



GUIDANCE FOR NAMA DESIGN

BUILDING ON COUNTRY EXPERIENCES



United Nations
Framework Convention on
Climate Change



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Abbreviations and Acronyms

ADP	Ad Hoc Working Group on the Durban Platform
BAU	Business as Usual
BRT	Bus Rapid Transit
BUR	Biennial Update Report
CBA	Cost-Benefit Analysis
CDM	Clean Development Mechanism
CEA	Cost-Effectiveness Analysis
CER	Certified Emission Reduction
CPEIR	Climate Public Expenditure and Institutional Review
DNA	Designated National Authority
EIA	Environmental Impact Assessment
EU-ETS	European Union Emissions Trading System
FiT	Feed-in Tariff
GCF	Green Climate Fund
GEF	Global Environment Facility
GHG	Greenhouse Gas
IAEA	International Atomic Energy Agency
ICA	International Consultations and Analysis
IET	International Emissions Trading
JI	Joint Implementation
KPI	Key Performance Indicator
LCDS	Low-Carbon Development Strategy
LECB	Low Emission Capacity Building
LECRDS	Low-Emission Climate-Resilient Development Strategy
LEDs	Low Emission Development Strategy (or Strategies)
MAC	Marginal Abatement Cost
MCA	Multi-Criteria Analysis
MDG	Millennium Development Goal
MRV	Measurement, Reporting and Verification
NAMA	Nationally Appropriate Mitigation Action

NC	National Communication
NGO	Non-governmental Organisation
ODI	Overseas Development Institute
PEER	Public Environmental Expenditure Review
PoA	Programme of Activity
QA/QC	Quality Assurance/Quality Control
RE	Renewable Energy
SBSTA	Subsidiary Body for Scientific and Technological Advice
SEA	Strategic Environmental Assessment
TAP	Technology Action Plan
TNA	Technical Needs Assessments
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
WRI	World Resources Institute

Foreword

Nationally Appropriate Mitigation Actions (NAMAs) represent a valuable opportunity for developing countries to address greenhouse gas (GHG) emissions while remaining true to their sustainable development priorities and needs. Many countries are already taking steps to use NAMAs as instruments for participating in the global mitigation agenda and as a means of leveraging national and international support for more effective and transformational climate actions. National governments, multilateral organisations, development partners and others are joining forces to ensure that NAMAs not only contribute to urgent efforts to limit the increase of GHG emissions, but that they yield tangible results in terms of development at national and local levels, i.e., poverty reduction, job creation and energy access. It is in this context that UNDP, the UNEP-Risø Centre and the UNFCCC Secretariat have joined forces to produce this guidebook, which will assist developing countries in formulating more effective NAMAs. Initially conceived as part of UNDP's Low Emission Capacity Building (LECB) Programme and funded by the European Commission and the governments of Germany and Australia, the guidebook has been expanded in scope, thanks to this later strategic partnership. It should benefit any government or institution that wishes to participate in NAMA development.

This NAMA Guide is designed to build on countries' relevant work in developing mitigation actions, for instance through their National Communications, as well as on the early experiences of some developing countries in NAMA formulation. It also builds on UNDP's work supporting countries in the design of low-emission, climate-resilient development strategies and on related experiences of the UNEP-Risø Centre and the UNFCCC Secretariat.

This guidebook does not attempt to prescribe a linear path for NAMA development. Rather, it emphasises the iterative nature of this development, a process that encompasses learning from past experience, involves a wide range of stakeholders at the national level, capitalises on lessons learned, adapts or establishes policy frameworks, and includes the necessary means for establishing the institutional, financial and monitoring components that go into solid NAMAs. Because NAMA is an emerging concept – the definition of which will most likely remain broad due to its very nature as a “nationally appropriate” tool – the aim of this guide is to take stock of what has been decided thus far and to provide insights on what will continue to be perceived as “good practices.” It is important to note that NAMAs are already being developed and NAMA frontrunners are establishing an experience base, which has informed this guidebook.

Careful articulation of relevant initiatives by other partners and an intensive consultative process with developing countries were established at the outset, in order to ensure that any guidance in the development of NAMAs is in concert with on-going work and follows a bottom-up approach to meeting countries' needs. The consultative process included a working-group session on the outline of the guidebook in October 2012 in Marrakesh, in which the 25 LECB countries participated. In December 2012 there was a discussion on the annotated outline of the guide with some of the world's leading think tanks on NAMAs. This was a task undertaken by the working group on methodologies and tools established under Germany's International Climate Initiative (ICI). Then early review drafts were circulated among a wide range of experts from

international institutions and national governments, and finally a global workshop involving more than 40 experts and policy makers took place in Bonn in June 2013 to discuss the pre-final draft of the document.

This NAMA Guide does not attempt to replace, but rather complements, a number of other available relevant guidance materials. It includes a comprehensive list of such materials, sources of information and tools that countries may wish to use or consult throughout the various stages of their NAMA development process. The online version of this toolbox will be regularly updated as new materials become available, so that countries have direct access to the latest information on NAMAs. While developing this guidebook, we have made every effort to take into account relevant on-going negotiations under the Convention.

This NAMA Guide will be translated first into French and Spanish, followed by other languages, and it will be widely distributed among all countries involved or interested in developing NAMAs. It should be considered a “living” document, meaning that updates are planned that will incorporate feedback and experiences from users and stakeholders.

We wish to take this opportunity to thank all reviewers for their valuable comments that went into the drafting of this guidebook. We received an overwhelming number of helpful comments and suggestions, indicating a high level of interest, support and commitment from a wide range of partners around the world. Throughout this careful review process over the past year, our aim has been to develop a guidebook that is as practical and useful as possible, in order to best assist countries in navigating through their NAMA development and implementation processes.

It is our hope that this NAMA Guide will make a positive contribution to the development and implementation of technically robust NAMAs, and that it will aid in bringing to light the crucial connections and positive human development potential that exist between mitigation actions and national development priorities and planning.

Executive Summary

NAMAs do not represent a legal obligation under the UNFCCC. NAMAs are voluntary actions taken by developing countries to reduce GHG emissions to levels below those of “business as usual” (BAU). NAMAs generally support and are aligned with sustainable development as interpreted by the host country, including any existing Low Emissions Development Strategy (LEDS). Since this is the case, and since NAMAs benefit from this alignment with existing policies and priorities, they will often be driven by priorities other than emissions reduction.

Two broad types of NAMAs are considered in this guide: policy NAMAs and project NAMAs. More programmatic actions could also be seen as falling somewhere between these two types. A common characteristic of all NAMAs is that they either constitute a transformational change to a sector of the economy or provide support for such change. So a NAMA’s point of departure from existing development objectives and priorities might consist of re-evaluating these and placing additional emphasis on options for emissions reduction. NAMAs may consist of a suite of actions, and these might be interrelated horizontally as well as vertically. They may be prioritised at different levels, from the national level down to the sub-sectorial level. A number of prioritisation tools exist designed to strike a balance among a NAMA’s sustainable development benefits, its overall benefits to the economy, its alignment with current policies, its transformational qualities, its financing and its emissions reduction, and possibly other aspects.

NAMA financing is a central issue in climate negotiations. The way in which a NAMA is financed determines whether we might refer to it as a unilateral or a supported NAMA. A necessary starting point for any dialogue concerning NAMA financing is a transparent estimate of the total cost and possible incremental costs for the mitigation action. Unilateral NAMAs receive domestic financing, typically through the redirection of existing lines of financing within the country. Supported NAMAs use domestic sources to leverage international funding, ideally from institutions that are already active in the country. So both unilateral and supported NAMAs must begin by identifying and securing domestic funds. Public funding may be used to build a foundation for investment from the private sector. In such cases, the creation of an enabling environment for private/corporate financing must be a consideration from the outset; the initial, conceptualising phase of the NAMA.

The process of developing a NAMA may be divided into the three phases: conceptualisation, development and implementation. The conceptualisation and development processes are iterative and the production and collection of information and documentation are incremental. In other words, NAMA development throughout these three phases is not linear, but rather a kind of developmental matrix. Many of the actions taken in a given phase may have to be repeated as new information about the NAMA comes in, and in turn, relevant information will have to be sought, modified or jettisoned as these actions are taken. The final implementation phase must be based on firm, dependable organisational structures whenever possible, preferably ones that had already existed. This is also true for the organisation of the measurement, reporting and verification (MRV) system.

MRV is an important tool for managing mitigation actions. MRV involves parameters for measuring the progress of the implementation of a NAMA as well as for measuring or estimating its impacts in terms of emissions reduction and related sustainable development benefits, the latter of which are often the underlying motivation for the activity. A clear definition of goals and objectives of the NAMA will help in the establishment of these parameters. The measurement methodology — closely linked to the establishment of the NAMA baseline — must be accurate, complete and conservative. It will also be very dependent on methods for retrieving, compiling and storing data and on principles used for estimating impacts. A robust MRV system can make a NAMA more attractive to donors and financiers, even in the early formation and implementation phases.

Quantifying the benefits of a NAMA, both in terms of GHG emissions reduction and the co-benefits it brings to sustainable development is the gauge that all involved – governmental bodies, international donors and financiers, Non-government Organisations (NGOs), supervisory bodies such as those within the UNFCCC itself, scientists, academicians and the private sector – use to determine whether or not a NAMA is successful. Quantifying begins with measuring and stating the status quo – the baseline. The baseline is the zero-point against which the benefits (and costs) of a NAMA are measured. Some of the information and systems needed to establish the baseline may already exist in a country's CDM or LEDS, but if they don't, there is an ever-growing knowledge base that can help NAMA developers set a baseline. Once this has been established, the NAMA's MRV system is used to measure its benefits, both in terms of GHG emissions reduction and sustainable development.

Transforming a NAMA from idea to practice can take a significant amount of time and involves the establishment of an institutional dialogue for making it happen. Of vital importance throughout the three phases of NAMA development is the engagement of all stakeholders within these institutions. Although initial NAMAs may be project- and programme-based, the ideal is to generate transformational change in NAMA host countries, so that the concept of emissions reduction begins to assume its rightful place alongside sustainable development at the highest levels of government for a nationwide, top-down approach to lowering GHG emissions. Some foresee this happening in the near future in the form of a new institution at the national level: a NAMA registry, which will serve as a common platform and set the pace for NAMA development.

1.1. RELEVANCE AND OBJECTIVE OF THE GUIDEBOOK

Parties to the United Nations Framework Convention on Climate Change (UNFCCC) have agreed to keep the average global temperature rise below 2°C compared to pre-industrial levels. Although the temperature increase currently remains at less than 1°C, projections show that efforts to date are likely to be insufficient to achieve this goal. Numerous approaches to address this situation are being discussed, among them strategies for “green growth” and low-emission development. One promising concept put forward by parties under the UNFCCC is that of Nationally Appropriate Mitigation Actions, or NAMAs. These are voluntary actions for reducing greenhouse gas (GHG) emissions in developing countries.

While NAMAs may inherit some of the legacy of the Clean Development Mechanism (CDM), which offers a framework primarily for project-based emissions reduction in developing countries, they are fundamentally different. Basically, what distinguishes a NAMA from a CDM project activity is the context. NAMAs hold out the promise of scaled-up mitigation efforts by and in developing countries on a voluntary basis, free of the constraints of a project-by-project approach. They can be designed as instruments that support or deliver existing national development goals while at the same time causing the emission of lower amounts of greenhouse gases.

NAMAs explicitly support transformational changes in countries that host them; they are designed to change emission trends while sustaining national development plans. With this premise, NAMAs have the potential to leverage large-scale emissions reduction through sustainable development in developing countries.

This guidebook aims to support developing countries in the NAMA development and implementation process by providing guidance and good practices on the key aspects of NAMAs, including the policy framework; potential types of actions; financing; institutional arrangements and the roles of different actors; and MRV procedures. The NAMA concept is an emerging one, and since by its very nature it is a “nationally appropriate” tool, its overall definition may remain incomplete. This being the case, the objective of this guide, is to take stock of what has so far been agreed upon with regards to NAMAs, as well as to provide a few insights on what will be considered as falling within the domain of “good practices.” It is important to note that NAMAs are already being implemented, and NAMA frontrunners are already providing an experience base, which has been used to inform this guidebook as well. A number of such NAMA cases will be looked at herein.

1.2. HOW TO USE THE GUIDEBOOK

Policy processes and national circumstances vary from country to country. Therefore, this guidebook should not be read as a step-by-step approach to developing a NAMA. Again, NAMAs must be developed in a “nationally appropriate” manner that is in keeping with the host country’s level of development and advancement in terms of the NAMA concept. This guidebook, therefore, does not aim to be prescriptive in terms of the content of a NAMA or the process in which it is developed. It does aim, however, to provide guidance on best practices and other practical advice for those who are faced with the task of developing a NAMA – not only the NAMA documentation, but also the mitigation action itself.

The guidance provided here is based on experiences and lessons learned from existing NAMA proposals, from the UNFCCC Secretariat, the Global Environment Facility (GEF), the United Nations Environment Programme (UNEP) Risø Centre, and the United Nations Development Programme (UNDP), including UNDP's Low Emission Capacity Building (LECB)¹ Programme, and the CDM. The guidebook also provides "further reading" recommendations and a toolbox.

1.3. CHAPTERS AT A GLANCE

Here are brief synopses of the chapters that follow this first introductory chapter:

Chapter 2 describes the two overall categories of NAMAs and how the definitions of these change as the NAMA concept matures, the diverse approaches developing countries are using for NAMA development and the ways in which NAMAs fit into national and international contexts. These include linkages with Low Emission Development Strategies (LEDS) and in particular, the close ties between NAMAs and general development planning. The fact is that many NAMAs are driven by other more pressing development priorities, and such drivers are to be retained as core elements in NAMA development.

Chapter 3 maps NAMA identification and the prioritisation of implementation modalities. Since these implementation modalities are related to political, economic and technical issues, this chapter identifies decision-making support tools that can deliver more robust analyses and presents criteria that can be helpful when prioritising implementation modalities or NAMA options.

Chapter 4 discusses the financing aspects of NAMAs, emphasising that transformation of a sector, or a part of it, is intricately linked to the sector's financial characteristics. The chapter takes a holistic approach to financing, going beyond emissions reduction to include the various instruments found in a financing value chain and presenting some of the most important possible financing partners for NAMA implementation. As pointed out in the chapter, financial issues are among the first to consider when developing a NAMA.

Chapter 5 focuses on the process involved in developing a NAMA. It provides an overview of the information required for a NAMA proposal, based upon the templates that are currently available. Recommendations are included for the NAMA design phase, in order to ensure that documentation is sufficient for a NAMA proposal to be approved domestically. Information is also provided on decisions typically made by international stakeholders on their involvement, technical or financial, in a NAMA.

Chapter 6 discusses MRV, including ways in which a NAMA may benefit society. It explains the relevance of MRV as a management tool for GHG management, with information on what to measure and good GHG emissions measurement and estimation practices. Institutional arrangements for MRV process management are also briefly discussed.

Chapter 7 deals with quantitative aspects of NAMAs with respect to emissions reduction, including baseline setting and ways to estimate the effects of NAMA implementation. Also discussed is the development of new ways to measure the co-benefits of NAMAs: those benefits beyond GHG mitigation that not only affect, but are often central to sustainable development and improve the general quality of life for the public.

Chapter 8 provides a discussion of the institutional aspects of NAMA development. The focus is on good-practice elements of the design and NAMA implementation and operation, including the need for an implementation framework that is aligned with domestic development processes and a sound institutional structure. Also mentioned are strategies for overcoming potential barriers to NAMA implementation. The strategies include risk management measures, good governance and sound managerial arrangements.

¹ www.lowemissiondevelopment.org

Introduction to NAMAs

2.1. TOWARDS A DEFINITION OF NAMAS

NAMAs are voluntary actions taken by developing countries to reduce GHG emissions. Their aim is to assist developing countries that wish to reduce emissions to a level below that of BAU, but they do not represent a legal obligation under the UNFCCC. Determining which actions to take under a NAMA is each country's sovereign right, since the definition of "appropriate mitigation action" is relative to a party's particular national circumstances. In general, NAMAs are designed to support efforts towards sustainable development, as interpreted by the host country. The notion of NAMAs had its origin in the Bali Action Plan, in which a dialogue was initialised under the framework of the UNFCCC on enhancing mitigation action through the implementation of the UNFCCC. Negotiations have resulted in the NAMA concept, which underpins diverse approaches host countries use to identify, prepare for and implement development strategies that are sustainable and lower their GHG emission paths as well. NAMA proposals already submitted to the UNFCCC evidence this diversity in national priorities and circumstances. Most submissions describe objectives for reducing GHG emissions in a particular sector through the introduction of certain mitigation measures. These are often project-based and remain within certain boundaries.² NAMAs allow developing countries to address high-priority national goals such as improved transportation systems, energy security and public health, and couple these with GHG emissions reduction objectives that are lasting and ingrained in policy, rather than of a project-by-project nature. Among the submissions to date, sector-wide initiatives are still few, but they may well become the dominant NAMA model.

GHG Emission reductions resulting from NAMAs are to be transparently measured, reported and verified. Although specific COP decisions are still few, for various reasons, significant attention has been paid to the

KEY TOPICS:

- **Towards a definition of NAMAs**
- **The emerging NAMA regime: Origin and evolution of the NAMA concept**
- **Beyond the labels of unilateral and supported NAMAs**
- **The relationship between NAMAs and LEDS**
- **The process of NAMA development**
- **The step zero for NAMA development: stocktaking and stakeholder engagement**

² These NAMAs are typically very concrete activities such as the "development of 4,000 MW of wind energy capacity" or the "promotion of low-energy light bulbs in rural areas".

MRV component. MRV requirements are not part of the definition of NAMAs, but by their nature, they must be considered throughout NAMA development and implementation. For more on MRV and NAMAs, see Chapter 6.

The acronym “NAMA” (Nationally Appropriate Mitigation Action) is currently used within two different contexts. The first has to do with the way in which developing countries engage in mitigation under the UNFCCC at the international level. In this context, NAMAs are expressions of political engagement; many actors refer to them as “pledges”. A number of parties provided communication on such pledges under the “Copenhagen Accord” pursuant to COP 15 in December 2009. Others did so previous to the COPs in Cancun (2010), Durban (2011) and Doha (2012). Some of these pledges consist of national goals for GHG emission reduction; others involve strategies; still others offer lists of projects. A process for discussing and better understanding them has been established under the Convention.³ With a few exceptions, these pledges are not concrete and many are conditional; hence, they cannot be considered mitigation actions and are therefore not the subject of this guide.

The second context refers to the preparation and implementation of concrete actions for reducing emissions at the country level. Within this more action-based context, the subject of this guide, two broad types of NAMAs are considered⁴:

Policy NAMAs are actions at the policy/regulatory level. They typically require no further intervention by the regulator as they are designed to promote or impose a change of behaviour on the part of the regulated parties in order to achieve the desired outcome. This is usually done through economic incentives (or disincentives) and by changing standards. These are therefore government-led programmes or measures, at least at the outset, that have been or are intended to be embodied in permanent legislation and implemented through policy instruments. These NAMAs usually seek to implement a transformational vision and may have a national or sectoral level scope. Examples include feed-in tariffs (FiTs) for grid-connected renewable energy, emissions trading schemes and building codes that set standards for energy efficiency.

Project NAMAs are specific investments, generally in cleaner infrastructure or machinery. These NAMAs may occur within broader frameworks, such as LEDS, whose ultimate goal is a top-down process through which countries formulate appropriate mitigation actions. Examples of this type of NAMA include solar and wind power plants, promotion of minimum tillage agriculture or deployment of energy-efficient industrial motors.

The difference between policy and project NAMAs lies in the instrument used to bring about this investment. The policy NAMA promotes or imposes a certain shift in investment behaviour by introducing a set of laws and regulations, promotional schemes and possibly an enforcement structure. The project NAMA avoids the challenges involved in such regulation and focuses on a single investment. An example of this would be a government decision to construct a 200 MW wind-power plant. In this type of NAMA, a set of project-specific contracts is developed, but these do not necessarily have any provisions calling for the construction of more 200 MW wind-power plants in the future.

Falling between these two types of NAMAs are activities such as campaigns and programmes with a specific temporary purpose. Examples of these are retiring all inefficient coal-fired boilers over a period of 24 months or taking all trucks that don’t meet certain standards off the city streets. Such short-term programmes may

3 See the UNFCCC website section on [Mitigation](#).

4 UNEP Risø Centre (2011a).

well be transformational despite their limited duration; they may need to be repeated occasionally in order for their effects to be optimal.

The difference between policy and project NAMAs, then, is the starting point. In many cases, the “upstream” choice, the policy NAMA, may be the preferred option, since it promises transformational change through policy initiatives. In other cases, the “downstream” choice, the project NAMA, which offers clear-cut but limited mitigation action, is more concrete. A note for caution is that once a policy NAMA has been designed and implemented, its resulting “downstream” actions at the project level cannot be considered as separate NAMAs; they are rather outputs of the overarching policy NAMA. Box 1 includes compilations of NAMAs and information on the status of NAMA pipelines.

BOX 1: INFORMATION ON THE CURRENT NAMA PIPELINE

- **UNFCCC NAMA Registry:** UNFCCC’s registry of NAMA proposals for the purpose of seeking international support, facilitating matching financing, seeking technology and capacity-building support and sharing knowledge about NAMAs.
- **UNFCCC Secretariat:** A compilation of information on NAMAs to be implemented by developing countries.
- The NAMAs communicated after the UNFCCC Conference of the Parties (COP 15) in Copenhagen have been compiled into an **information document**. The original submission of these NAMAs as well as recent developments can be found on the UNFCCC **mitigation page**. Other developing countries have subsequently communicated their intentions to implement NAMAs, and these have been compiled into a **miscellaneous document** and one **addendum**. Three other countries (Burkina Faso, Gambia and Guinea) have also communicated NAMAs to the Secretariat.
- **NAMA database by Ecofys:** The NAMA wiki contains a database of NAMAs and related activities around the world. The aim is to share information on these activities, so that countries and other participants are able to learn from these experiences and gain insights into how to undertake mitigation activities within the NAMA framework.
- **UNEP Risø Centre NAMA Pipeline Analysis and Database:** This database contains all submissions of NAMAs to the UNFCCC. The site is not a registry, but rather a less formal overview of NAMAs submitted to the registry. It includes submissions that preceded the establishment of the NAMA Registry. These consist mainly of the aforementioned communications subsequent to COP 15 in Copenhagen.

2.2. THE EMERGING NAMA REGIME: ORIGIN AND EVOLUTION OF THE NAMA CONCEPT

The Bali Action Plan was completed through a package of decisions known as “the agreed outcome” adopted by COP 16, COP 18 and COP 19. Agreement was reached in the following two broad areas focused on enhanced mitigation action in developing countries:

- Non-Annex I parties, which are countries that have ratified or acceded to the UNFCCC that are not included in Annex I of the Convention, agreed to develop NAMAs with the aim of reducing their GHG emission levels to below those of BAU. These NAMAs are to assume a place within the context of sustainable development and are dependent on the provision of financing, technology and capacity building. A registry of actions was also established with the objective of recording NAMAs and information on support available for them and for facilitating the matching of NAMAs with available financing and the necessary technology and capacity building.
- The reporting framework of developing countries was enhanced through: 1) a regular cycle of National Communications (NCs) to be submitted every four years; 2) a requirement to prepare and submit Biennial Update Reports (BURs) which include GHG inventories and information on mitigation actions; and 3) a process of International Consultations and Analysis (ICA) for the consideration of the BURs.⁵

Parties have also agreed to a new process of negotiations under the Ad Hoc Working Group on the Durban Platform (ADP). Details about this will be delivered at the end of 2015.

The emerging NAMA regime makes it the prerogative of each developing country to interpret the NAMA concept and to formulate, develop and implement NAMAs in accordance with their development interests, priorities and plans, as well as to decide on the technical and methodological aspects of MRV. Parties should take into account that there may be requirements from external organisations providing financial, technical or capacity-building support to the NAMA host. A NAMA Partnership has been created for these and other such concerns (See Box 2). The NAMA Registry, hosted by the UNFCCC Secretariat, also provides opportunities and information helpful toward interpreting the NAMA concept as well as organising and streamlining the process for preparing a NAMA proposal. The Registry’s templates specify the information required to describe a NAMA. This capture of information can also be used to learn about the best practices of other NAMA host countries. Such collaboration is hoped to stimulate more and more “cross-fertilisation” among host countries as well as within and among the international organisations who support them.

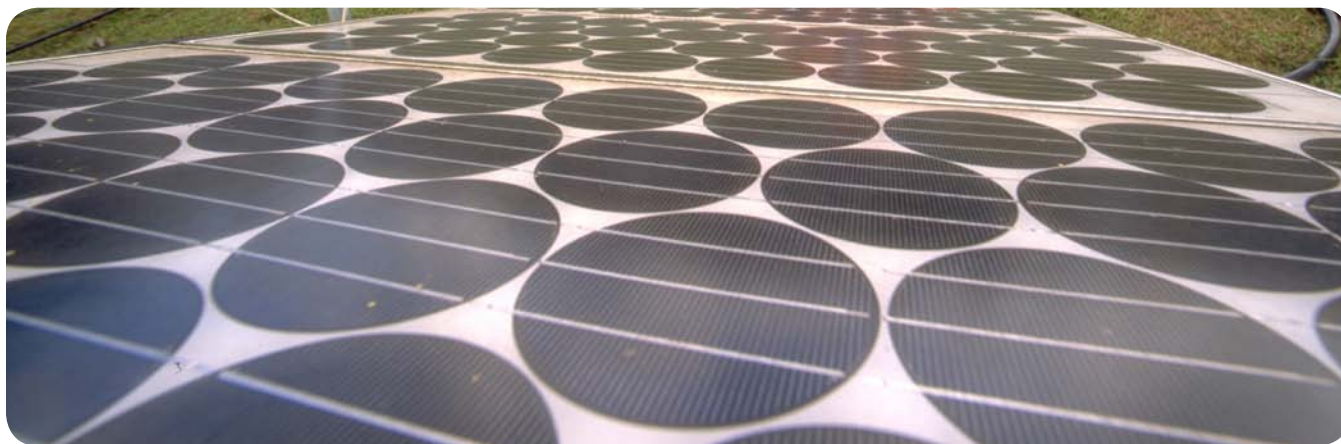


Photo Credit: UNCDF Photo/Adam Rogers

⁵ More information on related requirements is available at the UNFCCC page on [National Communications](#).

BOX 2: NAMA PARTNERSHIP

At COP 18 in late 2012 in Doha, the NAMA Partnership was launched with support from multilateral and bilateral development banks, UN agencies, bilateral development agencies, and international and national think tanks from developed and developing countries.

The objective of the NAMA Partnership is to:

- enhance collaboration between multilateral, bilateral and other organisations;
- focus on information and knowledge sharing to deliver valuable know-how to developing countries; and
- in particular, accelerate the provision of support to developing countries for the preparation and implementation of mitigation actions.

The Partnership has no normative role in terms of setting standards. Rather, it aims to identify best practices and share knowledge on the preparation and implementation of NAMAs within three areas:

- NAMAs in the context of national development;
- preparation and implementation of NAMAs in different sectors or technologies; and
- financing.

Further information is available at: www.namapartnership.org

2.3. BEYOND THE LABELS OF UNILATERAL AND SUPPORTED NAMAS

The distinction between unilateral NAMAs and NAMAs seeking international support came about mostly for political reasons related to how the efforts made by developing countries were perceived, but it also had to do with possible MRV requirements. As a result, the NAMA Registry contains a category of domestically funded NAMAs, and it is hoped that this will facilitate international recognition of such efforts.

In practice, however, it may not be possible to make a distinction between unilateral and internationally supported NAMAs. Mitigation actions may initially be unilateral, but they may expand and develop and ultimately combine domestic and international support, attracting domestic and/or international private-sector interest throughout several phases of development and implementation. Such multiphase and multisource financial routes are more realistic in terms of making mitigation actions happen initially and structuring their financing over time. The notion of “supported NAMAs” may connote a certain approach to financing: a clearly defined activity with a clear start- and end-date, with a financing gap to be closed by a donor. This could ultimately conflict with the nature of many NAMAs.

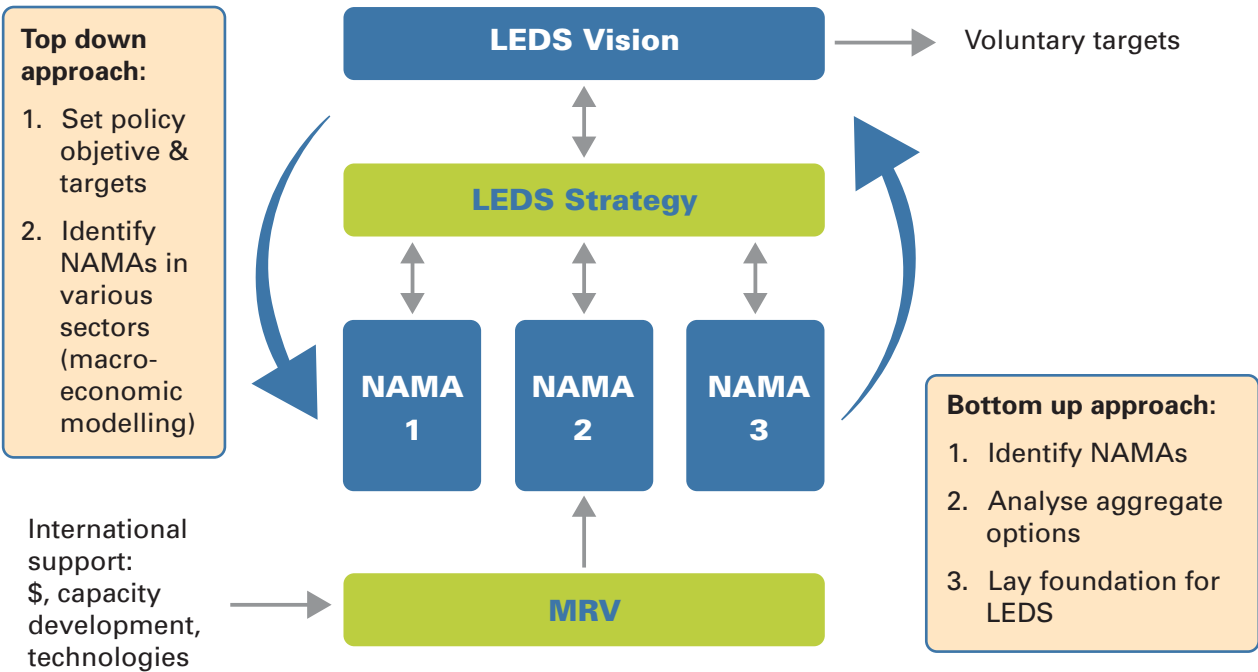
Furthermore, if unilateral is taken to mean “entirely initiated and then financed and operated by the host country only, for the life of the activity,” we are ignoring the fact that many NAMAs are long-term aspects of a framework, and that these may be exploited by either domestic or foreign private investors. We are also failing to consider the ad hoc involvement of bilateral assistance. In some cases, such assistance may be crucial, but financially too insignificant to challenge the unilateral denomination we have given to the initiative.

There is another possible complication in attempting to distinguish between unilateral and supported NAMAs. For many NAMA host countries, the mitigation effect of a NAMA may be of secondary importance compared to the fundamental objective of development in a particular economic sector. Overall political agendas often focus on development, and this development focus, rather than climate-related issues, is what influences the availability of resources and attracts international financing. The question of whether to consider a NAMA as unilateral or supported becomes moot if the original motive for its financing in the first place - whether domestic or international - is development rather than mitigation.

2.4. THE RELATIONSHIP BETWEEN NAMAS AND LEDS

In 2010, COP 16 introduced LEDS as a common yet differentiated approach to meeting overall emissions-reduction objectives. Developing countries are encouraged to make LEDS part of their overall policies for sustainable development.⁶ A LEDS is designed to become an overarching national low-emission framework that complements general development plans. This implicitly promotes the national appropriateness of NAMAs developed within this context, but LEDS must not be understood as a precondition for NAMAs. LEDS establish a framework that provides a direction and prepares the ground for concrete NAMAs⁷, but NAMAs can also be developed in the context of general development plans without a dedicated LEDS.⁸ The development processes of LEDS and NAMAs are distinct but related. This relationship can be seen in Figure 1.

FIGURE 1: HIGHLIGHTS OF THE RELATIONSHIP BETWEEN LEDS AND NAMAS



Source: UNDP (2010)

6 Cancun Agreement (UNFCCC, 2010) and reiterated in the [Doha Decisions](#) (UNFCCC, 2012b).

7 UNEP (2011a).

8 Compare UNEP (2011a).

Box 3 provides an example of Good Practices for using LEDS for NAMA identification in Indonesia.

BOX 3: EXAMPLE OF GOOD PRACTICES USING LEDS FOR NAMA IDENTIFICATION IN INDONESIA

The Government of Indonesia began developing a national policy framework on climate change, a LEDS, which includes the initial National Action Plan on Climate Change (RAN-PI, 2007). At the G20 Summit Meeting in Pittsburgh in September 2009, Indonesia committed to establishing the necessary policies and measures, including related required instruments, that by 2020 would cut national emissions growth by 26% from BAU levels through voluntary mitigation actions, and by up to 41% with international support.

A year later, Indonesia's National Council on Climate Change (DNPI) reported NAMA pledges to the UNFCCC under the Copenhagen Accord. The submission included seven major focus areas for achieving the 26% national emission reduction target:

1. Sustainable peat land management
2. Reduction in rate of deforestation and land degradation
3. Development of carbon sequestration projects in forestry and agriculture
4. Promotion of energy efficiency
5. Development of alternative and renewable energy sources
6. Reduction in solid and liquid waste
7. Shift to low-emission transportation modes

The National Action Plan for Reducing Greenhouse Gas Emissions (RAN-GRK)

The RAN-GRK is a working document that provides the basis on which various Ministries/Institutions and local governments can implement mitigation actions that will directly and indirectly reduce GHG emissions.

The objectives of RAN-GRK with respect to mitigation are as follows:

- a. Provide guidance for concrete actions needed to reach the 26-41% emission reduction target;
- b. Design mitigation programmes and activities, particularly in the forestry and peat land, agriculture, energy, industry, transportation, and waste sectors. This will be done at national and local levels within the framework of sustainable development; and
- c. Serve as a guide for investments related to coordinated GHG emission reduction at national and local levels.

NAMAs are deemed crucial for the Action Plan implementation for three reasons: a. NAMAs can provide an important means for making the RAN-GRK operational; b. NAMAs can help Indonesia to tap the Green Climate Fund and other international funds; and c. NAMAs will enable Indonesia to obtain UNFCCC recognition for its mitigation efforts.

For Indonesia, mainstreaming climate change into development decisions is arguably needed to capture the full potential of NAMAs for achieving the 26-41% emissions reduction. Single instruments are unlikely to be sufficient, and it is more likely that a portfolio of policies will be required. Thus, when making projections of future emission pathways, a blend of policy approaches will be assessed and evaluated for both short and longer-term emission reductions.

Source: GIZ, BAPPENAS (2012)

2.5. THE RELATIONSHIP BETWEEN NAMAS AND CDM

Table 1 summarises some important distinctions between CDM and NAMAs.

Table 1: Differences between CDM and NAMAs		
	CDM	NAMA
Definition	One of the flexible mechanisms of the Kyoto Protocol. It provides locational flexibility of emissions reduction, hence allowing emissions reduction undertaken in a developing country to offset emissions in a developed country, typically through a trading agreement.	Voluntary activities for GHG emissions mitigation in developing countries that are led by local governments and are not subject to mitigation commitments under the UNFCCC.
Objective	Assist developing countries in achieving sustainable development, and also assist developed countries comply with their mitigation commitments under the Kyoto protocol.	In the context of sustainable development, achieve deviation from business as usual emissions
Actions	Projects and programmes of activities	Policies, programmes and projects
Initiator	Private sector or public sector	Typically public sector
Investment driver	Normal returns from the market that the project activity addresses, with the addition of returns from Certified Emission Reductions (CERs). CERs are issued by the CDM Executive Board based on project verification reports. CERs can be traded on carbon markets.	The sustainable development priorities of the host country, with possible added benefits from including emissions reduction in policy planning. The NAMA may attract international financial participation and it may include the generation of business opportunities for the private sector, who will invest for profit motives.
Requirement	Reductions in emissions must be in addition to any that would occur in the absence of the certified project activity. CDM also assists developing countries in achieving sustainable development.	A NAMA, framed in the context of sustainable development, aims at achieving a reduction in emissions relative to BAU, by 2020.
Financing	Upfront financing, generally from the private sector. Certificates are issued ex post facto, based on regular verification reports. CERs can be sold on a carbon market.	Domestic resources and/or international support (e.g., through bilateral/multilateral agreements, development banks) for the preparation and implementation of NAMAs.
Rulebook	Marrakesh Accords and subsequent body of CDM Executive Board decisions.	Limited guidance currently being developed under the Convention.

Further Reading:

- UNDP Materials on **Low-Emission Climate-Resilient Development Strategy (LECRDS)**
- **Low-Carbon Growth Country Studies: Getting Started:** Between 2006 and 2009, with the assistance of the World Bank, Brazil, China, India, Indonesia, Mexico and South Africa undertook in-depth analyses of national mitigation options, identified policy instruments to mobilise the most promising options and assessed how barriers to policy implementation could be overcome (ESMAP, 2009).
- UNEP Risø (2011): Low-Carbon Development Strategies
- UNEP Risø (2013): Understanding Nationally Appropriate Mitigation Action

Identification and Prioritisation of NAMAs

3

NAMAs should emerge from or be in line with national long-term development planning. The point at which a NAMA differentiates itself may consist of a re-evaluation of current development objectives and priorities with an additional focus on options for emissions reduction. If such development objectives have already been captured in a LEDS that maps out mitigation options based on current development priorities, this can of course provide a framework for such a re-evaluation. In the absence of a LEDS, a NAMA-scoping exercise might be conducted through an in-depth analysis of potential domestic options and opportunities for mitigation activities in the most promising economic sectors. Such an analysis should identify areas in which a shift in priorities or a shift in technology could result in emissions reductions without threatening long-term development objectives.

KEY TOPICS:

- **Alignment of NAMAs with domestic plans and policies**
- **How to identify NAMAs**
- **How to prioritise NAMAs**

3.1 ALIGNMENT OF NAMAS WITH DOMESTIC PLANS AND POLICIES

Sustainable development benefits – or simply development benefits – should not be diminished when designing NAMA proposals aimed at satisfying the emissions-reduction agenda. Aligning NAMAs with current development plans and policies entails, in turn, alignment with economic development plans and national budgeting: a NAMA should reflect and ultimately be built into these plans. Exactly how to go about this depends on national circumstances, especially on the sector involved. In some instances, emissions reduction is an implicit consequence of an initiative with other purposes. For example, resolving traffic congestion problems will reduce time spent in traffic, frequency of accidents and levels of particle pollution, as well as generally improve health and mobility. Doing so will reduce carbon emissions as well, either overall or per mile travelled. The means of resolving the congestion problem may be a Bus Rapid Transit (BRT) system with diesel-fuelled buses or one with electric buses. These are two different possible modalities for implementing a NAMA. Here, the overall remedy is the same, but the electric modality is likely to have a lower emissions profile (depending on the source of the power) than the less expensive diesel modality. Both initiatives – introducing a BRT and shifting from diesel to electric buses – may be called a NAMA, but emissions reduction is higher on the agenda with respect to the choice of buses than it is with respect to introducing a BRT.

In this case, to state the obvious, the two decisions should of course be aligned. If a BRT system is introduced, the choice of buses should be made at the outset, rather than opting first to implement with a diesel solution and then shifting to electricity two years later. Other sectors may have different interconnections between system and technology, where due diligence prompts decision makers to consider emissions reduction in addition to other development plans simply because this is the most practical thing to do.

Box 4 briefly outlines how some NAMA host countries have aligned NAMAs with existing plans and policies.

BOX 4: NAMA ALIGNMENT WITH DOMESTIC PLANS AND POLICIES

A survey conducted during the development of this document evidenced diverse challenges involved in aligning a NAMA with domestic processes. For instance, Chile underscored that in order to pass legislation (even for NAMAs), the focus must be on economic developments and sustainable development benefits rather than on GHG reduction. Costa Rica emphasised the need for improved coordination among stakeholders and donors. Lebanon pointed out that national approving authorities (UNFCCC focal points for example) should be trained in the NAMA approval system, and that information should be publically available in order to avoid confusion among potential beneficiaries and investors. Colombia and Mexico urged the involvement of the respective sector representatives in decision-making processes. Along similar lines, Peru underscored the need for close interaction with the private sector, since this will improve the sustainability of the measures. It is also clear that faster procedures are required, as well as the avoidance of high turnover in public offices in order to keep an expert group on hand and maintain institutional capacities.

Furthermore, a multitude of experiences exists with regards to engagement in CDM activities. In Bhutan, the experience from CDM has been that, since baseline emissions are negligible and due to the relatively small scale of projects there, it has been very difficult to attract investors and funding. This would need to be considered when designing a NAMA.

Further Reading:

- GIZ, BAPPENAS (2012) – **Background study: Development of the Indonesian NAMA Framework:** This report provides information on how NAMAs were established across different sectors in Indonesia. It outlines the key steps taken to establish NAMAs within a multi-sectorial GHG-mitigation framework. These include a participatory approach to selecting national emissions-reduction targets while staying in line with development priorities, establishment of a national BAU emissions baseline, establishment of sectorial baselines and the aggregation of these into a multi-sectorial baseline and determining potential mitigation actions of sectors.
- **Low Carbon Development Strategies: A Primer on Framing Nationally Appropriate Mitigation Actions (NAMAs) in Developing Countries:** The UNEP Risø Primer presents basic principles and proposes some possible elements useful in the process of preparing a national LCDS and NAMAs, and provides a template for NAMA articulation.

3.2. HOW TO IDENTIFY NAMAS

In any given country, there are many areas of activity to which the addition of emissions-reduction activities could benefit an already defined objective. The starting point here would be the objective of delivering the same goods, services and benefits while emitting lower levels of GHGs. Such an agenda, a NAMA agenda, may also inspire the revision of current objectives. For instance, perhaps one objective has been to add the power-production capacity needed to meet growing demand. An energy-efficiency agenda presented as an alternative to this would challenge the need for capacity expansion: instead of investing in, say, 1000 MW of

coalfired power production capacity, a programme of support for energy efficiency in industry and households could save the equivalent. This is an example of a possible NAMA inspiring a change of objective.

As another, smaller-scale example, many companies have conducted campaigns with their employees, asking them to help identify areas in which energy is wasted; others have ordered external energy audits to be performed for the same purpose. Rather than a change of objective, these initiatives illustrate who might be involved. In both of these examples, at both the macro and the micro levels, the overall objective of maintaining energy availability has not changed. Only the way to achieve the objective has been opened up to alternatives.

A NAMA, therefore, may be identified and established as part of the national decision-making process (top-down) or it may emerge from a particular industry, in which there is a call for a new sector standard or a new programme (bottom-up). Nevertheless, the hope is that most NAMAs will arise from government-led campaigns, initiatives or policies at the highest levels, in which incentives are provided to induce others to act. Thus, it will be the task of government agencies, or in some cases private actors, to develop concrete NAMA proposals with either fairly stringent deadlines or no deadlines at all. Such NAMA development processes have already been seen in a number of countries in Latin America. This type of NAMA identification process does not require specific organisational initiatives, though obviously, the defining of certain procedures for NAMA development will be beneficial and facilitate the process. The potential establishment of specific organisational structures for the promotion of NAMA development is described in Chapter 8.

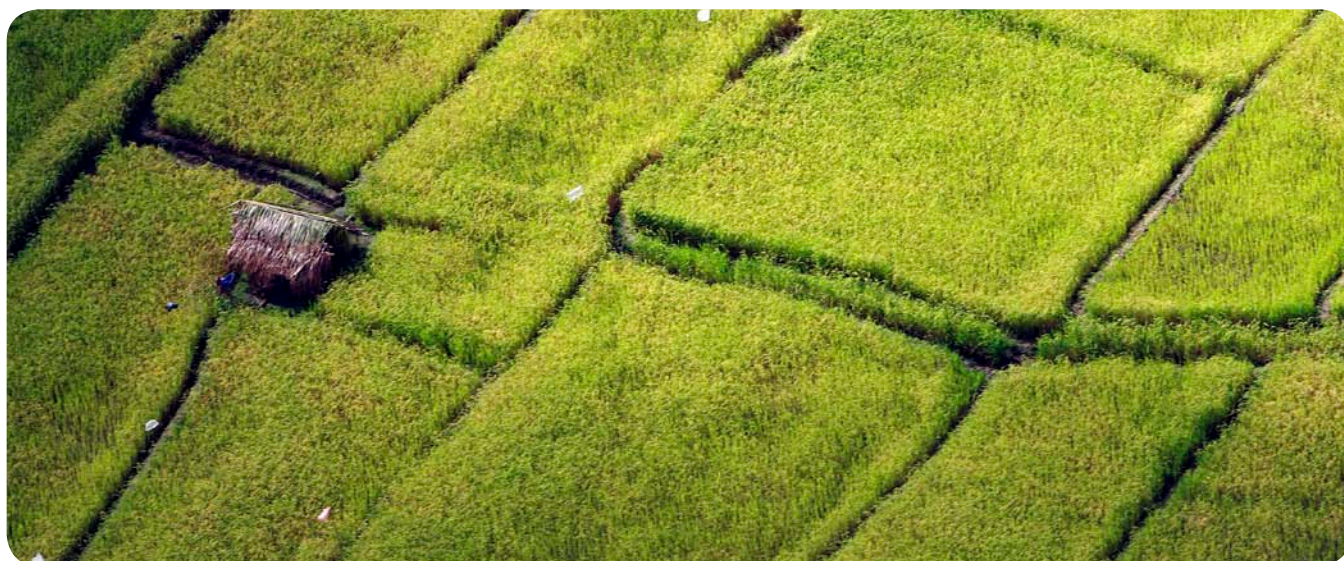


Photo Credit: UN Photo/Martine Perret

NAMA identification typically begins as a stakeholder-driven process, answering “what if?” questions targeted at reducing emissions. The range of possible resulting NAMAs is of course determined by the nature of the sector initiating the process: the Ministry of Energy will focus on energy sources, the Ministry of Agriculture on livestock, and so on. The more focused the institution or department, the more limited the range of NAMA options will be. Higher levels of administration will take a broader view of a sector, but it is likely that few approaches for identifying NAMAs will take place on an economy-wide level, unless NAMAs have become a target for national top-down policy development. Therefore, since most NAMA-identifying discussions will take place within a given line ministry, agency, authority or other public administrative entity dealing with a specific economic sector, the resulting list will typically contain a mixture of specific options related to subsectors or different modalities for implementing initiatives.

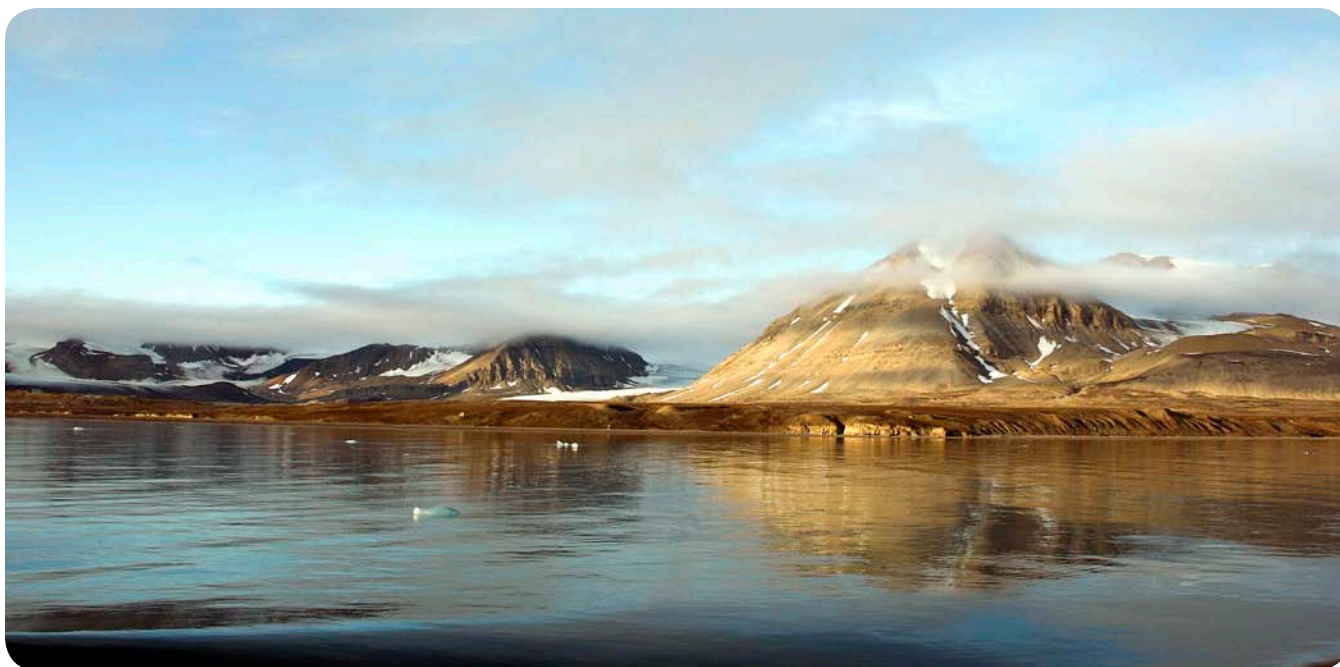


Photo Credit: UN Photo/Mark Garten

When the possible NAMA options are compiled, initiatives that are already being implemented and that are known to reduce GHG emissions will be included, and findings from earlier work done will be taken into account. This might include work related to Technical Needs Assessments (TNAs), NCs or LEDS, as well as the scaling-up of existing programmes or actions such as GEF projects or CDM Programmes of Activity (PoAs).

So we see that in many cases, what ends up being proposed as a NAMA might already exist in earlier versions of policy proposals and under different labels in government development plans. Mitigation activities in some countries are found in energy and transport sector development plans, industrial energy-efficiency initiatives, or forestry policies and plans. Often, however, they are not synchronised or do not adhere to a national programmatic or LEDS approach. In practice, different sectors may follow different planning processes that do not match in terms of timing, design considerations, implementation mechanisms or accountability and reporting procedures. To facilitate the NAMA identification process, the following documents may provide useful information about national strategies and their mitigation potential:

- National development strategies, such as Poverty Reduction Strategies;
- NCs, in particular their sections on national GHG inventories and mitigation assessments;⁹
- National climate-change strategy or policy papers;
- Relevant sector-specific policies;
- Specific laws and regulations that influence financial flows within a sector;
- National investment policies, etc.;
- Previous NAMA proposals submitted to the UNFCCC;

⁹ In the future, BURs and national inventory reports could also be valuable sources of information.

- TNAs and Technology Action Plans (TAPs);
- LEDS; and
- Other relevant documents that might be useful for inspiration, including:
 - emissions-reductions studies completed by multilateral agencies,
 - the GEF project database, and
 - NAMA databases (See Box 1) .

Analysing this documentation will inform the NAMA identification and prioritisation process by revealing the range of policies, programmes or project activities that might be aligned with national development plans and that promise to reduce GHG emissions in some way. Information that is helpful to such analyses includes:

- existing or planned relevant domestic policies and their prime objectives;
- emission baseline establishment and future emissions and mitigation scenarios;
- potential barriers to the full implementation of the proposed NAMA, including important stakeholders; and
- the current budget.

As mentioned earlier, NAMAs might be new initiatives, or they might consist of a revision of a number of existing activities already in the hands of various government and private entities. Related activities may be found in the same sector or in other sectors. For example, public transport and city planning are two closely linked areas that are often found under separate administrative jurisdictions. Obviously, the development of two or more NAMAs that are mutually supportive will be more difficult to prioritise and implement, especially if they are under the control of different administrative bodies. Yet, if conditions allow, such mutually supportive initiatives may turn out to be particularly efficient GHG mitigation options.

NAMAs may be related horizontally as well as vertically. For example, the areas of urban planning and transport would typically constitute a horizontal relationship, since they would involve the same stakeholders at approximately the same time, but in two separate sectors. Vertically related NAMAs, on the other hand, would typically exist in the same sector, but involve either different levels of government, such as national and local, or different links in a value chain. For example, a nationally imposed waste-heat recovery requirement for the cement sector would be vertically related to a locally imposed building code that establishes carbon footprint standards for cement in local public buildings. Enforcing the former inevitably supports the achievement of the latter. Horizontal and vertical relationships are not a formal classification of NAMAs. However, when identifying NAMAs, it is worthwhile to consider whether or not emissions reduction potentials could be significantly enhanced if a broadening or deepening of the scope of intervention were adopted – in other words, if either horizontal or vertical integration has any merit in the specific context.

Once a focus area, sector or subsector is selected as a priority, specific measures and actions under the NAMA need to be identified. For example, if the aforementioned waste-heat recovery requirement in the cement sector is thought to be an efficient instrument (because it is profitable, reduces coal imports, reduces air pollution, supports local equipment manufacture or has some other related benefit), the question is how to make the requirement happen. Measures are defined as instruments, policies or actions that are introduced or enhanced by the NAMA. Measures may be direct or indirect, depending on their specific effect on GHG mitigation, and they may require supplementary actions in order for them to result in mitigation. For

example, the introduction of energy efficiency standards will not trigger energy efficiency improvements if the standards are not enforced; the introduction of a subsidy scheme for renewable energy will not trigger renewable energy projects if the national electricity utility is not providing access to its electricity grid. A well-informed prioritisation of options cannot succeed unless such concrete considerations of instruments and implementation modalities have been made. Implementation modalities are of particular importance when devising the more attractive model for subsequent stages of NAMA prioritisation.

3.3. HOW TO PRIORITISE NAMAS

During the first few years of NAMA development, at least, a number of existing or planned activities will be found that are easily converted into NAMAs, due to their capacities for reducing emissions. Such existing activities, or plans for them, are likely to be the result of technical or political prioritisation already undertaken. These most likely will go forward as unilateral NAMAs; or, depending on specific circumstances, they might become part of the BAU scenario. Formally, NAMAs should constitute a deviation from BAU. Other NAMA options may arise from less developed policy proposals formulated within a LEDS framework, or within the documents listed in Chapter 3.2.

The selection criteria used obviously reflect the level at which NAMAs are considered; prioritisation spanning different economic sectors will use broader, more generic selection criteria, whereas the choice of implementation modalities for a given sub-sector activity will use much more specific ones. Each criterion listed in Table 2 below, therefore, may be applied several times with varied depth, and possibly by different groups of stakeholders throughout the different phases of the NAMA prioritisation process.

Each criterion should be assigned a level of importance,¹⁰ keeping in mind that not all criteria carry the same weight in the decision-making process. Such weighting can be complicated, since stakeholders may have vested interests. A criterion's relative weight may also change depending on the level of prioritisation, and therefore weighting may have to be redone later in the process.



Photo Credit: UN Photo/Mark Garten

¹⁰ Qualitative levels of importance are those such as low, medium or high. Quantitative levels of importance might use a scale of 1-5, with 1 being least important and 5 being most important.

Table 2: Criteria for prioritisation throughout the NAMA process

Criterion	Comment
Sustainable Development Benefits	<p>Materiality of benefits for the host country, such as:</p> <ul style="list-style-type: none"> • savings in household energy bills • general public-health improvements • jobs creation • reduction of congestion • reduced air/water/soil pollution • improved training and education options
Relation to national strategy and national climate policies as well as existing programmes and initiatives	<p>NAMAs related to national climate policies have better chances of success. Consider:</p> <ul style="list-style-type: none"> • national capacity to implement the NAMA • compatibility with priority sectors of national development plans • probability for broad political consensus • potential for widespread implementation/replication • stakeholder level of support and opinions • positive impacts on other sector policies
Potential GHG mitigation	GHG emission reduction potential
Financing	<p>The financing model of the NAMA may determine its attractiveness:</p> <ul style="list-style-type: none"> • flexibility of the financing model • options for leveraging financing from budgets outside the national finance bill • compatibility with acceptable modes of implementation • attraction for international financiers • possibility of generating additional income from the initiative, or reducing costs in other sectors • bankability/financial sustainability
Transformation	<p>The long-term emissions reduction effect may be influenced by the:</p> <ul style="list-style-type: none"> • permanence due to the nature of the proposed change • chance of influencing behaviour of central stakeholders • degree to which cash flows are altered
National economy considerations	<p>The NAMA:</p> <ul style="list-style-type: none"> • promotes national industry • benefits existing national suppliers or enables the development of new national industry • shifts technology to substitute imports • supports national technology development • offers capacity building and training • is easy to implement
Others	<ul style="list-style-type: none"> • access to data in support of MRV • social acceptability • access to required technologies • risks associated with the NAMA • businesses co-benefits such as competitive edge, securing future market shares, liability management, etc.

A variety of decision-making support tools exists for prioritisation processes, including NAMA prioritisation:

- ✓ Multi-Criteria Analysis (MCA) is a decision-making tool developed for complex problems. When multiple criteria are involved and multidisciplinary teams need to reach a consensus, confusion can arise if a logical, well-structured decision-making process is not followed. With MCA, team members don't have to agree on the relative importance of the criteria or the rankings of the alternatives. Each member enters his or her own judgements and makes a distinct, identifiable contribution to a conclusion that is reached jointly.¹¹
- ✓ Cost-Benefit Analysis (CBA) works with a well-defined "objective function," which considers questions such as: "What policy or project is being evaluated?" and "What needs to be maximised and what alternatives are there?"¹² For an initial screening of whether or not the contribution that the project or policy makes to social wellbeing is acceptable, the present value of benefits must exceed the present value of costs. So questions asked would be along the lines of: "Whose costs and benefits do we count, and how do we distribute them?" and "Over what time-frame are costs and benefits to be counted?" Since individuals have preferences for when they receive benefits or suffer costs, and since preferences for or against an impact may change through time, such "time preferences" have to be accounted for. Costs and benefits are rarely known with certainty, so risk and uncertainty are additional issues.¹³
- ✓ Cost-effectiveness analysis (CEA) can offer guidance on which of several alternative policies or projects to select if a selection is necessary. By extension, CEA can rank any set of policies, all of which might be undertaken and when there is the given that at least some of them must be undertaken. This makes CEA particularly suitable for selection between different modalities of implementation of a NAMA.
- ✓ Strategic Environmental Assessment (SEA) is similar to Environmental Impact Assessment (EIA), but operates at a higher decision-making level. SEA is used to consider entire programmes of investments or policies, rather than individual projects or policies. The goal is to look for the synergies between individual policies and projects and to evaluate alternatives in a more comprehensive manner. In SEA, however, issues of time, cost and non-environmental costs and benefits do not figure prominently.¹⁴

These tools are not interchangeable, although they are sometimes thought to be. Questions must be formulated with care in order to determine which technique is most suitable as a decision-making tool.

In traditional emissions-reduction planning, Marginal Abatement Cost (MAC) curves are a popular tool for obtaining information on abatement costs and potentials for a set of mitigation activities. However, MAC may have less to say for a NAMA if the NAMA originated in alignment with existing development plans, since its emissions reduction options are considered in a particular context rather than as an economy-wide, cost-efficient emissions reduction effort. Obviously, the calculation of the costs associated with the choice of lower emission alternatives should be calculated, but this does not translate into a MAC calculation exercise per se. A good source of information for identifying costs of mitigation activities in a variety of sectors

11 More information on MCA is available at: <http://www.cifor.org/acm/methods/mca.html>.

12 In reality, the thing to be maximised is likely to diverge from what political bodies actually do. Political entities might actually maximise the "political welfare function." See Pearce, Atkinson, Mourato, (OECD 2006) Chapter 19.

13 Ibid. Chapter 2.

14 Ibid. Chapter 18.



Photo Credit: UN Photo/Eskinder Debebe

can be found in the results from 15 countries that used a UNDP methodology for assessing the cost of investment and financial flows in order to implement priority actions. Please refer to the Toolbox in Annex 1 for more information.

NAMAs that result from scaling-up existing initiatives may capitalise on pre-existing operating frameworks and well-established financing mechanisms – unless the NAMA specifically targets a change of such frameworks and mechanisms. Up-scaling options may also exist in relation to GEF activities or CDM PoAs. For example, in June 2012, the GEF Council approved “Peru Nationally Appropriate Mitigation Actions in the Energy Generation and End-Use Sectors.”¹⁵ This will aid the government of Peru in the development and implementation of NAMAs in the energy sector to achieve the country’s voluntary GHG emissions reduction target.

A specific example of a scaled-up programme under a NAMA is the sustainable housing NAMA in Mexico.¹⁶ The aim of the NAMA is to supplement on-going initiatives for energy-efficient housing as laid out in Mexico’s Special Climate Change Programme and operated by a leading national mortgage provider. The NAMA’s two objectives are to extend the basic efficiency standards to the entire new housing market in Mexico and to upgrade efficiency standards to more ambitious levels.

¹⁵ More information on this programme is available at [this GEF page](#).

¹⁶ Information on this is NAMA is available in Spanish at [Supported NAMA for Sustainable Housing in Mexico](#).

Further Guidance:

- **International Institute for Sustainable Development (IISD) - Identifying NAMA Concepts. A Quick Screen Methodology:** The IISD has used a standardised, country-driven approach to identify NAMA concepts in 13 countries. The case of Bangladesh is one example.
- In UNDP How-to Guide: Low-Emission Development Strategies and Nationally Appropriate Mitigation Actions: Eastern Europe and CIS, the identification of potential GHG abatement opportunities for LEDS (and NAMAs) in the key sectors is discussed in Chapter 5: “Determining mitigation options in the key sectors.”
- **GIZ NAMA Tool:** Steps for Moving a NAMA from Idea towards Implementation. The NAMA-Tool provides developers and implementers of NAMAs with brief step-by-step instructions on how to develop a NAMA. The tool helps users navigate to the relevant information, instruments, and publications available.

How to Structure NAMA Financing

4

The most important body of information when considering the development of NAMA financing is the current national budget. It contains information about focus areas currently budgeted and how financing, including that used for current development, is allocated and administered. Besides national accounts, it also shows current expenditures, and these are an indication of how implementation plans are progressing.

Financing of NAMAs is of key importance in the planning process and should be considered at the earliest stages of NAMA development. NAMAs will tend to be revisions of current policies within current budgets, rather than the creation of entirely new ones. Therefore, familiarity with the national budget is crucial to the way in which NAMA financing comes together. Current financing lines are essential information, in part because they illustrate the current priorities of sectors or subsectors, and also because they reveal allocations or priorities that are undesirable in terms of emissions reduction. With budget information in hand, financial structuring of a NAMA becomes much more reliable, which in turn makes the evaluation of financing needs from third parties better informed. Figure 2 provides a look at the overall structure of NAMA financing for unilateral and supported NAMAs.

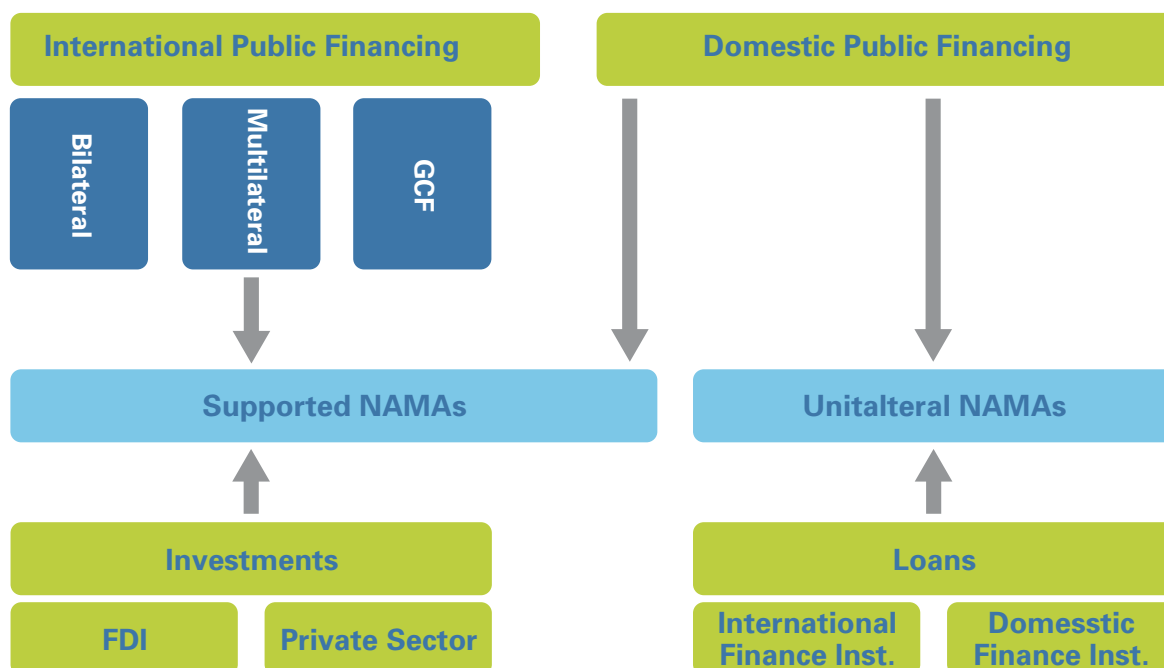
KEY TOPICS:

- **The financial point of departure: The current budget**
- **Types and sources of financing**
- **The financing value chain**
- **The NAMA financing proposal**
- **Involving the private sector**
- **Key issues when approaching the first financier**



Photo Credit: UN Photo/John Isaac

FIGURE 2: NAMA FINANCING



Source: UNEP Risø (2013)

4.1. THE FINANCIAL POINT OF DEPARTURE: THE CURRENT BUDGET

Although most administrative bodies tend to have a relatively good impression of their own sector's budget, analysing a typical national budget, even at the sector level, can be a challenge. Potential NAMA developers may find it difficult to get a precise picture of a sector's operations from the budget alone. And when it comes to assessing the current climate finance, or identifying subsector financing relevant to emissions reduction, most likely even the administration will have a hard time.

To assist in budget analysis relevant to public climate expenditure, UNDP and the Overseas Development Institute (ODI) introduced the Climate Public Expenditure and Institutional Review (CPEIR) in 2012, which builds on approaches during recent years to undertaking a Public Environmental Expenditure Review, or PEER.¹⁷ Besides providing insights into current public financial flows related to climate change, the CPEIR has strong potential for becoming a starting point for longer-term, Government-led stakeholder dialogues.

PEER and CPEIR offer guidance on how to examine public expenditures on climate-change actions, in the three main strands: policy, institutional and budgetary analysis.¹⁸ The CPEIR analysis meets the following objectives:

- provides better understanding of the formulation of climate-change policy and its links to expenditure through national strategies and action plans;
- improves understanding of the roles, responsibilities and interaction of institutions involved in managing the response to climate change; and

¹⁷ Swanson and Lunde (2003); Lawson and Bird (2008).

¹⁸ UNDP/ODI (August 2012).

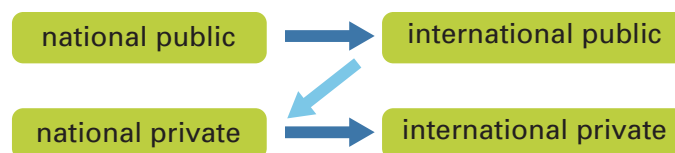
- quantifies climate-change-related expenditures in the national budget as well as through other funding channels, providing a baseline for future analysis.

There is no internationally recognised definition of climate expenditure and therefore no clearly established boundaries for such spending. A climate expenditure review must include budget allocations for both mitigation and adaptation, although in the context of NAMAs only mitigation-related budget elements are relevant. The review should make clear the balance between capital and recurrent spending, and between central government and local expenditures. The role played by the Ministry of Finance in responding to climate change is of particular importance because potential new flows of climate finance might become available through enhanced international support. Local government institutions and the administrative bodies at the sub-national level are also key when analysing institutions responsible for implementing the budget. Last but not least are the roles played by the profit and non-profit sectors, which in many countries are essential stakeholders in terms of climate-change policies and practices. Their motivations need to be understood and their structures and capacity limitations taken into account when looking at budgeting and re-budgeting in order to increase the effectiveness of available climate financing.

When examining the current institutional structure of the budget, the motivations behind this structure should also be considered, since these may represent difficult barriers to overcome, particularly when it comes to the choice between public and private actors. The most pertinent emissions-reduction options exist in the strategic energy sector, where structures of ownership may be more of a political than an economic consideration. For a number of political reasons, private-sector actors are rarely granted free access to this area; in some cases, no access at all. Private-sector involvement is therefore not always the right route towards accessing additional climate financing.

4.2. TYPES AND SOURCES OF FINANCING

The four basic sources of funding are: public, private, domestic and international. Differentiating sources in this way is particularly useful when determining the order in which sources of finance are to be leveraged. The “right order of leveraging”¹⁹ follows the logic that the public sector should come first, in order to inspire private-sector investment. The national private sector, however, will rarely have any leveraging power over a foreign public donor, which means that the national public sector should start its leveraging effort by presenting its policy ideas and potential funding commitments to international donors before it starts deploying its national financing capacity with the aim of securing private sector involvement. This order of leveraging is shown with arrows in the chart below. While this is a balancing act, since the demonstration of national initiative is also important, the bottom line is that funding from the national budget will help attract international donor funding.



This underscores the importance of the current national budget as the starting point for NAMA financing considerations. Within this, another essential aspect to evaluate is the flexibility of current budget lines, taking into account the array of financial instruments that are at a national government's disposal. Box 5 provides insights from Chile, where it can be seen that the national budget is the starting point for most of the country's NAMAs.

19 Lütken (2014 forthcoming)

BOX 5: UNDP LECB INSIGHTS ON NAMA FINANCING

When financing NAMAs, LECB Programme countries mostly plan to rely on an integrated finance mix, a blend of public and private domestic financing and external aid. Chile provided the following comprehensive insights with regards to financing their NAMAs:

- The Chile transport NAMA (Green Zone) applies a modular approach, so that financing can take place at different stages of the project. For this NAMA, 30% of public (domestic) funding comes from municipalities and 70% of international funding from the International Climate Initiative (Germany), the Swiss and Canadian governments, and the World Bank.
- For the forestry NAMA, 37% of funding is provided by the Chilean government and there is also funding from the Forest Carbon Partnership Facility of the World Bank. It is planned to present this NAMA to the GEF for additional funding.
- An energy NAMA (Concentrated Solar Power) will apply for funds from the Clean Technology Fund, BID, BID grant, GEF, IFC, as well as bilateral support and the private sector.
- An off-grid renewable energy NAMA and a non-conventional renewable energy NAMA will initially receive seed funding through the Chilean government.
- In the case of the Ministry of Energy, some funds come from the CORFO fund (Corporation for the Promotion of Production).
- Furthermore, NAMA developers in Chile have access to funds from the private sector.

Table 3 provides an overview of some regularly-used financing instruments that are relevant for NAMA developers. For the financing of NAMAs, it will be necessary to employ a single instrument or financing through a mix of these instruments, which is more likely.²⁰ Most importantly, it should be assessed which of these instruments are relevant for the deployment of the current budget, i.e. is there any flexibility in the way in which the current budget is deployed. This is particularly relevant for budget lines that are applied through local government.

Knowing which instruments may be structured through the current national budget helps determine what kind of financing will be needed to complete a financing package, and what kind of institution would be the most logical counterpart for providing that financing.

20 UNEP Risø Centre (2012)

Table 3: Financing instruments

Instrument	Characteristics	Typical providers
Equity	Investments made directly in projects or operating assets by investors who assume a portion of ownership relative to their provision of capital.	Private companies, individuals, venture funds, publicly funded venture funds (hybrids), pension funds
First-loss	A tranche of finance that, in the event of a default, takes the first loss, before other tranches. Also called “mezzanine financing” or sometimes “junior debt”. May be regarded as a hybrid of debt and equity.	Private companies, venture funds, publicly funded venture funds (hybrids)
Loans	Traditional debt financing on standard terms (market rate and tenor), commonly provided by banks, including development banks.	Banks, development banks, publicly funded venture funds (hybrids), pension funds
Soft loans	Loans on favourable terms (below market price) with low interest rates, long maturities and possible grace periods. A subset of soft loans are mixed credits which, according to OECD rules, must contain at least a 35% grant element.	Bilateral donors (through commercial banks), multilateral development banks
Bonds	A debt investment in which an investor loans money to an entity (corporate or governmental) that borrows the funds for a defined period of time at a fixed interest rate. The bond (i.e., the debt) may be traded at an exchange and bought by anyone.	Financial arrangers such as banks and credit institutions, large corporations, governments
Dedicated credit lines	Lines of credit (debt finance) for investing in projects that meet specified criteria, e.g. related to climate change. Credit lines are typically established by development banks or less commonly by public entities (government agencies) and channelled through a private sector bank or financial institution for the financing of (most often) private sector initiatives.	Multilateral and bilateral development banks
Risk cover instruments, guarantees	Several instruments provided by either the public or the private sector, most often in the form of insurance against certain events. Governments will typically provide political (policy) guarantees and government agencies may insure such guarantees; private sector entities may provide technical (technology) risk cover. Guarantees (except government guarantees) are paid for much like an insurance policy.	Export Credit Agencies, insurance companies, banks, governments, technology suppliers
Project Finance	Financing structured around a project’s own operating cash flows and assets, without requiring additional financial guarantees by the project sponsors. Loans in a project finance structure are also called “non-recourse” lending. Project finance depends essentially on the structuring of the risk through risk-cover instruments.	All of the above
Grant	Provision of funds without expectation of repayment, using government budget allocations, and/or international financial institution/donor funds. An example would be funds provided to pay up-front costs of measures/projects.	Bilateral donors, philanthropic funds
Blending mechanisms	Blending facilities use grant funds to create a blend of debt and guarantee instruments from a number of financial institutions in order to provide a package of finance with attractive terms to meet project finance needs.	Both the Green Climate Fund (GCF) ²¹ and the NAMA Facility ²² have signalled their intent to provide a wide variety of financial instruments

21 GCF instruments and procedures are still being discussed. Further information can be found at the [GCF site](#).

22 The NAMA Facility is a body jointly operated by Germany and United Kingdom for the financing of NAMAs. More information about it can be found at a variety of places, including the site of the [International Climate Initiative](#).

The institutions that make these instruments available are many, although only very few will specifically state that they provide “NAMA financing”. Instead, they provide financial products among which the majority are known and tested and which are quite applicable to NAMA implementation. The blending of mechanisms is likely the preferred option for NAMA financing, as indicated in Table 3.

The next question is what to finance. There are two schools of thought on this: one advocates a budgeting process centred around incremental costs; and the other favours adopting a total-cost approach.

Incremental costs have been defined by the GEF as the difference between costs of baseline development and costs incurred in a project or policy scenario. In other words, incremental costs are “additional costs associated with transforming a project with national benefits into one with global environmental benefits.”²³ For instance, in order to meet national power-generation goals, a country might decide on an option which, though more expensive – such as solar energy versus conventional fossil-fuel technology – produces global benefits in addition to providing local sustainable development. The lifetime cost difference between the two options is the incremental cost.

However, even in the simplest cases, decisions about what to include and what not to include in calculations means that results often depend on economic modelling. One approach is to carefully assess current financing for the existing activity, structure the financing model, line up the other possible financial instruments as efficiently as possible, respecting national principle constraints (such as ownership structures in the energy sector), and then calculate the lowest cost option for obtaining financing for the change desired in the activity. This may or may not result in the incremental cost of the change.



Photo Credit: UN Photo/E Darroch

23 GEF (2011) http://www.thegef.org/gef/policy/incremental_costs

Box 6 provides a look at some of the financing characteristics of a sustainable housing NAMA in Mexico.

BOX 6: FINANCING THE MEXICAN SUSTAINABLE HOUSING NAMA

The NAMA aims to extend and expand existing GHG mitigation measures in Mexico in the residential sector, such as with the initiatives *Hipoteca Verde* (“Green Mortgage”) and *Ésta es tu casa* (“This is your house”). These two initiatives offer supplemental loans that support homeowners in financing energy-efficient appliances in new homes. The housing NAMA concept intends to increase the overall number of energy-efficient homes built and to improve their emissions performance. As part of the NAMA design, three performance benchmarks (on a “whole-house” basis) have been formulated, with different ambition levels that can be achieved for residential buildings (beyond current standards). The standards are called “EcoCasa 1 and 2” and “Passive House”. Depending on the climatic zone in which the house is located, a certain combination of technical measures (insulation, ventilation, etc.) will yield the desired performance.

To estimate the financing needs of the NAMA, five packages were established, consisting of a distinct number of homes to be built under the different standards and with the additional technical measures. These are illustrated below.

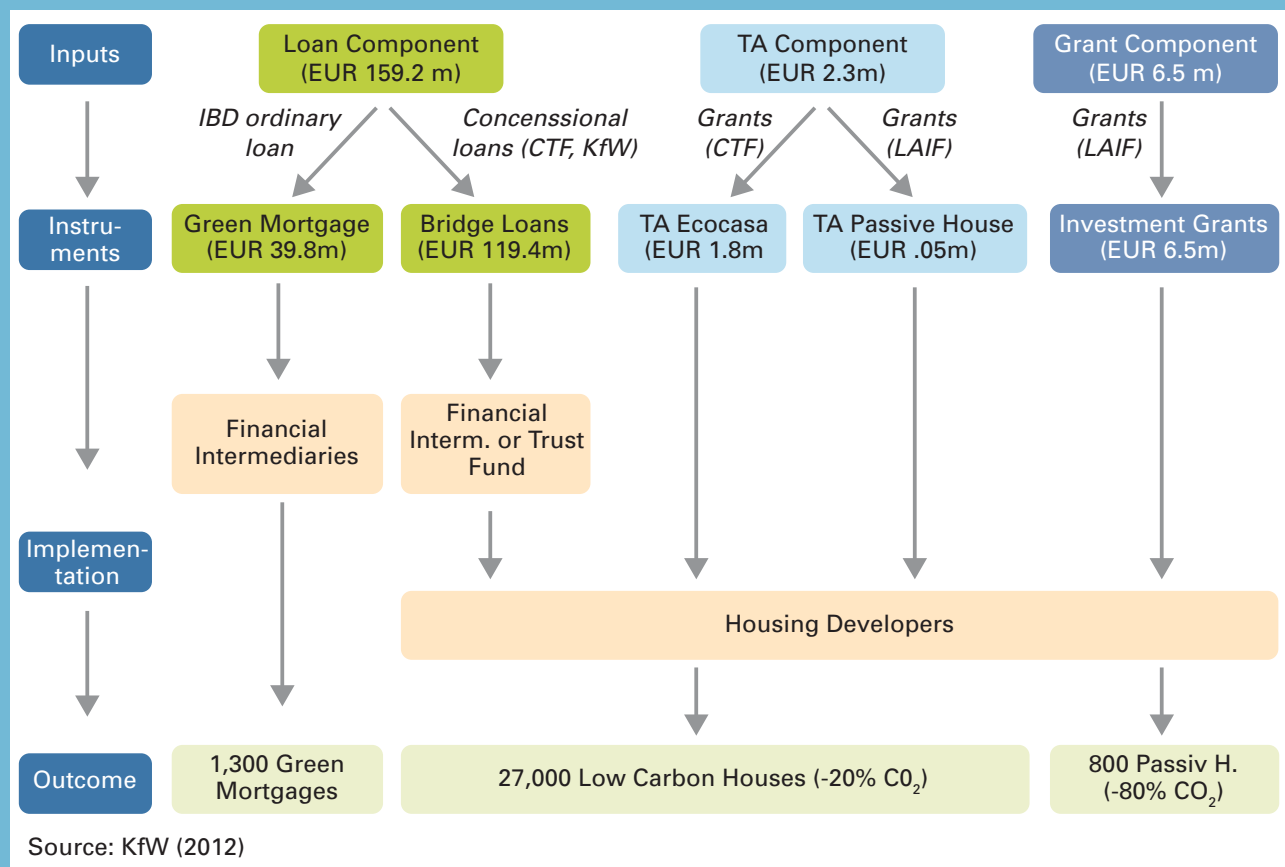
Packages				Financing Need		Benefits	
Financial packages	Scale of the package	Content of the package		Subsidies to homeowners, USD million		Total incremental construction cost USD million	Emission reductions over 30-yr. lifetime tCO ₂
		Mainstream roll-out	Passive House pilot	Mainstream roll-out	Passive House pilot		
Package 1	Large scale (27,000 homes)	EcoCasas 1 and 2, 40 and 70m ²	30 buildings of 40m ²	49	0,2	165	1,711,000
Package 2	Mid-size (13,800 homes)	EcoCasas 1 and 2, 40 and 70m ²	30 buildings of 40m ²	25	0,2	84	866,000
Package 3	Small scale (5,200 homes)	EcoCasas 1 and 2, 40 and 70m ²	30 buildings of 70m ²	9	0,3	27	311,000
Package 4	Multi-family (14,940 apartments)	EcoCasas 1 and 2, 40 and 70m ²	780 verticals, 40 and 70m ²	27	3	94	865,000
Package 5	Passive House pilot (890 homes)	890 Mexican Passive Houses (different types)		–	6	12	87,000

Source: CONAVI, SEMARNAT (2011)

The incremental investment costs were calculated for each package through a cost estimation of the additional measures for each case, from EcoCasa 1 to Passive House. The first estimate reflects the costs that would be incurred if the enhanced building standards were instituted immediately. This presumes that Passive House components such as efficient windows and ventilation units with heat recovery are not offered on the Mexican market from the start of the NAMA and are thus fairly expensive. The incremental costs should be expected to decrease over time per house/per standard as an increasing number of components will be manufactured in Mexico.

Financing needs are split into three categories: subsidies to home-owners, bridge loans to developers in the form of soft loans, and support required for the implementation of a Passive House pilot. The financing needs indicated in the table cover only a part of additional investment costs. The rest of the subsidy financing needs will be covered by the homeowners and/or the government of Mexico. These estimates do not include the operational costs of the NAMA (supportive actions).

The total incremental cost of construction is equivalent to the volume of soft loans that the house developers would require in the form of bridge financing in order to build the houses to higher energy efficiency standards. By their nature, the bridge loans are short-term; the developers will be able to repay them as soon as the house is sold on the market. Considering the quick construction cycle in Mexico, these loans are expected to be repaid within a period of six months. This creates opportunity for a revolving fund for bridge financing. Such a revolving fund may combine a blend of commercial funds and government grant money aimed at creating soft conditions for lending.



4.3. THE FINANCING VALUE CHAIN

Sources of financing are not the only financing aspects that contribute to leveraging capacity. Financing instruments can also be more or less efficient with respect to raising funds. It is often said that the private sector will have to contribute significantly if we are to reach the levels of investments necessary to meet the 2°C mitigation challenge. But since the private sector will only invest capital on the basis of profitability, the financial engineering of NAMAs may be seen as an exercise in bringing about such profitability for the private sector at the lowest possible cost to the public sector. In terms of financing, therefore, the private sector is the last to bring on board. Its participation is typically in the form of investment capital, either as equity or as project or balance sheet loans.

The instruments shown in Table 3 are roughly the types of financial instruments that would be available for NAMA financing. The finance sector will be the “go-between,” whether in the form of purely private financing (commercial banks), public financial institutions operating within the private sector for motives of profit (hybrid institutions) or public financing in the form of national or international development banks. Few instruments, and a small part of the financing, will be channelled directly from a developed country government to the developing country government. Grants will probably be few and far between. In current development financing, grants make up only 3% of the total, while loans and concessional loans make up more than 90%.²⁴

When considering financial instruments, it is essential to engage existing financing sources as much as possible, and to increase as much as possible the mileage of funding already available. Using the “financial value chain” is therefore necessary. Probably the most efficient way to increase the mileage of climate-related financing is to move further up an already existing leveraging chain, so the leveraging effect cascades down through the existing system. An example of this would be to bolster the guarantees of an already established support system such as the export credit system. This would likely have far reaching effects.²⁵

The basic idea is to increase the value of scarce public climate finances. The least efficient way to apply climate financing is to use it for the direct purchase of assets: \$100 will buy exactly \$100 worth of assets.

Next up in efficiency is using partial support (a grant) to purchase the assets: \$100 applied as a 25% grant would bring in about \$400 worth of assets.

Better still is to use \$100 to support financing through a concessional loan, which could possibly bring the borrower \$1,000 to \$2,000 worth of investment. This approach, however, would only increase the mileage of the original \$100 if it were offered for a partial loan, with the rest coming from the existing loan market.

A step further up the value chain would be loan guarantees, which would stretch the \$100 even further, since not all debt would be secured.

Reinsurance of sovereign guarantees would probably rate the highest in a value chain. Here, in theory, the original \$100 could increase in value by a factor of 100.

But one instrument is unlikely to comprise an entire NAMA financing package, and several instruments are likely to be necessary, not only for cash flows related to the activity itself (increasing revenues), but also for

24 UNEP Risø Centre (2012)

25 Lütken (2014 forthcoming)

purposes of addressing the financing (reducing financing costs). Since these various instruments will come from different levels of the financing value chain, the resulting overall level of leveraging may be reduced to a factor of 10, or 20 at best.

Where does that first \$100 come from? It comes from the national budget. A more interesting question is, “Where will the next \$100 come from?” If we adhere to the “right order of leveraging” this will come from multilateral and bilateral financial institutions. Their portfolio is diverse and contains most of the types of financing listed in Table 3. They may be engaged if they feel confident that they are getting value for their money, most likely in the form of emissions reductions, and if they are offered a reliable way to document such reductions through MRV.

4.4. THE NAMA FINANCING PROPOSAL

Ideally, potential financiers should be engaged at the earliest stage, after the first outline of a financing model has been created. Identifying a central financial institution that can provide advice on the structuring of the finance is essential. This central institution may play the role of financing “aggregator”²⁶ based on its understanding of the functions of various financial instruments. The aggregator acts as a neutral financial adviser or “financial engineer” with the potential interest of eventually becoming involved in the implementation of the NAMA.

An initial draft of a financial proposal or framework for an envisaged NAMA should include detailed information about proposed measures and costs, including what specific financial instruments are foreseen, how they are supposed to be implemented and to what degree they will be used. This draft serves partly to inform the government about the current plans for the financial basis of the NAMA in the hope of obtaining approval and implementing it, but it also serves to further engage other financiers with different roles in the financial plan, led or supported by the aggregator. The draft should also provide information for financiers and donors, to be used in bilateral talks or shared via the UNFCCC NAMA Registry once the NAMA proposal is uploaded. The financial proposal may be in a format similar to those prepared for other programmes seeking financing or support, but at the early stages, it will be less concise in terms of amounts and structures. These will become more concrete as the financing plan develops. Ultimately, financiers and investors will wish to ascertain the potential earnings on their investments. For private-sector entities attracted by the NAMA framework conditions, this means the rate of return. The financing plan should be tailored to respond to such requirements.

A mature NAMA financing proposal should consist of the following elements, at least:

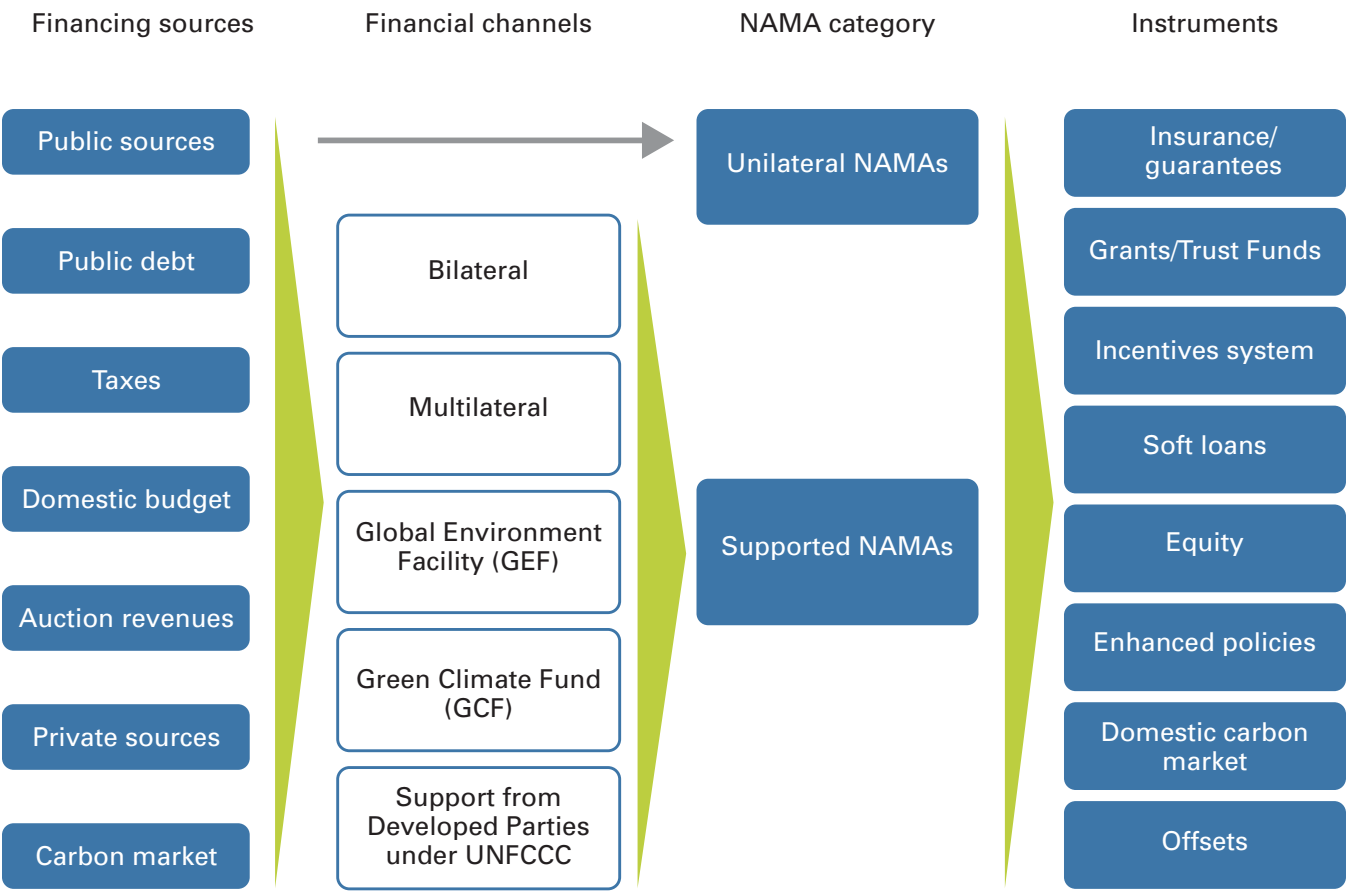
- **Cost-benefit overview:** The total costs of implementation (if possible, by illustrating alternative scenarios) of the planned measure(s) and indication of the direct benefits of the measure(s), including emissions-reduction benefits as well as other kinds.
- **Financial instruments:** Information on potential financial instruments to be employed and the conditions that must be met in order to use each. This includes financing of other NAMA elements.

26 Lütken (2014 forthcoming)

- **Governance:** Identification of a domestic authority that serves as the communications partner. If there is a financial aggregator, this should also be identified. These are the stakeholders involved in structuring the NAMA financing and who may also be capable of facilitating the implementation process.
- **Major risks and barriers:** Identification of likely obstacles that may threaten cash flows and delay or hinder the implementation and successful operation of the NAMA.
- **MRV system:** This is necessary documentation that helps to justify involvement in climate financing and is discussed in greater detail in Chapter 6.
- **Domestic and international support:** Financing that is provided through the national budget should be highlighted. Additional financial instruments sought from other sources should be described, if possible, providing alternative approaches.

Figure 3 provides an overview of NAMA financing streams.

FIGURE 3: POSSIBLE FINANCING STREAMS FOR NAMAS



Source: Perspectives Climate Change (2013)



Photo Credit: UN Photo/Ray Whithin

4.5. INVOLVING THE PRIVATE SECTOR

Private sector finance is diverse. Table 3 presents a typology of finance and its suppliers without emphasizing that private sector banks are likely to become the main lenders for NAMAs, whether the borrower is a private or public sector entity. The private financing that is mainly thought of, however, is the equity listed at the top in Table 3. And that investment – which will engage other types of finance along the way – is driven by profit motives. Therefore, to the extent that private sector involvement is sought, the financing of NAMAs is about establishing the most cost efficient blend of Table 3 instruments to make the private sector invest in the assets or operations that the NAMA developer desires.

Following are some financial points to consider when attempting to involve the private sector in a NAMA.

- A situation of low return (or no return) on an investment can be improved by various measures, including direct subsidies, investment tax breaks, the grant component of concessional loans and enhanced funding during operation (through FiTs or carbon markets). The cost-efficiency principle gives preference to instruments higher up on the financing value chain.
- High risk can be lowered by risk guarantees or insurance schemes.
- High transaction costs can be lowered by standardisation and aggregation of activities.

4.6. KEY ISSUES WHEN APPROACHING THE FIRST FINANCIER

The potential aggregator²⁷ should be provided with preliminary information on the envisaged NAMA and its financial characteristics. Either a NAMA concept note or a more elaborate proposal can be used for this.

²⁷ The identity of the aggregator should be determined by the nature of the intended financing model. In many cases a hybrid institution (a publicly-supported financing institution operating on the private-sector principle of profit) would be ideal, due to its familiarity with both public and private investment drivers and conditions.

Some key things to consider with respect to this possible financier include:

- relevance of the substance of the NAMA to the objectives of the financier. A financing institution is more likely to invest in a NAMA if its objectives are in keeping with the institution’s objectives;
- level of the financier’s involvement relative to the total investment and compared to other financing obtained or sought (e.g., applicable portions of the current national public budget);
- cost of achieving GHG emissions reduction;
- level of ambition – the estimated amount of GHG reductions that will be achieved and the NAMA’s potential for transformational change in terms of development;
- solidity of the NAMA management plan. Are the proposed plans for implementation and operation, including the MRV system, adequate?
- amount of experience and capability of the proposing entity;
- interest and sense of ownership on the part of the national government; and
- economic and financial viability; the overall maturity and “bankability” of the NAMA proposal.

Figure 4 provides an example of the salient points in an approach to one potential NAMA financier.

FIGURE 4: CRITERIA FOR ATTRACTING NORDIC ENVIRONMENTAL FINANCE CORPORATION (NEFCO) AS A POTENTIAL NAMA FINANCIER

Governance	Policy coherence	Robust and pragmatic MRV	“Bankable” proposals
Good leadership by lead agency (national champion)	Building on existing sector policy, but strengthens ambition	Availability of data or credible plan for sourcing	How will funds be deployed, how much and over what period
Evidence of strong partnerships	Clearly linked with national climate developmental policies & priorities	Solid baseline, credible statement of the counterfactual	Leveraging impact of donor funds
Coordination e.g. interministerial committees	Potential for scale up and replicability	Clear and measureable indicators/parameters	Cost of financing
Role of private sector		Full set of metrics, including GHG & co-benefits	Performance based?
			Overcoming financial barriers

Source: Adapted from NEFCO (2012)

Further Guidance:

- **UNDP Catalysing Climate Finance:** This guidebook is offered as a primer to countries to help them better assess the level and nature of assistance they will require to catalyse climate capital, based on their unique set of national, regional and local circumstances.
- **OECD/IEA Financing Climate Change Action:** The OECD aids countries in their efforts to find lasting solutions for increasing public finance and shifting private sources of capital to support climate action.
- The **UNDP/World Bank Climate Finance Options Portal** offers cutting-edge information on climate finance and support and has a search engine for individual support enquiries by country across a range of criteria.
- **Climate Finance Tracking:** The UNDP/WB Climate Finance Options Platform also provides information on the flow of international climate finance that is currently occurring under the aegis of “Fast-Start Finance.”
- UNEP Risø Centre/GEF: **Accessing International Financing for Climate Change Mitigation – A Guidebook for Developing Countries**. This Guidebook is intended to help developing country governments, planners, and stakeholders who are carrying out technology needs assessment and technology action plans for preparing good project ideas and accessing international funding for climate change mitigation. It also includes a list of multilateral and bilateral financing sources.
- A good list of potential sources for funding NAMAs, including aid agencies, multilateral funds or bilateral funds, can be found in GIZ’s **Technical Assistance Source Book for Practitioners. Sources of existing international climate financing** and ways to access them are described in a Final Report of the Bridging the Gap Initiative

The NAMA Development Process

There is no pre-defined process for developing a NAMA, although the process typically begins with identifying an option for a lower GHG emissions alternative within a given development plan and determining whether or not such emissions reduction is viable and worthwhile. Transforming a NAMA from idea to practice can be a time-consuming process, but as more and more countries accept the challenge of using NAMAs to lower GHG emissions, the experience pool continues to grow, and by sharing best practices and lessons learned, NAMA developers are growing more and more adept at completing the tasks involved.

Countries that have pioneered NAMAs to date have adopted different yet comparable approaches to NAMA development. Box 7 provides a glimpse of some of their experiences.

KEY TOPICS:

- **A three-phase vision of the process**
- **Stakeholder engagement**
- **Barriers and risks**
- **Objectives of NAMA documentation**
- **Elements of NAMA documentation**

BOX 7: INSIGHTS ON PROCESSES FOR NAMA DEVELOPMENT

As part of the UNDP LECB programme in 2011, a number of countries launched NAMA development processes. When asked about their experiences, participating countries responded by mentioning various approaches and emphasising some of their different parts.

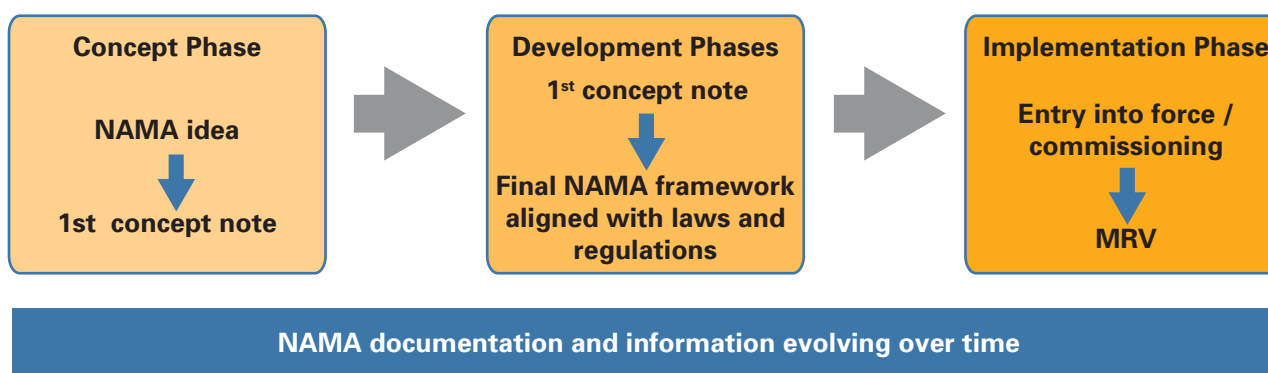
Tanzania divides NAMA development into the proposal, concept, planning, implementation, operation and evaluation phases. **Chile** conducts consultations with various public and private institutions, followed by an analysis of NAMA feasibility and a pilot phase for testing the MRV system, culling lessons learned and developing best practices. Support from national or international consultants may be required. **Colombia** has engaged in a research phase, followed by an evaluation phase focusing on MRV and co-benefits. A third phase will involve designing concrete implementation plans.

Costa Rica and **Mexico** mentioned some of the various components that may be involved in the NAMA development process, such as launching or upgrading GHG inventories, identifying feasible mitigation actions, analysing a LEDS and determining how a NAMA might fit into and augment it, designing a MRV system and engaging stakeholders.

5.1 A THREE-PHASE VISION OF THE PROCESS

Before we begin talking about the NAMA development process in terms of a series of phases, it is important to note that we do this for the sake of convenience only. NAMA development is not a linear process. When we talk about phases we must remember that each consists of steps and actions that are iterative. Each iteration of these steps, either within the same phase or in subsequent phases, demands communication with and re-engagement of all stakeholders in order to ensure continued support as the NAMA takes shape and changes character. This being said, we can move on to consider a view of NAMA development in three general phases, as shown in Figure 5.

FIGURE 5. NAMA DEVELOPMENT PROCESS



Source: Perspectives Climate Change (2013)

The **Concept phase** brings the initial NAMA idea through to its first presentation as a comprehensive concept paper. In this phase, NAMA developers must:

- identify and prioritise areas of national or sectorial development plans or policies in which GHG emissions reduction is feasible and desirable;
- visualise implementation modalities;
- describe possible policy instruments or measures required to make the emissions reduction happen;
- conduct initial cost estimates;
- consider aspects of budgets and means of diverting existing funding or obtaining new funding;
- identify probable stakeholders, including possible financiers, and ways of engaging them;
- establish baseline and mitigation emissions scenarios;
- describe the NAMA's prime benefits and co-benefits; and
- outline an MRV system.

The **Development phase** translates the concept paper into practice. Here, the ideas inherent in the NAMA proposal are adjusted to coincide with political, economic, social and technical realities. Depending on the nature of the NAMA, legal frameworks and governmental approvals are generally the domain of the

development phase, but technical support and capacity building may be needed as well. Specific steps in the development phase include:

- defining the status quo of GHG emissions and making projections at BAU and mitigation levels;
- formalising MRV mechanisms and other evaluation tools;
- fleshing out the details of the NAMA;
- continuing to engage financial and other stakeholders;
- defining the responsibilities of the actors involved; and
- formalising and submitting all necessary documentation.

In the **Implementation phase**:

- the NAMA activity is launched;
- initial feedback is recorded;
- stakeholder engagement continues;
- the legal/institutional framework, system(s) or project(s) of the NAMA are set into motion; and
- the NAMA is adapted, if necessary, based on feedback from all areas involved.

It is important to remember the iterative nature of this process. No single one of these activities under each phase is isolated from the others; all are interdependent, and many will need to be repeated and adjusted throughout the NAMA process. Institutional development and stakeholder involvement are on-going throughout this process, as is the development of the necessary reporting and registering documentation.

5.2. STAKEHOLDER ENGAGEMENT

Successful NAMAs require strong host-country commitment and support. If key stakeholders are to have a sense of ownership of a NAMA, continue to dedicate resources, and maintain their engagement, it is crucial that NAMA development be integrated with current country development processes and policies. Most NAMAs arise from an existing policy or process at the national, sectorial or local level; relatively few will start out as entirely new policies or processes. This means that NAMA development is basically no different from any other policy development. A NAMA idea is born with inherent stakeholders, both those who are comfortable with the current state of affairs and those who would benefit from the change that the NAMA promises. Stakeholders and their positions are crucial for the development process, and the NAMA stakeholder engagement strategy and its diligent application may well determine the success or failure of the NAMA. The stakeholder engagement strategy will differ from country to country and from sector to sector. How it is conceived and handled will depend on a variety of factors, including national economic and development characteristics, the nature of the country's institutional framework and the position and expertise of the national NAMA contact body. One specific piece of advice that can be given is that potential bilateral or international financial stakeholders will look for evidence that a stakeholder engagement process has been sufficiently thorough and well administered to eliminate the risk of a NAMA shipwreck because stakeholders were not brought on board or their commitment dropped off.

A fair representation of all major stakeholders in the process of establishing a NAMA provides the opportunity to identify, reflect on and integrate both supporting and opposing views. On the other hand, if time and resources are not to be wasted, a “shotgun approach” is not advisable: careful consideration is needed for stakeholder inclusion, as it is for determining the particular means of approaching each one. A successful NAMA is one from which stakeholders can readily draw the political and social capital that induces them to fast track its development and implementation processes. A non-exhaustive list of stakeholders under a NAMA could include:

- **Government:** Typically, any and all ministries responsible for regulation or funding of the proposed policies and/or measures; e.g., ministries of environment, economy, finance, energy, resources, transport or industry. Depending on whether the NAMA is a policy or a project NAMA, and also depending on what types of implementation modalities it will involve, regional and local governments need to be involved as well, as do other relevant governmental institutions, such as an Environmental Protection Agency or an energy regulator. Political parties might also need to be included.
- **Public sector:** This includes representatives from state utilities, relevant municipalities or chambers of commerce as well as public banks or investment promotion agencies.
- **Private sector:** These stakeholders might be industry associations, pertinent companies (domestic and international branches), private utilities, private banks and other businesses with relevant interests in the NAMA measures.
- **Non-governmental organisations and civil society:** These include NGOs from various areas such as the environment or national development, labour organisations, human and gender rights organisations, indigenous or religious groups and other civil society representatives.
- **Institutions providing domestic or international support:** Of course, institutions providing financial, technical or capacity-building support need to be integrated into the process early on. These include domestic or multilateral development banks, international development agencies and bilateral agencies. Observers from regional institutions or partner countries may be involved as well.
- **The academic community:** Research institutions, universities and think tanks as well as technical experts and advisers will provide know-how as well as data.

Box 8 provides some insights into stakeholder involvement in Chile, where various NAMAs are currently in development.



Photo Credit: UN Photo/Lucien Rajasonina

BOX 8:STAKEHOLDER ENGAGEMENT FOR NAMA DEVELOPMENT IN CHILE

NAMA developers engage a range of stakeholders during NAMA development, including national ministries and governmental agencies, local and regional authorities, private sector entities from the pertinent sectors or industries, technical experts and academia, civil society organisations and individuals, multilateral and bilateral development institutions, national and international financing institutions and/or advisers. This underscores the variety of stakeholders potentially influencing the design and design process of a NAMA and its corresponding policy framework.

For example, Chile involves the following set of stakeholders in the development of its transport, forestry and energy NAMAs:

- Key partners from the public sector are the Ministry of Transport and Telecommunications, the Ministry of Agriculture's National Forestry Corporation (CONAF), the Chilean Agency for Energy Efficiency from the Ministry of Energy, the municipalities of Santiago and Providencia, and Transantiago, the Chilean public transport system;
- From academia, some of the participants are the Universidad de Chile, Pontificia Universidad Católica de Chile and the Universidad de Concepción;
- From the private sector are the companies Saba abertis, Chilectra, Siemens, BYD and Nissan, among others;
- Among international organisations, there is support from the International Climate Initiative of Germany, the European Commission, the Centre for Clean Air Policy, the Swiss Agency for Development and Cooperation and the World Bank;
- Civil society organisations include Ciudad Viva, Nación Pedal and Arriba'e la Chancha y Macleta;
- International finance and cooperation actors notably the governments of the United Kingdom, Germany, Canada, Switzerland and New Zealand.

5.3. BARRIERS AND RISKS

Whatever the context may be in which the NAMA is developed, an assessment of barriers and risks to its development and implementation – and how to avoid or overcome them – is essential. As we saw in Chapter 4, any potential financier of a NAMA will want to know about its possible barriers and risks, as will anyone else with a vested interest in its outcomes. Barriers may arise at any point, from NAMA identification to NAMA implementation, but a thorough assessment of potential obstacles is necessary early on, once the scope of the NAMA has become clear. Table 4 lists possible barriers that may need to be addressed during the NAMA development phase.

Table 4: Analysis of implementation barriers/risks and formulation of risk management measures

Barrier/risks	Potential risk management measures
Flagging sense of programme ownership and commitment among stakeholders	<ul style="list-style-type: none"> • A focal point or coordinating entity takes and maintains ownership of the NAMA • Regular communication and updates on the progress of the NAMA development • Requests for knowledge sharing • Offer capacity building • Publicise successes of other national NAMAs or NAMAs in other countries
Lack of awareness <ul style="list-style-type: none"> • Limited awareness of options • Lack of knowledge/access to knowledge 	<ul style="list-style-type: none"> • Capacity building for public institutions and private sector • Training of trainers: advisers, planners and developers of measures under the NAMA • Measures/actions and demonstrating their practicability and benefits • Marketing and outreach
Capacity barriers <ul style="list-style-type: none"> • Lack of skilled labour • High transaction costs 	<ul style="list-style-type: none"> • Capacity building for public institutions and private sector • Training of trainers: advisers, planners and developers of measures under the NAMA
Technical barriers <ul style="list-style-type: none"> • High transaction costs 	<ul style="list-style-type: none"> • Capacity building • Training of advisors, planners and developers of measures under the NAMA • Encouragement and support for domestic and regional manufacturers and companies
Regulatory and institutional barriers <ul style="list-style-type: none"> • Limited access to capital • Monopolies/ Limited access to markets 	<ul style="list-style-type: none"> • Analyse/strengthen sector regulation and permitting procedures • Training for local authorities and other local stakeholders • Capacity building for monitoring and auditing authorities • Design, establishment and operation of a NAMA office / institution
Financial barriers <ul style="list-style-type: none"> • Limited access to capital • High upfront costs; small project sizes • Split incentives (e.g., between owners and users) • Conflicting allocation of resources for investments (e.g., subsidies for conventional technologies) • Financially stable support 	<ul style="list-style-type: none"> • Provision of promotional financing, including grants and subsidised loans • Attract donors for up-front finance to start NAMA process • Reduction of incremental investment costs by economics of scale • Publicise national commitments in addition to international cooperation and support for NAMA identification, formulation and development process

5.4. OBJECTIVES OF NAMA DOCUMENTATION

In the earliest stages of NAMA development – especially throughout the concept phase and early in the development phase – documentation will be the only evidence stakeholders have of the NAMA's nature, composition and progress. In these early stages, NAMA documentation is also the best means for developers themselves to clarify and formalise the NAMA's concepts, possible directions, prioritisations, costs, risks, financial alternatives and so on. Table 5 provides some guidance as to the sequence in which various types of documentation need to be created/completed, leading up to submission of the proposal to the NAMA Registry for approval, as well as during the adjustment period after the submission. On the right are suggestions for steps in preparing the various types of documentation, as well as some of the objectives behind the documentation.

Table 5: Documentation strategy for NAMA proposals

Initial Proposal	<p>To develop a structured NAMA proposal with as much detail as possible, developers must document descriptions of:</p> <ul style="list-style-type: none"> a. the policy/project/activity in concrete terms b. the substantial co-benefits c. already-existing policies and actions with similar goals d. the national contribution, financial and other e. the MRV system or the preparedness to develop it f. the amount of emissions reduction foreseen, as specifically as possible
Engaging Stakeholders, Elaborated Proposal	<p>To engage key national stakeholders / promoters / implementers of a NAMA, it is recommended that NAMA developers:</p> <ul style="list-style-type: none"> a. consistently upgrade the NAMA's descriptive documentation mentioned above, incorporating new and improved information as it comes in b. ensure active stakeholder support and encourage their public endorsement by creating and/or using documentation that keeps the NAMA proposal before them c. document and publish the activities of the various stakeholders, so they know what others are doing
Publishing, Revised Proposal	<p>When publishing the revised, elaborated NAMA proposal in the NAMA Registry format:</p> <ul style="list-style-type: none"> a. carefully extract information from the structured NAMA proposal b. make sure that all vital information is included, even if the Registry format does not have box headings that match exactly c. hold a stakeholder meeting for final review and internal approval of the proposal d. submit the proposal to the NAMA Registry, possibly through a NAMA focal point if such has been established
Adjusting Proposal	<p>Follow up the submission by:</p> <ul style="list-style-type: none"> a. engaging in status/reality negotiations with current financiers b. share information about the NAMA with any potential new financiers c. adjust implementation plans according to availability of finance d. publish plan revisions to re-engage key stakeholders

The development and promotion of a NAMA requires systematic representation of information and robust documentation. A NAMA Design Template provides a concise description of the essential components of a NAMA proposal. Systematic representation of information improves understanding and provides clarity to stakeholders, not least among whom is the essential first financier, or “aggregator,” mentioned in Chapter 4, as well as those within the areas of policy development environment which the NAMA will affect. The information included in the NAMA Design Template must:

- enable the NAMA developer or managing entity to provide a well-structured vision of all the key aspects of the proposed NAMA in a logical and coherent manner;
- inform NAMA financiers (whether domestic or international) sufficiently for them to understand the relevance of their role and responsibilities, and enable them to assess benefits and risks; and
- facilitate understanding of the host government and other relevant authorities (national and/or local) of the actions, costs and benefits associated with the proposed NAMA and how it aligns with or alters current policies, regulations and development goals.

Box 9 provides a list of currently available NAMA templates.



Photo Credit: UN Photo/John Isaac

BOX 9: NAMA TEMPLATES

UNFCCC NAMA Registry: NAMAs Seeking Support for Preparation, Implementation, and Recognition

For submitting a NAMA seeking support for preparation:
http://unfccc.int/cooperation_support/nama/items/6948.php

For submitting a NAMA seeking support for implementation:
http://unfccc.int/cooperation_support/nama/items/6982.php

Other NAMAs For Recognition:
http://unfccc.int/cooperation_support/nama/items/6949.php

Further information on the registry can be found here:
http://mitigationpartnership.net/sites/default/files/info_note_on_the_registry.pdf

UNEP Risø Centre - NAMAs Information Note (NINO) template

This is a template for NAMA concepts and ideas at different stages, aimed also to feed the information into the UNEP Risø Centre NAMA Pipeline Database.

<http://namapipeline.org/>

CCAP: Supported NAMA Template

This template presents important information that will enable governments and institutions to assess whether the proposed actions fall within their own funding priorities in a format that is not overly burdensome. Essentially, it is a tool that can be used to jump-start the conversation on NAMA support.

<http://www.mitigationpartnership.net/ccap-2011-proposal-supported-nama-template>

Ecofys NAMA concept note and proposal templates

The Excel-format concept note provides a brief summary of the NAMA idea, including basic information on planned activities, expected costs and benefits. It provides a structured and concise overview in 2-3 pages.

The Word-format NAMA proposal provides a more detailed picture of the NAMA including the national context, baseline scenario, rationale and details of implementation and MRV. Supporting information and detailed calculations are included in appendices.

<http://namadatabase.org/index.php/Downloads>

The NAMA Facility

At this facility, jointly hosted by the governments of Germany and the United Kingdom, the introduction and application formats can be found on the following websites:

<http://www.international-climate-initiative.com/en/issues/nama-facility/>

<https://www.gov.uk/government/publications/information-about-the-nationally-appropriate-mitigation-actions-nama-facility>

5.5. ELEMENTS OF NAMA DOCUMENTATION

NAMAs are usually born within national policy development frameworks. However, as soon as the NAMA development process involves financing partners, the NAMA begins to be subject to due diligence processes, the thoroughness of which will vary from financing counterpart to financing counterpart. Information provided through the NAMA Design Template will therefore in all likelihood need to be supported by documentation or evidence, much in the same manner as Designated Operational Entities have required evidence for CDM project development, though requirements may be less elaborate for NAMAs. Box 10 provides descriptions of the various types of information needed when completing the NAMA design template for submission to the NAMA Registry. A full Design Template can be found in Annex 3.

BOX 10: NAMA DESIGN TEMPLATE INFORMATION ITEMS

(The following items are those used in the NAMA Registry's registration format for NAMAs seeking support for implementation, except the last two, which are likely to be additional focus areas of financing partners.)

NAMA Summary

A brief account of the proposed action, policies and measures to be devised, boundaries and GHG emissions reduction estimates

NAMA Description

An overall treatment of the proposed NAMA and its boundaries, including current policies, regulations and practices and proposed changes (baseline scenario and future scenario). Described are primary technologies, primary financing models or alterations of cash flows and priorities, along with central stakeholders and their endorsement.

NAMA Proponent(s)

The contact person for the NAMA Template development and his/her affiliation, the government department responsible for the NAMA (at development and/or implementation stage), along with their skills and expertise and responsibilities.

Implementation Schedule

A tentative schedule for the implementation of the activities that constitute the NAMA, over periods of development, implementation and operation. The main milestones are identified.

Costs, Means and Modalities of Finance

The financial plan for the NAMA initially relates to public-sector financing and implementation financing. Investment costs external to the financing plan (e.g., investments expected by the private sector in response to new policy instruments) are not included, but parallel financial structuring for related NAMAs must be listed. Costs for NAMA development, e.g., expenses for documentation, third party services for MRV etc., may be included.

Estimation of GHG Emissions Reduction

An estimate of the expected GHG emissions reduction from the activities listed under the NAMA. Types and levels of gases.

Success Indicators (Key Performance Indicators)

Key performance indicators (KPIs) may be aligned with implementation milestones, providing assessments of both progress and impact/outcomes expressed through key societal, environmental and economic indicators. KPI targets may be added.

Overall Benefits (direct and indirect)

Primary benefits expected from the NAMA (environmental, economic and/or social). Indirect benefits such as technology improvement, capacity and skills enhancement, increased overseas investment can be added as relevant

Relevant National Policies Strategies, Plans and Programmes and/or other Mitigation Actions

The NAMA's legal and regulatory basis, either directly or indirectly, indicating the boundaries of the NAMA and other supporting initiatives or other areas of activity (emissions reduction) that are influenced by the NAMA.

.....

Barriers

Barriers that hinder or have hindered development and proposed means to eliminate or overcome these barriers – be they economical, societal or technological.

Measurement, Reporting & Verification

Measurement methodology is developed aligned with the KPIs to track progress and measure outcome/impacts of successful implementation of the NAMA. Methodology refers to the data to be collected, sources of data and data storage methods. Also included is a description of estimating methodology, where KPI is estimated based on measured data. The international focus is on MRV of emissions reduction, while KPIs and MRV frameworks are usually broader. MRV of financial flows must be included. Final MRV modalities may be agreed on with third party financiers. Verification is undertaken by a third party and is a process that should be defined by the MRV authority or providers of support.

Due diligence:

It should be noted that proposed NAMAs and their documentation will need to reach a certain level of maturity before they can fully address the due diligence criteria of financial institutions. However, this is not a reason for putting off initial contact with financiers. In all likelihood, the NAMA will change character and implementation modalities over the period of its development, and dialogues with financiers and private sector entities (if the private sector is to play a decisive role in implementation or perhaps financing) are crucial in order to optimise the financial aspects of the NAMA while respecting its fundamental purposes.

Measurement, Reporting and Verification (MRV) of NAMAs

6

As was agreed upon at COP 16 and further defined at COP 17, MRV is a central component in frameworks for emissions mitigation actions through NAMAs in developing countries. 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.”²⁸

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 of a given activity.²⁹ In simple terms with regards to the implementation of NAMAs, it is defined as:

Measurement	collect relevant information on progress and impacts
Reporting	present the measured information in a transparent and standardised manner
Verification	assess the completeness, consistency and reliability of the reported information through an independent process.

KEY TOPICS:

- **The purpose of MRV**
- **What to measure**
- **How to develop a NAMA measurement methodology and plan**
- **International guidance and best practices for measuring impacts on GHG emission**
- **Reporting and verification**
- **Requirements for a NAMA MRV system and procedures**

The terms “monitoring” and “measurement” are often interchangeably used in the MRV literature, but there is a difference between them that is important to understand. Monitoring is a management function and entails review of implementation with regards to planned objectives and goals, whereas measurement is an operational function for recording facts that will enable monitoring. In this guide, we use the term measurement, since in the MRV context, it is an operational function of recording information and data, which in turn can be used by national and international authorities to monitor the implementation of mitigation actions.

²⁸ UNFCCC (2011)

²⁹ UNEP Risø Centre (2012)

6.1. THE PURPOSE OF MRV

Measurement enables assessment of the implementation of plans, the achievement of objectives/goals and the taking any necessary corrective steps that may be required. Reporting and verification ensure communication of consistent and reliable information to appropriate authorities in order to facilitate assessment. MRV is thus a management tool for monitoring achievement of goals and objectives, whether they be of an organisation, and institution or part of the governance of a country. Governments typically use MRV to measure a number of economic, social and environmental indicators to enable objective assessment of progress in meeting national development goals as well as the effectiveness of policies, programmes and regulations.

Governments also use MRV as a tool for accountability to their constituents. An important aspect of accountability is documentation of benefits of the actual policies and actions deployed and cost-effectiveness of the measures. Such documentation provides governments, budget departments, funding agencies and implementation bodies with the information needed to make objective decisions as well as feedback to improve decision making and implementation strategies.

Aside from being an international requirement under the UNFCCC, MRV of mitigation actions is also an important management tool for countries to use to track their progress in moving to a low-emission development path and in achieving sustainable development goals. A key imperative for transition to low-emission pathways for all countries, not just developing ones, is the significant global emissions reduction needed by 2050 in order to keep the increase in average global temperature to below 2°C, a goal agreed upon by all countries under the UNFCCC. This requires developing countries to limit increases of GHG emissions in the medium term and eventually reduce emissions in the long term. Such limiting requires immediate steps for integrating low-emission options into sustainable development planning, so as to start building national capacities for managing GHG emissions. In this way, MRV becomes an important GHG management tool, since it enables monitoring of the implementation and effectiveness of mitigation actions.

Finally, as we have said, MRV of NAMAs, whether unilateral or internationally supported, is an international requirement under the UNFCCC. Another of its purposes is to help generate information for reporting to the UNFCCC – through NCs and BURs – on NAMAs either planned or implemented.³⁰ Such reporting is important at an international level in order to assess progress toward meeting the goal of keeping the increase in temperature below 2°C. Additionally, establishing a robust MRV system will facilitate access to international climate finance.

6.2. WHAT TO MEASURE

Although MRV is considered a fundamental requirement for NAMAs, there is limited formal guidance as to its organisation and output. A starting point in understanding what to measure may be the international reporting requirements for BURs. These requirements describe two primary measurement parameters: a) progress of implementation, and b) results achieved, including estimated GHG impacts.

30 For more information on the connections between MRV for NAMA and reporting to the UNFCCC, see ["Understanding the Concept of Nationally Appropriate Mitigation Action,"](#) Sharma, Sudhir and Desgain, Denis Dr., UNEP Risø Centre on Energy, Climate and Sustainable Development, Department of Management Engineering, Technical University of Denmark (DTU) (2013).



Photo Credit: UN Photo/John Isaac

From a national perspective, a number of parameters other than those concerning emissions reduction are of interest. Sustainable development impacts are central and serve as indicators for tracking the progress of NAMA implementation. Therefore, MRV should not only be able to estimate impacts on GHG emissions, but also monitor those sustainable development parameters that in many cases are the drivers of the initiative. Investors may focus on other parameters as well.

Measuring or recording information on progress is done in most projects/programmes, often by defining milestones that need to be reached. The challenge lies in defining and measuring data that document the impacts. The specific data to be measured to estimate impacts will be determined by the activities to be implemented under a NAMA and its goals and objectives. The approach to measurement (level of precision, frequency, storage and archiving, etc.), should follow existing national guidelines and will also be influenced by the requirements of entities that provide support, including financial support, for the implementation of the NAMA. These national measurement guidelines are likely to occur under the requirements of national policy makers for monitoring and periodically evaluating climate policy implementation, as well as international reporting on NAMAs.

The following good practices should be taken into account when designing a measurement methodology:

- **Accuracy:** Measurement should be as accurate as the NAMA budget will allow and aligned with the use of measurement results in evaluating outcomes/impacts. Accuracy trade-offs should be accompanied by increased conservativeness in estimates and judgements. Further, accuracy should be determined taking into account the significance of the outcomes/impacts.
- **Completeness:** Measurement methodology should cover information related to all effects of activities included in a NAMA. Some of the outcomes/impacts, such as reduction in GHG emissions, will be estimated, based on measurement data for the estimates. In such cases, the documented methodology should clearly outline the process and procedures for estimating the outcomes/impacts (emission factors of electricity production, for example) as well as other measured data used for estimates.
- **Conservativeness:** Estimates and measurements should be made so as to err on the side of conservative reporting of outcomes/impacts. The principle of conservativeness should be applied to situations in which either measurement or estimating have a high level of uncertainty or in which a high level of accuracy of measurement or estimating is not cost-effective. The measurement methodology should expressly identify the uncertainty in measurements and include procedures for choosing conservative values.

- **Consistency:** Reporting of information should be consistent between different types of projects/programmes and different periods of time for the same project/programme.
- **Comparability:** The information or estimates, especially of GHG emissions reduction, should be comparable across NAMAs. To enable comparability, the NAMA implementer should use standardised formats for reporting.
- **Transparency:** All data and methodologies used should be clearly explained and appropriately documented in the report, so that anyone can verify their correctness. Reporting should include all relevant information to enable readers to come to the same conclusions as the report and replicate the impact results that are arrived at in the report.

The data/information to be measured depends on the nature and the goals/objectives of a NAMA. Measurement is usually simpler for NAMAs oriented toward technical measuring – for example, a NAMA designed to increase by 10% power generation by using renewable energy. Though on the surface it may seem difficult to measure the impacts of policy-based NAMAs, the key for doing so is to clearly define success parameters for achieving NAMA objectives. For example, in the case of a NAMA that implements a FiT to increase the use of renewable energy (RE), the goal is not only increasing capacities for RE generation, but also designing policy that promotes the use of RE. The challenge to establishing measurement parameters for policy NAMAs, then, has to do with establishing causality between the activity and its impacts. Table 6 provides examples of types of information measured for technical-measurement-oriented NAMAs versus policy NAMAs in the energy sector.

Table 6: Parameters for measuring impacts of NAMAs in the energy sector

Type of NAMA	Measuring Parameters
Project oriented NAMA	RE-based power generation capacity installed Carbon emission factor of grid (Type of fuel, fuel consumption, carbon emission factor etc.) Employment created, income generated, access to power provided Emissions of local pollutants (SOx, NOx, particulate matter, etc.)
Policy oriented NAMA	Enactment of regulation and legislation (e.g. FiT) Number of RE projects applying for FiT Electricity generated by RE projects claiming FiT Reduction in cost of RE generation Employment created, income generated, access to power provided Emissions of local pollutants (SOx, NOx, particulate matter, etc.)

6.3. HOW TO DEVELOP A NAMA MEASUREMENT METHODOLOGY AND PLAN

Presently there are no international or national guidelines for developing measurement methodologies for NAMAs. But experience from other GHG reduction programmes will help develop bottom-up experiences over time and contribute to the development of a body of good practices. See the next section for more information on this.

To measure the progress of a NAMA, key parameters and data for estimating specific impacts need to be identified. Identification of key parameters should take into account direct and indirect impacts as well as the causality of impacts. Measurement of GHG data and impacts of emission reductions are defined by the baseline. To support the MRV of a NAMA, a plan that includes the following details should be developed:

- frequency of measurement and reporting of parameters;
- responsibilities of the different actors with regard to measurement and reporting;
- assumptions/default values applied and sources of the values;
- sources of measured parameters; and
- description of the data storage and archiving plan.

6.4. INTERNATIONAL GUIDANCE AND BEST PRACTICES FOR MEASURING IMPACTS OF GHG EMISSION REDUCTIONS

The measurement of impacts on GHG emission reductions may benefit from experience recorded in NCs to the UNFCCC, and from the CDM. However, even with such information, estimating these impacts may not be so easy. Box 11 shows us a relatively clear example, taken from a NAMA in the People's Republic of China, of how to go about setting up this type of measurement system.

BOX 11: PRACTICAL EXAMPLE ON IMPLEMENTING A MEASUREMENT PLAN FOR TRANSPORT DEMAND MANAGEMENT IN BEIJING

Transport Demand Management NAMA in Beijing³¹: The overall project objective of the programme is the proposal and development of effective and efficient measures for Transport Demand Management (TDM) by the Beijing municipal government. To measure the impacts of the programme on GHG emissions, monitoring procedures are designed to measure CO₂ emissions from Beijing's transport system and report the findings to the National Development and Reform Commission (NDRC) of the Government of the People's Republic of China. The following steps have been carried out:

Step 1: Status Quo Analysis in Beijing

- Analysis of existing monitoring systems
- Screening of international experiences in monitoring GHG emissions

Step 2: Concept Note for GHG monitoring in Beijing, which includes checking the availability of data and research on emission factors, etc.

Step 3: Capacity development for emission monitoring

- Improvements in working with emission factors
- Increased data accuracy
- Improved procedures for data collection

31 For further information see [Transport Demand Management in Beijing](#) and GLZ's presentation under [the same title](#).

The methodologies and guidance adopted for preparation of GHG inventories within NCs by both developed and developing countries serve as one of the best sources of international guidance for measuring the impacts of NAMAs on GHG reductions. The Kyoto Flexible Mechanisms – CDM, Joint Implementation (JI) and International Emissions Trading (IET) – have also successfully established monitoring methodologies for GHG mitigation projects. These have been put into use over the past decade and could be adapted for use with some NAMAs. In addition, the GEF, the International Standards Organisation (ISO), the World Resources Institute's (WRI) GHG Protocol, Verified Carbon Standards (VCS), Gold Standards (GS) and others offer a range of monitoring methodologies, and these to some extent follow Kyoto's Flexible Mechanisms, including extended coverage of sectors and parameters (for example, GS covers sustainable development parameters for monitoring.) Regional climate initiatives in the United States and Canada as well as the European Union Emissions Trading System (EU-ETS) and pilot versions of emissions trading schemes in Australia and China have also developed monitoring methodologies for tracking emissions at the facility level. So NAMA developers do not have to start from scratch when developing methodologies for measuring the GHG impacts of NAMAs; they simply have to choose.

The level of precision and robustness with which GHG impacts can be estimated will depend on the type, scale, and scope of the NAMA as well as national circumstances. These two elements, robustness and precision, should be the basis for choosing an approach and a data collection methodology. CDM methodologies provide a useful reference for identification of parameters and measuring GHG impacts with high precision. However, as the scopes of NAMA and CDM are different (CDM being the basis for offsetting of emissions internationally), CDM methodologies should be suitably modified, especially in the interest of reducing costs. In some cases, certain MRV approaches adopted for CDM Programmes of Activities may be more relevant.

6.5. REPORTING AND VERIFICATION

Reporting is an important part of MRV and will be governed by the requirements of financiers, domestic policy makers and international reporting requirements. The good practices listed earlier for entire MRV systems are critical as well for reporting. Two key elements of reporting are: a) reporting regularly; and b) clearly identifying the audience and designing reporting requirements accordingly. The former is particularly important in order to allow for timely evaluation and feedback, so that necessary adjustments can be made to enhance the effectiveness of NAMA implementation.

Verification refers to the process of independently checking the accuracy and reliability of reported information or the procedures used to generate that information. Verification is usually, but not always, done by an independent, third-party reviewer. In some cases first- and second-party reviews are used. A "first-party review" consists of self-verification, while a "second-party review" is an internal, "arms-length" review. The language and presentation of the verification model chosen should always consider the recipient of the verified information. Verification is an important step towards insuring effective use of funds, the transparency of the activities being undertaken and their impacts. Verification could also play a useful role in quality assurance and quality control (QA/QC) to improve the MRV system over time by providing feedback on measurement methods and procedures and improvements in reporting – in other words, on the verification process itself.

The term "evaluation" is often used as an alternative to "verification". Evaluation, however, implies systematic and objective assessment of an on-going or completed intervention: its design, implementation and results. Verification is a more limited exercise within this; it ensures that the reported information is complete, consistent and reliable. So verification is a necessary step towards evaluating the implementation

and impacts of the intervention; it allows us to reach appropriate conclusions about a NAMA during the operational phase, so that the developer can revise the NAMA, if necessary, in order to ensure its proper implementation. Evaluation, on the other hand, will allow the implementer to learn lessons that can be used to design and implement future NAMAs in an improved manner. Evaluation is an integral part of donor-supported activities, such as those sponsored by GEF or bilateral aid agencies. These normally include a mid-term evaluation and an end-of-intervention evaluation.

A clear verification process should be defined, which includes a specific frequency of verification, identifies entities responsible for verification, and makes the method of verification clear. Verification might be achieved purely by a desk review of the reports. Desk reviews could be supported by the use of external data/information and/or interaction with stakeholders. Verification could also be supplemented by site visits. The costs and benefits of any verification system should be taken into account. Verification can be done by any institution, including one from civil society. Regardless of the institution, it is important to ensure that the defined standards are maintained. The verification process and who performs it depend on the objectives of the verification and the use of verification outcomes.

6.6. REQUIREMENTS FOR A NAMA MRV SYSTEM AND PROCEDURES

MRV systems and procedures need to be aligned with UNFCCC requirements. Table 7 presents the international MRV requirements for NAMAs.

Table 7: UNFCCC MRV requirements	
NAMA type	Expected MRV requirements
Domestically supported (unilateral) mitigation actions	Domestic MRV in accordance with guidelines for domestic MRV developed by the COP Requirements to be elaborated by the Subsidiary Body for Scientific and Technological Advice (SBSTA) of the UNFCCC Reflection of national circumstances and priorities expected
Internationally supported mitigation actions	Domestic MRV with international oversight subject to international MRV procedures conducted with the ICA process International MRV can be required by donors/investors Tracking of financial and technical support

MRV for internationally supported NAMAs will also have to meet the MRV requirements of the international partners involved in them. As previously stated, is important to develop robust MRV systems and procedures for tracking effective implementation of mitigation actions and measuring their impacts. However, such a system should not be a burden or a barrier to the implementation of the NAMA. In general, when developing a MRV system, it should be kept in mind that the MRV approach should be practical and may end up being more flexible and simple than the approaches under the CDM. A NAMA MRV approach should take into account the circumstances of the developing country. For any NAMA MRV system, a suitable balance must be reached among cost, integrity and UNFCCC requirements. MRV systems can and should integrate aspects for improvement over time. Box 12 outlines some UNDP LECB insights on designing MRV systems.

BOX 12: UNDP LECB INSIGHTS ON KEY MRV ASPECTS

In order to set up a NAMA successfully, a robust MRV system is important. Here are some key aspects with regards to MRV that have been highlighted by the LECB Programme countries:

- A good institutional framework with a dedicated expert team;
- Applied standards associated with MRV for the selected sectors;
- Tracking tool with indicators and baselines to MRV;
- Identification of key data and parameters in consultation with relevant stakeholders;
- Potential barriers to MRV system implementation, e.g., technology, capacity gaps, and recommendations to address them;
- Specific capacity building for MRV; and
- A practical, functional and specific MRV design.

The MRV approach is perceived to be less complex for unilateral NAMAs than it is for supported NAMAs. For a unilateral NAMA, the implementing country can decide on MRV modalities and procedures. Such NAMAs will have the prerogative of following UNFCCC guidelines to be laid down in the future for purposes of standardising the BUR. For a supported NAMA on the other hand, since investors assume responsibility for allocation of funds and wish to see a good return on their investment through clear benefits, both in terms of GHG reductions and development, stringency levels are expected to be high.

Quantifying the Impact of NAMAs

7.1. ESTABLISHING THE NAMA BASELINE SCENARIO

In most cases NAMAs will have impacts beyond emissions reduction. To quantify the impact of the NAMA, a corresponding baseline scenario must be established for all those parameters for which an impact assessment is desired (for example, economic ones such as wealth generated; development ones such as employment; or environmental ones, such as GHG emission reductions). The baseline scenario identifies the NAMA boundaries, scope, sector, current financial flows, technology base and value chain. The baseline scenario is that in which these parameters, including GHG emissions, continue as they would in the absence of the NAMA. Alternatively, if a country has set an overall emissions reduction target, the NAMA may be evaluated in terms of its contribution to this target. In this case, a baseline scenario is less important.

The following points are in reference to NAMA impacts on GHG emissions but, again, other parameters may be regarded as equally important for evaluating a NAMA. Issues to be considered when estimating the baseline emissions under a NAMA are:

- Baseline emissions are the expected trajectory of emissions (not a constant value) for a period of time, at least until the year 2020 and should be aligned with any set timeframe for a national goal that might exist. For example, if there is a national goal of 20% emissions reduction from BAU levels by 2025, the baseline projection for the NAMA should use that same period.
- Baseline emissions within the defined boundaries of a NAMA are country-specific, resulting from economic activity, and therefore cannot be generalised, but for GHG emissions reduction estimates, IPCC standard values may be applied in calculations. Generally, GHG Accounting Protocols and Standards can provide guidance on the tracking of progress on specific NAMA objectives. A summary of protocols and standards for determining baseline emissions and emissions reduction are listed in Annex 4. Evidence of current levels of emissions, possibly from the country's NC and BUR, is likely to be required at some stage of development of the NAMA.
- Projections of baseline emissions are subject to various factors, such as changing national and sectorial priorities; general economic development leading to economic advancement, access to finance, local capacity and so on. Indirect increases or decreases in GHG emissions must be considered, even if they are beyond the boundary of the NAMA.

KEY TOPICS:

- **Establishing the NAMA baseline scenario**
- **Challenges to establishing baseline emissions projections**
- **Emission estimates under the NAMA Scenario**
- **Evaluation of co-benefits**

The scope and boundary of the NAMA need to be clearly defined. Setting the boundary ensures that no activity is doubly counted in evaluations. Therefore, other mitigation activities such as CDM projects, GEF projects or other NAMAs, should be clearly distinct from the NAMA boundary. Ideally, actions already planned should be part of the baseline, but in the initial years of NAMA development, such distinctions may be difficult.

BOX 13: EXAMPLE FOR BASELINE SETTING AND PROJECTIONS FOR GHG REDUCTIONS – THE TRANSPORT DEMAND MANAGEMENT NAMA IN BEIJING

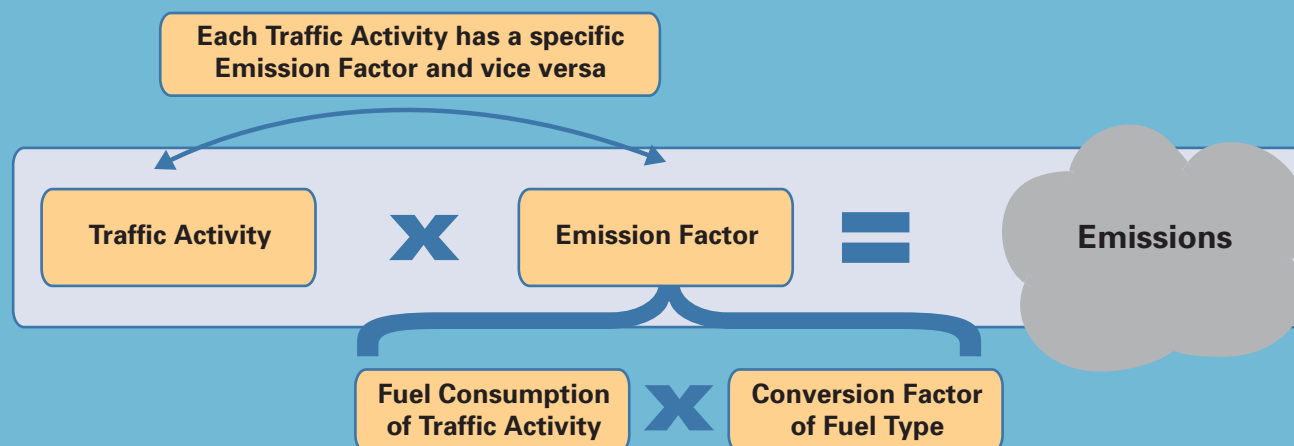
Basics on GHG Emission Calculation

GHG emissions in the transport sector may be calculated following either a bottom-up or a top-down approach – or these approaches may be combined, depending on availability of data.

The bottom-up approach derives emissions from travel activity, corresponding fuel consumption and conversion factors. Different travel activities, depending on parameters such as vehicle category and road gradient, have to be defined. Each trip has a specific fuel consumption that translates into a certain amount of emissions using IPCC or other documented conversion factors. This approach requires an extensive amount of data, but if followed, it allows for determining, for example, which particular trips account for the major share of emissions in a given area.

In 2004 in Beijing, a transport model representing travel demand for a typical weekday was developed with the PTV Vision transport planning software suite, using city-wide travel behaviour surveys from 2000 and 2005. The model was later recalibrated based on a comprehensive 2010 travel survey. Comprised of 1,911 traffic analysis zones, the model includes most types of roads (from minor arterials to major roads), more than 700 bus transit lines, and 8 subway lines. The application of the model follows traditional modelling algorithms and is separated in sequential, linear, and independent fashion into four elements: trip generation, trip distribution, modal split, and trip assignment. The first three elements define the demand model. This procedure, often called synthetic modelling, quantifies all movements in the study area. The fourth element is the supply side, defined by the public transport and highway networks. Assignment is the process by means of which travel demand is allocated to the networks to illustrate traffic and passenger flows on routes.

Applying the bottom-up approach in Beijing requires extensive data collection. As China has not released a national emission factor database, the European “Guidebook of Emission Factors for Road Transport” (HBEFA) approach was adopted, due to its advanced methodology and comparable driving cycles between China and Europe. The HBEFA provides emission factors of all current vehicle categories for a wide variety of traffic activities.



Data on traffic activity is also required. The amount of traffic – how many people travel through a certain part of the city at a certain time of the day, for example – can be derived from the transport model. However, specific traffic activities have to be analysed via GPS tracking. In this process, approximately 1,000 hours of real-world GPS-based second-by-second driving behaviour data is recorded. If traffic activities unique to Beijing can be identified, emission factors from the HBEFA have to be localised. As a last step, the GHG emission data, including Beijing-specific emission factors, will be integrated into the travel demand model.

Further information and details are available at [Transport Demand Management in Beijing](#).

In the energy sector, energy and GHG emissions modelling are often carried out in order to understand, plan and devise strategies based on analyses of resource use patterns, balancing of energy needs against demand, mapping of alternative energy solutions, and so on. Based on the outcome of such an energy model, it is possible to estimate the emission-level trajectories for different development scenarios at the country and sectorial levels. The International Atomic Energy Agency (IAEA) has developed an energy model known as MESSAGE³² (Model for Energy Supply System Alternatives and their General Environmental Impacts), which has been used for planning energy development in more than 80 countries. Other relevant models are MARKAL, EMP and HERMES. See the tools and standards in Annex 4.

In other sectors, or in the absence of energy and GHG emissions models, methodologies from the public sector may be used for BAU emissions estimates. Most countries are likely to resort to using IPCC default values, but obviously, specific relevant local emission factors and corresponding activity data should be used if available. As an alternative, methodologies approved for the CDM are useful instruments for estimating the baseline emissions, project emissions, leakage emissions and emissions reduction in the public sector. The major limitation of CDM methodologies is their focus on estimating baseline emissions and emissions reduction from a single project activity, which may not be directly applicable and appropriate for establishing the BAU scenario for all activities proposed under a NAMA. CDM methodologies can, however, serve as a basis by using their fundamental elements, particularly baseline and monitoring methodologies for CDM PoAs, revised to account for the implementation of multiple measure policies.

³² More information is available at [IAEA Tools and Methodologies for Energy System Planning and Nuclear Energy System Assessments](#).

Box 14 presents an example of quantifying baseline emissions for a NAMA in the power sector, determining the scope of the NAMA, its boundary and its technology base.

BOX 14: BASELINE SCENARIO FOR A NAMA IN THE POWER SECTOR

Key parameters for establishing the baseline scenario within the NAMA boundary for the power sector (e.g., the power grid or end users affected by the NAMA) typically include the following:

Sector	Power
Scope	Power sector (National / Regional / State / District)
Boundary	Country / Region / State / District
NAMA indicator	GHG emissions per unit of power produced (CO ₂ / kWh)
NAMA indicator reporting level	CO ₂ / kWh
Historical data	<ul style="list-style-type: none"> • GHG inventories in National Communications to UNFCCC • National data, especially from the energy sector, including relevant social and economic data • IEA data
Local default values	GHG emission factors for fossil fuels (if available)
Other sources for estimating GHG emissions	IPCC / ISO 14064 / GHG Protocol / CDM / GEF etc.
Parameters influencing BAU emissions projection	<ul style="list-style-type: none"> • GHG target • Regulatory environment • Policies promoting renewable energy and energy efficiency • Technology development and diffusion • Finance access – Green Climate Fund, World Bank, ADB, IADB, GEF, etc.

- Based on the historical and the current operating data of the power plants viz. commissioning year, technology, fuel type, fuel consumption, power generation etc., the carbon (CO₂) emission factor (EF) of the power grid and the baseline emissions can be calculated.
- The “Tool to calculate the emission factor for an electricity system”³³ developed for CDM is used widely for estimating the grid emission factor of electricity grids.
- For supply-side energy efficiency projects in the power sector, the baseline EF is estimated from the fossil fuel type used in the baseline and in the actions under the NAMA. If the NAMA is related to energy efficiency gains without any fuel switch, the fuel EF is the same for both scenarios, but the impact is different due to different efficiency levels.
- Local emission factors, or IPCC default values, or other emission factor sources can be used.

33 Table 8: Criteria and measurable indicators for co-benefits

Further Information:

The International Performance Measurement and Verification Protocol (IPMVP®) defines standard terms and suggests best practices for quantifying the results of energy efficiency investments and increasing investment in energy and water efficiency, demand management and renewable energy projects. The IPMVP was developed by a coalition of international organisations led by the United States Department of Energy. The Protocol has become the national measurement and verification standard in the United States and many other countries, and has been translated into ten languages. Information is available at [Evo](#).

7.2. CHALLENGES TO ESTABLISHING BASELINE EMISSIONS PROJECTIONS

Usually, the main challenge to establishing baseline emissions lies in the availability of data, which may not exist or be incomplete or outdated. Rectifying such shortcomings may require technical capacity building and/or national or international technical assistance. Building the data set should be seen in conjunction with the future demand for data acquisition and maintenance, ensuring that once data has been established for the baseline scenario, it can be accessed regularly as part of the MRV system.

Data should be aligned with the national GHG inventory, using the inventory as the data source if it is viable or, alternatively, adding more detail to the inventory by upgrading data acquisition as part of the NAMA. If there are no existing data, standards or methodologies, baseline emissions may be estimated using simple assumptions, as long as they are transparently documented and published. The following steps are useful for baseline establishment:

- Check the availability of models. For broader measures such as sector wide NAMAs, computational general equilibrium (CGE) models would be appropriate. Policies covering the energy sector are preferably evaluated by applying a dedicated energy model such as MARKAL. Policies aimed at changing household behaviour are preferably evaluated through randomised control trial. If no model seems to cover the effects of the NAMA, check whether a CDM methodology is available or if other approaches have been used by entities such as GEF. A NAMA with impacts in several areas may combine methodologies.
- If no specific methodology is available, apply a linear extrapolation of trends of key variables over a period of several years, ideally a decade. In case of inconsistency in a trend, identify the parameters that lead to trend inconsistencies and adjust the BAU projection if possible.
- If data availability is limited, identify the data needed and the relevant stakeholders who could provide it. Consider future data collection possibilities when establishing the baseline data and avoid complex data acquisition procedures that may challenge future measurement. (See Chapter 6 for more details) In situations in which there is a general absence of data or data acquisition systems, consider whether or not conservative estimates could work, or if a standardised baseline will help to replace the lack of concrete data.

Consistency in approach across NAMAs is essential, although variations in the level of detail should be allowed, as long as the boundaries are not challenged. Again, transparency is the key to ensuring consistency, particularly in relation to underlying assumptions, in order to prevent arbitrariness of NAMA GHG emissions-reduction calculations.

7.3. EMISSION ESTIMATES UNDER THE NAMA SCENARIO

Generally, the choice of a specific baseline approach and methodology also determines how emission reductions are calculated. The calculation of the emissions reduction resulting from the NAMA must be consistent with the underlying baseline calculations. Estimates of indirect emissions reduction (or increase) may be less straightforward and may remain as estimates in addition to the direct emissions reductions that were specifically calculated. Some measures have long time lags between their implementation and the effect of emissions reduction. Generally, the effects of potential leakage (mainly outside the boundary), rebound effects (mainly inside the boundary) and general equilibrium feedback should be considered and estimated, if possible. Box 15 provides some details about estimating emission reduction in Mexico.

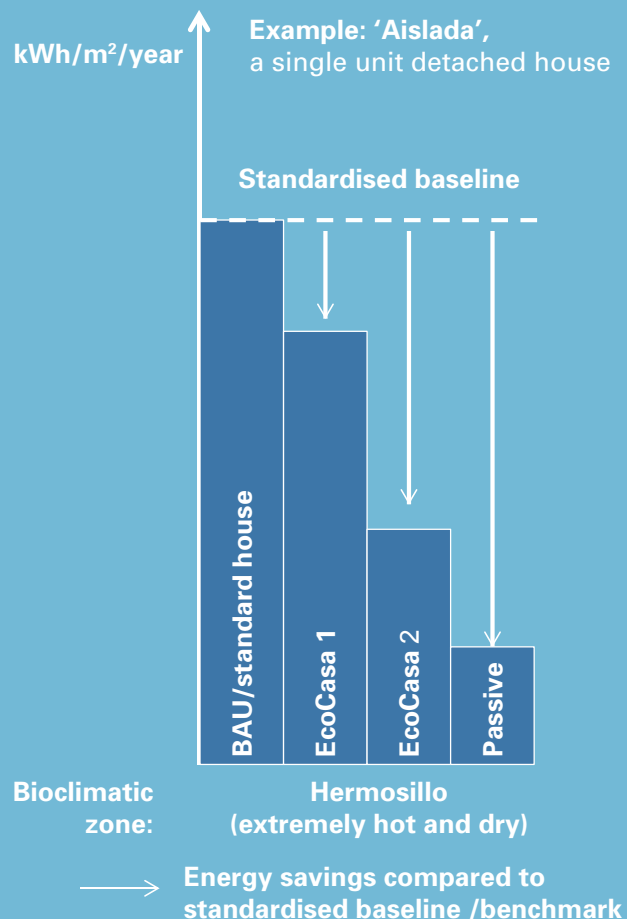
BOX 15: EXAMPLE OF EMISSION REDUCTION ESTIMATING UNDER THE MEXICAN SUSTAINABLE HOUSING NAMA

The main parameter to be measured is the annual energy consumption per square meter (kWh/m²/y) of different houses (baseline houses and NAMA houses). Using the corresponding emission factor, these parameters result in the BAU emissions and corresponding emission reductions, when comparing the baseline with the NAMA.

Monitoring of NAMA activities

- Using appropriate elements of CDM methodologies for building sector
- Based on metering sample group of baseline and NAMA houses
- Energy metering (Power/gas)
- Possible use of survey data sheets for simplification
- Differentiated by building type, size and climate zone

→ 24 standardised baselines will be required and 96 sampling groups to be defined



Source: Point Carbon/PCC for GIZ, 2012

7.4. EVALUATION OF CO-BENEFITS

NAMAs may result in, and are likely to be driven by, many important societal benefits other than GHG reduction. Referred to as co-benefits, these are benefits resulting from a NAMA that are in addition to the GHG emissions reduction. Co-benefits generally pertain to the substance of the initiative, such as energy access, water conservation, improved traffic flows or more efficient farming. Some co-benefits such as positive health impacts, reduced pollution or job creation are indirect. Many of these effects may be labelled as sustainable development benefits.

When developing the evaluation framework for co-benefits, inspiration may be found in the CDM sustainable development tool.³⁴ A version for NAMAs is under development by the UNEP Risø Centre. The Designated National Authorities (DNA) for CDM have routinely considered sustainable development benefits for CDM projects and may be consulted as well with regards to evaluating co-benefits. Criteria and measurable indicators for potential co-benefits in NAMAs are shown in Table 8.

Table 8: Criteria and measurable indicators for co-benefits

Criteria	Indicator
Economic	
Job creation	Created employment Availability of qualified, highly efficient, productive national manpower
Energy security	Diversification and conservation of energy sources <ul style="list-style-type: none"> • More efficient use of fossil fuels • RE utilisation rate Rural electrification
Social	
Improvement of quality of life	Health improvements Direct or indirect increase in availability of resources to local population <ul style="list-style-type: none"> • Distribution of costs and benefits • Income distribution • Local participation Enhancement of health conditions and safety standards Contribution to gender equality
Environment	
Conservation of natural resources and land use	Water supply and demand Direct or indirect increase in water availability Net impact on biosphere/biodiversity Contribution to avoid further desertification/deforestation Conservation and/or expansion of agricultural land or increased availability of agricultural inputs
Reduction of local/regional environmental impacts	Air quality: local air pollution, particulates Water quality and quantity: irrigation, drinking water, sea water Soil: exposure of soil to pollutants Waste: solid waste generation and disposal Other pollutants

34 The draft tool presented at EB 69 can be found [here](#).

Sustainable development criteria and indicators can also be found in national development priorities that have been established in development plans and sector strategies, or in national responses to international initiatives such as Agenda 21 and the Millennium Development Goals (MDGs).

Further Information:

- Information on co-benefit analysis is available at a variety of sources, including this article: **“Analysis of co-benefits of air pollution, noise and climate-change policies on a local scale.”**
- See the UN’s **“Indicators of Sustainable Development: Guidelines and Methodologies.”**
- Useful information can be obtained from the Gold Standard Foundation’s **“Guidance on Sustainability Assessment.”**

NAMA Governance

Institutional aspects of NAMAs fall into two categories. One concerns the development of NAMAs; the other their operation and maintenance. There is likely to be significant overlap between the two, and this is indeed desirable. It is the prerogative of any NAMA host country to organise its NAMA development and implementation as it sees fit. There are no regulations that determine the identity of responsible institutions under a NAMA, except that submission of NAMAs to the UNFCCC Registry must be undertaken by a national government entity. Therefore, any advice offered must be generic and limited and focus more on functions rather than organisational structuring. Implementation arrangements, however, including the institutional set-up, are likely to be crucial to the success of the NAMA and therefore to potential financiers' interest in participating, as well.

The roles, responsibilities and process of interaction of the stakeholders involved in all aspects and at all phases of the NAMA should be clearly defined. The description of the organisational structure of the NAMA should consider the following aspects:

- alignment with national long-term development planning and domestic policy implementation;
- governing structure, the entities involved and their respective roles and responsibilities;
- financing structure; and
- key institutions and entities responsible for administering and enforcing any included regulatory initiatives.

8.1. INSTITUTIONAL ARRANGEMENTS FOR NAMA CONCEPTUALISATION AND DEVELOPMENT

Obviously, the resource bases of potential NAMA host countries vary considerably, and this determines the resources that can be devoted to NAMA development. Resource-constrained countries may have to resort to engaging donor-funded advisers to expend the often considerable amount of effort needed for the development of concepts, implementation modalities and financing models that go into a NAMA. While a lot of the work can be outsourced, the sense of national ownership to the objectives supported by the NAMA cannot. The devotion of time and attention on the part of policymakers is crucial. A mandate to a Ministerial department that it may develop any NAMA for which it secures development financing does

KEY TOPICS:

- **Institutional arrangements for NAMA conceptualisation and development**
- **Institutional arrangements for NAMA implementation**
- **Organising data collection**

not constitute “ownership” by the Ministry (or other key stakeholders) and will not necessarily produce a successful NAMA. A clearer sign of ownership is a mandate to a line ministry to develop a catalogue of ideas for reducing emissions by x% to be presented to the minister within a given period of time.

Any NAMA developer, including those who are involved in donor funding, should ask themselves whether or not the NAMA they are considering has sufficient political backing to give it a chance of materialising, and if not, what can be done to secure such backing. No one benefits from NAMAs that remain concepts on a shelf. The organisation of the NAMA development work may include any amount of external assistance, but the national priority and attention it deserves can only be achieved by engaging national stakeholders. If resources are constrained, they should be devoted to such engagement efforts.

Institutional involvement in NAMA development is likely to become broad-based and inclusive. Whether NAMAs are developed in response to general top-down prioritisation of actions in certain areas or not, current experience is that NAMAs are developed primarily by stakeholders who may be involved in their implementation. In most cases NAMAs have their foundations in national policies and regulations, developed by ministries and agencies and implemented through national or local institutions. It is unlikely that a central national “NAMA formulation unit” could be efficient in handling the conceptualisation, stakeholder consultation, formulation and prioritisation of NAMA components, unless it is closely linked with the line institutions that are already central to policy formulation and implementation in a given area of NAMA development.

On the other hand, at a more aggregate level, top-down structures may be very efficient in the early stages of NAMA identification and prioritisation, due to the dedicated government involvement that by rights would exist. NAMA governance may be strengthened through institutional arrangements beyond the traditional jurisdictions of the Ministry of Environment or other relevant line ministries, engaging influential decision makers in the Cabinet and in the Ministries of Economy, Finance, Energy and Planning. Experience from the Centre for Clean Air Policy’s Mitigation Action Implementation Network (MAIN) programme in Asia and Latin America shows that host countries that effectively mobilise multiple ministries in the design of NAMAs and inspire line ministries and agencies to take leadership roles in NAMAs in their sectors, are leading in NAMA development.³⁵ Box 16 provides some valuable insights on experiences with NAMA governance in Indonesia.

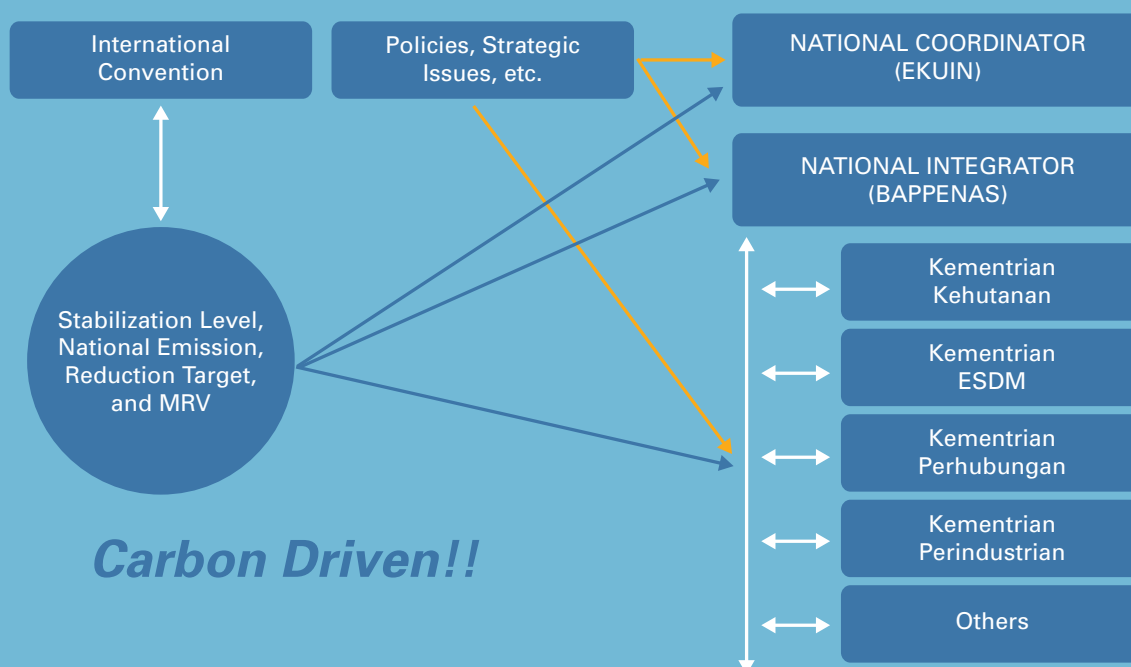
35 Helme, N. in NEFCO (2012).

BOX 16: EXAMPLE OF NAMA IMPLEMENTATION AND GOVERNANCE FROM INDONESIA

Under the National Action Plan on Greenhouse Gas Emissions Reduction (RAN-GRK) in Indonesia, the government intends to achieve its national GHG emission reduction target through the implementation of NAMAs. Due to the close links between development planning and emissions reduction in Indonesia, the two objectives are integrated within a multi-sector approach encompassing several line-ministries. Because the formulation and implementation of NAMAs is likely to involve government at national, regional, and provincial levels, the government established a NAMA framework, accepted by all government and non-government stakeholders, to ensure consistency and prevent contradictions.

Within the NAMA framework, the government of Indonesia can identify the most appropriate policies and measures and evaluate associated impacts and risks for livelihoods, economy and the environment. This takes place through a central government institution in charge of coordination and communication related to planning and implementation of national mitigation actions. This is to ensure complete, sustainable implementation of NAMAs, strong ownership by government at all levels, and improved communication and cooperation among ministries, departments and agencies across all levels of government.

Consistent with this national integration of processes between development and emissions reduction, the National Development Planning Agency (BAPPENAS) acts as the national integrator for NAMAs between different ministries (Kementrian) and stakeholders (see figure below), while the Economic Coordination Ministry (EKUIN) acts as the national coordinator. BAPPENAS determines a NAMA priority list and aggregated mitigation potentials in response to the national emission reduction target (RAN-GRK).



BAPPENAS faces a number of challenges in the implementation of RAN-GRK. The absence of a national BAU emissions baseline is a challenge to measuring the actual reduction. In turn, establishing the baseline is difficult due to the absence of detailed and accurate sectorial data. Both of these deficits are a challenge to the ability of RAN-GRK to set national and sectorial targets. Within the NAMA context, a MRV system that includes data collection mechanisms will have to be established which addresses these data gaps.

Source: GIZ, BAPPENAS (2012)

As mentioned above, however, there may be evidence that effective NAMA development benefits from an initial top-down approach, and further, that such processes may benefit from a small supportive NAMA committee or office with tasks such as general guidance for the NAMA development process, administering NAMA registries, collecting and compiling mitigation activities, keeping abreast of international development in the NAMA concept and financing and mainstreaming NAMAs into all relevant national development policies. The UNEP Risø Centre has proposed a “Central Coordinating Unit”³⁶ to take care of these activities, as well as data collection and reporting. The placement of such functions, however, should be considered on the basis of national circumstances and priorities.

8.2. INSTITUTIONAL ARRANGEMENTS FOR NAMA IMPLEMENTATION

NAMAs are often, or at least ideally, comprehensive programmes and/or policies; hence a number of institutions and stakeholders will be involved in their implementation. The institutions engaged in NAMA implementation, however, will generally retain their current roles as policy developers and implementers, the difference being new or additional reporting. To illustrate:

- If the NAMA host country is engaging with donors for funding, such funds are likely to be channelled through existing avenues of donor funding, most often the Ministry of Finance, and flow from there to the line ministry or authority responsible for the NAMA.
- If the NAMA requires development of physical infrastructure, contracting takes place through existing and well-known tender procedures.
- If private sector entities are investing on the basis of new regulations, such investments are undertaken outside the budget of the NAMA and may be recorded, but the business and financial structuring of such private sector responses is not the responsibility of the NAMA governance structure.
- If the NAMA is designed to promote behavioural changes of businesses and individuals, these fall into the domain of the NAMA, and changes in behaviour are to be recorded through the MRV system, but they remain third parties to the NAMA and are not held accountable for any behaviour that is not in keeping with NAMA objectives.

36 UNEP Risø Centre (2012).

It is a purpose unto itself to align the NAMA with domestic policies and processes and most functions, therefore, should be taken care of through the existing administrative system. Eventually, identifying the most appropriate governance structure may involve a review of the existing legislative and administrative framework to see how NAMA objectives can best be supported. If this is done, it may be discovered – either through a barrier analysis or because a focus of the NAMA is to establish new administrative functions – that the new NAMA functions are best placed within a new institutional setting. What must be avoided is a situation in which institution building for NAMAs becomes in itself a barrier to NAMA development and implementation.

The responsibility and tasks of a NAMA approving office or programme unit could be assigned to one central entity for all NAMA activities in the country or could be organised in a sector-specific manner, with relevant line Ministries or agencies acting as NAMA coordinators for their respective sectors. Regardless of who takes the lead, NAMAs – as with all programmes and policies – will require good coordination between a wide number of stakeholders, including ministries, private actors and civil society. Box 17 offers insights on institutional frameworks for NAMAs from a number of countries.

BOX 17: UNDP LECB INSIGHTS ON INSTITUTIONAL FRAMEWORKS FOR NAMAS

Examples for established steering structures for NAMAs exist in some of the LECB Programme countries. For instance, in Bhutan, the National Environment Commission, chaired by the Prime Minister, serves as the National Climate-Change Committee, and the Multi-sectorial Technical Committee on Climate Change (MSTCCC) acts as the technical body for coordination. The institutional frameworks described for NAMAs in LECB Programme countries are diverse. Tanzania, Peru, and Costa Rica, for instance, have no designated NAMA authorities in place, but Costa Rica has an inter-ministerial climate-change committee which could be instrumental in coordinating NAMAs. Peru supports a decentralised approach with stronger private-sector participation. Lebanon is currently establishing a dedicated NAMA development process and recommends that any guidelines on modalities of approving NAMAs and the roles and responsibilities (and coordination mechanisms) of the different national entities be clarified to the extent possible. Morocco is considering expanding the CDM DNA's tasks to incorporate NAMAs, highlighting that for the up-scaling of PoAs to NAMAs a bottom-up approach would be appropriate. In Chile, the Office of Climate Change of the Ministry of Environment currently coordinates NAMA development and communication on NAMAs with the UNFCCC, but sectorial ministries are responsible for the implementation and MRV of NAMAs, with support from the Ministry of Environment and, often, international financial and technical support. Colombia is developing processes and structures under its Climate Change National System. Vietnam sees centralised NAMA governance as a key point for successful NAMA development.

Mexico has established a NAMA Office under the Ministry of Environment and Natural Resources (SEMARNAT) that serves as the central steering entity for all NAMA activities in the country. The NAMA Office will coordinate activities and promote the development of future NAMAs.

Source: GIZ, 2011

8.3. ORGANISING DATA COLLECTION

The most pertinent organisational issue in NAMA implementation may be related to the MRV system, depending on the current state of a given country's national data-collection systems. Most often, data-collection systems vary significantly from sector to sector and are influenced primarily by the channels through which data will have to be collected. For instance, energy data may be more easily accessible than waste data because, for the most part, the former can be centrally recorded, while the latter is collected at the local level and would have to be organised in a manner that would ensure consistency and allow it to be centrally stored.

Although the management of MRV data might be complex and comprehensive, depending on the sector and measures foreseen, it is advisable not to establish burdensome organisational structures that stand the risk of cut-backs if resources become scarce. Only rarely, if ever, will such structures be permanently grant funded by donors. Instead, if compromises must be made, lean structures should be considered with realistic assignments for collection and recording of data that is easily accessible rather than exact and precise. If a Central Coordinating Unit is established as part of a national NAMA strategy the recording should ideally take place there.

Data collection may also practically be aligned with national efforts to organise information about NAMAs and record NAMA proposals. Domestic NAMA registries should ideally be compatible with the UNFCCC NAMA Registry. A national registry should record all monitoring reports for NAMAs and link to BURs.

Annex 1. Toolbox: Guidance, Information Sources and Tools

Theme	Document category	Document title, author, and description	Web link
Green growth	Guidance	Towards a green economy: Pathways to sustainable development and poverty eradication (UNEP, 2011). Discusses economic and social case for investing 2% of global GDP in greening 10 sectors of economy in order to shift development and unleash public and private capital flows onto a low carbon, resource-efficient path.	http://www.unep.org/greeneconomy/Portals/88/documents/ger/ger_final_dec_2011/Green%20EconomyReport_Final_Dec2011.pdf
Low Emissions Development Strategies (LEDS)	Guidance	Low Carbon Development Strategies - A Primer on Framing Nationally Appropriate Mitigation Actions (NAMAs) in Developing Countries (UNEP, 2011). This primer presents basic principles and proposes possible components of a national LEDS and NAMA preparation process, as well as a template for NAMA articulation.	http://www.uneprisoe.org/~media/Sites/Uneprisoe/Publications%20%28Pdfs%29/LowCarbonDevelopmentStrategies_NAMAprimer.ashx
	Guidance	Preparing Low-Emission Climate-Resilient Development Strategies (Executive Summary) (UNDP, 2011). This document introduces a five-step approach to the development of low-emission climate-resilient development strategies (LECRDS), based on the experience and information generated by UNDP's work in more than 140 countries over the past decade. It is also serves as the introduction to a series of supporting manuals and guidebooks, including Charting a New Carbon Route to Development.	http://www.undp.org/content/undp/en/home/ourwork/environmentandenergy/focus_areas/climate_strategies/
	Guidance	How-to Guide: Low-emission Development Strategies and Nationally Appropriate Mitigation Actions, Eastern Europe and CIS (UNDP, 2010). This handbook provides a step-wise approach to help policy makers and technical experts determine opportunities for low-emission development and design national LEDS or NAMAs in their respective countries. Available in English and Russian.	http://sustainabledevelopment.un.org/content/documents/956041_How%20to%20guide-%20low%20emission%20development%20strategies.pdf
	Country examples	LEDS and low-carbon/climate change strategies from Bangladesh, Brazil, China, Guyana, India, Japan, Indonesia, Mexico, Singapore, South Africa, Thailand, US and UK.	http://ledsgp.org/activities/case-studies
	Information source/ country examples	Planning for a Low Carbon Future: Lessons Learned from Seven Country Studies (ESMAP, 2012). This report distils the lessons learned and is intended as a practical guide for government officials, practitioners, and development agencies involved in low carbon development planning.	http://www.esmap.org/sites/esmap.org/files/ESMAP_LCD-Lessons-Learned_2012_0.pdf

Theme	Document category	Document title, author, and description	Web link
Nationally Appropriate Mitigation Actions (NAMAs)	Guidance - general	Nationally appropriate mitigation actions: Key Issues for Consideration (UNDP, 2009). Issues for consideration when identifying NAMAs	http://www.mitigationpartnership.net/sites/default/files/brm_2009_nationally_appropriate_mitigation_actions_web1.pdf
	Guidance - general	Nationally Appropriate Mitigation Actions - A Technical Assistance Sourcebook for Practitioners (GIZ, 2012). This sourcebook compiles and reviews GIZ's experience in building capacity for mitigation action in Asia and the rest of the world.	http://www.mitigationpartnership.net/giz-2012-nationally-appropriate-mitigation-actions-%E2%80%93-technical-assistance-sourcebook-practitioners
	Guidance - sectoral	Handbook on Renewable Energy Nationally Appropriate Mitigation Actions (NAMAs) for Policy Makers and Project Developers (IRENA, 2012). Includes case studies from Peru, Kenya and Grenada, demonstrating how policies which promote renewable energy can be used in the NAMA framework.	http://www.irena.org/DocumentDownloads/Publications/Handbook RE NAMAs.pdf
	Guidance - sectoral	Navigating Transport NAMAs v2.0 (GIZ, 2012). Considers policy identification, MRV, financing, and co-benefits for transport NAMAs with case studies from Colombia, Indonesia, South Africa (in prep for Mexico, Costa Rica, and Chile).	http://www.transferproject.org/index.php/hb
Identification of NAMA options	Information source/ country examples	Compilation of information on nationally appropriate mitigation actions to be implemented by developing country Parties (UNFCCC, 2011). Compilation of the information on all NAMAs communicated by developing country Parties to date (i.e., all those contained in documents FCCC/AWGLCA/2011/INF.1 and FCCC/AWGLCA/2012/MISC.2 and Add.1 and those communicated by six developing country Parties, which have not previously been included in an official UNFCCC document.)	http://unfccc.int/resource/docs/2013/sbi/eng/inf12r02.pdf
	Information source/ country examples	UNFCCC NAMA Registry . Developed at request of Parties to record nationally appropriate mitigation actions (NAMAs) seeking international support, to facilitate the matching of finance, technology and capacity-building support with these actions, and to recognize other NAMAs.	http://www4.unfccc.int/sites/nama/SitePages/Home.aspx
	Information source/ country examples	Ecofys NAMA database . Collection of publically available information on NAMAs and related activities. Also includes two NAMA templates.	http://www.nama-database.org/index.php/Main_Page

Theme	Document category	Document title, author, and description	Web link
	Information source/ country examples	National communications to the UNFCCC , in particular sections on mitigation assessments. (In the future, Biennial Update Reports and national inventory reports could also be valuable sources of information).	http://unfccc.int/national_reports/non-annex_i_natcom/submitted_natcom/items/653.php See also 6th compilation and synthesis of INCs: http://unfccc.int/resource/docs/2005/sbi/eng/18a02.pdf
	Information source/ country examples	Technology needs assessments (TNAs) were designed to assist developing countries in identifying and analysing priority technology needs, which can be the basis for a portfolio of environmentally sustainable technology projects and programmes. This site contains the Handbook for Conducting Technology Needs Assessments for Climate Change (UNDP, 2010), country reports and a UNFCCC analysis and synthesis report.	http://unfccc.int/ttclear/templates/render cms/page?TNA_home See also: http://tech-action.org/
	Information source	National documents , including: <ul style="list-style-type: none"> • National development strategies such as Poverty Reduction Strategies • National climate change strategies/policies • Relevant sector specific policies and/or strategies, for example national strategic energy plans, transport sector policies, agriculture and forestry sector policies, national investment policies, etc. 	Country specific
NAMA prioritisation	Guidance	Developing Financeable NAMAs: A Practitioner's Guidebook (IISD, 2013). The guidebook offers a Quick Screen methodology to identify NAMA opportunities with potential for climate financing, and a Deep Screen methodology to analyze and determine the most appropriate development options to meet country-specific needs.	http://www.iisd.org/publications/pub.aspx?pno=2784
	Guidance	Multi-Criteria Analysis for Climate Change . MCA4climate is a major new UNEP initiative providing practical assistance to governments in preparing their climate-change mitigation and adaptation strategies.	http://www.mca4climate.info/report-and-guidance/mca4-climate-report/
NAMA data sources	Information source	Statistical yearbooks National statistics reports for information about population, energy, and other factors	Country specific
	Information source	Guidelines for National Greenhouse Gas Inventories (IPCC 1996, 2006) contain, among other valuable information, default values for emissions reduction calculations.	http://www.ipcc-nggip.iges.or.jp/public/gl/invs6a.html http://www.ipcc-nggip.iges.or.jp/public/2006gl/index.html
	Information source	Global Forest Resource Assessment (FRA) Forestry information, including values for many individual countries	http://www.fao.org/forestry/fra/en/

Theme	Document category	Document title, author, and description	Web link
	Information source	IRENA Studies on Renewable Energy Potential. More than 10,000 references on renewable energy potential, searchable by country.	https://www.irena.org/potential_studies/index.aspx
	Information source	Climate Tech Wiki. Interactive database offers detailed information on mitigation and adaptation technologies. Collaborative effort of UNDP, UNEP, Renewable Energy & Energy Efficiency Partnership, UNEP Risoe Centre on Energy, Climate and Sustainable Development, NL Agency of the Dutch Ministry of Economic Affairs, Energy Research Centre of the Netherlands and Joint Implementation Network.	http://climatetechwiki.org/
NAMA costing	Country examples	Investment & financial flows assessments. Good source of information for national costs of mitigation actions in a variety of sectors obtained between 2008-11 through a UNDP project that developed a methodology for assessments of investment and financial flows.	http://www.undpcc.org/en/financial-analysis/results
	Information source	Operational Guidelines for the Application of the Incremental Cost Principle. Information and guidance on incremental cost from the Global Environment Facility.	http://www.thegef.org/gef/policy/incremental_costs
	Information source/ country examples	IRENA Renewable Energy Cost database and country profiles. Brief yet comprehensive and up-to-date picture of the situation of renewable energy that includes energy supply, electrical capacity, energy access, policies, targets, investment climate, projects and endowment in renewable energy resources.	https://www.irena.org/menu/index.aspx?mnu=cat&PriMenuID=47&CatID=99
Climate finance	Information source	Climate Finance Options portal. Website hosted by UNDP and the World Bank that offers cutting edge information on climate finance and support and has a search engine for individual support enquiries.	http://climatefinanceoptions.org/cfo/index.php
	Guidance	Catalysing Climate Finance – A Guidebook on Policy and Financing Options to Support Green, Low-Emission and Climate-Resilient Development (UNDP, 2011). This guidebook is offered as a primer to countries to enable them to better assess the level and nature of assistance they will require to catalyse climate capital based on their unique set of national, regional and local circumstances. Available in English, French, Spanish and Russian.	http://www.undp.org/content/undp/en/home/librarypage/environment-energy/low_emission_climate-resilientdevelopment/catalyzing-climate-finance/

Theme	Document category	Document title, author, and description	Web link
	Guidance	Blending Climate Finance through National Climate Funds (UNDP, 2011). This guidebook presents a process for designing and establishing an NCF and provides a simple, robust and transparent method for meaningful stakeholder engagement. In this way, countries are better equipped to manage climate finance and achieve results. Available in English, French, and Spanish.	http://www.undp.org/content/undp/en/home/librarypage/environment-energy/low_emission_climate-resilientdevelopment/blending_climatefinance-through-national-climatefunds/
Measuring, Reporting, and Verification (MRV)	Guidance	Design Options for International Assessment and Review (IAR) and International Consultations and Analysis (ICA) (OECD, 2011). Comprehensive overview of objectives, scope, frequency, outputs, and process of ICA and IAR as an operational implementation part of the MRV-process. This process is designed to serve the countries to manage their own data in order to systematically identify technology-, capacity-, and financing gaps, i.e. needs for international support.	http://www.oecd.org/env/cc/49101052.pdf
	Guidance	Measuring, Reporting, Verifying: A Primer on MRV for Nationally Appropriate Mitigation Actions (UNEP-Risoe, 2011). Brief introduction to MRV developed for UNDP's Carbon Policy 2012 project that includes lessons learned from current MRV frameworks and considers issues around baselines, quantitative and qualitative metrics, and boundary issues.	http://www.uneprisoe.org/~media/Sites/UnepRisoe/Publications%20%28Pdfs%29/UNEP%20Ris%C3%B8%20MRV%20NAMA%20primer.ashx
	Guidance	MRV for Low Carbon Development. Learning from experience in Asia (IGES, 2012). The report provides lessons and experiences obtained in Asia, through a variety of case studies, for the design and implementation of effective MRV systems.	http://pub.iges.or.jp/modules/envirolib/upload/4280/attach/MRVPolicyReport_ENG_web.pdf
	Guidance/ country examples	Climate Public Expenditure and Institutional Review (CPEIR) . A potential tool for MRV of finance, CPEIRs review current climate expenditures from domestic and external sources of finance and identify ways in which climate related expenditures can be tracked through time. The methodology was first tested in Nepal in 2011 and later in Bangladesh, Thailand, Samoa, Cambodia, Indonesia, Timor-Leste and Viet Nam.	http://www.aideffective-ness.org/CPEIR
	Information Source	Elements and Options for National MRV Systems” (International Partnership on Mitigation and MRV, 2013) . Summarises key findings from the Partnership's Autumn School on 'MRV – today, tomorrow and the future', which took place in October 2012 in Germany, and provides additional know-how and technical guidance on the design and setup of domestic MRV systems.	http://mitigation-partnership.net/international-partnership-mitigation-and-mrv-2013-knowledge-product-elements-and-options-national-mrv

Theme	Document category	Document title, author, and description	Web link
Stakeholder engagement	Guidance	Multi-Stakeholder Decision-Making (UNDP, 2012). This guidebook steers readers through constructing an adaptable and flexible multi-level, multi-sector, multi-stakeholder governance framework, which is an essential tool for governments, practitioners, and concerned citizens to successfully develop and negotiate green, low-emission and climate-resilient development strategies.	http://www.undp.org/content/undp/en/home/librarypage/environment-energy/low_emission_climate-resilientdevelopment/MultiStakeholder.html
	Guidance	Stakeholder Analysis (Overseas Development Institute, 2009). Guides users through a stakeholder analysis approach.	http://www.odi.org.uk/resources/details.asp?id=5257&title=stakeholder-analysis
	Guidance	Stakeholder Engagement: A Good Practice Handbook for Companies Doing Business in Emerging Markets (IFC, 2007). Key concepts and principles of stakeholder engagement from a business perspective, including the practices that are known to work and the tools to support the delivery of effective stakeholder engagement plan. Available in multiple languages.	http://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/ifc+sustainability/publications/publications_handbook_stakeholderengagement/wci_1319577185063
	Guidance	Stakeholder Engagement Standard 2011. Guidance developed by the non-profit organisation Accountability that applies to all types of stakeholder engagement processes.	http://www.accountability.org/images/content/5/4/542/AA1000S-ES%202010%20PRINT.pdf
Sustainable development indicators	Guidance	Indicators of Sustainable Development: Guidelines and Methodologies (UN, 2007). Presents the third set of indicators of sustainable development and provides suggestions on how to adapt them to national conditions and priorities.	http://www.un.org/esa/sustdev/natlinfo/indicators/guidelines.pdf
	Guidance	Guidance on Sustainability Assessment (CDM Gold Standard, 2009). Annex on indicators from Toolkit that guides project proponents to successfully implement high quality mitigation projects that also make measurable positive impacts on sustainable development.	http://www.cdmgold-standard.org/wp-content/uploads/2011/10/Annex_I.pdf

Tools

Theme	Description	Web link
Marginal Abatement Cost Curves	ESMAP MACTool is a software tool which provides a way to build marginal abatement cost curves and calculate break-even carbon prices. It has a user-friendly interface, which guides the user through a simple data entry process, from which it automatically generates output. A beta version is currently available.	http://esmap.org/MACTool
GHG emission database	The World Resources Institute (WRI) and World Business Council for Sustainable Development (WBCSD) Greenhouse Gas Protocol; also includes registries with company inventories.	http://www.ghgprotocol.org/
Carbon market methodologies	Besides those of the CDM, various voluntary standards and methodologies have evolved, including Gold Standard, Verified Carbon Standard (VCS), The Climate Action Reserve and others.	http://cdm.unfccc.int/methodologies/index.html http://www.cdmgoldstandard.org/ http://www.v-c-s.org/ http://www.climateactionreserve.org/
Investment & financial flows methodology	This 2009 UNDP methodology provides a step-by-step approach to costing mitigation measures within BAU and mitigation scenarios in a way that is fully scaleable from the project to sectoral level. Includes sector-specific guidance. Available in, French, Spanish and Russian.	http://www.undpcc.org/en/financial-analysis/methodology
LEDS	Step-by-step approach to designing a LEDS at the US Department of Energy LEDS website.	http://en.openei.org/wiki/Gateway:Low Emission Development Strategies
Derisking Renewable Energy Investments	This report (UNDP, 2013) describes an innovative framework to support policymakers in quantitatively comparing the impact of different public instrument packages to scale-up renewable energy in developing countries. The report presents findings from case studies in four illustrative countries, and draws on these results to discuss possible directions for enhancing public interventions to promote renewable energy investment. The framework is accompanied by a financial tool for policymakers in Microsoft Excel.	http://www.undp.org/content/undp/en/home/librarypage/environment-energy/low_emission_climate_resilient_development/derisking-renewable-energy-investment/
NAMA Design	The NAMA-Tool, developed by GIZ provides developers and implementers of NAMAs with brief step-by-step instructions on how to develop a NAMA. The tool navigates users to the relevant information, knowledge, instruments, and publications available. The process is structured into ten steps. The 10-step approach is designed to supply users with more data and accessible instruments for certain aspects of the NAMA development.	http://mitigationpartnership.net/nama-tool-steps-moving-nama-idea-towards-implementation

Networks

Title	Description	Web link
NAMA Partnership	<p>UNFCCC partnership created to share best practices and knowledge that will aid in the preparation and implementation of NAMAs with the help of three areas of work:</p> <ul style="list-style-type: none"> • NAMAs in the context of national development • Preparation and implementation of individual NAMAs in different sectors or technologies • Financing 	www.namapartnership.org
International Partnership on Mitigation and MRV	<p>In the framework of the Petersberg Climate Dialogue in May 2010 in Bonn/Germany, the governments of South Africa, South Korea and Germany launched the International Partnership on Mitigation and MRV. The overall aim of the Partnership is to support a practical exchange on mitigation-related activities and MRV between developing and developed countries in order to help close the global ambition gap.</p>	http://www.mitigationpartnership.net/
LEDs Global Partnership	<p>The Low Emissions Development Strategies (LEDs) Global Partnership was founded to advance climate-resilient low emission development through coordination, information exchange, and cooperation among programs and countries working to advance low emissions growth. Launched in early 2011, the partnership currently brings together 113 governmental and international institutions through a series of regional and thematic platforms.</p>	http://ledsgp.org/home

Annex 2. Case Studies

Based on currently available information, these case studies briefly summarise real-world experiences from developing countries

Case Study 1: Chile expanding self-supply renewable energy systems (SSRES)	
Implementation status	Concept Phase
Priority sector	Energy supply
Host country / city / project boundary	Chile
Coordinating/managing entity	Chile's Renewable Energy Centre (Centro de Energías Renovables), a public institution that promotes and facilitates conditions for establishing non-conventional renewable energy in Chile.
Background, design and measures	<p>The NAMA will address technical and financial barriers to small-scale renewable energy systems for self-supply in industrial, agricultural and commercial sectors. The NAMA will achieve these objectives through a comprehensive programme that will simultaneously address technical and financial barriers to small-scale renewable energy deployment. The components of the NAMA are:</p> <ol style="list-style-type: none"> 1. Financial support through pre-investment grants and a fund for renewable energy investments. 2. Technical support through training and capacity building as well as establishing a technical help desk. 3. Outreach and Awareness activities.
Technologies	Bioenergy, geothermal energy, hydropower, solar energy, wind energy, ocean energy
MRV approach	The CME is developing an MRV platform. The first step in the MRV process for an installation is to complete a standardised baseline calculation sheet according to the type of project being undertaken. These worksheets would be published by the CER in advance and made available in an easy-to-use tool such as MS Excel. The tool would estimate the emission reduction potential of a project and calculate emission factors for a reference and a mitigation scenario.
Baseline / baseline scenario	To be defined by Renewable Energy Centre
Impact, e.g. emission reduction (estimated/realised)	The NAMA seeks reductions of between 0.4 and 1.70 MtCO ₂ e per year.

Case Study 1: Chile expanding self-supply renewable energy systems (SSRES)

Financing	<p>USD 60 million (Estimated full cost of implementation);</p> <p>USD 30 million (Estimated incremental cost of implementation);</p> <p>USD 15 million (Amount of financial support required from: Grant, Loan, Carbon Finance), which includes an amount of USD 1.5 million for capacity building.</p>
Lesson learned	To pass legislation, the focus must be on economic developments and sustainable development benefits rather than GHG reductions.
Further reading	http://unfccc.int/files/cooperation_support/nama/application/pdf/nama-seeking-support-for-implementation-re-chile-dic-2012.pdf

Case Study 2: Indonesia sustainable urban transport initiative

Implementation status	Concept Phase
Priority sector	Transport and infrastructure
Host country / city / project boundary	Indonesia
Coordinating/managing entity	Ministry of Transportation, Indonesia
Background, design and measures	<p>The pilot phase will start with the implementation of low-carbon mobility plans in three cities (Medan, Manado, Batam) as well as supporting activities at the national level that seek to upscale the policies of the pilot phase to more Indonesian cities. The NAMA covers the following activities:</p> <p>At the national level, development is underway of a policy framework for sustainable, low-carbon urban transport, comprising a regulatory framework, co-financing of local measures, capacity building, practical guidelines for local planning, and overall MRV of the actions.</p> <p>At the local or provincial level, there will be development, implementation and MRV of comprehensive urban low-carbon mobility plans.</p>
Technologies	Energy efficiency, cleaner fuels, other transport policies & measures
MRV approach	The MRV system is still under development. However, some relevant indicators for this NAMA and its MRV are: quality, capacity and accessibility of public transport (e.g. ridership, travel speed, information, network coverage, level of service), quality of walking and cycling facilities (km of high-quality bicycle lanes, modal share, parking management, number of on-street/off-street parking spots, regulation, enforcement), emissions per vehicle and kilometre.
Baseline / baseline scenario	This baseline calculation is a top-down calculation using national transport statistics and development prognosis (National Mitigation Action Plan).

Case Study 2: Indonesia sustainable urban transport initiative

Impact, e.g. emission reduction (estimated/realised)	The implementation of a comprehensive package of policies for the transport sector has a mitigation potential up to 25%, which translates to estimated emission reductions of approx. 5 MtCO ₂ e per year. The calculation is based on the assumption that 10% of the urban population benefit from the NAMA and 15% of the emissions will be reduced by 2020 compared to BAU. Currently a study is underway to further elaborate emission scenarios for the pilot cities. The estimated costs apply to the pilot phase only.
Financing	<p>The total costs for implementation are estimated at USD 400 million to USD 800 million. The amount of financial support accounts to approximately USD 300 million and shall come from grants and FDI.</p> <p>The amount of technological support reaches USD 20 million for the development of transport models for emission monitoring, promotion of efficient vehicles, alternative fuels such as compressed natural gas (CNG), liquefied petroleum gas (LPG), biofuels or electric vehicles, intelligent transport systems, gas converters, or catalytic converters.</p> <p>USD 10 million is required for capacity building for sound transport planning and integration, operation and management, surveys and data management for MRV, and for the development of guidelines.</p> <p>So far, the NAMA is supported through the International Climate Initiative of the German Ministry for the Environment.</p>
Further reading	http://unfccc.int/files/cooperation_support/nama/application/pdf/nama_implementation_indonesia_sustainable_urban_transport_initiative.pdf

Case Study 3: Morocco solar plan

Implementation status	Concept Phase
Priority sector	Energy supply
Host country / city / project boundary	Morocco
Coordinating/managing entity	Ministry for Energy, Mining, Water and Environment
Background, design and measures	National strategy/plan for installation of 2000 MW of concentrated solar power (CSP) by 2020. The five sites are Ouarzazate, Ain Bni Mathar, Fom Al Oued, Boujdour and Sebkhah Tah.
Technologies	Renewable energy (CSP)
MRV approach	No MRV plan has been disclosed; CDM Methodologies are being considered.

Baseline / baseline scenario	Information has not been provided; CDM Methodologies are being considered.
Impact, e.g. emission reduction (estimated/ realised)	The solar plan is expected to cover approximately 18% of the current annual electricity production in Morocco, which translates to estimated GHG reduction of some 3.5 MtCO ₂ e per year.
Financing	<p>The total cost estimation amounts to USD 6.6 billion until 2020</p> <p>Financing received by the end of 2012: USD 110 million</p> <p>Source and type of financing: Loans</p> <p>International funders are: Germany, World Bank</p> <p>Technical support conducted through: Moroccan Agency for Solar Energy (MASEN), Moroccan National Electricity Office (O.N.E.)</p>
Lesson learned	Sound feasibility studies are recommended for any NAMA development. It is important to gain support for political decision making processes.
Further reading	<p>http://www.nama-database.org/index.php/Morocco_solar_plan</p> <p>http://www.masen.org.ma/index.php?Id=42&lang=en#/</p> <p>http://www.bmz.de/en/publications/type_of_publication/special_publications/Climate_Challenges.pdf</p>

Case Study 4: Mexico NAMA for sustainable housing

Implementation status	Implementation phase
Priority sector	Residential buildings
Host country / city / project boundary	Mexico
Coordinating/managing entity	Mexican National Agency of Housing (CONAVI), Mexican Secretariat of the Environment and Natural Resources (SEMARNAT)
Background, design and measures	<p>The NAMA aims to enhance GHG emissions reductions in two existing programmes: “Ésta es tu casa” and “Green Mortgages.”</p> <p>The transformation of these programmes into a holistic urban planning process including mandatory building codes would further increase emissions reductions through by extending basic efficiency standards to the entire new housing market in Mexico and upgrading efficiency standards to more ambitious levels.</p>
Technologies	<p>Introduction of a class of ambitious primary energy consumption benchmarks. The construction of houses according to the benchmark level is incentivised by a scaled up financial promotion system.</p> <p>Energy efficiency standards, inter alia: efficient window and roof design and thermal insulation, HVAC, efficient appliances, tank-less water heating, etc.</p> <p>Renewable energies, inter alia: solar water heaters etc.</p>

Case Study 4: Mexico NAMA for sustainable housing

MRV approach	The suggested MRV procedures for the NAMA are based on the development of a whole-building energy performance benchmark expressed in GHG emissions per gross floor area (tCO ₂ e/m ²).
Baseline / baseline scenario	The baseline is derived from the average of residential units built in the last five years. The annual penetration rate of the “Green Mortgage” and “Ésta es tu casa” programmes amounts to 20% of new houses, or 120,000 houses in 2010. Emission reductions are estimated for the implementation period until 2020 assuming 800,000 houses are built each year and that they will remain at the same level of efficiency over their lifetimes. The CO ₂ emissions of the baseline and the NAMA have been calculated based on information about the mix of fuel and power consumption in typical houses.
Impact, e.g. emission reduction (estimated/realised)	<ul style="list-style-type: none"> Assuming 100% penetration of a particular pathway the NAMA can achieve emission reductions ranging from 84 MtCO₂ (Eco Casa 1) to 140 MtCO₂ (Passive House) by the year 2020 Cost savings to households (reduced energy bills) Cost savings to government (reduced subsidies for energy consumption).
Financing	<p>For donors and investors interested in directly supporting new energy efficiency homes, a “NAMA Fund” will be set up as the initial recipient of donor funds, whether as soft loans or as grants. Funding provided for the NAMA will address both the supply and demand side, providing bridge loans for housing developers and support for home buyers in the form of subsidies and supplemental mortgage finance. The finance is designed in packages, with an estimated incremental cost of USD 1.7 to 21.5 million per 1,000 homes, depending on energy efficiency standards.</p> <p>Supportive actions for NAMA implementation are estimated around USD 15.6 million in total between 2012 and 2016. The NAMA receives financial support from the German Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) and technical support from the GIZ.</p>

Case Study 4: Mexico NAMA for sustainable housing

Lesson learned

The NAMA for sustainable residential housing is a part of a broader strategy (towards an Urban NAMA), which provides a framework and ensures that actions are in line with national development strategies.

Key considerations of scope, boundary, baseline, environmental integrity, and monitoring and verification were built on methodologies for project based approaches (e.g. PoA / CDM) with simplification (standardised baselines, benchmarks, etc.).

The finance of the NAMA is designed in packages and phases to attract donor and private finance.

Currents status:

- New housing projects in 6 Mexican locations under the NAMA Protocol.
 - Implementation between 2012 and 2020 with KfW and IDB support, to build 35,708 homes.
 - mitigation potential: 1,627 MtCO₂ over a 40-year life span
- New housing projects in Hermosillo Morelia and Guadalajara with support from BMU - GIZ.
- New housing projects in Aguascalientes, Cancún and Playa del Carmen by local housing, and Mexicali MRV System with support from Canada.

Further reading

www.conavi.gob.mx/viviendasustentable (in Spanish)

http://www.nama-database.org/index.php/NAMA_for_sustainable_housing_in_Mexico

Annex 3. NAMA Design Template

A. NAMA SUMMARY

A.1 Summary		
Title of NAMA		
Purpose of NAMA		
Sector	<input type="checkbox"/> Energy <input type="checkbox"/> Industry <input type="checkbox"/> Buildings <input type="checkbox"/> Transport	<input type="checkbox"/> Forestry (AR / REDD not applicable for pilots) <input type="checkbox"/> Agriculture <input type="checkbox"/> Waste
Category of NAMA	Domestic / Support / Mixed / Crediting / Others	
Type of NAMA	Policy / Project	
NAMA Geographical Coverage	<ul style="list-style-type: none"> National / Regional / State / District / Village (select or add as appropriate) State multiple countries if any 	
Estimated GHG Emission Reductions	<ul style="list-style-type: none"> Estimated Annual Average (MtCO₂ / year) 	
Programme Duration	<ul style="list-style-type: none"> XX years 	
Brief description of NAMA / programme and proposed activities	<ul style="list-style-type: none"> Provide brief account of target policy, measures, relevant Ministries & Government Departments, NAMA activities (project features – technology, capacity building measures- workshops, financing – model etc.,) etc., 	
NAMA / Programme proponents	<ul style="list-style-type: none"> Provide specific details of NAMA proponents and their responsibilities in implementation Provide details of agencies involved in design, development, implementation, management and financing of the NAMA 	

B. NAMA PROPONENT(S)

B.1 Information of NAMA Proponents	Provide details of each NAMA proponent separately by copying this Section B.
NAMA's Coordinating and Managing Entity (NCME)	
Major Responsibilities	
Domain activities, skills and expertise	<ul style="list-style-type: none"> e.g. major activity / business of agency / institution/organisation, and current skills and experience with specific reference to the proposed NAMA, motivation / rationale for leading the NAMA
Contact person and details of contact	
B.2 NAMA Collaborator(s)	Provide details of the agencies / institutions collaborating with NAMA proponent(s) in NAMA design, development, implementation and financing (domestic institutions or international Donor)
Collaborator 1	<ul style="list-style-type: none"> Name of the Collaborator
	<ul style="list-style-type: none"> Contact person info and contact details
	<ul style="list-style-type: none"> Responsibilities
(Repeat this section for 2nd and each subsequent collaborator)	

C. NAMA DESCRIPTION

C.1 Policies and Regulations	Provide an overview of the prevailing policies and regulations in the sector chosen for the NAMA
Federal / Province Policies	<ul style="list-style-type: none"> Name of the Policy & Year of introduction Implementing department / agency Policy brief Current level of acceptance or compliance Indicate source (web link) of policy document
Federal / Province Regulations	<ul style="list-style-type: none"> Name of the Regulation & Year of introduction Implementing department / agency Regulation brief Current level of acceptance or compliance Indicate source (web link) of Regulation document
C.2 Current level of activities (Baseline)	Provide all relevant information and details of the on-going activities for establishing a credible baseline
Sector / Sub-Sector	<ul style="list-style-type: none"> Provide details of the sector and or the sub-sector as applicable Please, consider referring to sub-sectors as included to sectorial tables of IPCC Good Practice Guidance and/or the approach applied in National Communications submitted in line with the corresponding manual for Non Annex 1 countries).
Boundary	<ul style="list-style-type: none"> Provide the geographical coverage of NAMA (National / Regional / Sub-regional / Province or State / District)

GHG Emissions & Sources	<ul style="list-style-type: none"> List the major sources of GHG emissions and the GHG proposed to be included in the NAMA 		
Target NAMA Beneficiaries	<ul style="list-style-type: none"> List the target beneficiaries under the NAMA e.g. manufacturers, consumers – domestic or industrial or commercial, project developers Provide quantitative assessment of the size of the beneficiaries under the NAMA 		
Inclusion Criteria	<ul style="list-style-type: none"> List the criteria likely to be followed for including any beneficiary situated in the NAMA boundary to join NAMA e.g. size of the activity (MWe or MWth), current efficiency levels, technology etc., 		
C.3 Baseline activity and emissions	Provide a brief of business as usual scenario of the sector / sub-sector and latest emissions data set with sources		
Emissions Data Set	<ul style="list-style-type: none"> Provide the latest emissions data set for the sector / sub-sector and cite sources. Indicate any limitation on the extent of availability of data 		
Emissions Archive (Historical)	<ul style="list-style-type: none"> Provide details of the past emissions and trend for the sector / sub-sector under the NAMA 		
Agents and projections	<ul style="list-style-type: none"> Provide a brief analysis of the agents that are influencing the emission developments 		
BAU scenario	<ul style="list-style-type: none"> List the major assumptions and the future outlook (projections) of GHG emission levels / development pattern in the sector / sub-sector under the NAMA in the BAU scenario Provide an outline of influence of any Federal or Provincial policy or regulations on the above emission projections 		
C.4 Barriers	Provide a brief description of the barriers faced by the sector / sub-sector to achieve any or additional GHG emission reductions in the absence of		
Barriers	<ul style="list-style-type: none"> Provide a brief summary of the barriers faced by the sector / sub-sector for achieving GHG emission reductions. Typical barriers relate to technology, investment, economic viability, lack of knowledge / skills/ training / experience, regulatory, historical failures. The guidance for various barriers can be referred from CDM (http://cdm.unfccc.int/) Describe how the proposed activities under the NAMA will overcome the barriers for the sector / sub-sector. 		
C.5 Proposed activities	List the activities and expected outcomes with a tentative time-schedule under the NAMA		
Proposed Activities	Boundary and Expected Outcomes	Implementation Schedule	
		Date of Start	Date of Completion
(a)			
(b)			
(c)			
(Add rows as required)			

C.6 Estimation of annual GHG emission reductions	<p>Provide an approximate estimate of annual GHG emission reductions anticipated to be achieved under the NAMA from all the proposed activities on a cumulative basis.</p> <p>(If NAMA does not involve implementation of actual GHG mitigation projects, provide an indirect estimate of GHG emission reductions proposed to be achieved due to the NAMA activities)</p>															
Annual GHG emission reductions	<table border="1"> <thead> <tr> <th>Year</th><th>Emission reductions (tCO₂e)</th></tr> </thead> <tbody> <tr><td>yyyy 1</td><td></td></tr> <tr><td>yyyy 2</td><td></td></tr> <tr><td>...</td><td></td></tr> <tr><td>yyyy n</td><td></td></tr> <tr><td>Total</td><td></td></tr> <tr><td></td><td></td></tr> </tbody> </table> <ul style="list-style-type: none"> • Attach the assumptions and detailed emission reductions calculations as relevant 		Year	Emission reductions (tCO ₂ e)	yyyy 1		yyyy 2		...		yyyy n		Total			
Year	Emission reductions (tCO ₂ e)															
yyyy 1																
yyyy 2																
...																
yyyy n																
Total																
C.7 Overall benefits	Describe the overall expected benefits (both quantitative and qualitative) for the stakeholders from the implementation of the proposed activities under the NAMA in the targeted sector / sub-sector.															
Environmental	<ul style="list-style-type: none"> • List the major environmental benefits proposed to be achieved in the NAMA 															
Economic	<ul style="list-style-type: none"> • List the major economic benefits proposed to be achieved in the NAMA 															
Societal	<ul style="list-style-type: none"> • List the major social benefits proposed to be achieved in the NAMA 															
Others	<ul style="list-style-type: none"> • List other major benefits proposed to be achieved in the NAMA • (e.g. technology, transfer of IPR, skills, replication potential to scale the GHG mitigation, uptake potential of the national policy / regulation on low carbon due to NAMA etc.,) 															
C.8 Life time and Crediting Period	Provide the technically defined life time of project and the proposed crediting period for generation of GHG emission reductions. For crediting period more than 10 years indicate (If possible) whether the baseline will be adjusted before the start of second crediting period															
Proposed Activities	Expected Life time (years)	Proposed crediting period (7/10/14/21 yr) (indicate w or w/o baseline adjustment)														
(a)																
(b)																
(c)																
(Add rows as required)																

C.9 Measuring, Reporting & Verification	Provide a brief summary of MRV concept and approach for the proposed activities under the NAMA		
Measuring	<ul style="list-style-type: none"> • Provide a description of the monitoring methodology and list key monitoring parameters as applicable for the Sector and its applicability for the sub-sector • Provide a brief summary of monitoring Infrastructure and competency available / proposed to be deployed 		
Reporting	<ul style="list-style-type: none"> • Provide a brief summary of modus operandi on reporting along with the roles and responsibilities of the team 		
Verification	<ul style="list-style-type: none"> • Summarise the proposed type of verification, approach, frequency, standards and engagement of third party including whether it is mandated by donor or as per host country requirements • Indicate the extent of anticipated overlapping with other programme like CDM, voluntary projects and also procedures to avoid how double counting of GHG emission reductions 		
C.10 Costs (USD)	Provide an estimate of the transaction costs for NAMA development and indicate the means of financing		
Type of Activity	Total Cost	Own contribution	National Government / Donor / Sponsor contribution
NAMA documentation			
Feasibility report			
Implementation			
Operation			
....			
C.11 NAMA Investment & Means of Finance (USD)	Provide an estimate of the NAMA project activity (fill up the columns as applicable)		
NAMA activity	Total cost per NAMA activity		
(a)			
(b)			
(c)			
(Add rows as required)			

D. OTHER RELEVANT INFORMATION AND ANNEX

D.1 Other information	Provide details of any other information relevant to the NAMA implementation
	<ul style="list-style-type: none">•
	<ul style="list-style-type: none">•
	<ul style="list-style-type: none">•
D.2 Annex information	List the title of the Annex here
Annex I	<ul style="list-style-type: none">• Title
Annex II	<ul style="list-style-type: none">• Title
Annex III	<ul style="list-style-type: none">• Title

Annex 4. Tools and Standards for Assessing Emissions Reduction

Level	Name	Description	Link
GHG Emissions Accounting Standards for policies and actions	GHG Protocol - Mitigation Accounting	The GHG Protocol is developing two new standards: 1) the Policies and Actions Standard, which provides guidance on quantifying the greenhouse gas effects of policies and actions, and 2) the Mitigation Goals Standard, which provides guidance on tracking progress toward national and sub-national GHG reduction goals.	http://www.ghgprotocol.org/mitigation-accounting
GHG Emissions Accounting Standards across sectors	Emissions Modelling Platform (EMP)	EMP is a generic term encompassing a variety of models developed in different parts of the world. Information about them can be found at the United States Environmental Protection Agency's (EPA) air-quality management portal.	http://www.epa.gov/air/aqmpportal/index.htm
	GHG Protocol for Project Accounting – A GreenHouse Gas Protocol Initiative 2005	Provides common GHG project accounting concepts, procedures, and principles	www.ghgprotocol.org/standards/project-protocol
	MARKAL	A generic model tailored by the input for measuring emissions levels of a specific energy system across all levels, from national to local. Developed by the Energy Technology Systems Analysis Programme (ETSAP) of the international Energy Agency	http://www.iea-etsap.org/web/MARKAL.asp#back
	ISO 14064-1:2006 Standards	ISO 14064 is comprised of three parts, detailing specifications and guidance at the organisational and project levels, and for GHG quantification, monitoring, reporting, validation and verification	http://www.iso.org/iso/home.html
GHG Emissions Accounting Standards for specific sectors	IPCC Guidelines for National Greenhouse Gas Inventories (2006)	Provides guidance and methodologies for different sectors of economy for estimating GHG emissions for establishing national inventories	http://www.ipcc-nggip.iges.or.jp/public/2006gl/index.html

	High-Elective Resolution Modelling Emissions System (HERMES)	An area-specific emissions model developed by the Barcelona Supercomputing Center (BSC-CNS)	http://www.bsc.es/earth-sciences/hermes-emission-model
	Tool for Calculating Greenhouse Gases in Solid Waste Management - Institut für Energie- und Umweltforschung (IFEU)		http://www.ifeu.org/english/index.php?bereich=abf&seite=klimarechner
	Projects Monitoring - GIZ Energising Development Programme (EnDev)		http://www.giz.de/themen/en/35969.htm
	Manual for Calculating the GHG Benefits of GEF Projects: Energy Efficiency and Renewable Energy Projects – Global Environment Facility		http://www.thegef.org/gef/sites/thegef.org/files/documents/C.33.Inf.18%20Climate%20Manual.pdf
	Manual For Calculating Greenhouse Gas Benefits For Global Environment Facility Transportation Projects		http://www.thegef.org/gef/GEF_C39_Inf.16_Manual_Greenhouse_Gas_Benefits
	Cool Farm Tool – University of Aberdeen		http://www.coolfarmtool.org/CoolFarmTool
	International Local Government GHG Emissions Analysis Protocol – ICLEI		http://www.unep.org/urban_environment/PDFs/InternationalStd-GHG.pdf
	Manual for Calculating Greenhouse Gas Benefits for GEF Transportation Projects – Institute for Transportation and Development Policy		http://www.thegef.org/gef/sites/thegef.org/files/publication/GEF_CalculatingGHGbenefits_webCD.pdf
	Clean Development Mechanism and Joint Implementation methodologies approved by Executive Board under the UNFCCC	Approved baseline and monitoring methodologies for small-scale and large-scale sectors of the economy	http://cdm.unfccc.int/methodologies/index.html

Source: Based on “Nationally Appropriate Mitigating Actions – A Technical Assistance Source Book for Practitioners” (GIZ 2012)

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Australian Government

based on a decision of the Parliament
of the Federal Republic of Germany