arrangements already in place, relevant to the preparation of Parties' national communications on a continuous basis. The guidelines encourage non-Annex I Parties to provide a description of such existing institutional arrangements. This is further reinforced through the guidelines on the preparation of BURs, which include reporting of information on national circumstances and institutional arrangements, as contained within the scope of the BURs (UNFCCC, 2013)¹¹.

Regarding NAMAs apart from MRVing the emission reduction from specific actions compared to a determined baseline or projected reference scenario; MRV should also address multiple benefits, typically improvement in social, environmental, economic dimensions of sustainable development. Table 3 summarizes the potential stakeholders that might be involved in the MRV process of NAMAs.

10 IPCC has established inventory guidelines and modules for calculating national emissions.

11 The UNFCCC Secretariat has developed a toolkit for non-Annex I Parties on establishing and maintaining institutional arrangements for preparing national communications and biennial update reports.

Table 3: Stakeholders expected to be involved in NAMAs MRV Process

Stakeholders	Measurement/Monitoring	Reporting	Verification
NAMA developer	Establishes measurement (M) approach. Measurement requirements will be in accordance with domestic MRV system as defined by countries.		
NAMA Implementer	Undertakes regular measurement of data to estimate the impacts on emissions and co-benefits	Communicates according to the procedures agreed at the design phase and in line with reporting requirements set by the domestic MRV system to feed NAMA information for BUR to the UNFCCC	
Donors and/or third parties	May influence the measurement requirements of domestic MRV systems defined by countries.		According to procedures of the domestic MRV system and/or international support providers ICA of BUR – there are already general guidelines for ICA

MRV of mitigation efforts is expected to happen at two levels: MRV of national-level aggregated efforts and MRV of individual NAMAs¹². MRV of individual NAMAs requires defining institutional arrangements as well as procedures and modalities that would guide the NAMA developers¹³. The different steps in an MRV process and the two levels of operation usually comprise a variety of institutions and organizations. An integrated system should satisfy a range of MRV needs associated with different reporting purposes¹⁴. Identifying opportunities to coordinate and integrate MRV procedures across platforms would increase efficiency and effectiveness of all types of GHG mitigation policies and programs, i.e., those addressing national targets, national development goals, or action/facility specific emissions management (PMR, 2014).

Preparing a national communication every four years and a BUR every two years will likely need that non-

Annex I Parties make the transition from what have often been temporary institutional arrangements for the preparation of national communications towards a more continuous, sustained process involving permanent national teams. Therefore, a comprehensive MRV System may require countries to adopt a top-down approach in order to establish a sound GHG management. Consequently, the Climate-change policy-coordination entity discussed in section 4.1 can assign one body with a clear mandate to lead and overall coordinate the international reporting process compliant with particular requirements of national communications and BURs, and MRV of NAMAs. Figure 4 presents an example of a top-down approach for an organizational arrangements for MRVs. This approach can “facilitate individual Parties in ensuring that nationally appropriate procedures for collecting, processing, reporting and archiving required data and information are established and operationalized in a sustainable manner on a continuous basis. These can facilitate effective coordination among all relevant stakeholders from the public and private sectors, in meeting the reporting requirements under the Convention, as well as addressing the broader issue of climate change at the national level” (UNFCCC, 2013).

12 A third level could be required if MRV at facility level is separated specifically from MRV of NAMAs. A recent publication by PMR and IPM&MRV suggests that at the facility/installation level, MRV systems facilitate compliance with regulatory programs, such as emission trading schemes (ETS), and enable corporate sustainability reporting for voluntary initiatives.

13 NAMAs that are currently in the proposal stage or under implementation vary widely in their proposed MRV plans.

14 New methodologies and capacity-building efforts are needed to improve the state of NAMA MRV plans in several areas, including MRV of NAMA implementation, MRV of the GHG and non-GHG effects of NAMAs, and MRV of financial, technological and capacity-building needs and support received (for further details, see Sharma and Desgain 2013).

Main roles for the MRV management unit

In connection to the UNFCCC toolkit for non-Annex I Parties on establishing and maintaining institutional arrangements for preparing national communications and biennial update reports, depending on the national circumstances of the country, the key tasks of such a coordinating body could include (UNFCCC, 2013):

- a. Plan and conduct all coordination and consultation activities with governmental and, if appropriate, non-governmental stakeholders;
- b. Identify all institutions and teams that will be involved in the preparation of the national communication and the BUR, including establishing any formal working arrangements;
- c. Allocate responsibilities for all components of the national communication and the BUR ensuring that there is a clear lead for each section, and establish a formal approval process;
- d. Develop and monitor a time frame and schedule for the preparation of the national communication and the BUR, including specific milestones and dates for deliverables.

In addition, such a body could be responsible for the following:

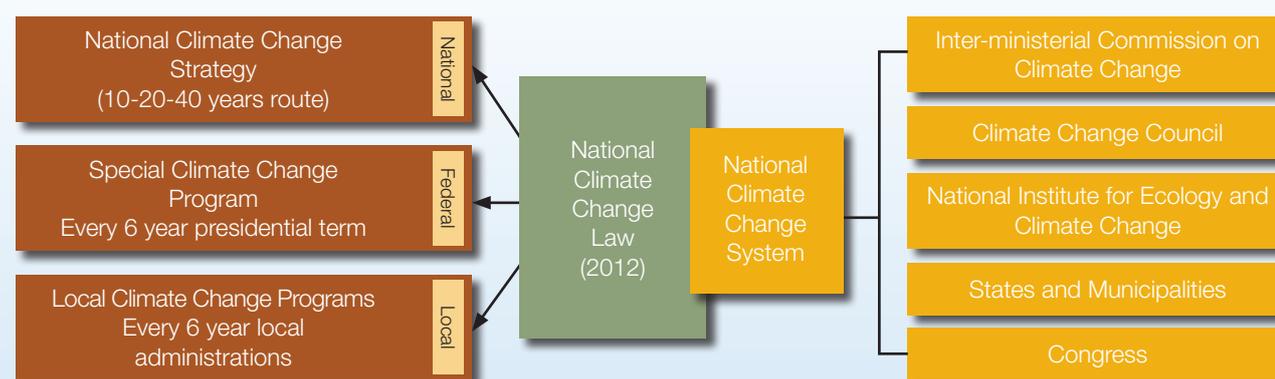
- a. Identifying constraints and gaps, and related financial, technical and capacity needs, including a description of the support needed and received;

- b. Keeping any management committees or working groups informed of progress and emerging issues;
- c. Developing and overseeing the implementation of a quality assurance/quality control strategy for the entire spectrum of the reports;
- d. Managing the overall budget for the preparation of the reports;
- e. Compiling and integrating all sections of the national communication and the BUR into a cohesive document;
- f. Developing and maintaining an archiving system to ensure institutional memory;
- g. Documenting systematically, as appropriate, all the assumptions, data and methods used;
- h. Conducting an evaluation exercise to identify key lessons learned and areas for improvement.

In connection with those tasks, specifically for NAMAs the MRV management unit could:

- Establishing the necessary guidelines and procedures for the operation of MRV of NAMAs;
- Establishing systems and procedures for the verification of reported impacts of NAMAs;
- Establishing guidelines for quality control and the quality assurance of collected data;
- Working with relevant ministries, institutes and organizations for collecting data that helps both track progress in implementing NAMA and climate-change policy and estimate national GHG inventory.

Figure 4. Example of top-down approach for institutional arrangement for MRV.



	Measurement	Reporting	Verification
Emissions	- National Emissions Inventory	- National Communications and BURs	- International Assessment
	- National Emissions Registry	- National Emissions Registry	- National Verification Entities
	- Local inventories	- Local Climate Change Programs'	
	- National Information System	- Website of National Information System	
Reuctions	- Monitoring system of the Special Climate Change Program (PECC)	- PECC's electronic monitoring system	Evaluation Committee*
	- National Emissions Registry (voluntary report of reductions)	- National Emissions Registry (voluntary report of reductions)	- National Verification Entities
	- Domestic NAMA registry	- Domestic and international NAMA registry	- NAMAs international verification (pending)
	- REDD+ National Strategy with MRV scheme		

* **Policy Evaluation:** Adaptation policy: reviewed and updated at least **every 6 years**
 Adaptation policy: reviewed and updated at least **every 10 years**

Source: SEMARNAT, PPT presented by Monica Echegoyen. PMR Workshop, Mexico City, 2014.

4.4 Climate finance coordination

A key element in the effective implementation of climate-change policy, such as LCDS, is the adequate and effective allocation of financial resources. Thus ensuring the allocation of adequate financial resources to implement NAMAs is critical success factor. As the financing could come from both national public sources and international sources, ensuring that finance is allocated according to a country's priorities and that it does not duplicate efforts and coordinating financial allocation to NAMAs are both important. Such coordination also provides necessary information for both national and international reporting on financial resources received and utilized in implementing NAMAs. This also facilitates coordination among donors providing climate-change finance. Transparent reporting is important in national and international contexts in order to increase the trust among national and international

stakeholders on the use of financial resources, as well as in assessing gaps in financing.

A coordinating entity could either just collect and report the need for financial resources for various NAMAs and financial resources made available, or it could have a greater role in terms of actually allocating financial resources, both national and international, to individual NAMAs.

Broad roles for a climate finance coordination unit

Broadly speaking, the expected roles of such an institutional arrangement could be:

- Providing guidelines on assessing and preparing financial needs for NAMAs
- Establishing systems for recording and reporting the financing requirements for NAMAs, and coor-

dinating the channelling of international finance to them

- Establishing systems and procedures for reporting the utilization of finance by NAMA implementers
- Collating the use of financial resources and transport reporting to national climate-change policy-making institutions, as well as international reporting.

4.5 Institutional linkages between NCA and other climate change-related focal points

NAMAs should be based on technology, finance and capacity-building. The latter element is likely to be part of (additional) development assistance and follow the current means of implementation. However, the finance and technology platforms for NAMAs are still being formalized. Important steps were taken at COP17 in Durban, where a decision was made to establish a Climate Technology Centre and Network during 2012. Further, the Green Climate Fund is to provide financial support over and above direct development assistance. Hence, the NCA must also be able to:

- Keep track of capacity-building efforts, domestic (unilateral) as well as international
- Keep track of technology transfers and initiatives of the Climate Technology Centres and Networks
- Keep track of multilateral and bilateral assistance and finance flowing to the national level
- Avoid duplication of activities
- Coordinate and ensure linkages of NAMAs with other mechanisms to optimize mitigation efforts and achievements. These may include local carbon emission-reduction markets, carbon footprint efforts, GHG inventories and routes to carbon-neutrality (at the enterprise or local level), as well as other local or national programs
- Facilitate the building of common requirements for NAMAs, such as national or specific funds, coordination of the involvement of planning and financial ministries
- Coordinate international financial resources arriving for NAMAs, to increase the cost-effectiveness of the funding
- Allocate resources
- Promote NAMAs
- Establish guidance or standards for minimum MRV, including the related bodies to set up it.

4.5.1 National Climate Funds (NCFs)

Not all countries may necessarily establish NCFs, but some have already taken up these initiatives (Brazil, Mexico, for instance), and they may want to coordinate

and track the flow of international support for climate change.

There are obvious linkages between the NCA functions and those of prospective National Climate Funds (NCF) that are gradually being established, as described by UNDP: 'By setting in place a process that aligns and supports existing general goals and strategic programmes, the NCF can provide a coordinated supporting structure to a country's national climate and development priorities. Further, by facilitating regular discussions and stakeholder engagement on national climate issues, an NCF can serve as a central body for discussion and decision-making about how the NCF will support national actions.' In many ways the NCA and the NCF can be regarded as identical and should probably not be set up in parallel, but rather as a single institution.

4.5.2 National Designated Entities (NDEs) for CTCNs

NDEs will be the focal point for communication with CTCNs. CTCNs will help strengthen capacity in developing countries to identify technology needs and facilitate the preparation and implementation of technology projects and strategies to support action on mitigation and adaptation and to enhance low emissions and climate-resilient development. NDEs will be the entities responsible for communicating the country requests to the CTCN and for ensuring that these requests are in line with national priorities, as well as in synergy with priority mitigation and adaptation actions.

As the NCA will be responsible for the coordination of NAMA identification, development and implementation, close coordination between NCCA and NDE will be important to ensure that requests for technology support are aligned with the ongoing and planned work on NAMAs. In fact, based on the information on NAMA development and the assessment of barriers, NCCA could be the channel for flows of technology -requests to NDEs.

4.5.3 GCF focal points

As mentioned earlier, the GCF focal point will have three broad category of tasks: country programming and coordination, as well as ensuring that proposals are aligned with national sustainable development objectives; identification of national implementing entities; and the approval process for proposals submitted to GCF. As can be seen, the first and third functions overlap with the functions of the NCA mentioned above. As the NCA will be responsible for providing guidelines for developing NAMAs, taking into account both national

appropriateness and the willingness to coordinate the NAMA process, the role of country programming and coordination on mitigation action, as well as approval processes, could easily be folded into the NCAA.

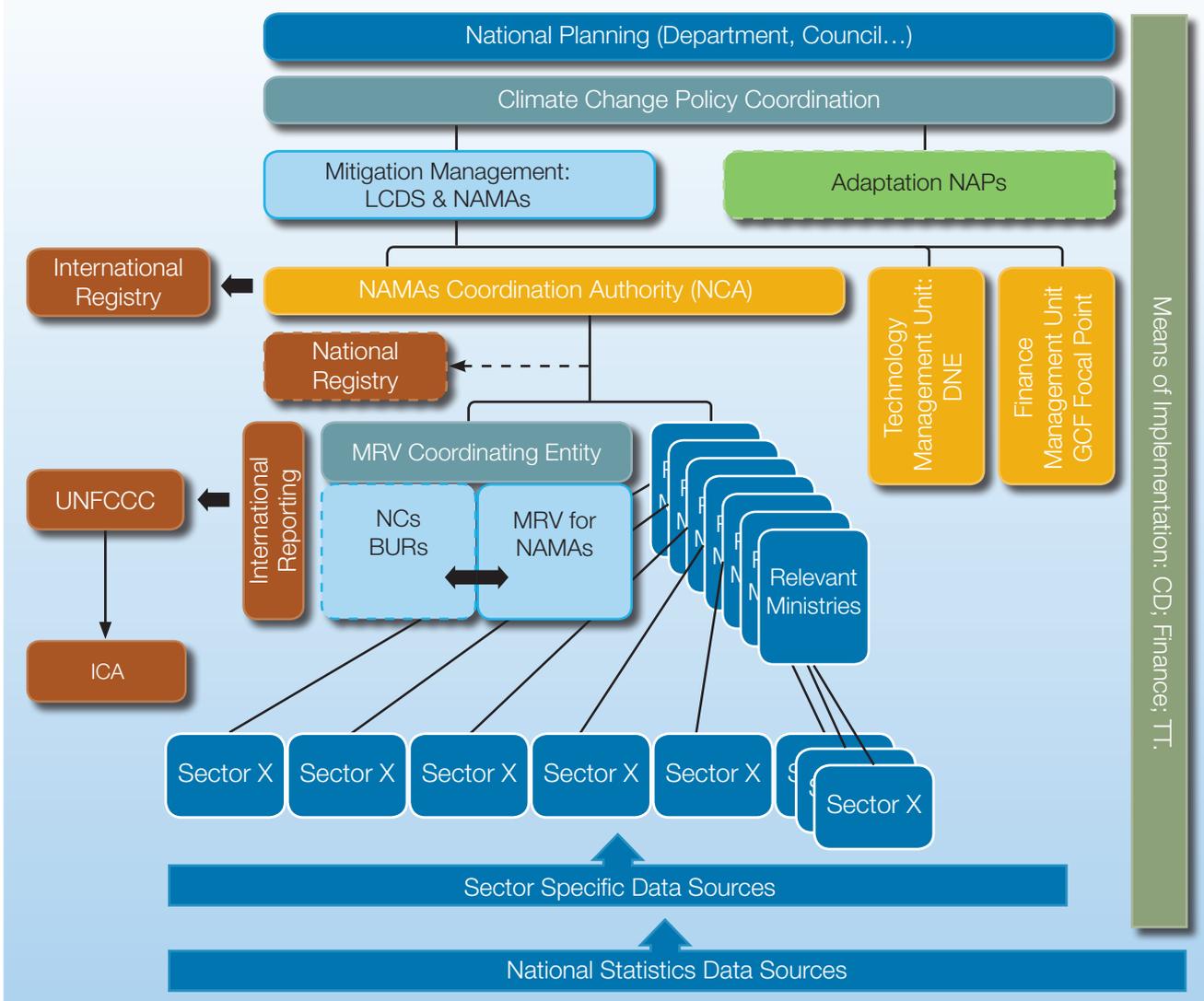
4.5.4 Carbon markets and crediting mechanisms

Should there be credited NAMAs, the NCA (or NCFs) may rely on the already existing functions of the DNA, though it needs to be decided whether credits should be issued at the national or international levels, or else through a two-step process, with national approval first, followed by issuance at the international level. The purpose of national approval would be to keep control of the prospective national emissions inventory, especially in cases where a national emissions trading scheme is in place. The NCA needs to have the capacity either to perform the verification itself or to require independent verification not only of the reductions achieved, but most importantly of the development benefits of the mitigation action.

4.6 Legal and regulatory Frameworks

The development and implementation of NAMAs may involve multiple sectors and parts of government, and the impacts of NAMAs should not be limited to GHG mitigation alone. NAMA planning therefore requires an approach that is based on integration, coordination and the likely adequacy of the legal and regulatory frameworks. Mitigation efforts should no longer be delegated to just one entity or a few institutions, but to a whole cabinet or the entire administration. Incorporating mitigation policy more deeply into policy strategies is important in order to ensure that it is extended more fully to specific policy instruments (Mickwitz et al. 2009). To establish this integration and coordination function, either new institutions must be created, or the existing national development institution(s), including the legal and regulatory frameworks, must be strengthened and reframed.

Figure 5: A comprehensive Institutional arrangement for Climate Change Mitigation Management: Main elements and linkages



Due to the wide scope of mitigation actions and the specific knowledge required to make assessments of concrete actions, it is advisable that these tasks be conducted with the support of sectoral working groups consisting of the relevant ministries, state-owned enterprises, associations and prominent technical and legal experts and specialists.

Aspects to consider when assessing regulatory frameworks include the following:

- Conduct an analysis of the mandates that regulate the sector in the country, including but not limited to environmental, investment, property, tax and administrative laws
- Identify the relevant players in the sector at the national and local levels, including the authorities involved and their attributions
- Identify the role of the private sector in the target sector and the financing instruments available as contemplated by the law
- Identify the property rights recognized in the target sector and the tax treatment of activities related to the mitigation action
- Legal elements of roles and responsibilities, in accordance with the institutional set up
- The document to include a proposal with the legal elements to be regulated at national level
- A legal scheme for domestic and international funding based in the sector dealing with the legal framework and international practice.
- A legal structure for the implementation of the NAMA, covering parties' responsibilities, management obligations, liabilities scheme for the parties involved, and agreements that will need to be executed by the relevant parties participating in the NAMA.

5. Examples of institutional arrangements and coordination for NAMAs

Responding to the bottom-up approach envisaged for NAMAs, most countries have adopted a proactive role in NAMA development. Some countries have formulated national mitigation climate policies and are reshaping institutional arrangements to be able to transform their policies into action, including NAMAs as a response to international negotiations and then naturally linking national actions to international resources.

In practice, few countries (e.g. Mexico, Colombia, Costa Rica, Ethiopia, etc.) have set out more advanced regulatory frameworks and institutional arrangements to address and mainstream climate change into development plans. One important aspect of these frameworks is the stress on adopting approaches that allow broad stakeholder participation and cross-sectoral and intra-national coordination in decision-making.

Detailed descriptions of country-level institutional arrangements for mainstreaming climate change and implementing NAMAs are presented in the following sections.

5.1 Mexico

Mexico has proposed aspirational goals for adaptation, mitigation and emission reductions. For adaptation, actions will focus on identifying communities and ecosystems that are most vulnerable to climate change and developing action plans at the local and national levels. On mitigation, actions will focus on community forest management, improved solid-waste management, energy efficiency and the transition to clean and renewable energy sources. For emission reductions, Mexico has adopted the aspirational target of reducing emissions by 30% by the year 2020 with respect to the baseline and 50% by 2050 in relation to those issued in 2000. All these goals are subject to the establishment of an international regime, with the relevant mechanisms for financial and technological support from developed countries to developing countries.

Institutional Arrangements

In order to achieve those goals, Mexico has passed a General Law on Climate Change, establishing a unique regulatory framework that comprehensively addresses climate change through a committed multi-sectoral and multi-stakeholder approach. By passing this law, Mexico intends to ensure the sustainability of having declared climate change a long-term priority for the country, with innovative new legal tools and institutions created to implement the law¹⁵. Figure 6 and 7 present the structure of the Mexican climate change strategy and institutional framework.

One important element in the Mexican Law on Climate Change is the institutional framework that emphasizes the need for a wide participatory and cross-sectoral approach to climate change. The law creates new agencies dedicated to climate change, as well as bodies in charge of coordination across government sectors and levels. Other new bodies mandate membership by civil society, private actors and academia in evaluating policy development and implementation.

A high-level ministerial body, the Inter-ministerial Commission on Climate Change (CICC, acronym in Spanish), coordinates actions among agencies of the Federal Public Administration, formulates and implements national policies for the adaptation and mitigation of climate change, develops criteria for the mainstreaming and comprehensiveness of climate-change policies, calls for the participation of civil society and

15 The General Law on Climate Change establishes most of the bases and general guidelines for the implementation of the mitigation and adaptation actions and the transition to the green economy in Mexico, in accordance with major international commitments adopted by the country. The Law promotes Mexico's transition to a competitive, sustainable and low carbon emissions economy, encouraging the creation of green jobs and innovation in clean technologies and renewable energy. The Law sets mechanisms for monitoring, reporting and evaluation, as well as establishing baseline scenarios, emission projections and goals under the National Policies on mitigation and adaptation. It also provides the foundations for the gradual establishment of market instruments to encourage a voluntary system of emissions trading with the necessary assurances for technology and investment.

the private sector, and in particular, proposes alternatives to regulating emissions trading in phases, starting with capacity-building.

The Council on Climate Change (CCC) is the permanent consultative body of the CICC, tasked with fostering broad stakeholder participation and collaboration. It is to be composed of a minimum of fifteen members from the government, civil society, private and academic sectors, to be appointed by the President of the CICC and to serve in their personal capacities, but with an honorary title (Articles 51 and 53). Through this body, the Federal Government is obliged to consult with civil society, the private sector and academia to ensure broad support for climate-change policies and actions.

The National Institute of Ecology and Climate Change (INECC) has been established as the main public agency responsible for climate-change policy-development and evaluation, with its own legal personality, patrimony and managerial autonomy. INECC will coordinate, promote and develop scientific and technological research related to the National Policy on climate change, prepare, conduct and evaluate the National Policy, participate in the design of economic, fiscal, financial and market instruments linked to the National Policy, integrate and develop the national communications of

Mexico to the UNFCCC, develop the Emissions Inventory and promote academic training on climate change. The National System for Climate Change (SNCC) will serve as a permanent mechanism for communication and coordination between the Federation, states and municipalities, as well as promoting cross-implementation of the National Climate Change Policy in the short, medium and long terms. It is to be composed of the CICC, the CCC, INECC, state governments, a representative from each of the national associations of local authorities, and representatives of the Congress of the Union (Articles 38 and 40).

The Evaluation Committee (EC) is a multi-stakeholder expert body responsible for periodically and systematically evaluating compliance with the National Policy on Climate Change, including progress in achieving the objectives, goals and actions of the Special Climate Change Program, as well as the emissions reductions and renewable energy targets. The Committee will make recommendations to the National System for Climate Change. It will be coordinated by the President of INECC and six Social Councillors, including representatives of the scientific academic, technical and industrial sectors. The Councillors are to be appointed by the CICC through a public call issued by INECC (Articles 23 and 25).

Figure 6: Mexican Structural map of the National Strategy for Climate Change

PILLARS OF THE NATIONAL CLIMATE CHANGE POLICY

- | | |
|---|---|
| <p>A1 Reduce the vulnerability and increase the resilience of the social sector to the effects of climate change</p> <p>A2 Reduce the vulnerability and increase the resilience of the strategic infrastructure and production systems to the effects of climate change</p> <p>A3 Conserve and use ecosystems sustainably and maintain the ecosystem services they provide</p> | <p>M1 Accelerate the energy transition towards clean energy sources</p> <p>M2 Reduce energy intensity through efficiency and responsible consumption schemes</p> <p>M3 Shift towards models of sustainable cities with mobility systems, integrated waste management, and low-carbon footprint buildings</p> <p>M4 Promote best practices in agriculture and forestry to increase and preserve natural carbon sinks</p> <p>M5 Reduce emissions of Short-Lived Climate Pollutants (SLCPs), and promote co-benefits in health and well-being</p> |
|---|---|

Adaptation to climate change Low-emission development/ mitigation

PILLARS FOR THE CONSTRUCTION OF POLICY

P1

Have cross-cutting, articulated, coordinated and inclusive climate policies and actions

Develop climate specific fiscal policies and economic and financial instruments

P2

Implement a platform for research, innovation, development and adjustment of climate technologies, and strengthening of institutional capacities

Promote the development of a climate culture

P3

P4

Implement mechanisms for Measurement, Reporting, and Verification (MRV) and Monitoring and Evaluation (M&E)

P5

P6

Strengthen strategic cooperation and international leadership

Figure 7: Institutional framework for the Mexican National Climate Change System



Source: Federal Government of Mexico: National Climate Change Strategy 10-20-30 Vision

Regarding NAMAs, SEMARNAT has established a Voluntary National Registry of NAMAs in Mexico in 2013, based in excel format. The purpose of the National Registry is to have an overview of all initiatives that are being developed in the country, as well as to centralize information and eventually to assist in the international registration and channelling of international financial support.

Steps to follow to nationally register a NAMA in Mexico:

Step 1: Application to DGPCC/SEMARNAT

Step 2: Submission of general information in the official format of the National Registry

Step 3: Addressing comments and clarifications and submission of additional information

Step 4: Issuance of an Official Letter from DGPCC/SEMARNAT confirming Registration of the specific action

Step 5: Authorization to make publically available the information on SEMARNAT's website and request for international registration (provided that convenience for international registration has previously discussed between the NAMA promoter and the authority)

5.2 Indonesia

As an archipelago consisting of more than 17,000 low-lying islands, Indonesia faces multiple threats from climate change. Yet for Indonesia, unlike other large South-East Asian economies, the majority of GHG emissions do not come from fossil fuel consumption, but from land use, land-use change and forestry (LU-LUCF). Almost 80% of Indonesia's current greenhouse gas emissions stem from deforestation and land-use change, in addition to the drying, decomposing and

burning of peat land. In 2005 emissions amounted to 1.79 Gt CO₂eq, the majority of them coming from land-use change and forestry, followed by energy, peat fire-related emissions, waste, agriculture and industry (SNC, 2009). Total emissions are estimated to grow from 1.79 to 3.3 Gt CO₂eq between 2005 and 2030 under a business-as-usual scenario (LUCF, Indonesia Council on Climate Change, 2010).

Presidential Regulation for a National Action Plan for Reducing Greenhouse Gas Emissions

Indonesia has been a signatory to the UNFCCC and the Kyoto Protocol since 1998. The Indonesian government undertakes efforts to implement its commitments under the Convention and to contribute to a global mitigation effort in accordance with the principles and provision of the Convention. It presented its First National Communication to the UNFCCC in 1999, and the Second National Communication (SNC) was also completed 2010. The National Development Planning Agency (BAPPENAS) has prepared two reports on climate-change mitigation: 'Indonesia's Response to Climate Change' (2008), and the 'Indonesia Climate Change Sectoral Roadmap' (ICCSR 2010). In 2008, Indonesia created a new institution to serve as the primary body for policy coordination on climate change that has replaced the national focal climate-change point with a Presidential Decree (No. 48/2008) for the establishment of a National Council on Climate Change (NCCC). This is chaired by the President, with Coordinating Ministers for Economic Affairs and for Peoples' Welfare serving as vice-chairs, and with sixteen cabinet ministers and the Head of Meteorology, Climatology and Geophysics as council members. The Council has an Operating Secretariat and several working groups tasked to pursue various topics, such as mitigation, adaptation, financial mechanisms and technology transfer. The NCCC acts as Indonesia's national focal point on climate change and as the lead in formulating national policy, strategy and programs, as well as coordinating all policy implementation related to climate control. In addition to the NCCC, a REDD Commission was established under the Ministry of Forestry, specifically mandated to manage the implementation of REDD+ activities. There is no direct connection and coordination between the REDD Commission and the NAP or NCCC. The effectiveness of both the NCCC and the REDD Commission, in relation to their authority and coordinating roles, is hard to evaluate.

At the G20 Summit Meeting in Pittsburgh in September 2009, the Indonesian government committed itself to establishing the necessary policies and measures, including related required instruments, that would cut

national emissions by between 26% and 41% by 2020 from a 'business as usual' scenario. It would do this through voluntary mitigation actions and under the condition of international support being provided. The President of Indonesia, Susilo Bambang Yudhoyono, announced a national target of a 26% reduction in GHG emissions below the 'business-as-usual' level by 2020 based on unilateral actions, and a further reduction of up to 41% below 'business-as-usual' if adequate international support were made available. Following this announcement, Indonesia submitted a list of NAMAs to the Copenhagen Conference of December 2009. The National Council on Climate Change (DNPI) submitted NAMA ambitions to the UNFCCC Secretariat on January 30, 2010, in accordance with the format set out in Appendix II of the Copenhagen Accord. The submission includes seven major focus areas for achieving the 26% national emission reduction target in 2020, achieved through:

- Sustainable peatland management
- Reduction in the rate of deforestation and land degradation
- Improvement of carbon sequestration
- Promotion of energy efficiency, and alternative and renewable energy sources
- Reductions in solid and liquid waste
- Low-carbon transport

Presidential Regulation No. 61/ 2011 on the National Action Plan for Greenhouse Gas Reduction, or RAN-GRK, stipulates the targets for reducing emissions in five main fields, namely forestry and peat land, agriculture, energy and transportation, industry and waste management, and other supporting activities. The action plan involves various elements, including ministries and non-ministerial agencies, regional governments, communities and private enterprises. RAN-GRK,¹⁶ provides the basis for various related agencies and administrative institutions, as well as regional governments, to implement activities reducing greenhouse gas (GHG) emissions. This is envisioned as becoming an integrated, concrete, measurable and practical action plan for the period between 2010 and 2020. GHG emission reduction activities within this action plan are to be prepared by taking into account national development principles and priorities, mitigation potentials and feasibility, as well as the sources of finance required for implementation.

The National Development Planning Agency (BAPPENAS) has published two reports on climate change

16 Rencana Nasional Penurunan Emisi Gas Rumah Kaca 'RAN-GRK'3.

mitigation: 'Indonesia's Response to Climate Change' (2008) and the 'Indonesia Climate Change Sectoral Roadmap' (ICCSR 2010).

Institutional arrangements

Indonesia is playing an increasingly important role in the climate negotiations and in designing institutions for international climate regime. The Government of Indonesia is taking necessary steps on the national level by attempting to remove the barriers to low-carbon growth and sustainable development by eliminating costly fuel subsidies, promoting cleaner energy sources, adopting payments for ecosystem services through its REDD+ program and innovating its climate funding mechanisms (Jupesta et al., 2011). The institutional arrangements needed to address and coordinate actions in Indonesia are defined by the roles and responsibilities laid out in the Presidential regulations. These institutional arrangements clearly define the roles of policy-making and the implementation approach. The National Council for Climate Change (NCCC) was established in 2008 and acts as a national focal point on climate change, as well as being responsible for formulating policies to address climate change and monitor their implementation. It is also responsible for preparing policy, oversees implementation through coordination of all the key stakeholders, and is responsible for Indonesian engagement in the process of international climate negotiations. The NCCC has an institutional structure composed of an operating secretariat and several working groups with full-time staff and an office to formulate and coordinate climate-change policies. However, it does not have official legal status and has no executive power. The Presidential Delivery Unit for Development Monitoring and Oversight (PDUDMO), which monitors and coordinates the delivery of development programmes in the cabinet, was established by Presidential Decree and reports directly to the President.

The Guideline for Implementing GHG Emission Reduction is a general guideline for ministries, agencies and local government (provincial, district, and city levels),

with the objective of facilitating RAN/RAD-GRK implementation.

The National Action Plan of GHG Emissions Reductions (NAP-GHG) is a guideline for governments, communities and businesses in establishing efforts to reduce GHG emissions. At the national level in Indonesia, NAP-GHG is referred to as a principal tool for institutions in planning, implementing, monitoring and evaluating GHG emissions. The National Mitigation Action Plan on greenhouse gas emission reduction (RAN-GRK) is a working document that provides the foundation for various ministries / institutions and local governments for the implementation of mitigation actions (RAN-GRK, 2011).

The purpose of RAN-GRK is twofold. It provides an overview of the national potential for mitigation actions, and it initiates the design of programmes and actions to reduce emissions. RAN-GRK aims to provide guidance for concrete actions needed to reach the 26-41% emission reduction target by 2020. NAMAs are crucial for implementation of the Action Plan for three reasons:

NAMAs are meant to provide important means for operationalizing the RAN-GRK:

- (i) NAMAs can help Indonesia to tap into the Green Climate Fund and other international funds; and
- (ii) NAMAs should enable Indonesia to obtain UNFCCC recognition for its mitigation efforts (GIZ 2011).

In accordance with the guidelines for NAP-GHG from the State Ministry for National Development Planning/ National Development Planning Agency (BAPPENAS), the coordination task of the implementation is assigned to the Coordinating Minister for Economic Affairs. BAPPENAS, on the other hand, coordinates the reviews of NAP-GHG implementation by the line ministries and reports to the Coordinating Minister of Economic Affairs.

Figure 8: Role of agencies in Climate Governance (Earth System Governance Project)

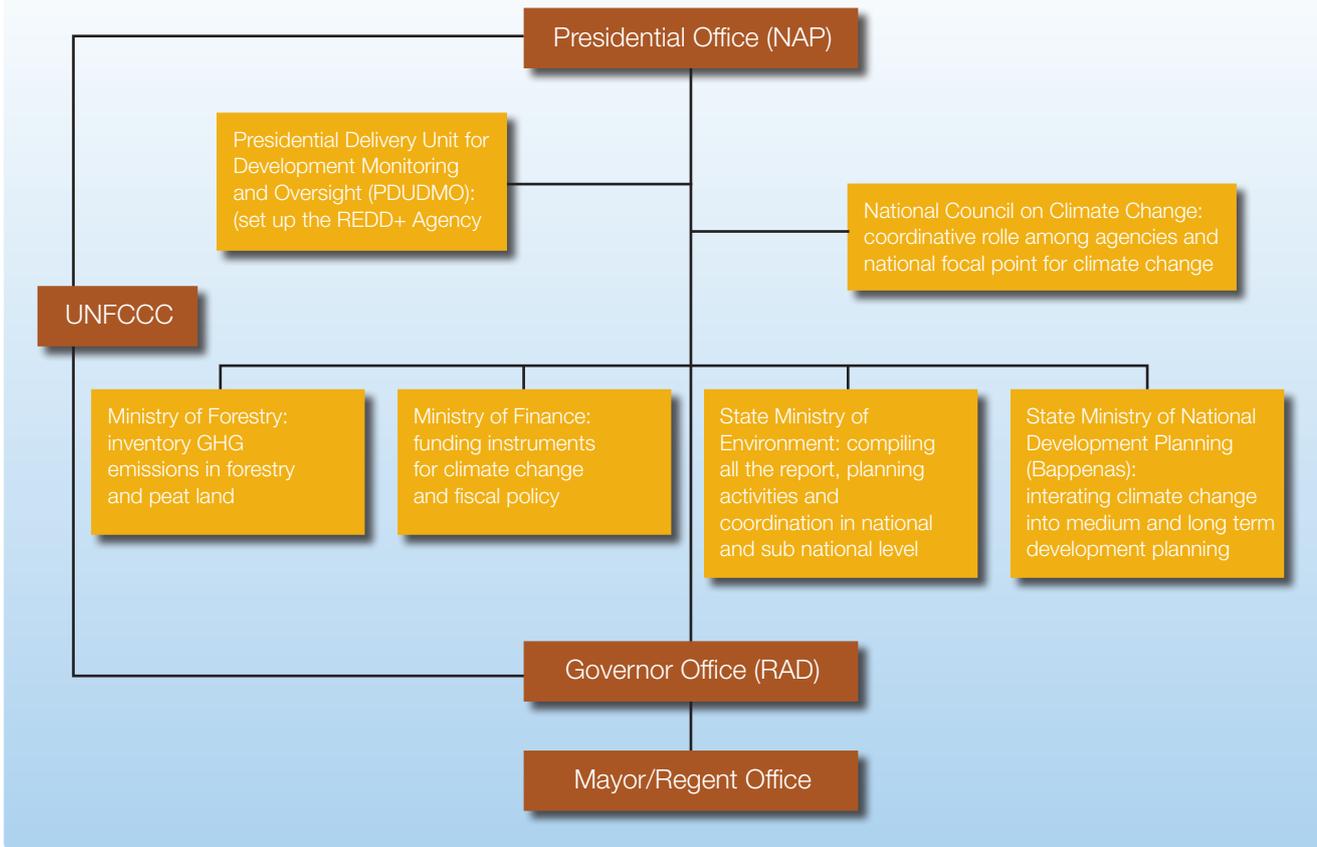
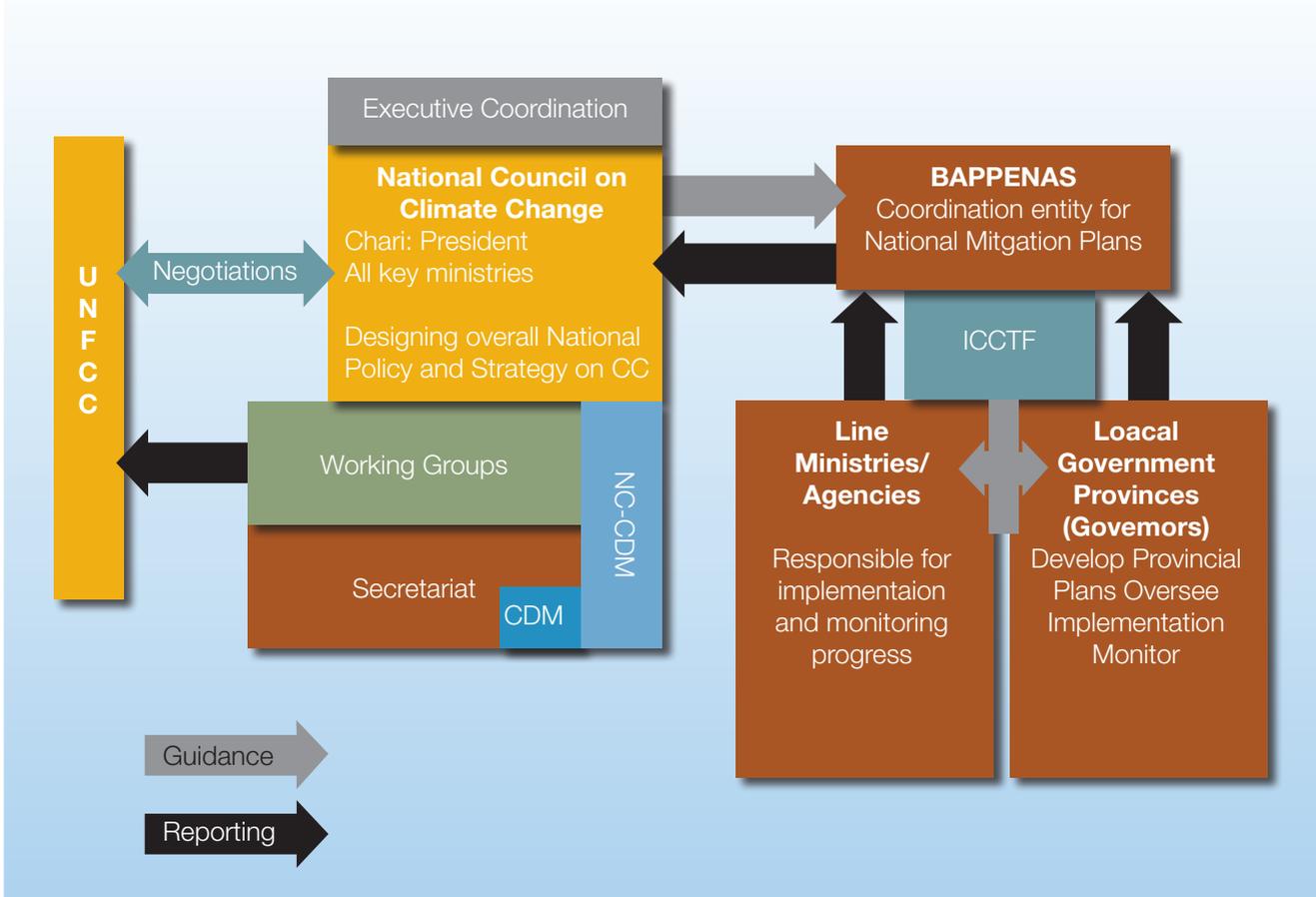
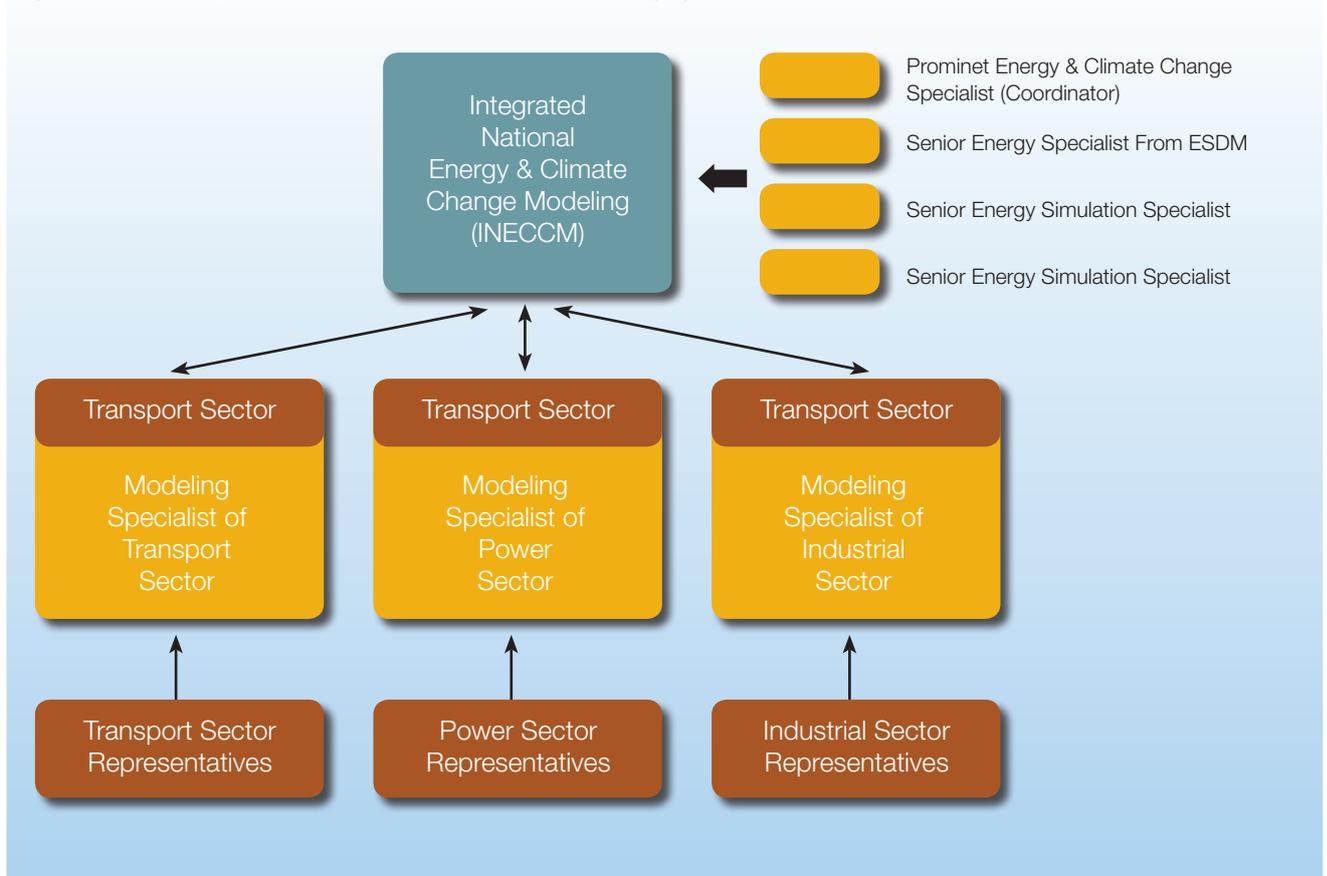


Figure 9: Indonesia National Climate Change Management Arrangements



*Authors' interpretation of institutional arrangements in Indonesia for addressing climate change.

Figure 10. Proposed structure of the working group (GIZ 2011)



The State Ministry of National Development Planning or **BAPPENAS** is responsible for the identification and development of plans for mitigating GHG emissions within the national economy. It is also responsible for guiding the line ministries in integrating the national mitigation plans (RAN-GRK) into ministerial development plans, as well as overseeing the implementation of these plans. BAPPENAS manages the **Indonesia Climate Change Trust Fund (ICCTF)**, which manages the bilateral and multilateral funds received for climate-change purposes, and in turn it provides support to ministries implementing climate-change actions, including mitigation actions. It is also responsible for evaluating implementation of the national mitigation plan, especially the RAN-GRK and RAD-GRK. It is responsible for developing guidelines for integrating the national effort to achieve GHG emissions reduction targets into ministerial plans.

BAPPENAS is supported by the **Ministry of Internal Affairs** in coordinating the integration of climate-change actions into the plans and programmes of the provincial governments. In fulfilling this responsibility, it works with the provincial government in the implementation of RAD GRK (mitigation plan for the provinces) in accordance with Presidential Decree No. 61/2011 and also oversees the review of its implementation.

The **Ministry of Environment** is responsible for coordinating the preparation of GHG emissions inventories. It also has been given the responsibility for developing guidelines and methodologies of MRV (Measurable Reportable Verifiable) of mitigation actions. In line with this responsibility, it evaluates the Reports of RAN / RAD GRK produces by the relevant ministries.

The line ministries and provincial government are responsible for implementing mitigation actions within their own spheres of responsibility. They are responsible for collecting information on implementation and reporting the same to BAPPENAS on a yearly basis. Though the preparation of the GHG inventory is the responsibility of the MOE, each line ministry is responsible for collecting data and drawing up an inventory of activities coming within their responsibility.

In terms of financing, the **Ministry of Finance** has been made responsible for identifying fiscal policies, policies on financial incentives and budgetary allocations for addressing climate change, as well as channelling both domestic and foreign investors in prioritizing mitigation and adaptation to climate change. One of the key functions of the Ministry is to coordinate the activities of climate-change financing in the PIP program (Government Investment Center). It works closely

with other ministries to analyse the related policies, practices and improvements needed to ensure that appropriate incentives are given to the right parties in encouraging the reduction of emissions, particularly from forestry and energy. It is also responsible for developing strategic approaches to climate investments and funds that can be used as part of Indonesia's development strategy as a whole.

According to BAPPENAS (2(BAPPENAS 2011)), implementation of the RAN-GRK faces several challenges, including those of a methodological nature. There are several national mitigation targets, but there is no national BAU baseline against which to measure the reductions. A key challenge in ensuring that Indonesia's mitigation actions can be recognized as NAMAs is in measuring, reporting and verifying the changes to GHG emissions resulting from those mitigation actions. Until now there has been no international agreement or guidance from UNFCCC concerning the exact methodology, scope, approach, rules or modalities relating to NAMAs. However, based on the observed tendency in the negotiation outcomes, in order to obtain international recognition (via UNFCCC) that Indonesia has fulfilled its mitigation commitments and that the RAN-GRK will meet the NAMA standard in the future, Indonesia needs to create a National Baseline (the accumulation of the aggregate baselines of each sector) mitigation scenario with abatement cost calculations, national NAMA registration and MRV indicators.

As part of RAN-GRK, each province will need to develop a Local Action Plan on Greenhouse Gas Emissions Reduction (RAD-GRK). The contributions of local (provincial) governments are expected to include:

- Calculation of mitigation potential and construction of a provincial BAU baseline.
- Development of a strategy for emission reduction
- Proposal for selected local GHG mitigation actions
- ing the key stakeholders, institutions and financial resources.

Conclusion

The Government of Indonesia (Gol) intends to achieve its national greenhouse gas emission reduction target through the implementation of NAMAs. Within the NAMA Framework, Gol can identify which policies and measures are the most appropriate and evaluate what the associated impacts and risks will be for the environment, livelihoods and the economy. As part of the planning within the framework, analyses may include long-term emission pathways, adequate modelling and collection of robust data, and an inquiry into required

governance structures at the national, local and sectoral levels. To ensure the full and sustainable implementation of NAMAs, strong ownership by government must be ensured.

The institutional aspect of climate-change governance from a sectoral perspective contains two barriers: dualism roles in management and coordination, and weak inter-sectoral coordination. These barriers can be overcome by separating the role of regulator from that of operator (TNA, 2011). The coordination practices are, in fact, very weak because the position of various offices is not equal to the position of other related municipal offices. Among the institutional challenges and barriers identified through the Technology Needs Assessment process is also weak coordination among government institutions at the central level and in autonomous governments. There is no clear understanding of roles and responsibilities among various entities. This emphasizes the need for better coordination and integration among the various institutional entities in order to respond to the cross-sectoral challenge of governance for climate change.

The lack of available technology, low technical and institutional capacity, limited government budget and poor access to information remain major challenges to implementing both mitigation and adaptation measures in Indonesia (Ling and Srinivasan 2010). In order to meet its national and international goals for climate mitigation, Indonesia will need to continue improving its capacity to take stock of emissions sources and evaluate the challenges and vulnerabilities in its sectors. This will help the decision-makers strengthen the institutions and obtain the public and private support needed for NAMA development and implementation on the road to LCD.

To achieve the national objective of reducing GHG emissions, central government will provide incentives to local government to develop local mitigation action plans. In addition to capacity development, the incentive could take the form of additional budget, possible participation in the domestic carbon market and permission to join the international carbon markets.

5.3 Costa Rica

In Costa Rica climate change and low-carbon development planning have won a high place on the agendas. The goal of achieving carbon-neutrality in 2021 is widely recognized in all areas of society and the economy. The Costa Rican government has quite successfully communicated the changes that come with the shift towards a carbon-neutral economy. Costa Rica's climate

ambitions are directed at both the national level and the international arena.

Costa Rica has demonstrated that a country can implement environmentally stringent policies while simultaneously 1) sustainably managing and recovering forests, 2) achieving economic growth, and 3) receiving recognition as a leader in sustainable development (UNEP, n.d.).¹⁷ The international agenda aims to anchor the Costa Rican model in the international climate-change diplomacy arena. Costa Rica intends to increase the credibility of its politics by playing an active and constructive role in the negotiations and thus attracting the financial resources to finance its actions and to influence the development of collective actions to stabilize the climate and thereby reduce vulnerability.

Costa Rica has been a signatory to the UNFCCC since 1998 and ratified the Kyoto Protocol in 2002. By October 2012, the country had submitted two national communications, the last one in 2009, which includes information on national circumstances, the gas inventory and mitigation options. The Third National Communication is under preparation, and the first agreed results, including a draft inventory of gases up to 2010, are expected by the end of 2013. The objectives of the UNFCCC and Costa Rica's commitment to mitigation and adaptation to climate change are expressed in the National Development Plan 2011-2014, the highest-level policy document in the country. It states: 'one of the country's most important goals is to become an economy with low Greenhouse Gas emissions (on its way to carbon-neutrality, which is a national goal for 2021), committed to mitigation and adaptation to climate change.'¹⁸

The guiding principles towards the goal of a low-carbon economy and eco-competitiveness are set out in the National Climate Change Strategy (ENCC, its abbreviation in Spanish). The overall objective of the ENCC is 'to reduce the social, environmental and economic impacts of climate change and take advantage of opportunities, promoting sustainable development through economic growth, social progress and environmental protection through mitigation initiatives and actions adaptation, in order for Costa Rica to improve the life quality of its inhabitants and its ecosystems, in moving to a carbon neutral competitive economy by 2021.' Mitigation will be implemented in three sub-strategies: reducing greenhouse gas emissions at source, capture and storage of carbon dioxide (CO₂), and development

of an effective national carbon market with active participation in international markets. The priority sectors for mitigation are energy, transportation, agriculture, industrial, solid waste, tourism, water, land use and land-use change (ibid.).

The objectives of the ENCC as a national agenda are:

Mitigation	Achieve a climate-neutral economy by 2021, which also improves the competitiveness and sustainable development of the economy.
Adaptation	Reduce sectoral and geographical vulnerability.
Metrics	Develop a precise, dependable and verifiable information system.
Capacity-Building and Technology	Improve the efficiency and effectiveness of implementation measures.
Public Awareness, Education and Cultural Change	Create changes in habits.
Finance	Ensure resources are available and their efficient use.

The main line of action on mitigation within the ENCC attempts to get the country to avoid net carbon emissions and adopt a vision that reconciles environmental, health, economic, human, social, ethical, moral, cultural, educational and political actions with the national competitiveness strategy.

The ENCC seeks to develop a set of mechanisms and a culture whereby different sectors generate concrete actions for GHG mitigation. A proposal was made to establish a system in which organizations and entities interested in reducing their emissions draw up an inventory and a report, which allows regular practices of measuring and managing emissions. Then they can identify mitigation opportunities that enhance the performance and decarbonisation of the processes.

The National Climate Change Strategy has identified eight priority areas for mitigation actions, which should be addressed in the diagnosis and identification of possible intervention measures. The first interventions

¹⁷ (UNEP 2013)

¹⁸ Ministry of National Planning and Economic Policy. National Development Plan 2011-2014.

Table 4: Functions of Climate Change Directorate

Functions of the Climate Change Directorate	
1.	Coordinate, manage, develop and implement public policy on climate change, while promoting the integration of an inter-ministerial agenda on climate change.
2.	Coordinate and integrate the ministerial agenda on climate change.
3.	Provide high-level support to designing and implementing a priority agenda on climate change at the national and international levels.
4.	Coordinate the Technical Secretariat of the Inter-ministerial Council on Climate Change.
5.	Coordinate, direct and plan the implementation of the National Climate Change Strategy through the National Climate Change Program.
6.	Coordinate and establish a National Metric System.
7.	Coordinate and monitor ministerial, organizational and sectoral climate-change plans to promote the establishment of standards that feed the National Metric System.
8.	Serve as Technical Secretariat of the Carbon Board and manage the C-Neutral Registry.
9.	Coordinate the C-Neutral process with various actors and sectors in the national scenario.
10.	Coordinate, manage and monitor the National Adaptation Plan.

will be done in the sectors of energy, transportation, agriculture, solid waste and sustainable construction.

Institutional framework

At the national level, the Ministry of Environment and Energy (MINAE) is the governing body for the implementation of the Convention. On 6 January 2010 decree 35669-MINAE was published, establishing the Climate Change Directorate (DCC, in its Spanish acronym) within the MINAE. The legal mandate of the DCC consists in establishing policies and measures in the management and administration of the National Climate Change Program, especially in the creation and integration of knowledge, and in new capability-building for mitigation and adaptation to change climate.

Moreover, the DCC has coordinated the preparation process of the ENCC Action Plan, which has been finalized and made official by the Ministry of Environment and Energy in seeking to transform the development model into a low-emissions one under an eco-competitive framework and aligned with the goal of becoming a carbon-neutral country by 2021. The diagnosis carried out in the Action Plan identifies the state of the sector in each of the areas defined in the ENCC, with the aim of suggesting prioritized sectoral interventions for each of the six areas. The proposed Action Plan is summarized in matrices and defines possible sectoral strategic areas. These strategic guidelines are broken down into specific results and products, which are considered as a set of activities required for achieving the defined outcomes. The next level of planning will permit spe-

cific activities to be identified and defined, based on the agreed outcomes, which will make it possible to achieve the expected results.

In fulfilling its mandate, the DCC involves other entities in the implementation of the country's obligations in the field of mitigation: the Costa Rican Office for Joint Implementation (OCIC),¹⁹ the National Forestry Financing Fund (FONAFIFO), the National System for Conservation Areas (SINAC), the Department of Environmental Quality Management (DIGECA), the MINAE and the National Technical Secretariat on Environmental Issues (SETENA). Furthermore, there are many institutions that have indirectly related competences, such as the Costa Rican Electricity Institute (ICE) and the Ministries of Agriculture, Health, Housing and Human Settlements, and Public Works and Transportation, among others.

The Ministerial Technical Committee on Climate Change (CTICC in Spanish) was established as an advisory body supporting the Ministry of Environment, Energy and Telecommunications (MINAET) in monitoring the National Climate Change Strategy. It will be permanently based in the Department of Climate Change or MINAET. CTICC could act as a central NAMA-coordinating and NAMA-approving authority.

The Committee is to consist of one representative and one alternate from the following institutions:

¹⁹ The acronyms stand for the Spanish abbreviations of the institution's names.

- a. Ministry of Environment, Energy and Telecommunications, represented by the Department of Climate Change, as coordinator and technical secretariat.
- b. Change, as coordinator and technical secretariat.
- c. Ministry of Public Affairs and Transport.
- d. Ministry of Agriculture and Livestock.
- e. Ministry of Science and Technology.
- f. Ministry of Finance.
- g. Ministry of National Planning and Economic Policy.

At the time of this publication, Costa Rica has submitted one NAMA proposal to the secretariat in the agricultural sector. It aims to reduce GHG emissions in the agricultural sector by up to 15% through the implementation of GHG mitigation technologies in coffee production and processing. NAMAs in other sectors are being developed.

5.4 Ghana

Climate change is posing a serious threat to sustainable development and poverty reduction in Ghana. The Ministry of Environment, Science and Technology (MEST) (Ministry of Environment Science and Technology 2012) has reported that the average maximum temperature of the Sudan savannah zone is expected to rise by 3oC by 2100 and 2.5oC in all other agro-climatic zones. Also, the average minimum temperature is expected to increase by 2.5oC in the Sudan savannah, Guinea savannah and semi-deciduous rainforest zones by 2100. The Environmental Protection Agency (Ministry of Environment Science and Technology 2012) has also reported that Ghana is already experiencing hotter weather, increased variability in rainfall, flooding, and changes to salt and freshwater temperatures. The National Government notes that 'Ghana's climate is already unpredictable and the country can expect more intense weather events, such as torrential rains, excessive heat and severe dry winds as a result of climate change' (EPA, The Environmental Protection Agency and MEST 2011). It is also recognizes that, without a clearly specified approach to building up resilience to climate change, it is unlikely that future escalations in economic and social costs can be avoided.

Ghana is a signatory to the UNFCCC and the Kyoto Protocol and has been an active participant in the Conferences of the Parties (COP) for a number of years, with a reasonable record of participation, and it has also associated itself with the Copenhagen Accord. Ghana ratified the UNFCCC on 5 September 1995, and subsequently the Convention entered into force in Ghana on 6 December 1995, after three months of ratification. Ghana ratified Kyoto Protocol in 2003. National Communications to UNFCCC have accordingly

been submitted in 2001 and 2011. Ghana completed its greenhouse gas (GHG) inventory in 2011.

The country's resolve to integrate climate change into national development was greatly articulated in the preparation of Ghana's Shared Growth and Development Agenda (GSGDA), which is the development blueprint for Ghana. In line with this, the country has identified 55 nationally appropriate Mitigation Actions (NAMAs), developed a National Climate Change Adaptation Strategy (NCCAS) and is in the process of developing a National Climate Change Policy (NCCP). It has also drafted its Second National Communication to the UNFCCC. These all recognize the fact that a comprehensive programme of adapting and mitigating climate-change impacts is the best way to transfer to a green economy, which implies integrating carbon-restricted development concerns and mitigation activities to facilitate accelerated socio-economic development and poverty alleviation, local environmental protection, energy security and access. However, at the national level the response is less clear, with an apparent contrast between action and documented intent (Cameron 2011). There is limited evidence of climate change being integrated into the political discourse while it largely remains a technical issue. Developing and shaping the national Low Carbon Development Strategies and NAMAs can facilitate the more holistic and integrated transformation that is needed and shift the response from being externally driven to being locally facilitated.

Institutional arrangements²⁰

Even though several governmental organizations are involved in formulating and implementing climate-change mitigation and adaptation strategies, the National Development Planning Commission (NDPC), MEST and EPA are the main national institutions responsible for climate-change mitigation and adaptation planning and implementation. The NDPC has oversight responsibilities for the preparation, coordination, implementation and monitoring of the medium-term and strategic plans prepared by the Metropolitan, Municipal and District Assemblies (MMDAs and the MDAs), whereas MEST is responsible for policy issues and exercises supervisory authority over six statutory bodies charged with responsibility for the implementation of policies in the areas of the environment and science. These are the EPA, the Town and Country Planning Department, the Council for Scientific and Industrial Research, the Ghana Atomic Energy Commission, the Rural Enterprises Project (REP) and the Environmental Resources Management Project. It also coordinates the government's activities

²⁰ Based on a report from the FIRM programme, 2012, UNEP Risoe, Roskilde.

on sustainable development and the green economy under the United Nations Commission for Sustainable Development (UNCSD) framework and is thus responsible for supervising national preparations for the World Summit on Sustainable Development (WSSD) and for ensuring Ghana's participation in the global sustainable development agenda.

To improve the institutional framework and capacity for the implementation of all three Rio Conventions (Biodiversity, Climate Change and the Convention to Combat Desertification), MEST has established the Ghana Environmental Conventions Coordinating Authority (GECCA). Specifically, the mandate of GECCA is to develop the institutional framework and capacity to combine the efforts being made by various stakeholders at the national level into concerted action(s) to address the environmental and developmental concerns confronting Ghana as well as the global community. MEST is the lead institution for climate change and UN-FCCC activities in the country and hosts the National Climate Change Committee (NCCC). The Committee is made up of representatives from relevant ministries, universities, research institutions, the private sector and non-governmental organizations (NGOs). Specifically, the NCCC has members from the Ministry of Finance and Economic Planning (MoFEP), NDPC, the Ministry of Lands and Natural Resources (MLNR), the Ministry of Food and Agriculture (MoFA), MEST, civil-society organizations (CSOs) like Friends of the Earth and Conservation International, the Conservation Alliance, the ENAPT Centre, Abantu for Development, the Ministry of Energy (MoEn), the Energy Commission (EC), the Ministry of Health (MoH), the Environmental Protection Agency (EPA), the Netherlands Embassy representing Development Partners (DPs), the Ministry of Foreign Affairs (MFA) the Parliament of Ghana (PoGH), the Ministry of the Interior (Mol), the Ghana Meteorological Agency (GMeT), Research and Academia – ISSER, Legon, the Private Sector through Ecobank, Ghana, and the Forestry Commission (FC).

The committee has been mandated under ministerial directives among other things to:

- Formulate an NCCP for Ghana that takes into account mitigation and adaptation actions necessary for sustainable national development and ensures that the policy is integrated into the main planning processes at the national, regional and district levels; in this regard, a consultative and participatory process for the development of the NCCP should also be initiated
- Draw up mitigation and adaptation strategies for Ghana to implement the NCCP or otherwise review any existing sector strategies and associated action plan(s)
- Recommend for the consideration of the Minister relevant area(s) of study that could provide a sound basis for comparative analyses of climate-change adaptation strategies
- Identify skill deficiencies within sectors and propose training needs for particular sectors, training modules and institutions for action by the sectors
- Evolve harmonized climate-change programmes from all sectors, especially the key sectors of finance and economic planning, forestry, agriculture (including cocoa), land and water, health, energy, gender and coastal zones management, to ensure coherence and the building of synergies among all these sectors
- Source and utilize funding for the implementation of climate-change mitigation and adaptation activities by the NCCC and to strengthen the financial mechanism for sustained implementation
- Initiate action on climate-change adaptation and mitigation-related matters, maintain oversight responsibility over consultancies and interface with both local and international bodies
- Work out modalities for transmitting the outcomes of the Committee's work to Cabinet, Parliament and other decision-makers
- Develop a communication strategy for climate change-related matters for Ghana
- Strive to establish synergies with other relevant conventions, especially the three Rio Conventions
- Prepare a common Ghanaian position in relation to the on-going climate change negotiations; prepare national delegations for international assignment on climate change
- Develop common approaches to engaging with the international community, including visiting missions to Ghana on COP 15 issues, discussions and preparations, as well as locally based development partners, in order to find solutions to the challenges posed by climate change
- Offer strong technical backstopping to the political leadership, Cabinet and Parliament in particular, to share the common African vision on efforts made to combat climate change in general and on the African climate platform for Copenhagen 2009
- Advance the country's preparation for COP Meetings and ensure that its commitments are being fulfilled
- Collaborate and share experience with other countries through peer reviews and other methods

as may be deemed necessary to augment its own capacity

- Undertake any other matter that the Minister or Cabinet may decide to commission from time to time.

Apart from the Energy Resources and Climate Change Unit at the EPA, Ghana's Energy and Forestry Commissions have established Climate Change Units with a special focus on forestry, REDD+ and energy efficiency respectively. The REDD+ secretariat at the Forestry Commission, in collaboration with the National REDD+ Steering Committee, has facilitated a Forest Carbon Partnership Facility (FCPF) process with support from the World Bank. The Natural Resource Governance Desk at the MoFEP centrally coordinates the budget support programme under the NREG programme and the Forest Investment Programme initiatives. The CDM/DNA is hosted at the MEST and has been mandated to administer implementation of the clean development mechanism in Ghana. The CDM/DNA is supported by a 'carbon trading committee', which conducts the initial technical review of projects after submission to the DNA secretariat. The Ghana Meteorological Authority, Water Resources Commission (WRC) and National Disaster Management Organization (NADMO) are also involved in a number of initiatives on early warning systems and climate adaptation interventions.

The Ministry of Finance and Economic Planning has a dedicated unit to deal with climate change and environmental or natural resources (including an oil and gas unit) and is keen to mainstream climate change aspects in national budgeting guidelines. MOFEP, MEST and the Forestry Commissions are fully aware of the potential funding available and of how much money Ghana could be receiving for climate-change activities, leading to some friction between stakeholders as they position themselves to gain from such funds (Cameron 2011). The Regional Coordination Council (RCC) is responsible for monitoring and evaluating district climate-change mitigation activities at the regional level with the support of the NCCC and other relevant agencies, especially in the area of monitoring. At the district level, implementation of climate-change mitigation activities is mainstreamed into the activities of the districts, with guidelines from the NCCC and the specific sector agency concerning the preparation of climate-change mitigation programmes and projects at that level.

This has always been the most crucial level for the mitigation strategy. A major stakeholder in the planning and implementation of district-level mitigation activities is the District Assembly Environmental Commit-

tee, whose mandate is to ensure that the Assembly's programmes and projects are environmentally friendly. At sub-district and community levels, the Town and Area Councils and Unit Committees draw up their own climate-change mitigation activities and submit them to the District Assemblies for inclusion in the district plans and in harmony with the district objectives. In all activities, the District and Sub-district Assemblies are assisted by the decentralized departments, NGOs, community-based organizations, traditional authorities, farmer- and faith-based organizations and the private sector in the preparation of detailed action plans and their implementation. Inadequate human and institutional capacities are among the challenges that Ghana is facing in developing effective and efficient mitigation actions. From the perspectives of the donors and the nation, capacity development is critical to ensure that recipient countries have sufficient capacity to absorb and manage climate-change financing.

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