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Acronyms

BAP	Bali Action Plan
BR	Biennial Reports
BUR	Biennial Update Reports
CDM	Clean Development Mechanism
CDM-EB	CDM Executive Board
CO_2-eq	CO_2-equivalent
COP	Conference of the Parties
FM	Financial Mechanism
GCF	Green Climate Fund
GEF	Global Environment Facility
GHG	Greenhouse Gas
IAR	International Review and Assessment
ICA	International Consultation and Analysis
IPCC AR4	fourth Assessment Report of the Intergovernmental Panel on Climate Change
LEDS	Low Emission Development Strategies
MAC	Marginal Abatement Cost
MP	Montreal Protocol Fund
MRV	Measurement, Reporting and Verification
NAMA	Nationally Appropriate Mitigation Action
NAMAs	Nationally Appropriate Mitigation Actions
NAP	National Adaptation Plan
NAPA	National Adaptation Plans of Action
NC	National Communication
ODE	Officially Designated Entity
SBI	Subsidiary Body for Implementation
SBSTA	Subsidiary Body for Scientific and Technical Advice
SC	Standing Committee
UNFCCC	United Nations Framework Convention on Climate Change

Objective and overview of the publication

This publication is intended to enable national policy makers and other stakeholders, such as the private sector and technical experts, to acquaint themselves with the concept of NAMA. It aims to provide a comprehensive overview of the Nationally Appropriate Mitigation Action (NAMA) concept and enhance the understanding of NAMAs by explaining the underlying decisions of the Conference of the Parties in layman's terms.

The first chapter describes how the concept of NAMA emerged in the context of the negotiations on climate change. The chapter gives an overview of how the concepts of NAMA and related MRV and financing issues have evolved through the different COPs. The second chapter clarifies the understanding of NAMAs in the context of the global temperature goal, and moves on to discuss the legal nature and scope of NAMAs. The chapter subsequently analyses the diversity of NAMAs submitted by developing countries to the UNFCCC, and ends by proposing a structure for formal submission of a NAMA. The third chapter specifically addresses the concept of measurement, reporting and verification (MRV), and describes the implications for countries implementing the MRV requirements. The last chapter discusses institutional arrangements, under the Convention, for providing financing to develop and implement NAMAs. The chapter also briefly discusses the different financial sources for implementing NAMAs, and concludes by explaining the concept of incremental cost in this specific context.

1. Historical evolution of the NAMA concept

During recent years, Nationally Appropriate Mitigation Action (NAMA) has become a key element of mitigation negotiations in the United Nations Framework Convention on Climate Change (UNFCCC) process. At present, NAMA is considered as a key tool to be used by developing countries to structure and promote their potential emission reductions. This chapter presents an introduction to the evolution of the NAMA concept over time.

The United Nations Framework Convention on Climate Change (UNFCCC)

To understand the concept of NAMAs it is necessary to examine how the international negotiations process on climate change has evolved since the adoption of the Convention in 1992. Article 4 of the Convention defines the commitments of all Parties to address greenhouse gas (GHG) emissions. The Article states that all Parties, *"…taking into account their common but differentiated responsibilities and their specific national and regional development priorities, objectives and circumstances…"*[1] shall *"…Formulate, implement, publish and regularly update national and, where appropriate, regional programmes containing measures to mitigate climate change by addressing anthropogenic emissions by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol…"*. The Convention further defines the objective of developed countries (Annex I Parties), in terms of GHG emission reductions, as *"returning individually or jointly to their 1990 levels these anthropogenic emissions of carbon dioxide and other greenhouse gases not controlled by the Montreal Protocol"*. In the case of developing countries, the Convention neither defines the GHG emissions reduction goal nor the nature or scope of mitigation measures.

The following sections briefly list the main mitigation-related decisions from the two decades of negotiation.

The Kyoto Protocol

The Kyoto Protocol, adopted in 1997 during the Third Conference of the Parties (COP) to the UNFCCC in Japan, was a first key step in setting up the GHG reduction commitments of developed countries. The Protocol specifies that the general commitments of developed countries will be to reduce *"their overall emissions of greenhouse gases by at least 5 per cent below 1990 levels in the commitment period 2008 to 2012"*. With regard to developing countries, the Kyoto Protocol [Article 10, (b)] reiterates the general commitments to formulate and implement mitigation measures as described in the Convention, taking into account the principle of common but differentiated responsibilities and ambitions to achieve sustainable development. Thus, the Kyoto Protocol does not include any requirements for the nature and scope of developing countries' mitigation measures.

The Bali Action Plan

An important step in clarifying the engagement of developing countries in mitigation actions was taken in 2007 in Bali, during COP13. At the very end of the Conference, Parties adopted the Bali Action Plan, which launched a new process to enhance implementation of the Convention. This document (UNFCCC, 2007) states that in order to have *"Enhanced national/international action on mitigation of climate change…"* developing countries will take *"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"*. It also stipulates that developed countries will take *"Measurable, reportable and verifiable nationally appropriate mitigation commitments or actions, including quantified emission limitation and reduction objectives…while ensuring the comparability of efforts among them, taking into account differences in their national circumstances"*. It is the first time, in the international negotiation process, that the concept of nationally appropriate mitigation actions (NAMAs) is officially mentioned. This statement, therefore, provides the basis for any future definition of mitigation actions taken by developing countries in the form of NAMA. Furthermore, although a reporting framework for national mitigation actions already exists for develop-

1 The text, which has been cited verbatim from the Convention, the Kyoto Protocol and the COP decisions, is in quotes and italics.

ing countries,[2] measurement, reporting and verification (MRV), as a concept, is mentioned for the first time in the context of NAMA, thus, opening discussions on how the NAMA will be subject to MRV domestically and/or internationally.

From Copenhagen (COP15) to Durban (COP17)

NAMA: The subsequent COPs held in Copenhagen (COP15 in 2009), Cancun (COP16 in 2010) and Durban (COP17 in 2011) have progressively clarified the new mitigation framework for developing countries. Article 4.7 of the Convention clearly established that mitigation actions taken by developing countries will be internationally supported. The Copenhagen Accord (UNFCCC, 2009), noted at COP15, brought an important change to the Convention, as it used the term "supported NAMA" to refer to NAMAs seeking international support for their implementation, thus, suggesting that developing countries may also implement NAMAs without support. The Cancun Agreements (UNFCCC, 2010), adopted by Parties during COP16, distinguish between internationally supported actions and domestically supported actions, depending on whether they are implemented with or without international support. The Agreements state that, *"developing country Parties will take nationally appropriate mitigation actions…aimed at achieving a deviation in emissions relative to 'business as usual' emissions in 2020"*. It is the first time under the Convention that a common "goal" is agreed upon for all developing countries, in order to mitigate their GHG emissions. This is a significant step forward in defining the mitigation framework for developing countries.

MRV: The Copenhagen Accord states that the supported NAMAs will be subject to international MRV. The Cancun Agreements establish 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",* and *"domestically supported mitigation actions will be measured, reported and verified domestically in accordance with general guidelines to be developed under the Convention"*. Thus, the Agreements specify the type of MRV, domestic and/or international, for both kinds of actions. They also state that general guidelines for domestic and international MRV of domestic and supported NAMA will be developed under the UNFCCC. The decisions (UNFCCC, 2011a) adopted during COP17 provide additional explanations of the international reporting requirements.

Support for NAMAs: The Cancun Agreements reiterate 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"* (UNFCCC, 2010, *ibid.*). In order to facilitate the provision of support to prepare and implement NAMAs, the Cancun Agreements set up *"a registry to record nationally appropriate mitigation actions seeking international support and to facilitate matching of finance, technology and capacity-building support for these actions"*. Further, the decisions adopted during COP17 (UNFCCC, 2011a, *ibid.*) provide additional explanations about the Registry, clarifying that it *"should be developed as a dynamic, web-based platform managed by a dedicated team in the secretariat"*. The Cancun Agreements also established the Green Climate Fund (GCF) as an operating entity of the Financial Mechanism of the Convention (UNFCCC, 2010, *ibid.*). COP16 also recognized the goal of developed countries to mobilize jointly USD 100 billion per year by 2020 to address the needs of developing countries, including financial support to NAMAs.

Doha (COP18) and beyond

At COP18 in Doha, Parties agreed to establish a work programme to further understand the diversity of NAMAs. This work programme will focus on: information required to enhance understanding of NAMAs (including estimated mitigation impacts of NAMAs, underlying assumptions and methodologies for estimating mitigation impacts, and sectors and gases covered); need for support for the preparation and implementation of NAMAs; and the role of the Registry in matching NAMAs with international support.

While it is clear that NAMA is a central instrument for addressing GHG emission reductions of developing countries, international negotiations have neither provided any official definition of what information should be included in a NAMA, nor clarified aspects such as international MRV mechanisms and guidelines. It is expected that clarity on some of these aspects will emerge from bottom-up based experiences of countries when developing and implementing NAMAs.

2 Developing countries are required to submit information on the mitigation actions as part of their National Communication (NC) to the UNFCCC, which is obligated by Article 4.2 of the UNFCCC.

2. Understanding the concept of NAMA

As explained in chapter 1, developing countries will implement mitigation actions in the context of their sustainable development, in order to contribute to the global effort to address climate change. This chapter puts the concept of NAMA in the context of global effort needed to achieve the goal of keeping the increase in temperature below 2°C. The chapter also clarifies the concept of NAMA, based on decisions made at COP16 and COP17.

What does NAMA mean in the context of 2°C goal?

The Parties at COP16 recognized *"that deep cuts in global greenhouse gas emissions are required...to hold the increase in global average temperature below 2°C above preindustrial levels"* (UNFCCC, 2010, *ibid.*). Figure 19.1 in the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC AR4, 2007) shows that the probability of exceeding an equilibrium temperature threshold of 2°C above pre-industrial levels ranges from about 30–75% if atmospheric GHG concentrations are stabilized at 450 ppm CO_2-equivalent (CO_2-eq). The IPCC AR4 reports that global emission reductions by at least 50% below 1990 levels by 2050, followed by additional global emission reductions towards a zero carbon economy by the end of the century, are needed to achieve stabilization of atmospheric GHG concentrations at 450 ppm CO_2-eq. Furthermore, the IPCC AR4 reports that by 2020 developed countries will have to decrease their emissions by 25-40% below 1990 levels, and developing countries must achieve *"substantial deviation from baseline in Latin America, Middle East, East Asia and Centrally-Planned Asia"*. Moreover, it states that by 2050 developed countries will have to decrease their emissions by 80-95% below 1990 levels, and developing countries must achieve *"substantial deviation from baseline in all regions*".[3]

The Emission GAP Report (UNEP, 2010) states *"that studies show that emission levels of approximately 44Gt of CO_2-eq in 2020 would be consistent with a likely chance of limiting global warming to 2°C"*, and that *"under business-as-usual projections, global emissions could reach 56Gt CO_2-eq in 2020, leaving a gap of 12Gt CO_2-eq"*.

Den Elzen and Höhne (2008) estimate that the emissions in developing countries will have to deviate 15-30% from BAU emissions by 2020. To illustrate these results, assuming a 30% reduction below 1990 levels by 2020 for developed countries, a rough calculation[4] shows that emissions in developing countries will have to deviate by approximately 15% from BAU emissions by 2020, in order to stay on course to achieve the 2°C goal. The 15% deviation mentioned by den Elzen and Höhne corresponds to the 40% reduction required by developed countries, reported in the IPCC AR4. The estimates of reduction by developed and developing countries to achieve the 2°C goal are affected by the assumption on how the mitigation effort is shared among developed and developing countries.

In order to achieve the 2°C goal, developing countries will have to undertake Nationally Appropriate Mitigation Actions (NAMAs) that result in significant deviation from BAU emissions.

> The identification of NAMA can be considered as a tool for developing countries to capitalize on the opportunities for achieving deviation from BAU emissions, and transforming development towards low-emission pathways in order to meet the 2°C goal.

3 Climate Change 2007: Working Group III: Mitigation of Climate Change, chapter 13.3.3.3 Implications of regime stringency: linking goals, participation and timing, BOX 13.7.

4 The 15% deviation is estimated as follows: assuming a 30% reduction below 1990 levels (1990 level = 19Gt of CO_2-eq / ***http://unfccc.int/files/ghg_data/ghg_data_unfccc/ghg_profiles/application/pdf/ai_ghg_profile.pdf***) by 2020 for developed countries, these countries would have to limit their emissions to 13.3Gt CO_2-eq in 2020. At the same time, taking the 44Gt of CO_2-eq as a target for 2020, as reported in ***The Emission GAP Report*** (UNEP, 2010), developing countries will have a quota of approximately 30.7Gt of CO_2-eq (44Gt – 13.3Gt), as compared to their expected BAU 2020 level emissions of 36Gt of CO_2-eq. This implies that emissions of developing countries would have to be reduced by approximately 5Gt of CO_2-eq, i.e. 15% below BAU emissions in 2020.

What is a NAMA?

To understand what a NAMA can be, it is useful to refer to the Bali Action Plan (BAP). As seen previously, the BAP calls for 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.

To understand what is meant by *nationally appropriate,* it is important to look at the Convention. The Convention emphasises that mitigation actions by countries should be in accordance with their *"respective capabilities and their social and economic conditions"*, and *"take into account different socio-economic contexts"*. The Convention explicitly recognizes that *"social and economic development and poverty eradication are the first and overriding priorities of developing country"*.

Furthermore, NAMAs should take place in the context of sustainable development, *i.e.* built on and taking into account sustainable development priorities and strategies; in a measurable, reportable and verifiable manner; and they should be supported and enabled by technology, financing and capacity-building, *i.e.* implemented with support from developed countries (this support being also measurable, reportable and verifiable). It must be noted that developing countries may also undertake NAMAs with their own resources to get recognition for their contributions towards reducing global GHG emissions.

A NAMA can be considered as any mitigation action tailored to the national context, characteristics and capabilities, and embedded in national sustainable development priorities.

Are NAMAs legally binding?

The mitigation framework agreed upon in COP16 for developing countries, is based on the principle of voluntary efforts. This is reflected in the Cancun Agreements, which invite *"developing countries that wish to voluntarily inform the Conference of the Parties of their intention to implement nationally appropriate mitigation actions...to submit information on those actions to the secretariat"*. Although the decision to invite developing countries to inform the COP about their intention to implement NAMAs has a legal status, the NAMAs themselves are not included in a COP decision and, therefore, do not have legal status under the UNFCCC.

Parties may decide, in the future, to include NAMAs in a COP decision. COP decisions are legally binding for the countries. Therefore, inclusion of NAMAs in a COP decision, or as an annex to a COP decision, would give them a legally binding status. It should be noted, however, that under the UNFCCC there is no compliance mechanism to enforce the COP decisions. The importance of having NAMAs in a COP decision is, therefore, political, with limited practical implications.

In the present voluntary context, the mitigation actions taken by countries will be nationally determined, rather than through international negotiations. Countries will voluntarily submit their NAMAs to the UNFCCC. These NAMAs are only "morally" self-binding for countries. In cases where countries choose to include the NAMAs in a national law, the NAMAs will then be nationally legally binding. It is important to remember that even if NAMAs are self-binding or nationally legally binding, their implementation is contingent on the availability of support from developed countries. Thus, the assessment of the implementation of NAMAs will be made in the context of the support requested and provided; keeping in mind that implementation of NAMAs is also voluntary.

A NAMA is not legally binding. A NAMA is a mitigation action, which is nationally determined and voluntarily taken by a developing country to address its GHG emissions.

Why do NAMAs differ[5] among countries?

Since NAMAs should take national context and capabilities into consideration, it is expected that NAMAs submitted will have a broad diversity of scope, as coun-

5 The international negotiations use the word Diversity to reflect the difference in NAMAs among countries.

tries differ significantly in terms of their socio-economic context, environmental characteristics and capabilities. In this sense, the discussions during the negotiations process are brought to mind, leading up to the Cancun Agreements, on differentiating mitigation responsibilities among developing countries to reflect the differences in national circumstances. This may be one of the reasons why the scope of NAMAs has not been clearly defined in any of the COP decisions.

Diversity in NAMAs is explicitly reflected in the Cancun Agreements (UNFCCC, 2010, *ibid.*) that establish a process *"to understand the diversity of mitigation actions submitted...noting different national circumstances and the respective capabilities of developing country Parties"*. Thus, the Cancun Agreements clearly recognize that diversity stems from different national circumstances and the respective capabilities of developing country Parties. Further, COP18 established a work programme to understand the diversity of NAMAs.
It must be noted that the concept of differentiation among developing countries is also reflected in the extent to which countries will implement domestically supported NAMAs. Developing countries with greater capacities and capabilities are expected to implement domestically supported NAMAs.

To address the GHG emissions, the scope of a NAMA for a country could vary from a collection of specific individual actions to a national mitigation goal.

Analysis of NAMAs submitted to the UNFCCC

As previously noted, the scope of NAMAs has not been defined internationally, and a broad diversity of NAMAs is expected to be developed by countries taking into consideration their specific national circumstances. This diversity is reflected in the information submitted on NAMAs to the UNFCCC and captured in the UNFCCC document, "*Compilation of information on nationally appropriate mitigation actions to be implemented by Parties not included in Annex I to the Convention"* (UNFCC, 2011b).

The Copenhagen Accord invited developing country Parties to submit information on their NAMAs to the UNFCCC. The Cancun Agreements formalized the invitation to submit information on the NAMAs to the UNFCCC. In response to these invitations, 48 countries have voluntarily submitted information on their NAMAs to the UNFCCC, included in the document mentioned in the paragraph above. It can be seen from these submissions that the information given by countries varies in scope. Table 1 categorizes the submissions reflecting the diversity of NAMAs.

Table 1: Scope of NAMAs submitted to the UNFCCC by developing countries

Scope		Example to illustrate the scope	Countries
Economy-wide Goals	Absolute reduction target	Antigua and Barbuda: reduce GHG emissions by 25 per cent below 1990 levels by 2020.	Antigua and Barbuda, Bhutan , Costa Rica, Maldives, Marshall Islands, Papua New Guinea, Republic of Moldova
	BAU Deviation Target	South Korea: reduce national GHG emissions by 30 per cent from the 'business as usual' emissions in 2020.	Brazil, Chile, Indonesia, Israel, Mexico, Singapore, South Africa, South Korea
	Intensity target	India: reduce the emissions intensity of GDP by 20–25 per cent by 2020 compared with the 2005 level.	China, India
Sectoral Goal		Togo: increase forest cover from 7 per cent in 2005 to 30 per cent in 2050.	Central African Republic, Columbia, Peru, Togo
Focus areas		Energy efficiency, sustainable management of natural resources, promotion of renewable energy…for example: Madagascar - draw up and implement an action plan to develop renewable energies.	Eritrea, Macedonia, Madagascar, Mauritania, Mongolia, San Marino, Sierra Leone, Tajikistan, Togo, Tunisia
Measures		Standards in the building sector, promotion of low energy light bulbs, development of an institutional and legal framework for REDD+…for example: Tunisia - diffusion and development of the use of energy-saving light bulbs.	Armenia, Botswana, Central African Republic, Chad, Congo, Gabon, Ghana, Ivory Coast, Jordan, Macedonia, Peru, Sierra Leone,Togo, Tunisia
Specific actions		Ethiopia: 450 MW Tekeze Hydro power project. Morocco: Urban transportation development projects - the Casablanca Regional Express Network.	Benin, Ethiopia, Jordan, Macedonia, Morocco
Others		Afghanistan: NAMAs would include the preparation of initial national communication, including national greenhouse gas (GHG) inventory. Mauritius: comprehensive Sustainable Development Programme, which prioritizes renewable energy and energy efficiency.	Afghanistan, Algeria, Argentina, Cambodia, Cameroon, Georgia, Mauritius

Table 1 categorizes countries into those that define a goal and those that don´t define a goal. Among the countries defining a goal, a distinction is made between the countries that identify economy-wide goals or sector goals. Of the 48 countries, 17 have submitted economy-wide goals, and 4 have submitted sectoral goals. Submissions by countries that do not define goals can be further classified into four categories:

- Focus areas -- generic sub-sectoral, sectoral or cross-sectoral mitigation options with no specific goals or measures to implement them;
- Measures -- specific policies, regulations or technology initiatives;
- Specific actions -- project or technological action in a specified location;
- Others that do not belong to any of the first three categories.

Some countries are listed in more than one category because the information on NAMAs falls under various categories.

The analysis of the information submitted by developing Parties to the UNFCCC shows that these submissions are expressions of intent to implement mitigation actions to address GHG emission with a scope ranging from national/sectoral level to focus areas/measures/specific activities. The information neither describes the steps nor includes detailed plans to implement the mitigation actions. Thus, most of the information submitted and grouped under the NAMA term by the UNFCCC reflects the nationally determined voluntary mitigation actions that these countries are willing to undertake to address their GHG emissions and achieve significant deviation from the BAU emissions. Therefore, these submissions could be considered as similar to the pledges made by developed countries to reduce GHG emissions in response to the Cancun Agreements.

At present, countries are in the process of developing activities and detailed plans to implement identified specific mitigation actions, in order to fulfil their expressed intentions to address their GHG emissions. To date, 14 submissions have been made to the UNFCCC Registry outlining activities and detailed plans to implement specific mitigation actions[6]. An overview of these submissions can be found in the URC NAMA pipeline[7]. In addition, Ecofys NAMA database[8] tracks the development of specific mitigation actions that are not yet officially submitted to the UNFCCC. These specific mitigation actions range from: projects (e.g. construction of eight electrified railroads for cargo movement in Ethiopia); programmes (e.g. programme to promote agriculture and agroindustry waste as energy source in Uruguay); policies/regulations (e.g. development of a carbon trading scheme for generating and trading forest sector based carbon credits in Chile); and strategies (e.g. development of a comprehensive national waste management strategy in Peru). All of these specific mitigation actions are also referred to as NAMAs.

The term NAMA is used for both nationally determined voluntary mitigation action to address GHG emissions, and detailed implementation plans for specific mitigation actions.

6 Submissions can be found in NAMA Registry https://unfccc.int/cooperation_support/nama/items/6945.php (last accessed on 13 February 2013).
7 URC NAMA pipeline: http://namapipeline.org
8 Ecofys NAMA database: http://nama-database.org

What should be the scope of designing a NAMA?

Moving from intention to implementation of NAMAs requires clearly outlining steps and detailed plans. It is, therefore, important to understand the data and information required to describe these steps, and build an implementation plan for a specific mitigation action. The document including this information is referred to, here, as a NAMA document.

As concluded above, the scope of a NAMA can range from broad (e.g. strategy, policy/regulation) to narrow (e.g. project). The effort required for designing a NAMA, including the steps and implementation plan, will depend on the scope of the NAMA. Many other factors affect the efforts required to design and implement a NAMA, such as data and information needed for the design, coordination among the stakeholders for design and implementation, and data and mechanism for monitoring and evaluating the implementation. Generally, the broader the scope of the NAMA, the greater the data and information requirement for its design. Moreover, as the scope broadens, the coordination efforts required for designing, implementing and monitoring increases. Furthermore, most of the countries will need financial support to implement a NAMA. Financial resources will not only come from international sources but also from domestic and private sources. Efforts will be needed to coordinate the various sources of finance, and to properly account for the utilisation. These efforts will increase with the scope of a NAMA. Thus, the broader the scope of a NAMA, the greater the challenge of designing the NAMA and the corresponding NAMA document, as well as its implementation.
It must be remembered that the objective of NAMAs is to facilitate transformation to lower emission development pathways. In this respect it is largely accepted that added value of the NAMA mechanism is to move away from the narrow scope of project based mechanism, such as CDM project activities (Röser and de Vit, 2012; UNEP Risoe, 2011). Choosing a narrow scope may not have a significant impact on the economy wide deviation from the BAU emissions, as a narrow scope may not provide the required momentum for transformation, or capture positive synergies among multiple individual actions.

Each country will address the scope of NAMAs taking into account their national circumstances, data availability, and institutional capabilities to design and implement NAMAs. Nevertheless, the scope of a NAMA should be such that it has transformational

Table 2: Typical information included in the Global Environment Facility (GEF) and the Montreal Protocol Fund (MP) project documents, and corresponding information that may be included in a NAMA document.

GEF/MP project document	NAMA document
Context	National context of development and climate change policies
Project rationale	General description of the actions and their objectives
Institutional, policy, regulatory frameworks	Description of institutional, policy, regulatory frameworks existing on climate change, mitigation and area/sector addressed by the NAMA
Is the project consistent with the recipient country's national strategies and plans?	Description of how the action is in accordance with the national development plans/strategies as well as national and/or sectoral mitigation goals
Stakeholder analysis	Identification of the stakeholders involved in the implementation of the action. Roles and responsibilities of the different stakeholders
Baseline analysis	Description of the scenario without the NAMA (in terms of BAU emissions)
Goal and impact of the action	Description of the scenario with the NAMA (in terms of deviation from BAU emissions)
Benefits	Description of the social, economic, and other environmental benefits
Barriers and risks	Identification and description of barriers of NAMA implementation. The NAMA document should also address the solutions proposed to overcome the barriers, and identify the need for international support
Sustainability criteria (institutional, technical and financial)	Description of how and why the actions will continue after NAMA implementation, once the support ends
Cost-effectiveness of the action design approach as compared to alternative approaches	Description of cost-effectiveness of the actions, and technologies proposed for use in the NAMA compared to other options
Incremental/additional concept	Description of how the support increases the deviation in GHG emissions from BAU
Budget (national and international)	Full NAMA budget specifying national budget and international need for support, viz., finance, technology, and capacity-building
Monitoring tools	MRV for NAMA

impact but is also practicable from the standpoint of design and implementation. In order to design and implement such NAMAs, some countries might need technical and other capacity-building support.

What is the role and content of a NAMA document?

Countries will have to develop documents describing the NAMAs and the plans to implement the envisaged actions to meet their voluntary mitigation efforts. The document that captures this information is a NAMA document. Though many articles have discussed the process of designing a NAMA (IRENA, 2012; van Tilburg *et al*., 2011; Wuppertal Institut and GIZ, 2012), no description of the content of a NAMA document has been provided. The content of a NAMA document will have to address certain common key aspects to provide clarity on the implementation of the NAMA. How-

ever, the level of details included in a NAMA document can vary according to both the scope of the NAMA, and the national circumstances.

In this regard, rather than reinventing the wheel, lessons can be learned from existing content of project documents used by bilateral and multilateral donors, as these documents capture the requirements of donors. In particular, contents of projects seeking support from the Global Environment Facility (GEF) and the Montreal Protocol Fund (MP) can be very helpful in identifying key information, which might be requested in a NAMA document. GEF projects also support transformational changes, while MP projects support technology transfer activities -- two elements also covered by NAMAs. A list of common information included in GEF and MP project documents, and the way they can help elaborate a NAMA document is shown in table 2.
For developing countries, the importance of receiving support from developed countries to implement NAMAs has been at the core of the negotiations. Raising additional funds and support for implementing NAMAs will be a key objective of developing countries in designing a NAMA document. In this regard, such a document will be the basis for discussing the support needed with potential donors, and should inspire confidence among international partners in terms of the achievement of outcomes and cost-effectiveness. For this reason, the information included in a NAMA document should take into consideration the perspective of the supporters.

Some publications have proposed content for what could be considered as summary information on NAMAs (UNEP Risoe, 2011; UNFCCC, 2012). Based on the above discussions, the following information content (table 3) can be suggested for a NAMA document:

A NAMA document will benefit the country, and will be the basis for informing the international community on mitigation actions planned by a country. The development of such a document may help bring clarity for developing countries in terms of:

- Characterizing the mitigation options that support transformation of development path toward low-emission pathways;
- Ensuring NAMAs are anchored with national and/or sectoral goals;
- Ensuring positive synergies between NAMAs;
- Gaining clarity on how to develop and implement mitigation actions;
- Improving coordination and communication between stakeholders;
- Identifying barriers that impede the achievement of the NAMA objectives, and possible solutions;
- Identifying risks to NAMA implementation, and possible solutions for risk management;
- Identifying the needs for NAMA implementation, including international support through technology, financing and capacity-building;
- Informing all stakeholders of environmental and development benefits of implementing NAMAs; and
- Leveraging international support for NAMA implementation.

Table 3: Suggested content of a NAMA document.

Introduction	a. Brief description of the general context of the country, and overview of national development and climate change policies; b. Brief description of the relevant existing legal, regulatory and institutional framework for implementation of the NAMA;
Overview of NAMA	c. Description of objectives and mitigation measures; d. Relevance to the national development plans/strategies, as well as national and/or sectoral mitigation goals; e. Description of relevant existing mitigation initiatives and synergies with the NAMA; f. Brief description of the transformational impact including its sustainability;
National benefits	g. Description of the benefits in terms of development (economic, social and environmental); h. Cost-effectiveness in achieving national benefits;
GHG emission impacts	i. Description of BAU scenario; j. Description of estimated impacts on deviation in GHG emissions from BAU; k. Description of the transformational impact of NAMA implementation; l. Cost-effectiveness in achieving GHG emission impacts;
Action Plan NAMA	m. Description of detailed activities to implement the mitigation measures included in the NAMA; n. Work plan for the detailed activities; o. Plan for the involvement of stakeholders, including their role in the implementation of the activities and institutional arrangements;
MRV	p. Description of key parameters to assess progress of implementation of the NAMA; q. Description of key parameters to assess the national benefits and GHG emission impacts; r. Description of methodology to estimate GHG emission impacts, and arrangements for measuring and reporting;
External non-financial support required	s. Description of the technical and capacity-building needs, based on the identified barriers to implementing mitigation measures (described in the Annex);
Financial resources required	t. Cost of implementing the NAMA; u. Incremental cost, to be sourced from international funding, to implement the NAMA; v. Description of arrangements to finance the implementation of the NAMA, including domestic finances and international funding.
Annexes	
Identification of barriers	a. Pre-feasibility study to implement mitigation measures; b. Analysis of barriers (financial, legal, regulatory, institutional, capacity, technology, etc.) that impede achievement of the NAMA objective; c. Description of solutions and necessary steps to eliminate barriers;
Verification process	d. Description of verification process of NAMAs in the country.

3. Measurement, Reporting, and Verification (MRV)

A key element of the framework for developing country mitigation actions, agreed at COP16 and further defined at COP17, is the concept of Measurement, Reporting, and Verification (MRV).

As mentioned in the previous section, NAMAs should lead to transformation of the development path towards low carbon pathways. The key objective of MRV is to increase the "*transparency of mitigation efforts made by the developing countries' as well as build mutual confidence among all countries*" (UNFCCC, 2011a, *ibid.*). Many definitions of the MRV concept for mitigation actions can be found in literature (UNEP Risoe, 2012; FRANSEN, 2009). MRV is not a new concept, and has been widely used in many contexts at national and international levels to ensure transparency and help in effective implementation (UNEP Risoe, 2012). In simple terms, it could be defined as: "measure"- collect relevant information on the progress and impacts of implementing the NAMA; "report"- detail the measured information in a transparent and standardized manner; "verify" – assess the completeness, consistency, and reliability of the reported information by an independent process.

The key elements of MRV, based on the Cancun Agreements (UNFCCC, 2010[9], *ibid.*) and the Durban Outcomes (UNFCCC, 2011a[10], *ibid.*), which define the requirements for MRV of mitigation efforts undertaken by the developing countries, are:

- All NAMAs, domestically and internationally supported, will be measured, reported and verified domestically.
- The domestic MRV of domestically supported NAMAs will be in accordance with general guidelines to be developed and approved by the COP. Presently, Subsidiary Body for Scientific and Technical Advice (SBSTA[11]) is tasked with the development of these guidelines and is expected to recommend them for approval by COP19. Though not explicitly stated, the outcomes and impacts of these NAMAs will be reported in the BURs, which will be subject to international consultation and analysis (ICA).
- Internationally supported NAMAs will also be subject to international MRV. The international MRV will be in accordance with guidelines developed for ICA adopted at COP17. In addition, MRV of internationally supported NAMAs is likely to be shaped by the requirements of the entity providing support.
- Biennial Update Reports (BUR) and National Communications (NC) will be the main channels for *reporting* (R) all the mitigation efforts, domestically and internationally supported NAMAs, made by developing countries to the UNFCCC. Developing countries will submit BURs every two years. Least Developed Country Parties and Small Island Developing States have the flexibility to submit the BURs at their discretion. Developing countries will be provided support (financial and technical) by developed countries for 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. Subsidiary Body for Implementation (SBI) is presently developing modalities and procedures for undertaking the analysis, as well as guidelines for composition of international expert teams that will perform the analysis.

9 The decision can be found at: http://unfccc.int/resource/docs/2010/cop16/eng/07a01.pdf#page=2

10 The decision can be found at: http://unfccc.int/resource/docs/2011/cop17/eng/09a01.pdf#page=4

11 SBSTA is an advisory body of the Conference of Parties to the UNFCCC and its Kyoto Protocol, and provides recommendations on various scientific and technical issues related to implementation of the Convention.

What is the structure of the MRV framework?

In order to understand the MRV framework, it can be divided into two tiers: the MRV of the voluntary national mitigation obligations of the developing countries under the Convention, which can be called National MRV tier, and the MRV of the specific individual NAMAs (implemented by the countries, as part of their voluntary national mitigation obligations), which can be called NAMA MRV tier. The NAMA MRV tier supports the National MRV Tier.

National MRV Tier: The National MRV tier addresses the voluntary national mitigation obligations of the developing countries, and will be conducted at the international level under the UNFCCC. This tier covers MRV of all the national mitigation efforts and the national GHG inventory. It includes: 1) measuring (M) parameters to prepare the national GHG inventory, 2) reporting (R) of information on national GHG inventory and impacts of NAMAs on GHG emissions deviation from BAU through BURs, and 3) assessment of the information included in BURs through ICA, which is akin to the verification (V) step of MRV.

What information should be included in Biennial Update Reports (BURs)?

The guidelines for reporting information in BURs were adopted at COP17 (Annex III to decision 2/CP.17). BURs will include information on the national annual GHG inventory[12], including time series of GHG emissions from previous years, and the following elements on NAMAs:

(a) Information on planned NAMAs: objective and description of NAMAs, including information on the emission sources covered in the NAMA (i.e. sectors and gases) and quantitative goals; steps envisaged to implement the NAMA; progress indicators to track the implementation of the NAMA; methodologies and assumptions related to estimation of GHG impacts of the NAMA; and barriers to implementing NAMAs, and related financial, technical and capacity needs, including a description of the support needed.

(b) Information on NAMAs under implementation or already implemented: progress of NAMAs under implementation, including the underlying steps taken as well as further steps envisaged; and results achieved from implementing NAMAs, including outcomes of NAMAs as well as impacts in terms of GHG emissions reduction. Outcomes of NAMA refer to direct outputs of implementation, e.g. policies to promote energy efficiency measures or capacity of renewable energy established, etc.

(c) Information on support: international support needed and received, to develop or implement NAMAs; amount of support received to enable the preparation and submission of BUR.

What is International Consultation and Analysis (ICA)?

ICA is akin to the verification (V) step of MRV, and involves analysis of the information submitted in BUR to ensure completeness, consistency and accuracy of information. The analysis will not assess the appropriateness of policies or actions taken by countries in reducing GHG emissions. The analysis will be undertaken by a team of international experts. The expert team will prepare a summary report in consultation with the country concerned. The analysis will be considered in the international consultation process, which will be conducted by SBI through workshops. During the international consultation process, the countries may seek clarifications or make suggestions to the country based on the BUR and the summary report. A report of the discussions, including the comments and views expressed during the international consultation workshop, will be prepared.

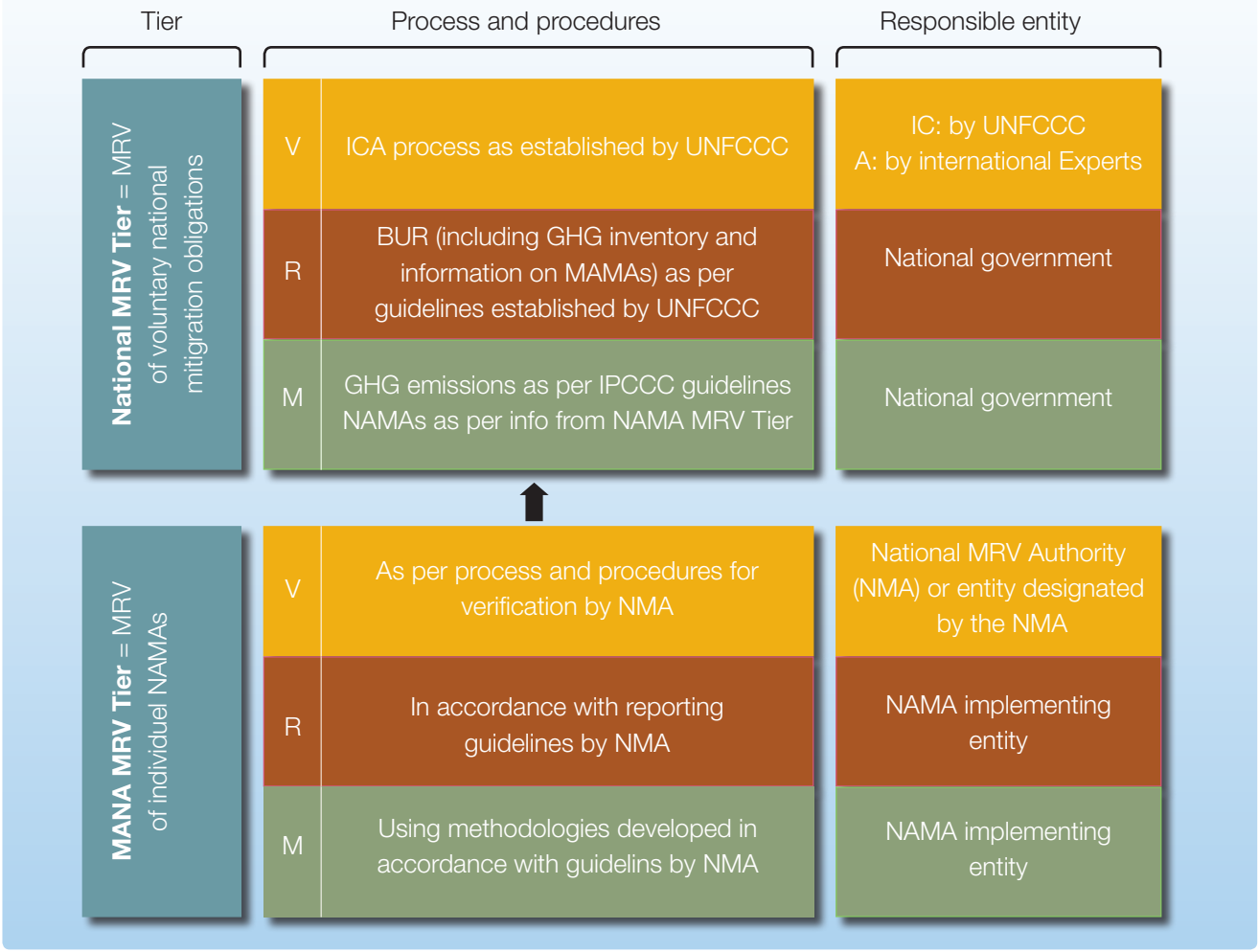
NAMA MRV Tier: The NAMA MRV tier addresses the MRV of individual NAMAs, and will be conducted at the country level. This tier supports the National MRV tier, and provides the necessary information on NAMAs for countries to prepare their BURs. Domestically and internationally supported NAMAs will be subject to NAMA MRV tier. The NAMA MRV tier will be established by the country based on the general guidance being developed by the COP[13]. This guidance will likely provide guiding principles and/or good practices, which countries will use to establish institutional arrangements, and modalities and procedures for undertaking MRV of NAMAs. Modalities and procedures will include: developing measurement requirements for individual NAMA, reporting requirements, and undertaking verification of the reported information. NAMA developers will then use the guidance on measurement requirements to develop measurement methodology for the NAMA, and use the reporting requirements to report the measured information. Countries will need to report the information on NAMA MRV tier in the BUR.

The COP does not specify whether general guidelines for "domestic" MRV will also be applicable to the inter-

12 GHG inventory will be for a year not later than four years prior to date of submission of the report (for e.g. a report submitted in 2014 should include GHG inventory for the year 2010 or a later year).

13 General guidance for MRV of NAMA will be considered at COP19.

Figure 1: Representation of the National and NAMA MRV tiers



nationally supported NAMAs. In all likelihood, NAMA MRV tier for internationally supported NAMAs will be influenced by the monitoring and evaluation procedures of the entity providing support. This is likely to be similar to the monitoring and evaluation processes adopted in the case of "classic" bilateral and multilateral funded projects or initiatives.

Figure 1 shows a representation of the key elements of the two MRV tiers.

What are the elements of a NAMA MRV tier?

As mentioned above, countries must establish a NAMA MRV tier, including institutional arrangements, and modalities and procedures for undertaking MRV of NAMAs. The modalities and procedures are: developing measurement requirements for individual NAMA, reporting requirements, and undertaking verification of the reported information.

A national authority will be required for developing and operating the NAMA MRV tier. The Clean Development Mechanism (CDM) can be used as an example for developing and operating an MRV system. In the case of CDM, the CDM Executive Board (CDM-EB) is the authority that establishes the institutional arrangements, and the modalities and procedures on MRV of the CDM projects.

» Institutional arrangements for operating the CDM MRV system:
  - The CDM-EB is responsible for providing policy guidance for the operation of the system. It is also the final approver of the methodologies for undertaking measurements, guidance related to MRV, and designated operating entities (DOEs) that undertake verification;
  - The technical bodies develop and recommend guidance related to MRV, as well as review and recommend measurement methodologies. Technical bodies include CDM methodology panels and an accreditation panel. Methodology panels consider and recommend measurement methodologies, as well as general guidance on developing these measurement methodologies. The Accreditation panel is responsible for developing and recommending guidance and procedures for verification

of CDM projects, as well as recommending accreditation of DOEs that undertake verification; and,
    - The DOEs are responsible for undertaking the verification of the measured information reported by CDM project activities.
- Modalities and procedures on MRV for CDM project implementers:
    - Guidance on process of submission and consideration of the measurement methodologies, reporting and verification of CDM projects by the technical bodies and the CDM-EB;
    - Guidelines for developing measurement methodologies, including guidance on parameters to be measured, measurement procedures and precision, and management of measured information; and,
    - Guidance on reporting requirements.

The NAMA MRV tier may not have all the components outlined for the CDM MRV system, but at the very least it would require establishing the national authority to operate the NAMA MRV tier. Furthermore, this authority would be responsible for developing guidelines for measurement and reporting, and processes and procedures for approval of measurement methodologies, and verification of reported information. The guidelines and procedures would be used by the entities preparing NAMAs, to develop and seek approval of NAMA specific measurement methodology, and to report the outcomes and impacts of NAMA implementation.
In many countries, systems for monitoring and evaluating government policy and programme implementation already exist. These systems could be built upon, in order to establish a system for NAMA MRV tier.

As mentioned earlier, in the case of internationally supported NAMAs, the MRV would be agreed on with the entity providing international support as part of the consideration of a NAMA for funding. This is expected to take into account the requirements of NAMA MRV tier.

The key elements of a NAMA MRV tier include: a national authority, guidelines for measurement and reporting, processes and procedures for approval of measurement methodologies, and processes and procedures for verification.

Measuring progress and impact of NAMAs

As part of the National MRV tier, countries are expected to report progress on NAMA implementation as well as impacts of NAMA on GHG emissions, in the BURs.

Measuring Progress of Implementation: The key obligation of developing countries is to implement mitigation actions, not to achieve a pre-defined level of emissions reduction. In keeping with this obligation, countries will report, in the BUR, progress on steps taken to implement NAMA, and outcomes of the implementation. Thus, the emphasis is on information to track the status of NAMA implementation, as well as on direct outcomes of NAMA implementation.

As an example, a country can develop a NAMA with the objective of developing a financial incentive scheme for promoting wind energy, to achieve an installed capacity of 10 GW. In this case, progress indicators of NAMA implementation may include status of developing a financial incentive scheme, institutional arrangements to implement the scheme, government notifications to implement the scheme, etc. Outcome indicators of NAMA implementation could include the total wind energy generation capacity installed as a result of the financial incentive scheme.

Measuring Impact of NAMAs on GHG emissions: A key objective of implementing NAMAs is to help a country achieve deviation in national emissions compared to BAU emissions. Measuring and reporting estimated emission reductions resulting from implementing NAMAs are, therefore, an important element of a National MRV tier. NAMA implementation could result in GHG emissions reduction, both, directly (such as construction of wind energy power generation plants) and indirectly (such as enforcement of policy on energy efficiency norms for appliances). Estimating the impact of NAMA implementation requires establishing a BAU scenario, as well as a methodology to estimate the impact on GHG emission sources affected by NAMA implementation. Measurement methodologies should include parameters to tracks the GHG emissions impact of NAMA implementation, and a method for measuring these parameters.

An example that highlights the measurement of GHG emissions impact is the Mexican NAMA that promotes construction of energy efficient residential buildings. This NAMA includes development and implementation of energy efficiency standards in new residential constructions. To estimate the GHG emissions reduction, the following methodology is proposed in the NAMA:

- Track the actual number of residential units that have incorporated energy efficiency standards and received subsidy under the NAMA;
- Sample-based measurement of energy use of the new energy efficient residential units, by identifying the key energy consumption parameters to be monitored;
- Survey a baseline group that consists of residential units built without using energy efficient standards. This group will be monitored every three to four years, to establish the baseline of energy consumption; and
- Estimate emission factor for energy consumption of residential units. This factor is multiplied by the difference in energy consumption between energy efficient residential units and baseline group, to estimate the GHG emissions reduction.

The objective of the methodology for estimating emissions reduction is to achieve a robust assessment of the reduction. The level of precision with which the GHG impacts can be estimated will vary with the nature of activities included in the NAMAs. CDM methodologies provide a useful reference in developing methodologies for measuring GHG impacts, as they may be relevant in terms of identifying the parameters to be measured. However, given that the scope of NAMA and CDM are different, CDM methodologies will have to be suitably modified. Methodologies for POA may be more relevant in the case of NAMAs.

4. International arrangements for supporting NAMAs

COP15 and COP16 reiterate the obligation of developed countries to provide support, financial, technological and capacity-building, to developing countries for implementing actions to address climate change. The Cancun Agreements (UNFCCC, 2010, *ibid.*), in the context of the decisions on mitigation actions taken by developing countries, state that both preparation and implementation of NAMAs by developing countries will be supported by developed countries, through enhanced financial, technological and capacity-building support, in accordance with Article 4[14] of the UNFCCC Convention.

With the aim of strengthening the Financial Mechanism (FM)[15] of the Convention and providing support to developing countries, the Parties at COP16 established the following:

- Registry as a platform to facilitate the matching of support needed by developing countries for design and implementation of NAMAs, and support provided by bilateral and multilateral channels;
- Green Climate Fund (GCF) as one of the channels to provide financial support to the developing countries. GCF is an operating entity of the FM;
- Standing Committee (SC) as an organ to assist the COP in exercising its functions with respect to the FM. The role of SC will be as an advisory body to the UNFCCC Convention. SC will make recommendations on improving coherence and coordination in the delivery of climate change financing; rationalization of the financial mechanism; mobilization of financial resources; and, measurement, reporting and verification of support provided to developing country Parties (UNFCCC, 2011a, *ibid.*).

The Cancun Agreements took note (UNFCCC, 2011b, *ibid.*) of the commitment made at COP15 by developed country Parties regarding the level of financial resources they will provide to address the needs of the developing countries, with a balanced allocation between adaptation and mitigation. This includes additional resources reaching USD 30 billion for the period 2010–2012 (generally referred to as *fast-start finance*), and a goal of mobilizing jointly USD 100 billion per year by 2020 (generally referred to as *long-term finance*). These financial resources provided to developing countries will come from a wide variety of sources, public and private, including alternative sources, and channelled through bilateral and multilateral entities, as well as the FM of the Convention.

At COP17, the Parties also agreed to undertake a work programme on long-term finance with the objective to analyse options for the mobilization of resources from a wide variety of sources, public and private, bilateral and multilateral, including alternative sources, and taking into account relevant analytical work on the climate-related financing needs of developing countries (UNFCCC, 2011a, *ibid.*). The report of the work programme was considered at COP18 in Doha, and the work was extended for one more year.

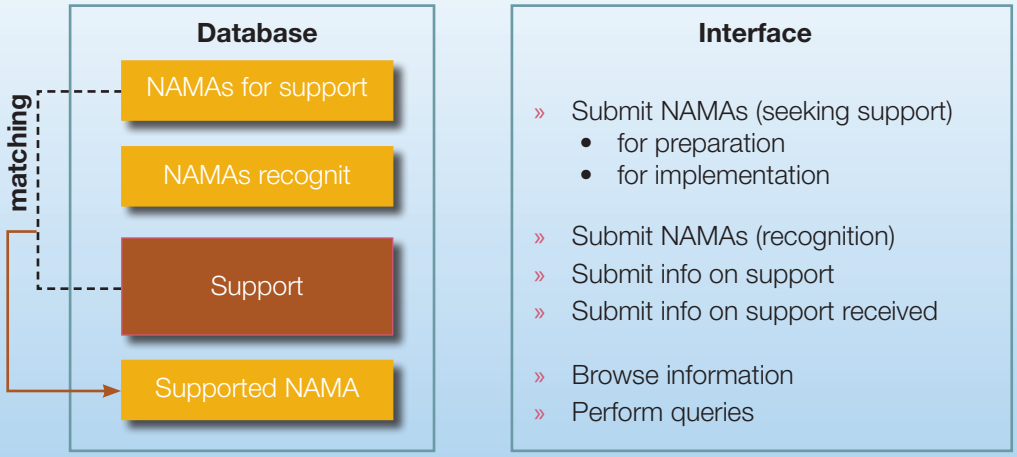
The Registry

The Registry is a web-based platform for making information available on NAMAs under preparation or implementation, as well as on the different sources of financing available for supporting their preparation or implementation. The Registry will be established and operated by the UNFCCC secretariat. Figure 2 shows a representation of the Registry prototype prepared by the secretariat. COP18 considered the progress in developing the Registry and requested the secretariat

14 Article 4 of the UNFCCC Convention states that developed country Parties "shall also provide such financial resources, including for the transfer of technology, needed by the developing country Parties to meet the *agreed full incremental costs* of implementing measures".

15 Article 11 of the UNFCCC Convention establishes the Financial Mechanism "for the provision of financial resources on a grant or concessional basis, including for the transfer of technology". The FM functions under the guidance of, and is accountable to, the Conference of the Parties (COP).

Figure 2: Representation of the Registry prototype as prepared by the UNFCCC secretariat for consideration by COP18



to deploy an operational prototype of it by April 2013, and release the dynamic web-based Registry at least two months prior to COP19 in Warsaw.

The key role of the Registry is to facilitate matching support made available by developed countries and the NAMAs seeking support submitted by developing countries. The support could be either for preparing or implementing a NAMA. The Registry can also be used by developing countries to share information on the NAMAs that they are willing to implement using domestic resources, referred to as NAMAs for recognition in figure 2. To facilitate matching, developed countries, as well as multilateral and other funding entities, are invited to provide information through the Registry on funding available for preparing or implementing NAMAs.

The submission of information by developed and developing countries to the Registry is voluntary. In the case of developing countries, information on the Registry will be submitted through a national Officially Designated Entity (ODE). ODE will have direct access to the platform to input the information. Templates are provided by the secretariat and made available on the platform to guide the submission of information. It is important to remember that there is no formal guidance provided by COP regarding the information that should be included in the NAMAs. Therefore, the templates are not mandatory and countries will have the flexibility to add or delete fields in accordance with their requirements. The information uploaded to the Registry can be modified at any time by the ODE of the country. Further, for NAMAs receiving support, each country will have the responsibility of updating the information to indicate the support received.

The Registry does not have any role in allocating resources to NAMAs seeking support. Its role in facilitating matching is only through provision of information on resources available to support NAMAs. This enables an easy search of information for countries seeking resources and those providing support. The Registry enables initiation of discussions where there is a mutual interest. It allows developing countries to reach out to the whole community of support providers, and reduces the countries' cost for identifying appropriate support avenues for their NAMAs.

The role of the UNFCCC secretariat is restricted to managing the Registry website. The secretariat has no mandate to undertake an analysis of the NAMAs submitted to the Registry or their approval, unlike in CDM. In the case of CDM, the CDM secretariat has the responsibility of undertaking a thorough analysis of a project submitted for registration, in terms of completeness of the information in accordance with an approved mandatory format, as well as in terms of assessing whether the project meets the CDM requirements. The role of the secretariat in the case of Registry is limited to bringing any inconsistencies of information to the notice of the relevant ODE.

A common question raised is whether information on the Registry will also facilitate MRV of actions and support provided. The Registry is not a tool for MRV of NAMAs or support provided. As explained above, MRV of national mitigation efforts by developing countries is through the information included in BURs. Similarly, for developed countries MRV of support provided is through the information included in biennial reports (BR).

The Green Climate Fund

The Parties in Cancun established the GCF as an operating entity of the FM established by the UNFCCC Convention. The document that governs the operation of the GCF is a "governing instrument" and is included as an annex to the decision 3/CP.1. The GCF will be governed by a Board and is accountable to, and functions under the guidance of, the COP.

What will the GCF support? The objective of the GCF is to promote the shift towards low-emission and climate-resilient development pathways. The GCF will support adaptation and mitigation in developing countries as per the decision made by the Parties in Durban (UNFCCC, 2011c), which calls on the Board of the GCF to maintain a balance between adaptation and mitigation activities. Furthermore, the GCF will enable and support enhanced actions of REDD+, technology development and transfer, capacity-building, and the preparation of national reports (such as NCs, BURs, etc.) by developing countries. The GCF will have thematic windows, adaptation and mitigation, initially, and may add more as needed. It will also have a facility to fund private sector adaptation and mitigation initiatives.

Funding will be available for project-based and programmatic approaches that are in the context of countries´ climate change strategies and plans, such as NAMAs, low-emission development strategies (LEDS) or plans, national adaptation plans of actions (NAPAs), and national adaptation plans (NAPs). Emphasis will be placed on programmatic initiatives based on country priorities.[16]

Funding will also be made available to countries for readiness and preparatory activities, and technical assistance. These activities could include:

- Preparing or strengthening LEDS or plans, NAMAs, NAPs, NAPAs;
- Strengthening in-country institutions, including the strengthening of capacities for country coordination;
- Strengthening capacities to meet fiduciary principles and standards, and environmental and social safeguards to enable direct access to the funding.

How to access the GCF? The GCF will receive proposals from countries through a designated national authority. This authority will also be responsible for issuing no-objection certifications for private sector projects submitted to the GCF under its private sector funding facility. Furthermore, countries have the possibility of designating sub-national or national entities to implement the activities supported by the GCF. This will enable enhanced country ownership and direct access to the GCF. These entities will have to obtain an accreditation from the Board of the GCF for receiving funding. The accreditation process, requirements and criteria will be established by the Board in accordance with the Fund's fiduciary principles and standards, and environmental and social safeguards. Countries will also have the possibility of accessing the GCF through accredited international entities, including United Nations agencies, multilateral development banks, international financial institutions and regional institutions.

What are the Financing instruments? The GCF will finance incremental costs for activities that address climate change. The GCF will also finance full costs incurred by developing countries in meeting their reporting requirements. It must be noted that the GCF governing instrument uses the phrase *"financing will be provided to cover the identifiable additional costs of the investment necessary to make the project viable"* (UNFCCC, 2011c, *ibid.*), rather than using the term "*incremental costs*". The concept of identifiable additional costs brings in project viability in calculating the incremental costs based on the expected returns on investments.

Financing through the GCF to cover the incremental costs will be in the form of grants and concessional lending, or through other financing modalities, instruments or facilities, as may be approved by the Board. Other financing modalities and instruments could include guarantees, equity investment and other modes of innovative funding.

Private sector is an important source of investments for mitigation and adaptation activities in developing countries (KPMG, 2011; Streck and Guimaraes, 2011; Whitley and Ellis, 2012). Public sector resources are small compared to the private sector, but can play a key role in increasing private sector involvement (KPMG, 2011; Whitley and Ellis, 2012). The GCF will have a private sector facility that enables direct and indirect financing of private sector mitigation and adaptation activities at the national, regional and international levels. The objective of the facility is to promote the participation of private sector actors in developing countries, in particular local actors, including small- and medium-sized enterprises and local financial intermediaries. The facility will provide financing to the private sector, based on a no-objection procedure from designated national

16 Green Climate Fund, Work Plan of the Board, Meeting of the Board 23-25 August 2012, GCF/B.01-12/04. http://gcfund.net/fileadmin/00_customer/documents/pdf/B.01-12.04_Work_plan_of_the_Board_FINAL.pdf

authorities. Such a procedure will ensure that the implementation of the activities by the private sector is in line with country priorities, and in accordance with national climate strategies and plans.

As per the work plan of the Board, the policies, procedures and eligibility criteria for accessing funds were to be developed in 2012, but the work could not be completed. The Board has prioritized this work for the year 2013. COP18 reiterated the request to the Board to expeditiously conclude this work, in order to make the GCF operational at the earliest time.

How will the GCF be funded? The primary source of funding for the GCF will be the contributions from developed country Parties. The GCF can also receive financial inputs from other sources, public and private, including alternative sources, such as finances raised from market-based instruments (e.g. levy on air travel).[17] COP17 has asked the Board to expeditiously establish the policies and procedures to enable an early and adequate replenishment process. Thus, the replenishment of the GCF has been made contingent on its operationalization.

What will be the financing sources to implement NAMAs?

As discussed in chapter 2, NAMAs will have different scopes and include different activities. Different sources of financing will be needed to fund these activities within the NAMAs.

Overseeing implementation of NAMAs is the responsibility of the government. The government, as well as other stakeholders such as private sector and financial institutions, will have a role in financing the implementation of NAMAs. The role of the government will primarily be setting up the institutional, policy and regulatory frameworks to mobilize and channel public and private investments into low carbon options. Investments, in most cases, will come from private sector and financial institutions, while public finance will provide enabling conditions by creating the appropriate risk/return profile for the investment to encourage private sector participation. However, in centrally planned economies, and in certain sectors, the primary source of investments would be government budget. In this case, the government may also raise funding from international institutions to supplement their budgetary resources. For example, investments in public transport infrastructure in many countries come primarily from government budgets, as well as funds raised from international institutions. Even in these sectors, countries have been exploring approaches to encourage private sector participation.

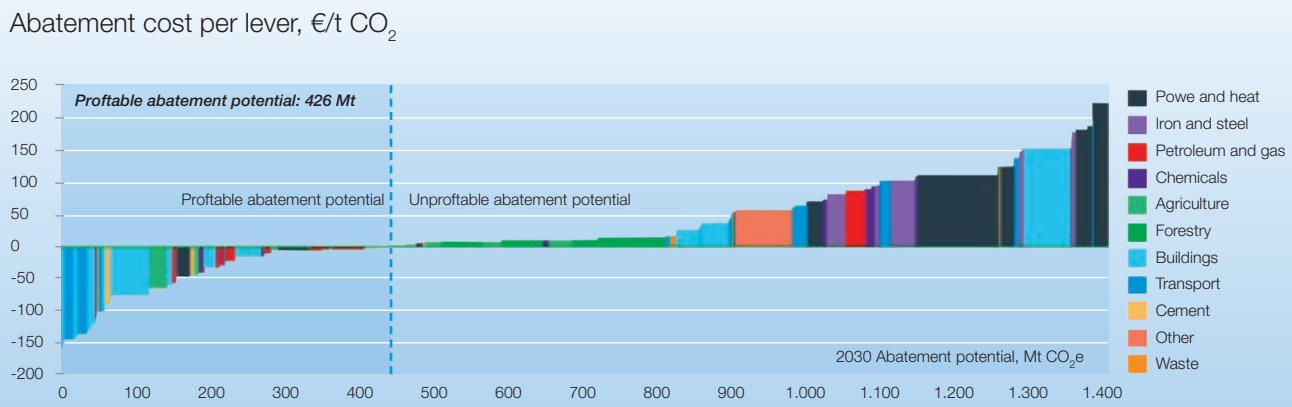
Therefore, financing NAMAs will be a combination of public and private financing coming from various sources. Public financing could be either from government budgets or international public sources, and private financing could be from national or international development and private financial institutions. The sources of financing for a NAMA will depend on the types of activities and actions to be implemented as part of the NAMA. Public financing is likely to be used to support NAMA development, mechanisms for engagement of the private sector, establishing facilitative institutional environment (e.g. deregulation), developing policy/regulatory framework, financing feasibility studies by private companies, implementing and financing demonstration projects, etc. For example, the establishment of institutions for testing and certifying solar products to address the quality risk aspect in commercializing solar panels were funded through public finance, both national and international. Activities in NAMAs that have reasonably safe cash flows and acceptable risk/return ratios are likely to be funded through equity from private sector and/or loans from financial institutions. In these cases, though the primary source of investment will be private sector, public funds could play a role in providing competitive risk/return profile for investments in low carbon options.

As an example, South Africa[18] has proposed a NAMA for creating 10 GW of wind power, up to 2020, by providing concessional finance to the national utility to

17 See "Report of the Secretary-General's High-level Advisory Group on Climate Change Financing". http://www.un.org/wcm/webdav/site/climate-change/shared/Documents/AGF_reports/AGF%20Report.pdf

18 See http://www.kfw-entwicklungsbank.de/ebank/DE_Home/Klima_und_Umwelt/Klima_-_Facts_and_Figures/Dokumente_und_Informationen/Tech-

Figure 3: Marginal abatement cost (MAC) curve for various mitigation options (McKinsey & Company, 2009)



install 3.5 GW, and trigger installation of another 6.5 GW of wind power by Independent Power Producers (IPPs) by providing competitive feed-in tariff. In both cases public financing is used for lowering interest on loans to the national utility, making the risk/return profile attractive to IPPs. The main source of investment will be raised by the project implementers (IPPs/national utility), which could come from equity and loans raised from financial institutions.

What will international public finance support? Article 4 of the Convention states that international public finance will be provided to cover the incremental cost of the mitigation actions taken by developing countries. The concept of incremental cost is directly linked to the concept of national appropriateness. As explained earlier, national appropriateness means that the mitigation actions are implemented in accordance with national plans and programmes, in order to achieve the development and environmental goals of the country with a lower GHG emission level. In this context, the "incremental cost"[19] refers to the additional costs that might be required to adopt a lower GHG emission option for meeting the national development and environmental goals, compared to a BAU option. Thus, the incremental costs are additional and beyond the costs that the country would have invested without financial support. The incremental costs can be considered as a grant component to finance the climate change co-benefits associated with national actions.

Not all actions necessarily result in incremental costs, as illustrated in the McKinsey marginal abatement cost (MAC) curve (figure 3) (McKinsey & Company, 2009). The MAC estimates the profitability of mitigation actions over their lifetime, from the perspective of the investor[20]. The options on the left in figure 3 are profitable, and also reduce emissions. These are, for example, energy efficiency measures. For such options, implementation results in net financial benefits, and has no incremental costs. However, the implementation of these options can be hindered by non-financial barriers. Removing these non-financial barriers may require technical support, such as development and implementation of a conducive policy and regulatory environment, and/or institutional structures to address risks in adopting the options. The country may also have socio-economic and environmental co-benefits from such options. For this reason, countries may use their own financial resources to implement these options. For example, energy efficiency options also result in reduced investment in power generation, so that the savings can be used to finance implementation of activities that address barriers to energy efficiency options. Thus, NAMAs including such profitable options might primarily need international technical assistance to address the barriers.

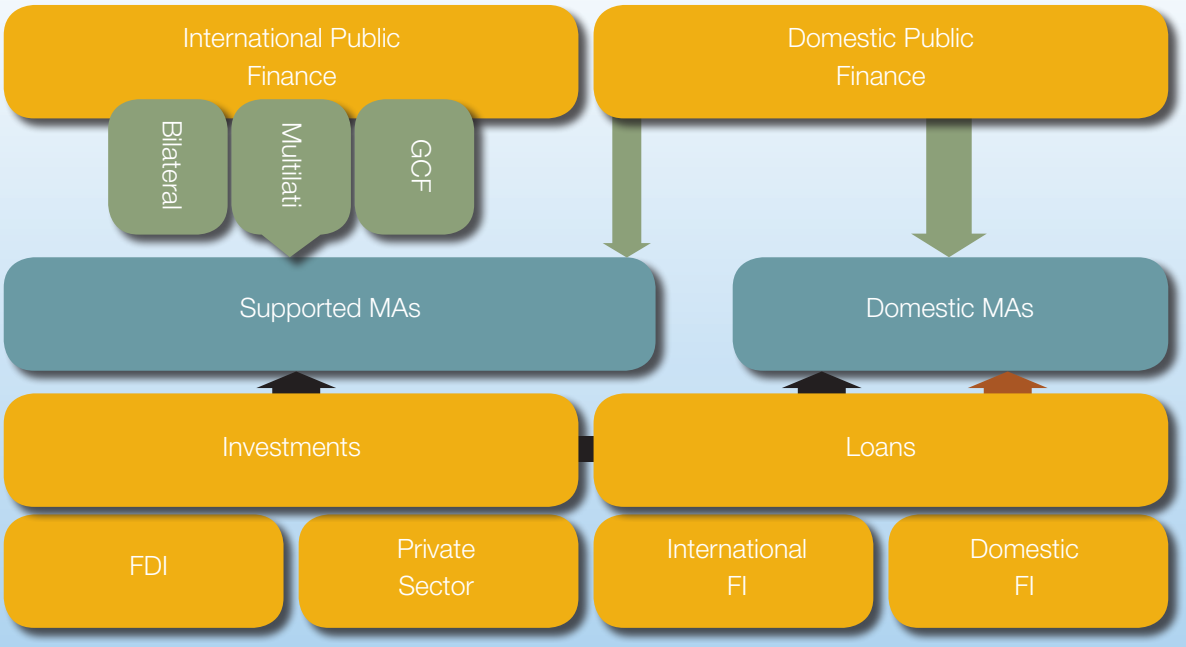
The mitigation options on the right in figure 3 are unprofitable from the perspective of the investor. That means that the implementation of these options results in an additional cost, compared to the cost of a higher GHG emission option. Therefore, these unprofitable options have an incremental cost. The financing of the incremental cost could be through different instruments depending on the nature of the activities and the level of gap, such as interest subsidies or other fiscal measures that lower the capital and/or operational costs of mitigation options. For these mitigation options, public

nical_analysis_of_four_possible_NAMAs_in_South_Africa_-_Harald_Winkler,_ERC.pdf, accessed on 13 November 2012.

19 See GEF Report on Incremental Costs for further details on incremental costs. http://www.thegef.org/gef/sites/thegef.org/files/documents/gef_c14_5.pdf

20 It should be noted that implementation of these options may also have additional costs, which are not borne by the investor.

Figure 4: Sources of financing to support NAMAs



financing (international and national) would be needed to meet the incremental cost, and create an appropriate risk/reward profile for the private sector to invest in these options. In some cases where the adoption of these mitigation options reduces the budgetary outflow of the government to support the BAU option, the savings could be used to support the mitigation option. For example, in Tunisia, government subsidy provided for solar water heaters, which was offset by savings generated from subsidies provided for electricity consumption (Trabacchi *et al.*, 2012). This means that even in cases where incremental costs are positive, international support may not be required to meet the full incremental cost.

Figure 4 shows a diagram of different sources of financing to support NAMAs.

Financing NAMAs is likely to be a combination of the following four sources: international public finance, domestic public finance, private sector investments, and national and international commercial financial institutions. The share of international or domestic public finance will be high in NAMAs that are aimed at creating conducive policy and regulatory environment for channelling investments to low GHG emissions options or institutional strengthening. In the case of NAMAs that directly support implementation of mitigation options, the share of public finance will be smaller, and private sector will have a greater role to play.

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