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MitigationMomentum

Status Report

on Nationally Appropriate Mitigation Actions (NAMAs)

Mid-year update 2014

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This report is prepared and published as part of the Mitigation Momentum project. The project aims to support the development of Nationally Appropriate Mitigation Actions (NAMAs) by contributing to the concrete development of NAMA proposals, and foster cooperation and knowledge exchange within the NAMA community. The overall objectives of the project are:

- Advancing NAMA development in a selected number of countries
- Contributing to knowledge on NAMA development and best practice
- Increase knowledge sharing and cooperation among the NAMA community
- Advancing the international climate policy debate on mitigation

The project is a collaboration between ECN Policy Studies and Ecofys Germany.

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1 Introduction

With this latest Annual Status report on Nationally Appropriate Mitigation Actions (NAMAs) mid-year update 2014, we are looking back at five editions of the NAMA Status Report which track the development of NAMAs and the associated policy and support framework. Year on year, progress appears to be relatively slow. However, comparing the situation of NAMAs four years ago when we started tracking NAMA activities, one realises the significant progress that has been achieved.

As in previous editions, this report will provide a snapshot of the current state of play of NAMAs. The first section looks at the latest statistics on NAMA development worldwide, drawing from the UNFCCC NAMA registry and the NAMA Database. In addition to providing a general overview, we will also dive a little bit deeper into some of the statistics in the attempt to draw out emerging trends.

The third chapter takes a closer look at NAMA support. Compared to NAMA development activity progress here is slower, but we hope this section will take off in future editions as more NAMAs will be financed and more organisations disclose their NAMA support activities. The section includes an overview of the results of the 2013 call of the NAMA Facility and key lessons learned on the process to select NAMA proposals for support. It also includes a view on emerging NAMA finance mechanisms including two case studies from the work undertaken under the Mitigation Momentum project.

The Status Report closes with a section on insights from the ongoing Mitigation Momentum project and two years of providing in-country NAMA development support to our partner countries of the first phase, including Chile, Indonesia, Kenya, Peru and Tunisia.

Mitigation Momentum has now started its second phase. In addition to continued support for the existing partner countries we are pleased to start supporting NAMA work in Ethiopia, Georgia and Thailand. Further editions of the Annual Status Report on NAMAs are also planned. A full Status Report will be published in time for COP20 in Lima, Peru. In contrast to this abridged mid-year update edition, the full Status Report will again be a comprehensive review of the state of play of NAMAs including a discussion of key emerging topics, based on a collaborative effort of various organisations active in the NAMA space.

2 NAMA Development

This section explores the development of supported NAMAs since the inception of the NAMA concept in 2010. Analysis of the NAMA Database shows that the number of NAMAs worldwide continues to grow at a steady pace. Meanwhile, a small number NAMAs are moving into implementation, some of which are supported as a result of the first funding round of the NAMA Facility in 2013. The analysis shows that Latin America remains the most active region. In terms of sectors, energy supply continues to lead the way, with the waste, transport and building sectors also well represented.

Evolution of the UNFCCC registry

The UNFCCC NAMA registry is fully operational since 2013 with the objective to provide a matching facility for finance, technological and capacity building support, and a platform for the recognition of NAMAs¹. NAMAs in the registry are categorised as either *NAMA seeking support for preparation*, *NAMA seeking support for implementation*, or *NAMA seeking recognition*. As the focus of the NAMA Status Report is on supported NAMAs, NAMAs seeking recognition are not considered in this analysis. At the time of writing, the registry contains information on 40 supported NAMAs: 12 seeking support for preparation and 28 seeking support for implementation (see Table 1 page 8 for countries represented in the registry).

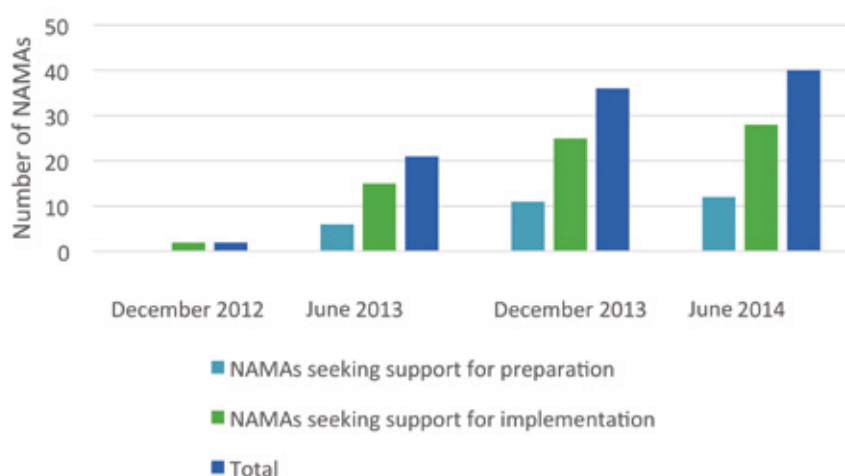


Figure 1: Evolution of the UNFCCC NAMA registry

Figure 1 indicates the increase of activity in the UNFCCC NAMA registry since the prototype was made available in 2012. Whilst the graph indicates steady growth in the first two 6-month periods, only 4 additions were made to the registry between December 2013 and May 2014. A significant number of NAMA submissions were made by just two countries, Jordan and Serbia, which account for 21 of the NAMAs in the registry.

¹ https://unfccc.int/cooperation_support/nama/items/7476.php

The registry also includes eight records related to information on support, including a description and details of the support available, the parties responsible, and the process for support provision (see Section 3 for details).

Current status and development trends of supported NAMAs

This section contains trends and analysis of the development of supported NAMAs worldwide since 2011. Data is based on the NAMA Database (nama-database.org), an “open access wiki” intended to compile information for all supported NAMAs for which public information is available. NAMAs for which no public information exists, regardless of their phase of development, are not included in the data. Box 1 gives further information about what is included in the NAMA Database.

Box 1: What is included in the NAMA Database

The NAMA Database includes activities categorised under one of two phases of development. For inclusion in the database, NAMAs must meet all of the following criteria:

NAMA under development

- Activity described as a NAMA and with intention to seek financing, capacity building or technology transfer support under UNFCCC agreements.
- Specific mitigation objective given within specific sector(s).
- Activity has government backing.

NAMA in implementation

- Meets criteria for NAMA under development.
- The activity has a clear proponent and a clear set of activities across a defined timeline.
- Cost estimates and support needs are specified.
- GHG mitigation and co-benefit impacts are specified.
- Some support has been received to implement the actions contained in the proposal.

In addition, *feasibility studies*, which describe potential NAMAs but do not yet have official government backing, are also included in the NAMA Database. Feasibility studies are excluded from the statistics presented in this status report.

To date, according to the NAMA Database, 90 NAMAs are under development and 8 NAMAs are in implementation in a total of 25 countries. Including feasibility studies, 35 countries are represented in the database. An overview of the number of NAMA activities in each country, as well as the sectors covered, is provided in Table 1.

Figure 2 shows that the pace of NAMA development has remained relatively constant since the data was first collected in 2011. The decline seen at the end of 2012 in the chart is due to methodological changes, where inclusion in the database was restricted to NAMA activities with publicly traceable documentation.

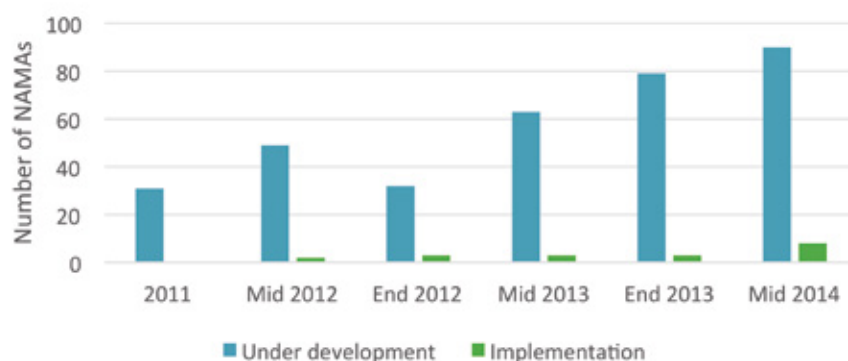


Figure 2: Development of NAMAs 2011-2014

Since publication of the last *Status Report* (Hänsel et al, 2013), the number of NAMAs in or entering implementation has increased to eight due largely to the allocation of the 2013 NAMA Facility funds (see section 3 for full details on the NAMA Facility and the fund recipients). However, the number of NAMAs in implementation still remains low, especially given that 38 NAMAs in the database indicate that implementation of the specified NAMA activities was planned to begin before 2014.

Table 1: Overview of all NAMAs in the NAMA Database

Country	NAMAs		Phase of development		Sectors engaged						
	Total NAMAs	NAMAs also in the UNFCCC registry	Under development	Implementation	Energy supply	Transport	Forestry	Waste	Agriculture	Buildings	Industry
Latin America											
Argentina	1		1								
Barbados	1		1								
Chile	10	3	9	1							
Colombia	5		4	1							
Costa Rica	4		3	1							
Dominica	1	1	1	0							
Dominican Republic	2	2	2								
Mexico	9	1	8	1							
Peru	5		5								
Uruguay	4	4	4								
Africa and the Middle East											
Gambia	7		7								
Jordan	9	9	8	1							
Kenya	1	1	1								
Mali	2	2	2								
Morocco	1		1								
South Africa	2		1	1							
Tunisia	3		3								
Asia and the Pacific											
Cook Islands	1	1	1								
Georgia	2	1	1	1							
Indonesia	6	2	5	1							
Kyrgyzstan	1		1								
Mongolia	1	0	1								
Pakistan	2	1	2								
Philippines	2		2								
Vietnam	3		3								
Europe											
Serbia	13	12	13								
Total	98	40	90	8							

Regional overview of NAMA activity

Latin America, as per previous NAMA Status Reports, continues to be the most active region (Figure 3), accounting for nearly half of the NAMAs listed in the NAMA Database. Asia still remains relatively underrepresented, given their engagement in previous mechanisms (i.e. CDM), with just 18% of the global NAMA portfolio. On the other hand, NAMAs appear to be a more attractive and accessible mitigation mechanism for Africa and the Middle East, which account for 26% of global NAMA activity in comparison to only 3% of CDM projects being hosted in the region as of December 2013. Europe's 13% share is attributed entirely to the 13 NAMAs of Serbia. Further insights into specific regional activity is given in Box 2.

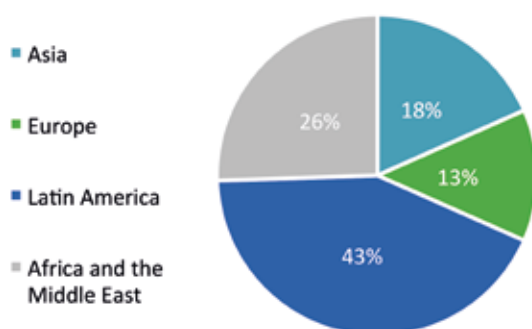


Figure 3: Regional distribution of NAMA activities

Sectoral overview of NAMA activity

Figure 4 gives a general overview of the sectoral scope of NAMA activities. Energy supply is the most prominent sector; it accounts for 39% of all NAMA activities and only four countries listed in Table 1 are not developing NAMAs in the sector. Aside from energy supply, the waste, buildings and transport sectors are well represented in the NAMA portfolio. Forestry and agriculture only represent a very low proportion of NAMA activities, despite featuring prominently in many countries' original NAMA submissions to the Copenhagen Accord in 2010.

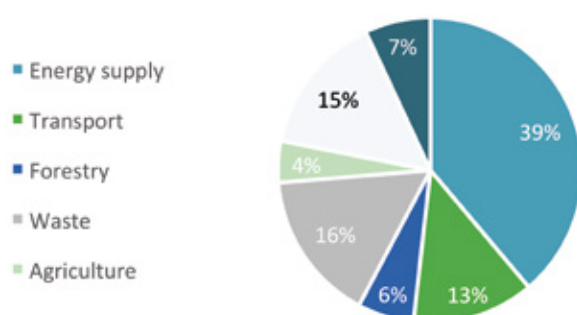


Figure 4: Breakdown of sectors covered by NAMAs in 2014

Box 2: Regional insights into NAMA development in Latin America, Asia and Africa & the Middle East.



NAMAs are under development in nine Latin American countries, and these countries account for nearly half of the global NAMA portfolio. Chile (nine NAMAs under development and one in implementation) and Mexico (eight NAMAs under development and one in implementation) are the most active countries in the region, followed by Colombia and Peru. As indicated in Table 2 on page 9, Latin American NAMAs cover all sectors, with a particular emphasis on waste and energy supply. The relative maturity of Latin American NAMAs was highlighted by the allocation of the NAMA Facility's funds in 2013, with four of the five recipients from Latin America; NAMAs in Chile (Self-supply Renewable Energy), Colombia (Transit-oriented Development), Costa Rica (Low Carbon Coffee) and Mexico (Sustainable Housing) received funding from the NAMA Facility to enter implementation (see section 3).

Whilst Asia remains generally underrepresented in the NAMA Database as a continent, the South-East Asia sub-region has developed a sizeable NAMA portfolio. Vietnam and Indonesia are the most active countries in the region with at least three NAMAs under development and a number of feasibility studies. The Sustainable Urban Transport Programme in Indonesia was the only NAMA outside of Latin America to receive NAMA Facility funding in 2013. Although the volume of NAMAs in Asia is not large, at least eight countries have developed NAMAs and carried out NAMA feasibility studies.



According to publicly available documentation, seven countries from Africa and the Middle East are developing NAMAs, whilst feasibility studies exist for several more. Jordan (eight NAMAs under development) and the Gambia (seven NAMAs under development) are most active, although the South African Renewable Initiative is the only NAMA in the region to have started implementation. As indicated in Table 2 on page 7, NAMAs in the region strongly focus on power supply. This is a reflection of the high potential for renewable energy programmes in the region, and may also allude to the relatively poor electrification rates and the associated potential for sustainable development co-benefits, particularly in rural areas.

Examination of the current global NAMA portfolio

The number of NAMA concepts and proposals now publically available allows for a deeper examination of some key topics. Whilst it may still be too early to draw definitive conclusions, certain trends may already be visible and interesting to track going forward.

Scale of actions and mitigation potential

Figure 5 indicates that the large majority of NAMA activities are considered in the scope of national policy and strategy, with just ten NAMAs acting on a subnational level. Indeed, in most cases the NAMA proponent is a national body, such as a governmental ministry, and the majority of NAMA activities are national policies or strategies; just 16 NAMAs are identified as individual standalone projects.

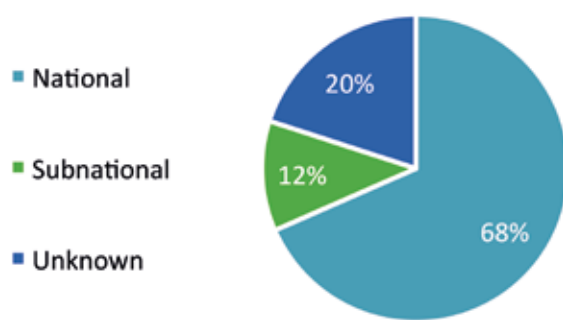


Figure 5: Scope of NAMA activities

The contributions of NAMAs to greenhouse gas emission reductions range, for NAMAs where data is available, from 12 ktCO₂ up to a maximum of 575 MtCO₂ (total emission reductions by 2030). The accuracy of this range is limited by data availability and the broad assumptions of the preliminary calculations, but this serves to demonstrate that NAMA activities are being developed on a very broad range of scales.

Co-benefits of NAMA activities

Beyond mitigation impacts, various NAMA concepts and proposals have indicated a range of social, economic and environmental co-benefits. The main categories of these co-benefits as well as the frequency of their mention, are represented in Figure 6 and Figure 7. Job creation appears as the most common social co-benefit, whilst improvements in health, incomes and access to energy are also common. Increased energy security, through increased domestic generation capacity and reduced dependence on fossil fuel imports, is the most common economic benefit. Furthermore, a large number of NAMAs identify the development of cross-sector technologies, infrastructure and capacities as key economic co-benefits, for the potential to drive broader economic development across sectors not included in the scope of the NAMA.

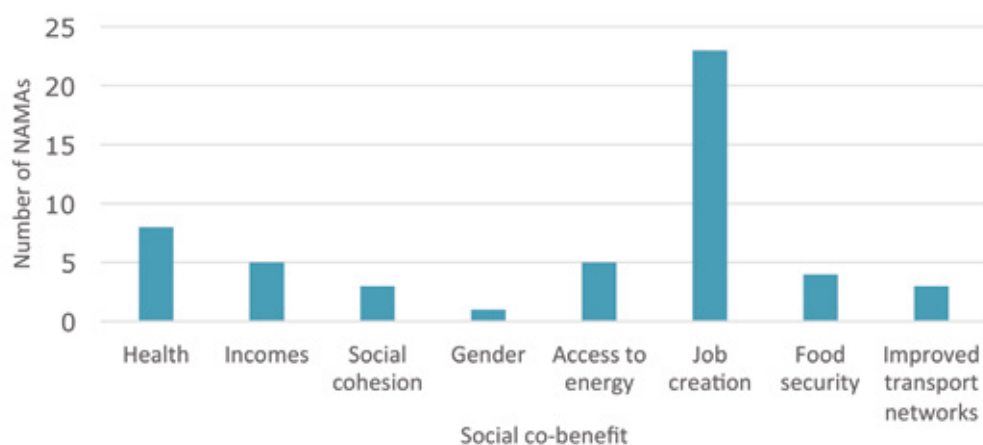


Figure 6: Reported social co-benefits of NAMAs

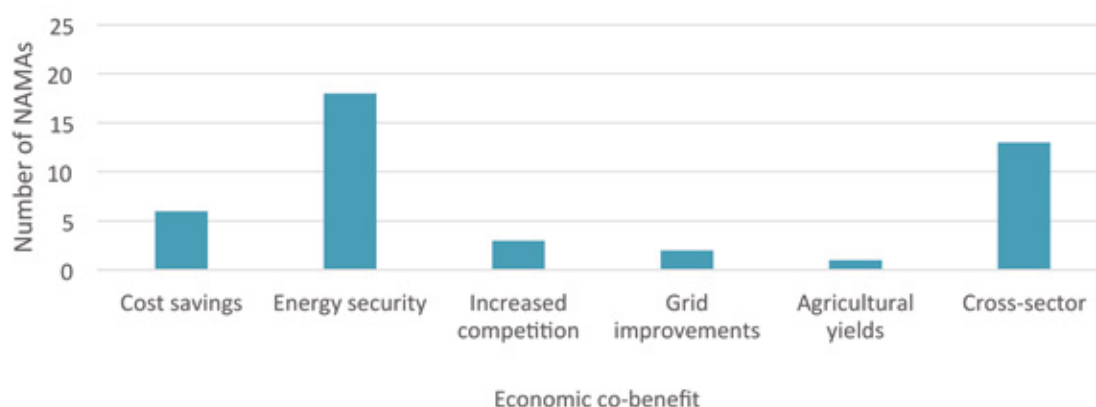


Figure 7: Reported economic co-benefits of NAMAs

In terms of environmental co-benefits, improved local air quality, improved practices in waste disposal, reduced water pollution, and protection of vulnerable ecosystems, are mentioned.

The positive economic contributions of NAMA co-benefits are generally not quantified and accounted for in the cost estimates for the NAMA activity.

Support needs

Figure 8 indicates that international finance is the most widely requested support measure for NAMAs. Just four NAMAs of those where public information exists, do not explicitly request financial support. Furthermore, Figure 9 shows that 85% of NAMAs identify grants as the primary modality of the requested finance. On average, NAMAs have requested international support for 75% of the total activity costs, although more than half have requested international financing for the entire cost of the NAMA activity.

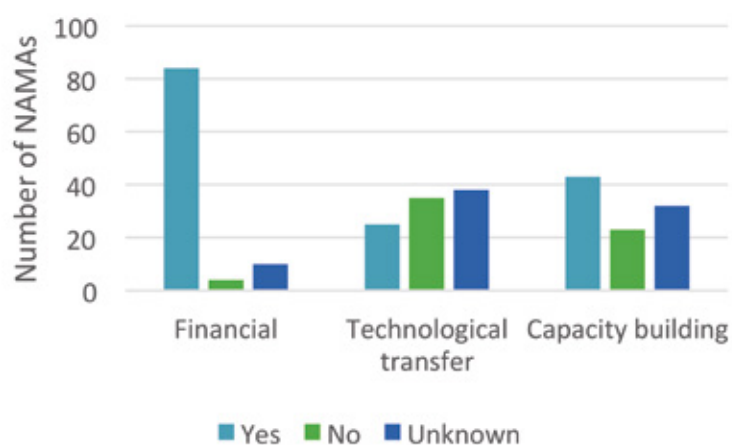


Figure 8: Types of international support requested

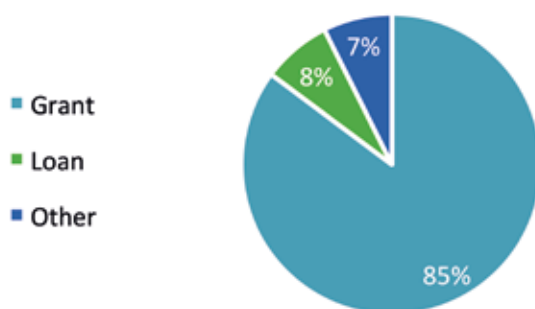


Figure 9: Modality of financial support requested

The total cost of NAMA activities ranges from USD 300,000 for Jordan's strategy for domestic waste management, to USD 8.4 billion for South Africa's renewables initiative. The average amount of international financial support requested is USD 112 million, although this is influenced quite significantly by the relatively high financial request from Serbia's NAMAs, and is just USD 78 million if the Serbian portfolio is not taken into account.

3 NAMA support

This section provides an update on available NAMA support including an overview of the NAMA Facility's 2013 funding decisions and lessons that have been published by the Facility based on the first round of submissions. The second part looks at NAMA finance from a practical perspective including two case studies from Kenya and Chile to illustrate the ways in which support is planned to be used in NAMAs.

For the reader less familiar with NAMAs and the international support they receive, it is useful to start with the point that has been made in previous Status Reports; namely, that support until now has focussed largely on preparatory activities for NAMAs – such as capacity building and technical assistance in the design of actions. However, in the last year there have been some important developments in support for implementation.

A number of potential sources of support for NAMAs are now listed on the UNFCCC registry since its launch in October 2013, but the German/U.K. NAMA Facility (henceforth the 'Facility') remains the standout example of support for implementation that is earmarked for NAMAs. Furthermore, the Austrian NAMA Initiative has recently confirmed its support for the implementation of the Adaptive Sustainable Forestry NAMA in Georgia. Other listed sources may represent an opportunity for host countries to tap into, and should be explored, but have not explicitly supported NAMA implementation nor clearly communicated an aspiration to do so.

Table 2: Summary of sources of support registered with the UNFCCC.

Title	Origin	Support available
Climate-related ODA funding	Germany	Grants and concessional loans for NAMA preparation in all countries.
International Climate Initiative (IKI)	Germany	Grants and loans for NAMA preparation in all countries.
NAMA Facility	Germany/ United Kingdom	Grants and concessional loans available for NAMA implementation in all countries.
Global Environment Facility (GEF) Trust Fund	International	All types of support available for all countries.
EU-Africa Infrastructure Trust Fund	12 EU countries	Grant for NAMA implementation in African countries.
Neighbourhood Investment Facility	European Union	Grants for NAMA preparation from ENP partner countries.
Latin American Investment Facility	European Union	Grants and loans for NAMA implementation in Latin America and the Caribbean
Austrian NAMA Initiative	Austria	Grants for NAMA preparation with focus on African countries and SIDS.

Source: UNFCCC 2014

Anglo German NAMA Facility update

At COP-18 in Doha 2012, Germany and the UK announced that they would jointly provide €70m of initial funding for the NAMA Facility and initiated a process to develop a robust governance structure and criteria for support applications. The stated aim of the Facility is to address the lack of NAMA climate finance, by building on existing support to fund the implementation of transformational NAMAs and delivering concrete results on the ground. In doing so, the Facility seeks to demonstrate a framework for providing tailor-made climate finance for developing countries in the field of mitigation, and to generate lessons learnt from this process as an input to the development of the international climate architecture (BMU/DECC 2013).

As introduced in the 2013 edition of the Annual NAMA Status Report, the NAMA Facility funds so-called 'NAMA Support Projects'. A NAMA Support Project forms an element of a broader NAMA and is singled out for financing under this initiative². NAMA Support Projects are put forward to the NAMA Facility by the national government in cooperation with a qualified delivery organisation³ or by a qualified delivery organisation with strong endorsement by the national government (Hänsel et al, 2013).

The first call for 'NAMA Support Project Outlines', the format in which applications are made, closed in September 2013. A total of 47 Project Outlines were received with a balanced geographical distribution across Central and Latin America, Africa and Asia, as well as a similarly broad distribution across sectors, with a focus on energy efficiency and renewable energy.

NAMA Support Project Outlines were evaluated based on three sets of criteria using a points based system that allowed applications to be ranked (BMU/DECC 2013):

1. **General eligibility criteria** (most importantly: country ownership, eligibility of the submitting entity, ODA eligibility, financing volume, readiness)
2. **Ambition criteria** (transformational change potential, mitigation potential, financial ambition, sustainable development co-benefits)
3. **Feasibility criteria** (most importantly: embedded into national and international policies and processes, well developed structure and finance plan)

The Mexico EcoCasa sustainable housing project was an early pilot for the Facility, which was joined by projects in a further four countries that were announced at COP19 in Warsaw; Chile, Columbia, Costa Rica and Indonesia. These five NAMAs provide insight into what type of NAMAs are being successfully developed across the world, as well as into what makes a promising NAMA from the perspective of both a sponsor and host country - who must endorse these applications.

The NAMA Facility this year announced a second round of applications that will close on 15th July 2014.

² For more discussion on NAMA Support Projects, see the General Information Document of the NAMA Facility that can be found at www.nama-facility.org

³ Eligibility of delivery organisations within the context of the NAMA Facility is checked against a set of criteria including legal status, track record on international presence, expertise in the field of climate change mitigation, and experience with larger ODA projects. For further information, please see www.nama-facility.org

Box 3: NAMA Facility 2013 funding recipients

Self-Supply Renewable Energy in Chile (SSRE)

Small-scale renewable energy

Objective: To promote the incorporation of renewable energy systems for self-supply in Chile by creating adequate financial and technical conditions for the early stages of development of this emerging industry.

Design: The NAMA targets financial and capacity barriers through a number of elements including: grants for investment for high cost technologies, concessional lending and guarantees for the domestic financial sector, grants to firms for pre-feasibility studies to stimulate demand and a number of technical assistance aspects including training and a technical help desk for project developers.

Outcomes: The NAMA seeks to leverage in the order of US \$100 million in the development of more than 60 MWe of small scale renewable electricity and heat across almost 130 projects that will contribute to 2 MtCO₂ annually.

Transport Oriented Development (TOD) NAMA in Colombia

Transport / Urban planning

Objective: TOD focuses public and private development around transit stations to create neighbourhoods where people can safely walk, live, work, shop and play.

Design: TOD will enhance the benefits of national investments in public transit - increasing ridership and financial sustainability - and leverage substantial funding for low-income housing. The core of the NAMA is an independent Centre for the Promotion of Transit-Oriented Development, housed within the Colombian development bank Findeter, which would provide technical and financial assistance on TOD implementation, based on locally-articulated needs.

Outcomes: The NAMA will seek to reduce growth in light duty vehicle driving by 25 to 36 percent by 2040 due to changed land use and travel patterns. In doing so it is expected to mitigate 3.6 to 5.5 MtCO₂ annually.

NAMA for Sustainable New Housing in Mexico

Residential energy efficiency

Objective: To promote the penetration of basic efficiency standards in the entire new housing market in Mexico as well as the upgrading of energy-efficiency standards to more ambitious levels in order to transform the residential housing sector.

Design: The EcoCasa programme was one of the first NAMAs to receive support for implementation. The programme creates an incentive for the construction of low-energy houses and the use of modern technology, such as facade cladding or building insulation, which reduce the energy required to cool buildings. The aspect of the programme supported by the Facility operates by means of technical assistance to large public housing financiers, as well as private developers. In addition, financial incentives will be channelled to small and medium-sized developers and financial intermediaries.

Outcomes: The project will focus on low-income housing and will provide better living conditions at lower cost and lower energy demand. It also contributes to additional employment in the building sector. In addition, it is estimated that the project can reduce greenhouse gas emissions by 200 ktCO₂e annually in 2020.

Sources: Government of Chile/CORFO 2013, Republic of Colombia 2013, Government of Mexico 2013; BMU/DECC 2013b

Box 3 (continued): NAMA Facility 2013 funding recipients

Low Carbon Coffee NAMA in Costa Rica

Agriculture and food processing

Objective: Increased adoption of mitigation and adaptation measures along the coffee supply and value chain. To serve as a “NAMA laboratory” for other sectors and other Latin American coffee-growing countries.

Design: At the farm level it will improve adoption rates of technologies and practices which reduce N₂O emissions, as well as proven adaptation techniques. At coffee mills it will: introduce equipment and processes that reduce methane emissions in wastewater and pulp treatment; increase the utilisation of process residues in place of unsustainable biomass; and promote agro-forestry systems. This is to be achieved through a mixture of technical assistance, capacity building and financial support.

Outcomes: The NAMA targets the approximately 50,000 coffee farming families in the country and the mills they supply. It is anticipated to provide cost savings, income diversification and improved farm resilience, amongst other benefits. Coffee production also accounts for nearly 10 percent of GHG emissions in Costa Rica. The total mitigation potential is estimated at 120 ktCO₂e per year in 2024.

Sustainable Urban Transport Initiative in Indonesia

Urban transport

Objective: Promotes sustainable urban transport in Indonesian cities through a combination of national and provincial action.

Design: At national level, a policy framework for Sustainable Low-carbon Urban Transport will be developed. At the local or provincial level, Low-carbon Mobility Plans will be designed and implemented, starting with a pilot phase in specific cities. In addition to technical support and capacity building, the NAMA aims to provide co-funding for investments through a sustainable urban transport fund (SUTF) that would be established.

Outcomes: Improvements in the traffic situation in Indonesian cities would lead to a number of development benefits around health, improved air quality, economic costs of congestion, transport costs and access to transport. In addition the NAMA is estimated to have a significant mitigation potential, even based on only the pilot cities, due to the large opportunity for improvements over the current urban transport system and the large expected growth in this sector.

Sources: Government of Costa Rica 2013, Government of Indonesia 2013

Lessons learned from the first NAMA Facility call

The experience of receiving, reviewing and assessing 47 NAMA Support Project Outlines provided a number of insights that have been shared by the Facility (NAMA Facility Board, 2014). Many of these relate to the guidance provided and level of detail sought by the Facility, and have already been taken into account in the revision of documents and processes for the second call. However, the three main lessons resulting from the first call are worth repeating here, as they can have implications for the ongoing debate on NAMAs and climate finance architecture more broadly. In reviewing the pipeline of Support Projects submitted to the first call, the Facility found that:

1. NAMA support projects presented to the Facility feature a high level of ambition and a strong commitment of national governments.
2. Many NAMA support project outlines showed weaknesses with regard to their feasibility, specifically concerning a well-developed project structure, a theory of change and a concept for project finance.
3. An overall challenge seems to be the early involvement of financial actors and accordingly the structuring and in-depth preparation of financial support mechanisms.

These experiences suggest that there is still learning needed by those involved in the preparation of NAMAs for support, particularly around the financial aspects of NAMA design. To inform this learning, there are opportunities to build on the experiences of ongoing successful development cooperation.

NAMA finance mechanisms - Examples from Kenya and Chile

NAMA finance mechanisms have yet to be tried and tested, however, interesting insights are emerging from practical experience of designing NAMAs. In addition to the above lessons from the first call of the NAMA Facility, a number of other observations can be made. These insights are drawn from the experiences of the Mitigation Momentum project over the last two years along with discussions held with the community of NAMA developers.

- Design of the finance mechanism needs to build on a thorough analysis of the particular barriers in the country and sector to identify the most effective financial instruments.
- The suite of instruments likely to work in a NAMA context is akin to existing financial cooperation mechanisms which have been tried and tested over a long time. Hence the design of NAMA finance mechanisms should build on existing experience in the particular country and the depth of knowledge of financial organisations active in the field.
- A good starting point, especially in countries at more advanced stages of development, is a critical review of the existing financial landscape and mechanisms (e.g. credit lines) to identify how the NAMA can enhance these or scale up and build on existing efforts. In least developed countries finance structures and capacities may have to be built up first.
- Early involvement of stakeholders, in particular national and international financial institutions, is crucially important. Ideally, financial mechanisms are designed in dialogue with potential financiers and players already active in the field to ensure they fit into their operational strategies and practices.
- Government buy-in is critical both for the design of appropriate finance mechanisms as well as to gain interest of donors. Government guarantees can be a useful tool to build confidence and facilitate provision of support.
- Equally, it is important to involve relevant government institutions (e.g. finance ministries, national banks and development funds) at an early stage, as setting up processes to receive international financial flows may present institutional and regulatory hurdles which can take time to resolve.
- Strong implementing agencies are needed that can pass donor due diligence and have a track record with financial management at the required scale.
- It is important to complement the finance mechanism with other activities (e.g. technical and capacity building support) which address all key barriers identified. Financial instruments can address certain, mainly financial, barriers, but are unlikely to be effective on their own, without creating the right enabling environment.

In order to illustrate potential types of financial structures, the following section summarises the financial mechanisms underpinning two NAMAs that were considered as case studies as part of a NAMA finance publication that is currently being prepared by the Centre for Clean Air Policy (forthcoming in June 2014).

Kenyan geothermal NAMA⁴

The government of Kenya has designed a Nationally Appropriate Mitigation Action (NAMA) to boost its geothermal sector. Geothermal has the potential to provide stable low-cost electricity, while reducing dependence on fossil fuel prices and limiting greenhouse gas emissions. Geothermal energy has been identified as the single most effective technology to keep the power sector on a high-growth low-carbon development pathway (Republic of Kenya 2013). Analysis shows that despite the supporting efforts in place, financial, technical, and capacity barriers still exist.

The NAMA is designed to address a number of specific barriers simultaneously (see figure 10). It has two phases (2014-2016 and 2016-2020) and will directly support 820 MW of geothermal to be developed. This additional capacity will help Kenya power its economic activities, improve energy security, and lower carbon emission levels (3.77 MtCO₂e per year by 2020, 14 MtCO₂e per year by 2030). The support requirements associated with this are approximately USD 10m for the first phase, and USD 200m for the second phase.

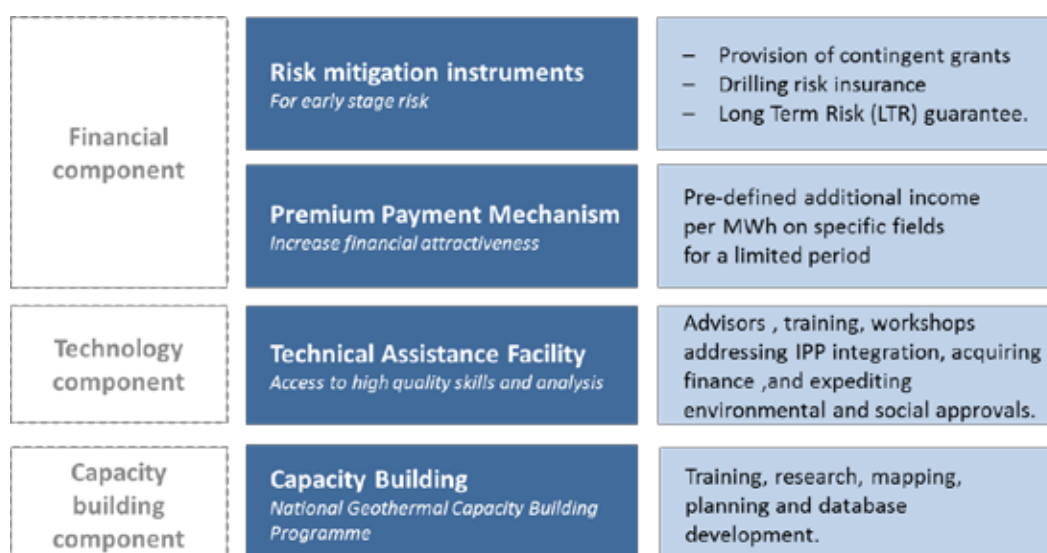


Figure 10: Proposed NAMA structure to accelerate geothermal development in Kenya
Source: Falzon et al., 2014

Although significant support is already directed at the sector, analysis and interviews with potential investors and developers revealed that the risk-return profile is still not attractive enough from a private perspective to make a business case. In addition, current actors are overloaded with the enormous challenge ahead: there is a need for external technical support in the short term and local (human) capacity development in the medium-long term.

Three financial instruments to address geological risk:

The early stages of geothermal development are notoriously risky (see Figure 11), and the risks associated with geology are difficult to hedge commercially. Exploration and test drilling, and even drilling the actual wells, are known to have a high failure rates. In addition, once a well has been drilled, there is always the risk (albeit small) of lower-than-expected performance.

⁴ The Government of Kenya developed the NAMA proposal in a 16 month stakeholder process, supported by ECN through the BMU funded project MitigationMomentum. For more information see Falzon et al. (2014)

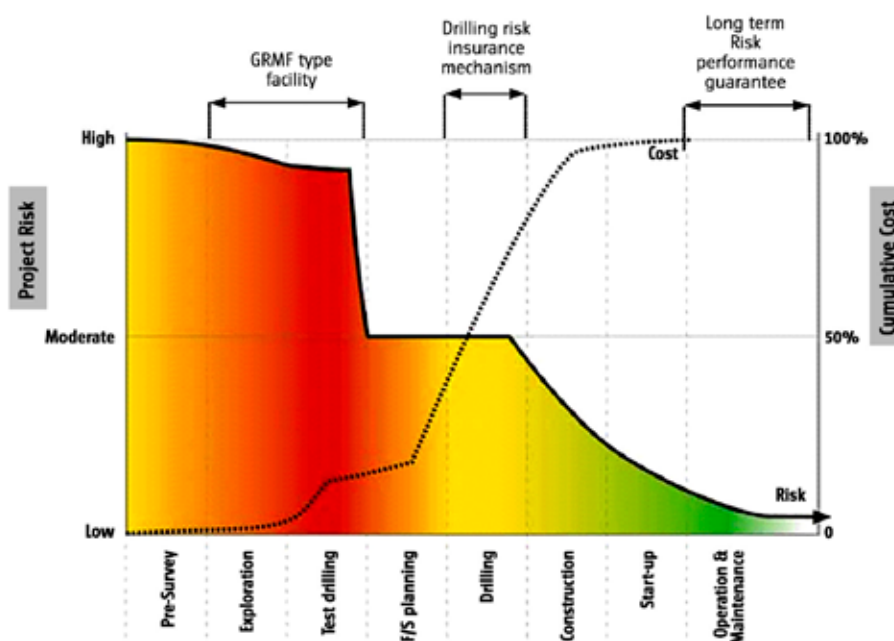


Figure 11: The three instruments cover distinct geological risk
Source: Falzon et. al. (2014)

The NAMA aims to reduce this risk through three instruments to address the risk of the geology being different than expected.

- **Contingent grants** reduce the exposure of early stage failure for activities in fields about which little is known (i.e. the resource is still in the exploration or 'test' phase). The idea is to provide grants through a national risk mitigation facility, with a 'continuation premium' that is contingent upon developers moving to the next stage⁵. The driver for utilising this approach is that there is such a high risk of failure, that an insurance scheme (which could be more efficient from a leverage perspective) is not feasible (premiums too high).
- **Drilling risk insurance** would pay-out in case the wells produce less steam than expected. The NAMA will support the development of an insurance scheme and cover part of the insurance premium for a pilot case, with the aim that over time this insurance is fully commercially viable.
- **Long-term performance guarantee** aims to provide a full guarantee for the long-term performance of the wells for a particular project, thereby reducing the exposure to the risk that there will be an unexpectedly large decline in the performance of the wells⁶.

The potential benefits of an integrated package of geological risk mitigation instruments could be significant, particularly if it were applied to multiple developments. By mitigating risk across the development cycle, Kenya can:

- encourage the crowding in of domestic investors (public and private), international private equity and other 3rd party capital to finance geothermal development by substantially improving risk-adjusted returns,
- enable project developers to receive greater certainty that their drilling programme will be sufficiently de-risked to allow the second stage financing of the associated power plant to commence,
- provide protection for project developers' and other 3rd parties' equity, allowing it to be recycled into additional opportunities, and
- reduce capital requirements by providing coverage against early unsuccessful wells and de-risking projects more generally.

⁵ This instrument is largely based on the Geothermal Risk Mitigation Facility for Eastern Africa developed by KfW. See <http://www.grmf-eastfrica.org/about/financial-support>

⁶ This is largely based on Long term risk (LTR) component of the French geothermal risk guarantee system - see <https://pangea.stanford.edu/ERE/pdf/IGAstandard/GeoFund/Germany2008/Bezelgues-Courtade.pdf>

To conclude, the Kenyan energy system will need to transform and geothermal energy has a key role to play. The Kenyan Geothermal NAMA is designed to accelerate geothermal energy by offering a number of financial instruments to the private sector to mitigate geological risk. This is necessary for private investors to consider participating in early stage, high risk geothermal development activities. By combining different components into one NAMA, Kenya intends to attract private investors to develop the geothermal sector alongside the government's efforts through the GDC.

Self-supply renewable energy NAMA in Chile⁷

In line with the country's economic development and associated rising energy demand, Chile is expected to require some 8,000 MW new generation capacity by 2020. Chile has almost no fossil fuel resources and development of its hydro resources is limited because of environmental concerns. At the same time, the country's renewable energy potential is significant, mainly comprising solar, wind, geothermal and biomass resources. This is recognized in the government's National Energy Strategy 2012-2030 (Gobierno de Chile, 2012) as well as the renewable energy target approved by the government in 2013 to increase the share of renewable energy sources to 20% by 2025 (Gobierno de Chile, 2013). Self-supply renewable energy systems are attractive for consumers as they provide a secure energy supply option and hedge against rising energy prices. However, various barriers have impeded their large scale deployment so far.

NAMA Design

The objective of the NAMA is to promote self-supply renewable energy systems in industry, targeting mainly the agro industry, tourism and retail sectors. All non-conventional renewable energy technologies are eligible as long as 50% of the generated energy is consumed on site. The design of the NAMA was informed by a detailed barrier analysis which concluded that in addition to significant financial barriers, other barriers related to knowledge, technical capacity and technology confidence are equally relevant. The components of the NAMAs and activities to address the identified barriers are depicted in Figure 2.

Financial Component	NAMA Grant Fund	– Finance of pre-feasibility studies – Grants of up to 20% of total investment cost
	NAMA loan scheme	– Guarantee fund for banks to facilitate provision of loans – Loan facility to projects at preferential rates and repayment terms
Technical Component	Training and capacity building	– Training programme targeted at different stakeholder groups – Help desk and support facility for project developers – Knowledge exchange programme between national and international experts
	Technical help desk	
	Knowledge exchange	
Outreach Component	Outreach & awareness	– Technology road shows and demonstrations – Regional and local events

Figure 12: Chile SSRE NAMA components

⁷ The development of the NAMA proposal was supported by Ecofys and Fundación Chile through the Mitigation Momentum project. In 2013, the UK-Germany NAMA Facility preliminarily awarded €15 million to fund implementation of the NAMA. The NAMA is currently undergoing an in-depth appraisal and the final funding decision is expected in mid-2014.

Finance Mechanism

The design of the financial component followed a detailed financial analysis which provided insights into the type of instruments and level of support required to stimulate investment of the private sector. A key aim was to ensure that public financial resources would be used in the most effective way, i.e. to minimize the amount of public funding required to shift private investment to low carbon technologies long term.

Based on this analysis, the NAMA centres around a financial component which includes two main sub components, the NAMA Grant Fund and the NAMA Guarantee Fund. The framework of the financial component and mechanism is depicted in Figure 13 and described below.

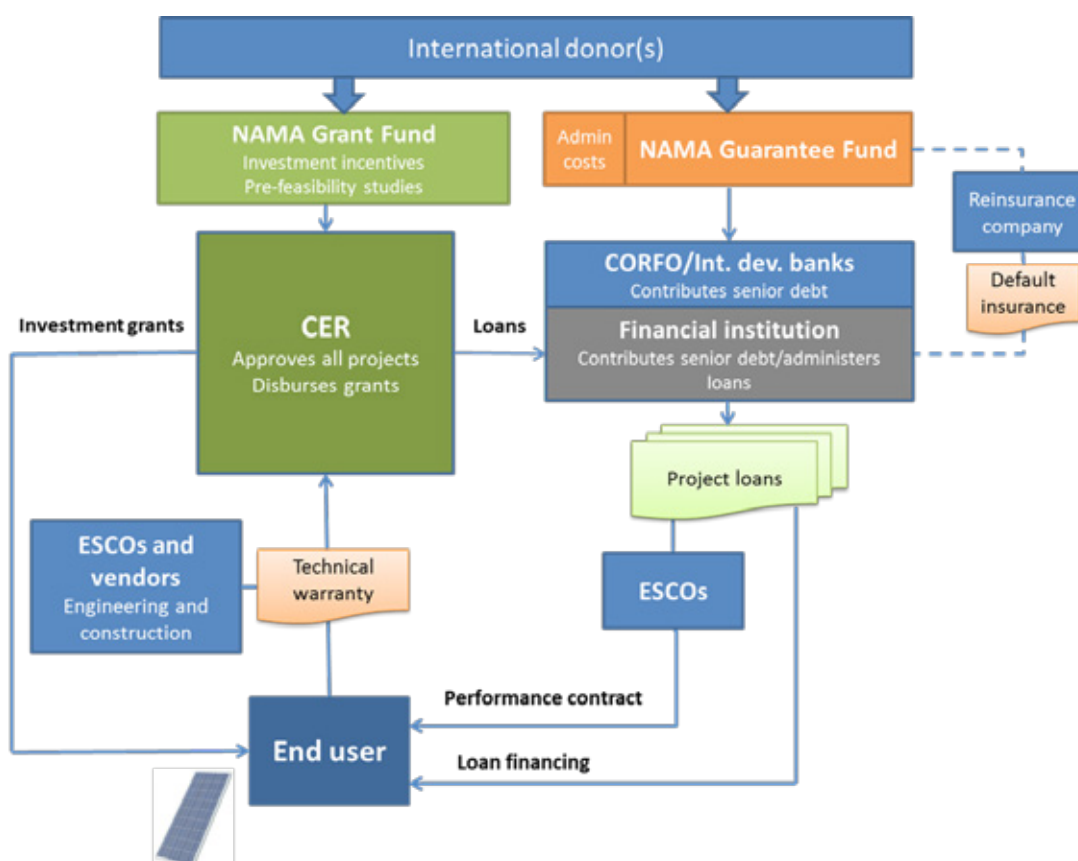


Figure 13: Financial component - Self supply renewable energy NAMA Chile

The **NAMA Grant Fund** will provide grants for pre-feasibility studies to build a pipeline of projects. Reluctance of companies to invest in studies with an uncertain outcome was found to be one of the key barriers to advancing deployment of renewable energy technologies. For certain technologies which face higher investment barriers, additional investment grants may be provided. The investment grants could fund up to 20% of total installed costs to cover technology, installation costs, connection to the grid, permitting, engineering or other required expenses. These will be administered by the Centro Energías Renovables (CER) on a case by case basis. The CER approves all projects and disburses the grants. Technology providers and Energy Service Companies (ESCOs) undergo a technical vetting process to be eligible to participate in the scheme.

The main element of the proposed finance scheme is the **NAMA Guarantee Fund** and associated preferential loan scheme. The guarantee reserve will cover the majority share of any loan defaults. This enables senior debt to be raised from Chile's economic development agency (CORFO) and international development banks at preferential rates to capitalise the majority of the loan programme. The administration of the loan programme will be tendered to private commercial banks. To participate, banks will be

expected to contribute capital and assume some of the risk of the loans. The banks' risk exposure should be sufficient to attract and motivate commercial banks within their existing risk profiles and horizons and at the same time minimise moral hazard and ensure good loan origination. The scheme will offer loans for renewable energy projects at below market interest rates of 3.75% and a term of 15 years. Loans would provide up to 80% of the total cost of the installation requiring the applicant to provide at least 20% of own equity.

The finance mechanism is supported by a range of technical support, capacity building and outreach activities targeting different levels of the value chain. The implementation of the scheme is coordinated by the Centre for Renewable Energy (CER) which is also the responsible entity for the technical support and outreach components. Funding from the Anglo German NAMA Facility is proposed to capitalise both the grant fund and a guarantee fund.

In conclusion, a thorough analysis of the financial and market conditions around self-supply renewable energy systems as well as deep engagement with the private sector, the financial service industry and international finance providers resulted in the design of a financial mechanism which will maximise the effectiveness of scarce public funds. Only a relatively small injection of public finance is required to set up the guarantee fund which enables the capitalisation of a loan programme involving private commercial banks. Overall, NAMA finance from public sources allows for approximately ten times the volume of investment in renewable energy technologies by the private sector.

4 Insights from early NAMA development experience

This chapter presents a number of practical insights, or good practices, for those involved in the design and support of NAMA proposals, based on experiences in five countries that collaborated in the first phase of the Mitigation Momentum project and continued discussions with peers. The topics are not chosen to cover the whole process of NAMA proposal development, but are a sample of issues that have been discussed within and across the teams working in the countries. This section is based on the report “Insights from NAMA development” (Van Tilburg and Röser, 2014).

NAMA selection

The first step in the development of a NAMA is selection and agreeing on a sector and/or action. In some cases the government has a clear preference, whereas in others there is a need for a prioritisation and selection process. Existing low-emission development strategies and national development priorities can provide a good starting point for the selection of the NAMA and the appropriate level of ambition. NAMA development does not have to start ‘from scratch’ as some may think: often there is much to build on in terms of existing policies and support programmes.

Since NAMAs are a relatively new concept, and the preparation and implementation requires collaboration across different government bodies, it helps considerably to have an individual or institutional ‘NAMA champion’ who promotes the idea and is a driving force behind the NAMA. Framing has proven to be an important consideration, since the ‘logical’ association with GHG mitigation may not be appealing to everyone involved. For example, it is often more convincing to stakeholders to talk about renewable energy rather than mitigation targets.

Engaging stakeholders

Government actions that seek to transform sectors and industries, require trust and cooperation from stakeholders inside and outside government (e.g. ministries and agencies, sector representatives, financing sector, and civil society). These same stakeholders can play a crucial role in the preparation phase by providing factual and creative input, and by validating findings. Since NAMAs are shaping up in a bottom-up fashion through dialogue rather than by following official guidance or processes, capacity building plays an important role – not least to help shape preferences and attitudes towards the NAMA concept. A common understanding of the NAMA concept and its objectives can be achieved by providing evidence based analysis and by communicating requirements and impacts tailored to the specific audience.

Most countries don’t have an established process for developing NAMAs, so having a clear plan for engagement of stakeholders and their roles and responsibilities can help avoid surprises. One of the biggest challenges is inter-ministerial coordination and defining who is in the ‘lead’. There is often an interplay between different ministries (sector, planning, finance) and if not managed carefully this could lead to conflict and miscommunication, in particular when finance is on the table.

Managing expectations on available finance for NAMAs can be delicate in these early days of NAMA development. One should strike a balance by showing the potential for future climate finance but also highlighting likely limitations of international public funds and the importance of mobilizing national sources. It is also important to recognize that some countries may have

hesitations based on past experiences (e.g. the CDM left some countries quite sceptical). As indicated above, framing is an important part of the message. Numbers and analytical results usually do not speak for themselves and need to be used to illustrate a story, make a case, and form a compelling argument.

Analysis and design

Analysis of costs and benefits, barriers, impacts, and risks lies at the heart of NAMA development, and directly feeds into decision making and design. After narrowing the scope and aim, the next logical step is a thorough analysis and understanding of the barriers that inhibit existing policies and efforts from reaching the full transformational potential that is typically aimed for. A barrier analysis is a central piece of NAMA development and gives insight into the scope and nature of the problem.

Often barriers can be overcome in different ways, and various combinations of policy instruments and financial delivery structures can work. The solution offered by the NAMA typically has one or more components, across the (UNFCCC) categories of finance, technology transfer, and capacity building. All too often financial or economic barriers are considered to be most significant, while in many countries and sectors capacity barriers, and information and knowledge barriers, can be equally if not more important. For NAMAs to be effective agents for long term change, addressing multiple barriers simultaneously through different types of interventions is needed.

Developing a NAMA proposal typically requires a team of people in government, supported by external experts. Since NAMA work is new and specialised, teams ideally combine international experts who can build on experience across countries, and local experts who have different and often better access to information, and can be credible representatives of the team in the national context.

What is needed for support?

Support needs are very case specific and there is no single recipe to developing a NAMA proposal that successfully attracts support. Four common themes across NAMA concepts that have gained traction include a) the potential for public resource to leverage private sector investments, b) the combination of detail in the proposal while keeping room for tailoring to donor preferences, c) combining unilateral and supported elements to demonstrate host country commitment, and d) early engagement with donors and financial institutions to understand their requirements and build on their long standing experience in financial cooperation.

The question ‘what makes a good NAMA?’ cannot be answered in general terms, as the design is critically dependent on the national context. The number of proposals that have secured funding for implementation is limited and do not yet provide a sufficient basis to pass judgment. Good NAMAs need to be embedded in existing policies and are based on sound analysis. They also have secured a certain level of political ownership through a process of stakeholder engagement. They are ambitious and fit in a comprehensive, long-term national or sectoral strategy or vision and target multiple mitigation and development benefits. They have a pragmatic but robust system for measurement, reporting and verification (MRV), clearly identified financing needs, and typically maximise the mobilisation of private finance with limited public finance means.

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