

# **Understanding the Nationally Appropriate Mitigation Action: Developing Country Mitigation Framework under the Convention**

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## Table of Contents

Acronyms .....	4
Introduction .....	5
Chapter 1: Background .....	6
Chapter 2: Understanding the concept of NAMA .....	9
NAMA in the context of 2°C goal .....	9
Defining NAMA .....	10
Diversity of NAMA .....	10
Nature of NAMA .....	11
NAMAs submitted to UNFCCC .....	11
Scope of NAMA .....	13
NAMA document .....	13
Chapter 3: Measure, Report and Verify (MRV) .....	17
Two tiers of MRV framework .....	18
Developing NAMA MRV tier .....	20
Measuring progress and impact of NAMAs .....	21
Chapter 4: Financing NAMAs .....	23
Registry .....	24
The Green Climate Fund .....	25



Financing NAMAs – Blending different sources of finance and using different instruments .....27

The concept of Incremental cost .....28



## Acronyms

BAP	Bali action plan
BR	biennial reports
BUR	biennial update reports
CDM	clean development mechanism
CDM-EB	CDM executive board
CO <sub>2</sub> -eq	CO <sub>2</sub> -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



## Introduction

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This paper aims to provide a comprehensive overview of the Nationally Appropriate Mitigation Action (NAMA) framework and enhance the understanding on NAMAs by explaining the Conference of the Parties (COP) decisions in layman's terms.

The paper is intended to enable national policy makers and stakeholders, such as the private sector and mitigation technical experts, to acquaint themselves with the concept of NAMA.

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, MRV and financing have evolved through the different COPs. The second chapter first clarifies the understanding of NAMAs in context of the global temperature goal and the diversity of NAMAs submitted to UNFCCC based on COP decisions. This chapter then discusses the nature and scope of NAMA, analyses the diversity of NAMA and the actions submitted by developing countries to UNFCCC. Finally the chapter ends by proposing content for a NAMA document. The third chapter addresses specifically the concept of measurement, reporting and verification (MRV) and describes the MRV framework. The last chapter discusses institutional arrangements under the Convention for providing finance to develop and implement NAMAs. The chapter also discussed briefly the different financial sources for implementing NAMAs and ends by explaining the concept of incremental cost.



## Chapter 1: Background

During the recent years Nationally Appropriate Mitigation Action (NAMA) became a key element of negotiation on mitigation in the United Nations Framework Convention on Climate Change (UNFCCC) process. At present NAMA is considered as a key policy tool to be used by developing countries to address their emissions reductions.

To understand the term NAMA it is necessary to look at the international negotiations process on climate change starting from the adoption of the Convention in 1992. Article 4 of the Convention defines the commitments of all Parties to address greenhouse gas (GHG) emission. 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,..." 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 case of developing countries, the Convention neither defines the GHG emissions reduction goal nor the nature or scope of mitigation measures.

The Kyoto Protocol adopted in 1997 during the 3rd Conference of the Parties (COP) to the UNFCCC in Japan is a key step in setting up the GHG reduction commitments of developed country. The Protocol specifies that the reduction commitments of developed countries shall 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 regards to developing countries, the Kyoto Protocol (Article 10, (b)) reiterates their general commitments to formulate and implement mitigation measures as described in the Convention, taking into account their common but differentiated responsibilities and in order to achieve sustainable development. Thus Kyoto Protocol too doesn't specify the nature and scope of developing countries mitigation measures.

An important step in clarifying the concept of developing countries mitigation actions is taken in 2007 in Bali during the COP13. 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 "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 lays 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 exist for developing countries,<sup>1</sup> measurement, reporting and verification (MRV) as concept is for the first time mentioned in the context of NAMA thus opening the discussions on how the NAMA will be subject to MRV domestically and/or internationally.

The subsequent COPs held in Copenhagen (COP15 in 2009), Cancun (COP16 in 2010) and Durban (COP17 in 2011) have progressively clarified the mitigation framework for developing countries. The Convention had 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 compared to the Convention, as it uses the term “supported NAMA” to refer to NAMA 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 domestic 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;”. This provides a common goal for all developing countries to mitigate their GHG emissions.

With regards to MRV, Copenhagen Accord states that the supported NAMAs will be subject to international MRV. 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 bring additional explanations on the international reporting requirements.

With regards to financial support to developing countries, the Cancun Agreements re-iterate 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 provision of support to prepare and implement NAMAs, 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*) bring additional explanations on the Registry clarifying that it “should be developed as a dynamic, web-based platform managed by a dedicated team in the secretariat”. 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

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<sup>1</sup> 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 UNCCC.



recognized the goal of developed countries to mobilizing jointly USD 100 billion per year by 2020 to address the needs of developing countries, including financial support to NAMAs.

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 on NAMAs (including estimated mitigation impacts of NAMAs, underlying assumptions and methodologies for estimating mitigation impacts, and sectors and gases covered); needs for support for the preparation and implementation of NAMAs; and, the role of the Registry in matching NAMAs with international support.

Although it is clear that NAMA is a central instrument to address GHG emissions reductions of developing countries, international negotiations have neither provided any official definition of what information should be included in a NAMA nor clarified some of others aspects such as domestic and international MRV mechanisms and guidelines.



## Chapter 2: Understanding the concept of NAMA

### NAMA 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*). The Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC AR4, 2007) reports 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<sub>2</sub>-equivalent (CO<sub>2</sub>-eq). This would result in a 50% chance of achieving the 2°C goal. Further, IPCC AR4 reports 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 Centrally-Planned Asia”. Further, it states that by 2050 developed countries will have to decrease their emissions by 80-95% below 1990 levels and developing countries achieve “substantial deviation from baseline in all regions”.<sup>2</sup>

The Emission GAP Report (UNEP, 2010) states “that studies show that emission levels of approximately 44Gt of CO<sub>2</sub>-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<sub>2</sub>-eq in 2020, leaving a gap of 12Gt CO<sub>2</sub>-eq”.

In order to achieve the 2°C goal, emissions in developing countries will have to deviate approximately by 15% from BAUs emissions by 2020.<sup>3</sup> This is in accordance with estimates made by den Elzen and Höhne (2008), who indicate the emissions in developing countries will have to deviate 15 - 30% from BAU emissions by 2020. The 15% deviation mentioned by den Elzen and Höhne corresponds to the 40% of 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 this context the identification of NAMA can be considered as a tool for developing countries to identify the opportunities for achieving deviation from BAU emissions and transforming development towards low emission pathways.

<sup>2</sup> 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.

<sup>3</sup> The 15% deviation is estimated as follows: assuming a 30% reduction below 1990 levels (1990 level = 19Gt of CO<sub>2</sub>-eq / [http://unfccc.int/files/ghg\\_data/ghg\\_data\\_unfccc/ghg\\_profiles/application/pdf/ai\\_ghg\\_profile.pdf](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<sub>2</sub>-eq in 2020. At the same time, taking the 44Gt of CO<sub>2</sub>-eq as a target for 2020 as reported in *The Emission GAP Report* (UNEP, 2010), developing countries will have a quote of approximately 30.7Gt of CO<sub>2</sub>-eq (44Gt – 13.3Gt) as compared to their expected BAU 2020 level emission of 36Gt of CO<sub>2</sub>-eq. This implies developing countries emissions would have to be reduced by approximately 5Gt of CO<sub>2</sub>-eq, i.e, 15% below BAU emissions in 2020.



## Defining 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 understood 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”. In this context, NAMA should be considered as a mitigation action tailored to countries’ national context, characteristics and capabilities.

Further, NAMAs should take place in the context of sustainable development *i.e.* built on and taking into account sustainable development priorities and strategies; should be measurable, reportable and verifiable manner; and 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).

## Diversity of NAMA

As NAMAs should take national context and capabilities into consideration, it is expected that NAMAs submitted will have a broad diversity in terms of scope, as countries differ significantly in terms of socio-economic context, environmental characteristics and capabilities. In this sense one may recall the discussions during the negotiations process, leading up to Cancun Agreements, on differentiating mitigation responsibilities among developing countries to reflect the differences in national circumstances. This is probably the reason why scope of NAMA has not been clearly defined in any of the COP decisions.

Diversity in NAMA 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 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 has to be noted that the concept of differentiation among developing countries is also reflected in the extent to which countries will implement domestic supported NAMAs. Developing countries with greater capacities and capabilities are expected to implement domestic supported NAMAs.

## Nature of NAMA

The mitigation framework agreed in COP16 for developed and developing countries is based on the principle of voluntary effort. 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". Thus NAMAs submitted are not anchored in any COP decision, having no legal status under the UNFCCC.

Countries may decide to anchor NAMA in a decision at a future COP. COP decisions are legally binding on the countries. Thus inclusion of NAMA in a COP decision or as an annex to a COP decision would give them a legally binding status. It has to be noted however that under the UNFCCC there is no compliance mechanism to enforce the COP decisions.

In the present context, the mitigation actions taken by countries will be nationally determined as opposed to determined through international negotiations. Countries will voluntarily submit their NAMAs to the UNFCCC. These NAMAs are "morally" self binding on countries as these are countries' pledges. In the case 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, the implementation of NAMAs 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.

### NAMAs submitted to UNFCCC

As seen before, the scope of NAMA 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" (UNFCCC, 2011b).

Copenhagen Accord invited developing country Parties to submit information on their NAMAs to the UNFCCC. 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 paragraph above. A consideration of these submissions shows that the information given by countries varies in scope. Table 1 categorizes the submissions reflecting the diversity of NAMAs.

Scope		Countries
EU	Absolute reduction target	Antigua and Barbuda, Bhutan , Costa Rica, Maldives, Marshall Islands, Papua New Guinea, Republic of Moldova



	BAU Deviation Target	Brazil, Chile, Indonesia, Israel, Mexico, Singapore, South Africa, South Korea,
	Intensity target	China, India,
	Sectoral Goal	Central African Republic, Columbia, Peru, Togo
	Focus areas <sup>#</sup>	Eritrea, Macedonia, Madagascar, Mauritania, Mongolia, San Marino, Sierra Leone, Tajikistan, Togo, Tunisia
	Measures <sup>h</sup>	Armenia, Botswana, Central African Republic, Chad, Congo, Gabon, Ghana, Ivory Coast, Jordan, Macedonia, Peru, Sierra Leone, Togo, Tunisia
	Specific activities <sup>&amp;</sup>	Benin, Ethiopia, Jordan, Macedonia, Morocco,
	Others	Afghanistan, Algeria, Argentina, Cambodia, Cameroon, Georgia, Mauritius,

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

The table 1 categorizes countries into those that define a goal and those that don't define a goal. Among the countries defining a goal, distinction is made between the countries that identify economy-wide goal or sectoral goal. Of the 48 countries, 17 have submitted economy-wide goals and 4 countries have submitted sectoral goals. Submissions by countries that don't define goal can be further classified into four categories: focus areas, i.e., generic sub-sectoral, sectoral or cross-sectoral mitigation options with no specific goals or measures to implement them (e.g., energy efficiency, sustainable management of natural resources, promotion of renewable energy); measures, i.e., specific policies, regulations or technology initiatives (e.g., standards in the building sector, promotion of low energy light bulbs, development of an institutional and legal framework for REDD+); specific activities, i.e., Project or technological action in a specified location (e.g., 450 MW Tekeze Hydro power project in Ethiopia, Urban transportation development projects: the Casablanca Regional Express Network in Morocco, thermal gas power plant Skopje CHP (230 MW) in Macedonia); and others that don't belong to any of the first three categories. Some countries are listed in more than one category because the information on NAMAs fall under different categories.

A key conclusion that can be drawn from the table 1 is that the scope of a NAMA can vary from broad to narrow in terms of mitigation potential addressed and the geographical area covered.

The analysis of the information submitted by developing Parties to UNFCCC shows that these are expressions of intentions to implement mitigation actions that are either at national/sectoral level or are focus areas/measures/specific activities. The information does neither describe the steps nor include detailed plans to implement the mitigation actions. Thus most of the information submitted and grouped under the NAMA term by UNFCCC reflects the intended mitigations action that these countries are willing to undertake voluntarily to achieve significant deviation from the BAU emissions.



## Scope of NAMA

Moving from intention to implementation of NAMAs requires clearly outlining steps and details plans. In this sense it is important to understand data and information required to describe these steps and build a NAMA implementation plan. A document including this information could be called a NAMA document.

As concluded above, the scope of a NAMA can range from broad to narrow. The effort required for designing a NAMA, including the steps and implementation plan, will depend on scope of the NAMA. Many factors affect the effort required to design and implement a NAMA, viz., data and information needed for the design, coordination among the stakeholders for design and implementation, and data and mechanism for monitoring and evaluation of the implementation. The broader the scope of NAMA, the greater is the data and information requirement for designing a NAMA. Also, as the scope broadens, the coordination effort required for designing, implementing and monitoring increases. Further 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 as well as private sources. Effort will be needed to coordinate the various sources of finance as well as properly account its utilisation. The effort of this coordination will increase with the scope. Thus, the broader the scope, the greater is the challenge of designing a NAMA and the corresponding NAMA document, as well as implementing it.

It has to be remembered that the objective of NAMAs is to facilitate transformation to lower emission development pathways. In this sense 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 and 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. Nonetheless, as discussed above, the scope of NAMAs should be such that they have transformational impact but are also practicable from the standpoint of design and implementation. To be able to design and implement such NAMAs, some countries might need technical and other capacity-building support.

It is important to note that the identification of the scope of NAMAs does not make irrelevant for a country to define national or sectoral goals. Such goals should be the basis for identifying NAMAs.

## 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 to design a NAMA (IRENA, 2012; van Tilburg *et al.*, 2011; Wuppertal Institut and GIZ, 2012), no description of content of a NAMA document has been provided. The content of NAMA document will have to address certain common key aspects to provide clarity on the implementation of



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

Development of a NAMA document will benefit the country as well as be the basis for informing international community on mitigation actions planned by a country. The development of such a document will have following benefits for the developing countries:

- Identifying and defining mitigation options that support transformation of development path to 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 to NAMA implementation and possible solutions;
- Identifying the needs for NAMA implementation including international support through technology, financing and capacity-building; and,
- Informing all stakeholders of environmental and development benefits of implementing NAMAs.

The importance for developing countries in receiving support from developed countries to implement NAMAs has been in 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 sense such a document will be the basis for discussing support needed with the potential donors. For this reason the information included in a NAMA document should take into consideration perspective of the support providers.

In this regard rather than re-inventing the wheel, one can learn 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 to identify 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 it helps elaborate a NAMA document is shown in the table 2.

<b>GEF/MP project document</b>	<b>NAMA document</b>
Context	National context on development and climate change policies,
Project rationale	General description of the actions and its 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, economical and other environmental benefits
Barriers and risks	Identification and description of barriers for NAMA implementation. The NAMA document should also address the solutions proposed to overcome the barriers, and identify the needs for international support
Sustainability criteria (institutional, technical and financial)	Description of how and why can 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 to be used in the NAMA compared to other options
Incremental/additional concept	Description of how the support increase the deviation of GHG emissions from BAU
Budget (national and international)	Full NAMA budget specifying national budget and international needs for support, viz., finance, technology, and capacity building
Monitoring tools	MRV for NAMA

**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.**

Some publications have proposed contents for what one could consider 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:

Introduction	<ul style="list-style-type: none"> <li>a. Brief description of the general context of the country, and overview of national development and climate change policies;</li> <li>b. Brief description of the relevant existing legal, regulatory and institutional framework for</li> </ul>
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	implementation of the NAMA;
Overview of NAMA	<ul style="list-style-type: none"> <li>c. Description of objectives and mitigation measures;</li> <li>d. Relevance to the national development plans/strategies as well as national and/or sectoral mitigation goals;</li> <li>e. Description of relevant existing mitigation initiatives and synergies with the NAMA;</li> </ul>
National benefits	f. Description of the benefits in terms of development (economic, social and environmental);
GHG emissions impacts	<ul style="list-style-type: none"> <li>g. Description of BAU scenario;</li> <li>h. Description of estimated impacts on deviation of GHG emissions from BAU;</li> <li>i. Description of the transformational impact of NAMA implementation;</li> </ul>
Action Plan NAMA	<ul style="list-style-type: none"> <li>j. Description of detailed activities to implement the mitigation measures included in the NAMA;</li> <li>k. Work plan for the detailed activities;</li> <li>l. Plan for the involvement of stakeholders, including their role in the implementation of the activities and institutional arrangements;</li> </ul>
MRV	<ul style="list-style-type: none"> <li>m. Description of key parameters to assess progress of implementation of the NAMA;</li> <li>n. Description of key parameters to assess the national benefits and GHG emission impacts;</li> <li>o. Description of methodology to estimate GHG emissions impacts and arrangements for measuring and reporting;</li> </ul>
External non-financial support required	p. Description of the technical and the capacity building needs, based on the identified barriers to implementing mitigation measures (described in the Annex)
Financial resources required	<ul style="list-style-type: none"> <li>q. Cost of implementing the NAMA;</li> <li>r. Incremental cost, to be sourced from international funding, to implement the NAMA;</li> <li>s. Description of arrangements to finance the implementation of the NAMA, including domestic finances and international funding ;</li> </ul>
Annexes	
Identification of barriers	<ul style="list-style-type: none"> <li>a. Pre-feasibility study to implement mitigation measures;</li> <li>b. Barrier analysis (financial, legal, regulatory, institutional, capacity, technology, etc.) to implement mitigation measures;</li> <li>c. Description of necessary steps to eliminate barriers;</li> </ul>



Verification process	d. Description of verification process of NAMAs in the country;
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**Table 3: Suggested contents of a NAMA document**



## Chapter 3: Measure, Report, and Verify (MRV)

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

As mentioned in previous section, NAMAs should lead to transformation of 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 are found in literature (UNEP Risoë, 2012; FRANSEN, 2009). In simple terms one may define this 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.

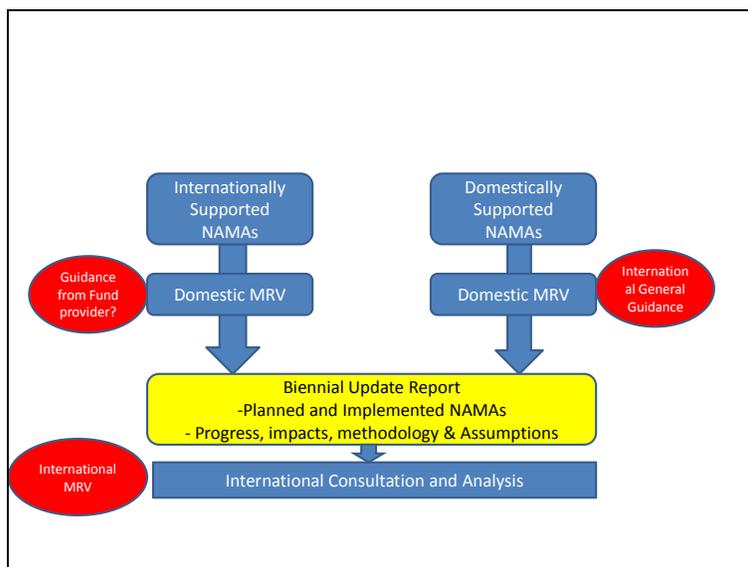
Cancun Agreements (UNFCCC, 2010, *ibid*) and the Durban Outcomes (UNFCCC, 2011a, *ibid*) define the requirements for MRV of mitigation efforts undertaken by the developing countries. Key elements are:

- All NAMAs, domestically supported 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<sup>4</sup>) 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.
- Biennial Update Reports (BUR) will be the main channel for *reporting* (R) all the mitigation efforts, domestically and internationally supported NAMAs, made by developing countries to the UNFCCC. Developing countries will submit BUR every two years. Least Developed Country Parties and Small Island Developing States have the flexibility in submitting 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 which will perform the analysis.

<sup>4</sup> SBSTA is an advisory body of the Conference of Parties to the UNFCCC as well its Kyoto Protocol and provides recommendations on various scientific and technical issues related to implementation of the Convention.



Figure 1 is a diagrammatic representation of the MRV of, both, domestically and internationally supported NAMAs based on the decisions on MRV of NAMAs.



**Figure 1: Diagrammatic representation of MRV of NAMAs**

## Two tiers of 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 international level under the UNFCCC. This tier covers MRV of all the national mitigation efforts and also the national GHG inventory. It includes: 1) measuring (M) 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.

### **Information included in BUR:**

The guidelines for reporting information in BURs were adopted at COP17 (Annex III to decision 2/CP.17).

BUR will include information on the national annual GHG inventory<sup>5</sup>, including time series of previous years GHG emissions, and the following elements on NAMAs:

<sup>5</sup> GHG inventory will be for a year not later than four years prior to date of submission of the report (for e.g., report submitted in 2014 should include GHG inventory for year 2010 or a later year).



- (a) Information on planned NAMAs: objective and description of NAMAs, including information on the emissions 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 implement NAMAs, and related financial, technical and capacity needs, including a description of the support needed.
- (b) Information on NAMAs under implementation or 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, for 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 BURs.

**ICA of information included in BURs:**

The ICA, akin to the verification (V) step of MRV, involves analysis of the information submitted 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 country level and supports the National MRV tier. This tier 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 developed by the COP. 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 have to report the information on NAMA MRV tier in the BUR.

The COP doesn't specify whether general guidelines for "domestic" MRV will also be applicable to the internationally 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.

### Developing NAMA MRV tier

As mentioned above, countries will have to establish 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 a MRV system. In case of CDM, CDM Executive Board (CDM-EB) is the authority that establishes the institutional arrangements, 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 measurement, 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 reviews and recommends measurement methodologies. Technical bodies include CDM methodologies panels and accreditation panel. Methodologies 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 might not have all the components outlined for the CDM MRV system above, but it would need to define the institutional arrangements, processes and procedures for consideration of measurement methodologies and reported information, as well as guidelines for measurement and reporting. These guidelines and procedures would be used by 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 build upon for establishing system for NAMA MRV tier.

As mentioned earlier, in the case of internationally supported NAMAs, the MRV would be agreed 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.

### **Measuring progress and impact of NAMAs**

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

**MEASURING PROGRESS OF IMPLEMENTATION:** Key obligation of developing countries is to implement mitigation actions and not to achieve a pre-defined level of emissions reduction. In line with this obligation, countries will report in the BUR progress on: steps taken to implement NAMA, and outcomes of the NAMA 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 installed capacity of 10 GW. In this case, progress indicators of NAMA implementation may include status of developing 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.

**IMPACT OF NAMAS ON GHG EMISSIONS:** Key objective of NAMAs is to result in deviation of emissions from a BAU scenario. Measuring and reporting estimated emissions reductions resulting from implementing NAMAs is thus an important element of a National MRV tier. Estimating impact of NAMA implementation requires establishing a BAU scenario and a methodology to estimate the impact on GHG emissions sources affected by NAMA implementation. Measurement methodologies should include parameters to tracks the GHG emissions impact of NAMA implementation and 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 efficiency residential units, by identifying the key energy consumption parameters to be monitored;



- Survey of a baseline group that consists of residential units built without using energy efficient standards. This group will be monitored every 3 to 4 years to establish the baseline of energy consumption; and
- Estimating emission factor for energy consumption of residential units. This factor is multiplied with 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 case of NAMAs.



## Chapter 4: Financing NAMAs

COP16 reiterates 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 the 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<sup>6</sup> of the UNFCCC Convention.

With the aim of strengthening the Financial Mechanism (FM)<sup>7</sup> of the Convention and provision of support to developing countries, the Parties at COP16 established the following:

- Registry as a platform to facilitate the provision of the support received from bilateral and multilateral channels.
- Green Climate Fund (GCF) as one of the channel to provide the 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 to 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 approaching 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 sources 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 account the relevant analytical work on the climate-related

<sup>6</sup> 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”.

<sup>7</sup> 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).



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.

## Registry

The Registry is a web-based platform for making available information on NAMAs under preparation or implementation as well as on the different sources of finance available for supporting preparation or implementation of NAMAs. 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 to deploy an operational prototype of the Registry by April 2013 and release the dynamic web-based Registry at least two months before the COP19 in Warsaw.

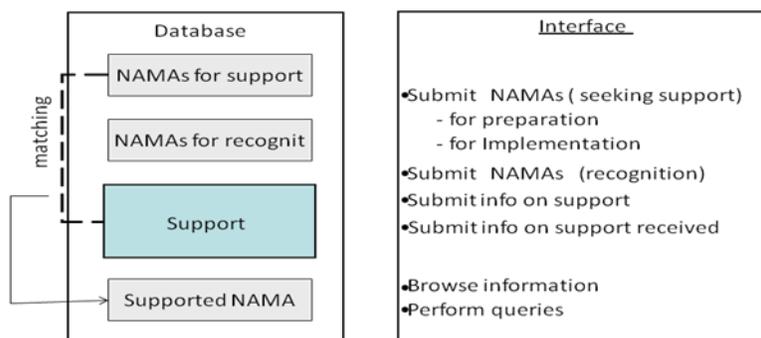


Figure 2: representation of Registry prototype as prepared by UNFCCC Secretariat for consideration by COP18

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 a NAMA or for 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 a 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 on 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 moment by the ODE of the country. Further, for NAMAs receiving support, each country will have the responsibility to update 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 easy search of information to 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 cost for countries to identify 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 Registry and their approval, unlike in CDM. In 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 assessment whether project meets the CDM requirements. The role of secretariat in case of Registry is limited to bring any inconsistencies of information to the notice of the relevant ODE.

A common question raised is whether information on Registry will also facilitate MRV of actions and support provided. Registry is not a tool for MRV of NAMAs or support provided. As explain 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 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 GCF FUND?:** 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 taken by the Parties in Durban (UNFCCC, 2011c) which calls on the Board of the GCF to maintain a balance between adaptation and mitigation activities. Further 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. 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 action (NAPAs), and national adaptation plans (NAPs). Emphasis will be made on programmatic initiatives based on country priorities.<sup>8</sup>

<sup>8</sup> 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](http://gcfund.net/fileadmin/00_customer/documents/pdf/B.01-12.04_Work_plan_of_the_Board_FINAL.pdf)



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 of 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 Fund.

**ACCESSING GCF:** GCF will receive proposals from countries through a designated national authority. This authority will also be responsible for issuing no-objection certification for private sector projects submitted to the GCF under its private sector funding facility. Further countries have the possibility of designating sub-national or national entities to implement the activities supported by 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. 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 to access the GCF through accredited international entities, including United Nations agencies, multilateral development banks, international financial institutions and regional institutions.

**FINANCING INSTRUMENTS:** GCF will finance incremental costs for activities that address climate change. The GCF will also finance full cost incurred by developing countries in meeting their reporting requirements. It has to be noted that the GCF governing instrument uses the term "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 the concept of project viability in calculating the incremental costs based on the expected returns on investment.

Financing through GCF 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 for 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 they can play a key role in increasing private sector involvement (KPMG, 2011; Whitley and Ellis, 2012). GCF will have a private sector facility that enables to directly and indirectly finance 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 finances to private sector based on a no-objection procedure from designated national authorities. Such procedure will ensure that the implementation of the activities by 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 during 2012, but the work could not be completed. The Board has prioritized this work for the year 2013. COP18 re-iterated the request to the Board to expeditiously conclude this work to make GCF operational at the earliest.

**FUNDING OF GCF:** The primary source of funding for 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 of air travel).<sup>9</sup> 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 the operationalization of the GCF.

### **Financing NAMAs – Blending different sources of finance and using different instruments**

As discussed in chapter 2, NAMAs will have different scopes and include different activities. Different sources of finance 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 main role of the government will be primarily 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 create the 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 primary source of investments would be government budget. In this case, the government may also raise finances from international institutions to supplement their budgetary resources. For example, investments in public transport infrastructure in many countries primarily come from government budgets as well as funds raised from international institutions.

Thus financing NAMAs will be a combination of public finance and private finance coming from various sources such as private financial institutions. Public finance could be either from government budgets or international public sources, and private finance could be from national or international financial stakeholders. The sources of finance for a NAMA will depend on the type of activities and actions to be implemented as part of the NAMA. Public finance 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, establishing institution for testing and certification of solar products to address the quality risk aspect in commercializing solar panels were funded through public finance, both, national as well as international. Activities in NAMAs that have cash flow are likely to be funded through loans from financial institutions and equity from private sector. For these kinds of activities, the possibility of mobilizing large amounts of public funds may be

<sup>9</sup> See report of the “Report of the Secretary-General’s High-level Advisory Group on Climate Change Financing”. [http://www.un.org/wcm/webdav/site/climatechange/shared/Documents/AGF\\_reports/AGF%20Report.pdf](http://www.un.org/wcm/webdav/site/climatechange/shared/Documents/AGF_reports/AGF%20Report.pdf)



limited. However in this case, though primary source of investment will be private sector, public funds will play a role in providing competitive risk/return profile for investments in low carbon options.

As an example, South Africa<sup>10</sup> has proposed a NAMA for creating 10 GW of wind power up to 2020 by providing concessional finance to the national utility to 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 the public finance is used for lowering interest on loan to the national utility and 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.

### The concept of Incremental cost

In the context of NAMA financing a key concept is “incremental cost”. Financial support under the UNFCCC Convention is provided for the incremental cost (Article 4 of the Convention). The concept 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”<sup>11</sup> 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). MAC estimates the profitability of mitigation actions over life time from the perspective of the investor. The options on the left in the 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 can 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. Country may also have socio-economic and environmental co-benefits of such options. For this reason, countries may use their own financial resources to implement these options. For example, energy efficiency options also results 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.

<sup>10</sup> See [http://www.kfw-entwicklungsbank.de/ebank/DE\\_Home/Klima\\_und\\_Umwelt/Klima - Facts and Figures/Dokumente und Informationen/Technical\\_analysis\\_of\\_four\\_possible\\_NAMAs\\_in\\_South\\_Africa - Harald\\_Winkler,\\_ERC.pdf](http://www.kfw-entwicklungsbank.de/ebank/DE_Home/Klima_und_Umwelt/Klima_-_Facts_and_Figures/Dokumente_und_Informationen/Technical_analysis_of_four_possible_NAMAs_in_South_Africa_-_Harald_Winkler,_ERC.pdf), accessed on 13<sup>th</sup> November 2012.

<sup>11</sup> 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](http://www.thegef.org/gef/sites/thegef.org/files/documents/gef_c14_5.pdf)



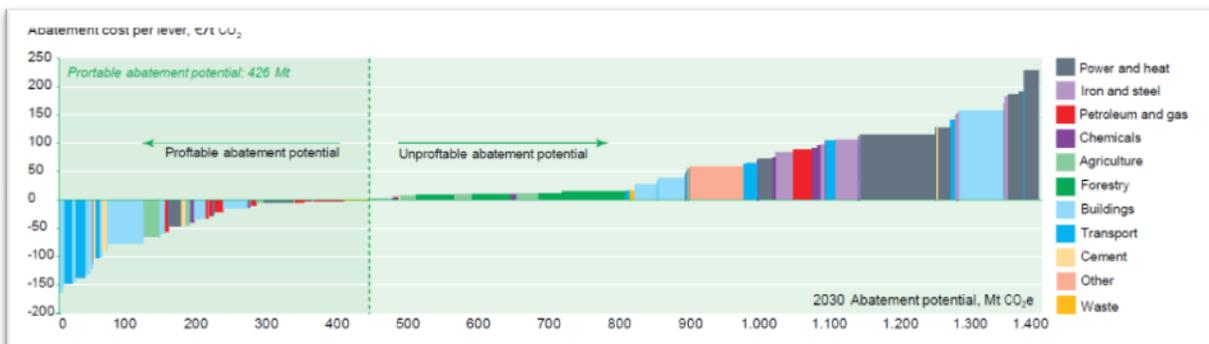
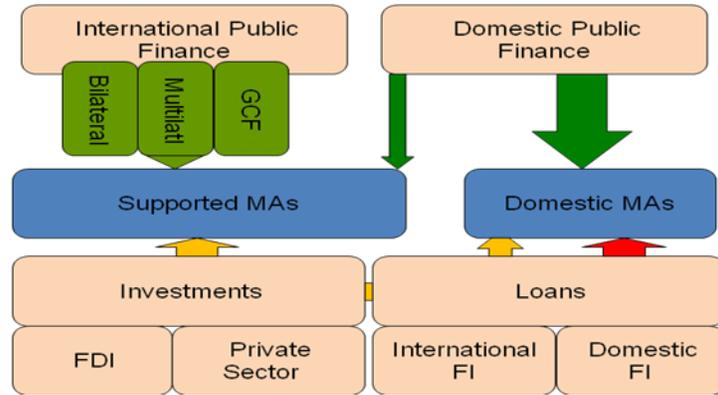


Figure 3: Marginal abatement cost (MAC) curve for various mitigation options (McKinsey & Company, 2009)

The mitigation options on the right in the figure 3 are unprofitable. That means that the implementation of these options results in an additional cost compared with the cost of a higher GHG emission option. These unprofitable options have thus 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 lowers the capital and/or operational costs of mitigation options. For these mitigation options public (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 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 finance to support NAMAs. Financing NAMAs is likely to be a combination of following four sources of finance: 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.



**Figure 4: Sources of finance to support NAMAs**

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