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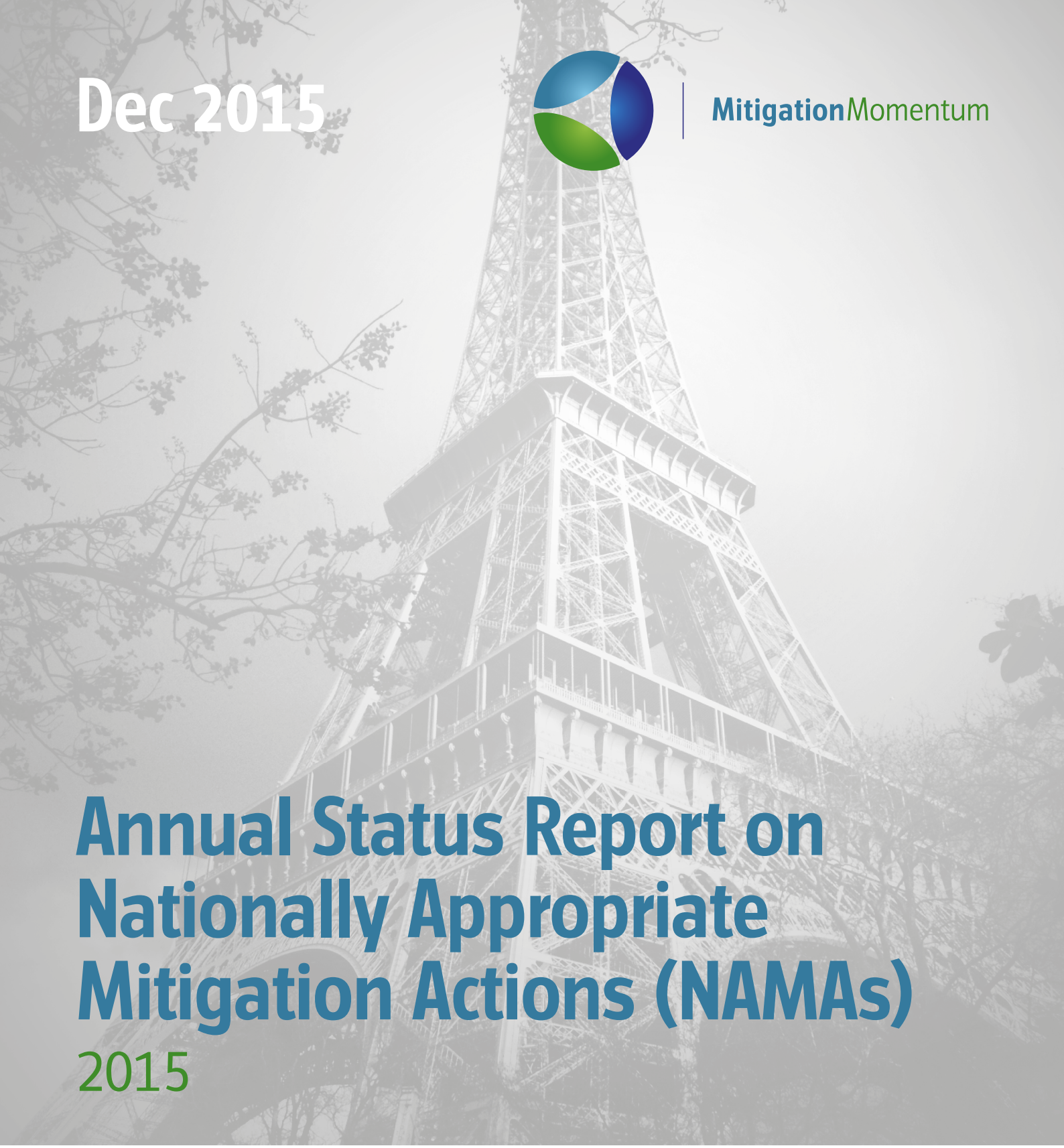
MitigationMomentum

Annual Status Report on Nationally Appropriate Mitigation Actions (NAMAs)

2015



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NAMA Facility

MitigationMomentum

Annual Status Report on Nationally Appropriate Mitigation Actions (NAMAs) 2015

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This report is prepared and published as part of the Mitigation Momentum project, a collaboration between ECN Policy Studies and Ecofys Germany. 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 project is part of the International Climate Initiative (IKI) of the Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety.

Disclaimer

List of abbreviations

ADB	Asian Development Bank
AfDB	African Development Bank
AMIA	Adaptation and Mitigation Initiative Philippines
BMUB	German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety
CCAP	Center for Clean Air Policy
CDKN	Climate and Development Knowledge Network
CDM	Clean Development Mechanism
CER	Certified Emission Reductions
CFCs	Chlorofluorocarbons
CIF	Climate Investment Fund
COP	Conference of the Parties
CTCN	Climate Technology Centre and Network
DECC	Department of Energy and Climate Change (UK)
DFI	Development Finance Institution
ECN	Energy research Centre of the Netherlands
EUR	Euro
GCF	Green Climate Fund
GDP	Gross Domestic Product
GEF	Global Environment Facility
GHG	Greenhouse Gas
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GWP	Global Warming Potential
HCFCs	Hydrochlorofluorocarbons
HFCs	Hydrofluorocarbons
IDB	Inter-American Development Bank
IEA	International Energy Agency
IFC	International Finance Corporation
IKI	International Climate Initiative
INDC	Intended Nationally Determined Contribution
KfW	Kreditanstalt für Wiederaufbau (KfW Development Bank)
LDC	Least Developed Country
MDB	Multilateral Development Bank
MDGs	Millennium Development Goals
MEPS	Minimum Energy Performance Standard
mln	Million
MOEJ	Ministry of the Environment, Japan
MP	Montreal Protocol
MRV	Measurement, reporting and verification
NAMA	Nationally Appropriate Mitigation Action
NDF	Nordic Development Fund
ODS	Ozone Depleting Substances
OECC	Overseas Environment Cooperation Center (Japan)
ppm	Parts per million
RAC	Refrigeration and Air-conditioning Sector
REDD+	Reducing Emissions from Deforestation and Forest Degradation
SDGs	Sustainable Development Goals
TA	Technical Assistance
UN	United Nations
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNIDO	United Nations Industrial Development Organization
USD	United States Dollar
WB	World Bank
WRI	World Resources Institute

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Foreword

Katja Eisbrenner (Ecofys)

Since 2012, the project Mitigation Momentum has identified and developed supported Nationally Appropriate Mitigation Actions (NAMAs) in countries as diverse as Chile, Ethiopia, Kenya, Peru, Tunisia, Thailand, Georgia, and Indonesia. These NAMAs couldn't have been developed without the full engagement and support of the governments of the countries involved. We are particularly proud that this project played a key role in assisting Chile to be one of the first NAMAs to receive implementation funding from the NAMA Facility.

The sponsor of this project, the International Climate Initiative (IKI) of the German Government, recognised early that the international community needed to move NAMAs from concept to practice. Mitigation Momentum was one of the first global projects on NAMAs and has helped set standards and expectations on what can be considered a good NAMA. The NAMA Status Report started as a report only of the Mitigation Momentum project. It was clear though that wider cooperation and dialogue amongst practitioners was needed to move forward more quickly and IKI set up the Enhanced NAMA Co-operation Group. Since then the NAMA Status Reports have become an opportunity to collect and share experiences some of the leading practitioners in the field of NAMA development.

This year's report is a review of what is happening on the ground and the future of NAMAs after Paris. With the activity on NAMAs increasing every year and with INDCs pointing towards the need for implementation at scale, it is clear that NAMAs will continue to play an important role in delivering transformational change and sustainable development.

EXECUTIVE SUMMARY

NAMAs have gained critical momentum. With more than 160 proposals developed, INDCs pointing clearly towards implementation at scale, and expectations on GCF funding, we expect NAMAs will continue to play a key role after COP21.

NAMA development continues to grow steadily

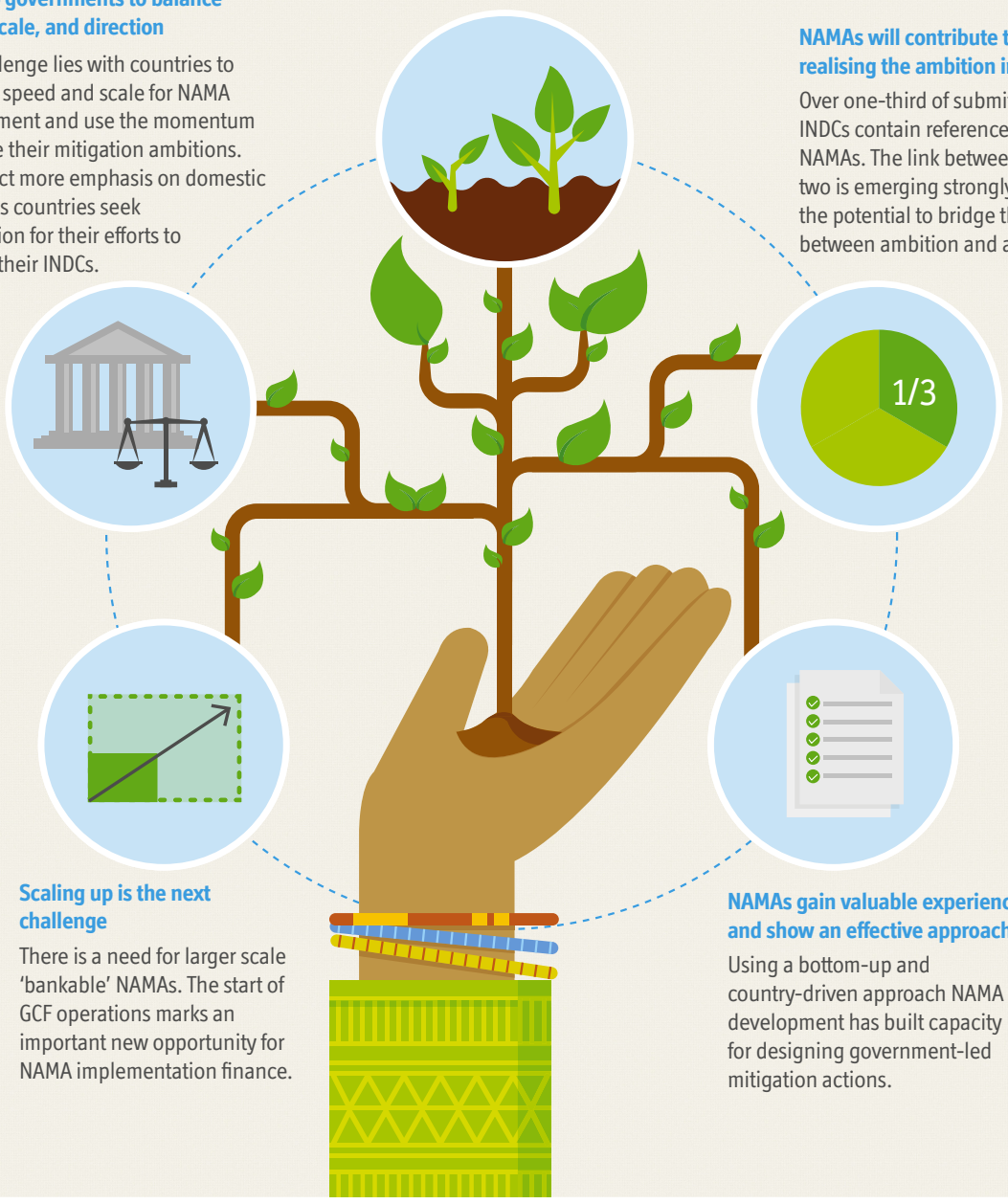
The UNFCCC NAMA Registry has almost doubled the number of registered NAMAs from end of last year. The NAMA Database records close to 170 NAMAs.

It's up to governments to balance speed, scale, and direction

The challenge lies with countries to increase speed and scale for NAMA development and use the momentum to realise their mitigation ambitions. We expect more emphasis on domestic NAMAs as countries seek recognition for their efforts to achieve their INDCs.

NAMAs will contribute to realising the ambition in INDCs

Over one-third of submitted INDCs contain reference to NAMAs. The link between the two is emerging strongly with the potential to bridge the gap between ambition and action.



Scaling up is the next challenge

There is a need for larger scale 'bankable' NAMAs. The start of GCF operations marks an important new opportunity for NAMA implementation finance.

NAMAs gain valuable experience and show an effective approach

Using a bottom-up and country-driven approach NAMA development has built capacity for designing government-led mitigation actions.

Executive summary

This Annual NAMA Status Report argues that NAMAs have gained critical momentum at this important juncture in Paris. With more than 165 proposals being developed, INDCs pointing clearly towards implementation at scale, and expectations turning towards the Green Climate Fund (GCF), we expect that NAMAs will continue to play a key role after the 21st Conference of the Parties (COP21).

NAMA development continues to grow steadily

On the eve of COP21 in Paris, this NAMA Status Report shows that in parallel to countries' submissions of INDCs, the number of NAMA proposals and concepts continues to grow steadily and surely. The UNFCCC NAMA Registry has 106 entries, almost double the number from last year's edition of this report, and the NAMA Database counts 165 NAMA initiatives across all sectors and geographic regions (and there may be many more in preparation). At the time of writing the number of NAMAs that have secured implementation funding is, 13, a number that is very likely to increase before and at COP21. At the same time, it needs to be acknowledged that for NAMAs to live up to their potential, implementation finance needs to materialise significantly faster and with larger volumes.

NAMAs will contribute to realising the ambition in INDCs

For many countries, NAMAs will be an important tool for implementing the post-2020 climate agreement and over a third of the submitted INDCs already contain reference to NAMAs. The high political visibility of INDCs has the potential to increase domestic buy-in for sectoral plans and individual bottom-up measures, including NAMAs. This report shows that INDCs and NAMAs can, and should be, linked in many ways: from channelling and leveraging finance, engaging stakeholders, assessing and emphasising co-benefits, to building an integrated cross-sectoral institutional framework to bridge the gap between ambition and action.

The approach is right and experience has been built

It is fair to say that broad engagement in NAMAs and INDCs shows that the underlying approach is effective: it represents bottom-up, country-driven initiatives and ambitions with sufficient domestic buy-in, ownership, and accountability. Moreover, a focus on transformational change and leveraging private investments support a transition to a low-carbon future. This approach also resonates with 'The Future We Want', the post-2015 UN development agenda and associated Sustainable Development Goals (SDGs), adopted this year, which include 'combating climate change and its impacts' as their 13th goal.

The past years have been a learning experience for NAMA development. Since the introduction of the NAMA concept in the Bali Action Plan a strong international community of practice has formed. The UNFCCC has been instrumental in this through its efforts to host dialogues and events, provide up-to-date information and training through establishing a registry for NAMAs. The NAMA Facility has played a pioneering role in two ways: it has provided earmarked implementation funding for NAMAs while the Green Climate Fund (GCF) was under development, and it helped to give direction and a more common understanding of what makes a strong NAMA from an international finance perspective. The skills and learning on NAMA development can be seen more fundamentally as capacity for designing government-led mitigation actions. Attention should be paid now to ensure that this capacity is maintained in the future.

Scaling up is the next challenge

In November 2015, less than a month before the COP in Paris, the Green Climate Fund approved its first 8 projects worth USD 168 mln. The start of GCF operations and its open approach to both projects and programmes marks an important new opportunity for NAMA implementation finance. Building on the groundwork done by the NAMA Facility, the GCF can fund larger interventions, which will require countries to think big(ger). This is consistent

with the messages from Multilateral Development Banks (MDBs) on NAMA Finance in this report: there is a need for larger scale 'bankable' projects. Thinking bigger may also mean thinking differently about NAMA design and implementation, more in line with traditional development approaches to support for government interventions including sector wide NAMAs. New sources of finance will also encourage new 'partnerships', for example between governments and GCF-accredited agencies and/or MDBs.

A second reason for moving to larger scale NAMAs is the focus on transformational change. We observe national discussion on what transformation could mean, but also find that in practice the notion of transformational change (or 'paradigm shift') requires more understanding. As argued in this report it has everything to do with scale and degree of change; transformation will likely require significant redirection of public and private cash flows towards low-carbon technologies and practices.

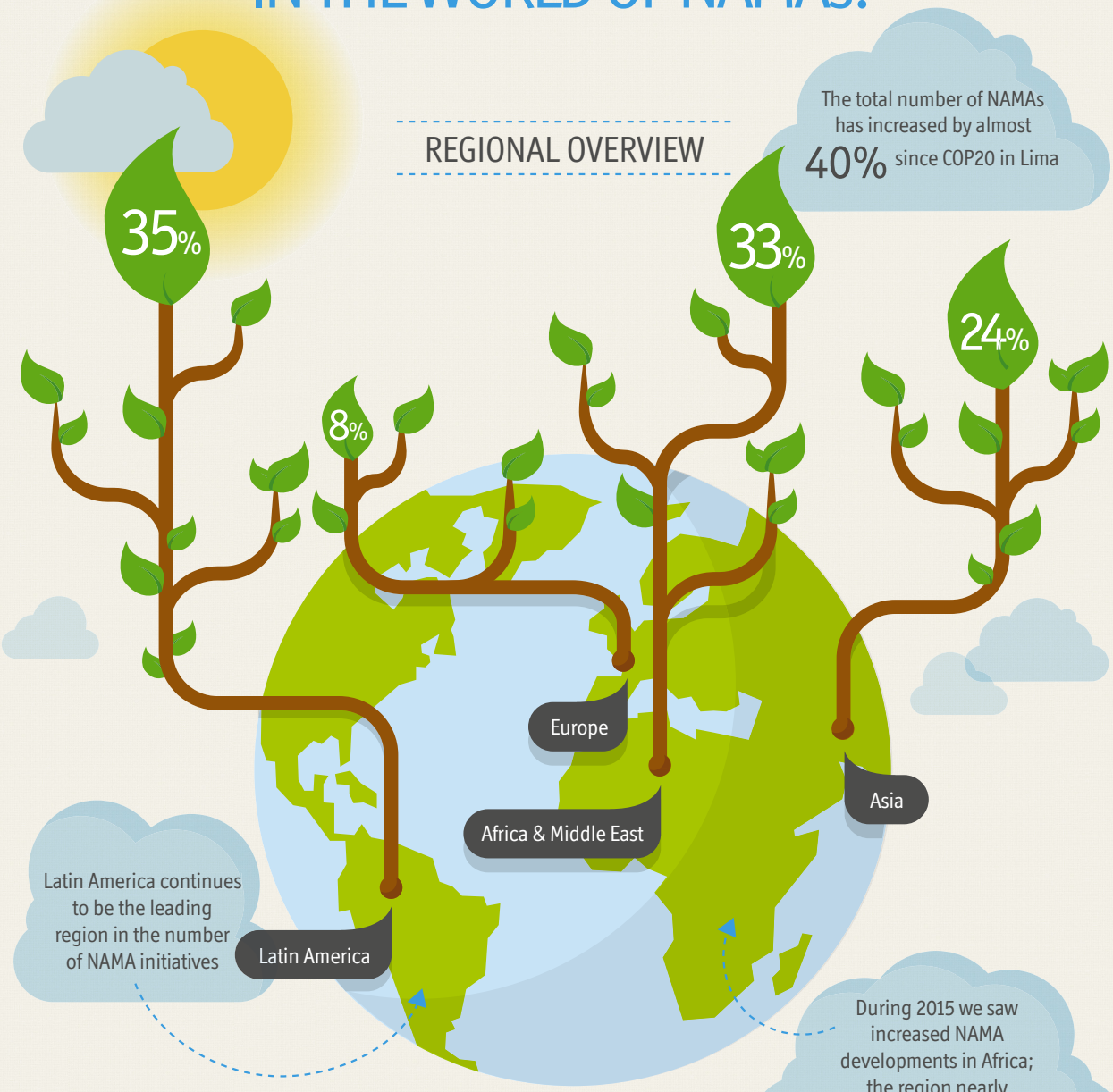
And it's up to governments to balance speed, scale and direction

This is a critical time for NAMA support as the GCF becomes operational and INDCs start to signal that major actions will be needed. Most countries have a pipeline of potential mitigation actions in various stages of development, and now is the time for governments to take a leading role in NAMA design and implementation to be successful in achieving the mitigation targets in their INDCs.

We expect more emphasis on domestic NAMAs as countries seek recognition for their efforts to achieve their INDCs. We also expect to see larger scale NAMAs pursuing and receiving funding from the GCF or other sources. As we already start to look beyond Paris, the challenge lies with countries to step up speed and scale for NAMA development and use the momentum to realise their mitigation ambitions.

WHAT IS HAPPENING IN THE WORLD OF NAMAs?

REGIONAL OVERVIEW

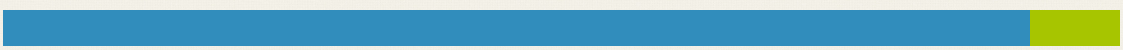


The total number of NAMAs has increased by almost 40% since COP20 in Lima

Latin America continues to be the leading region in the number of NAMA initiatives

During 2015 we saw increased NAMA developments in Africa; the region nearly doubled its number of NAMAs compared to 2014

TOTAL NUMBER OF NAMAs



165 in 44 countries

152 NAMAs under development

13 NAMAs under implementation

5 in South America | 6 in Asia | 2 in Africa

NAMAs with secured implementation funding have almost doubled in a year, however the overall number remains low compared to the total number of NAMAs

1. NAMA development

Ann Gardiner and Coraline Bucquet (Ecofys)

Since the first NAMA Status Report launched as a mid-year report in May 2012, we have tracked and presented NAMA development world-wide, including up-to-date statistics on NAMA activities and emerging trends. This chapter incorporates information from the UNFCCC's NAMA Registry[1] and the NAMA Database[2] (the latter takes into consideration UNEP DTU NAMA Pipeline Analysis and Database[3]).

The UNFCCC NAMA Registry

Launched at the end of 2013, the UNFCCC's official Registry is an active platform that provides opportunities for recognition for NAMAs and seeks to foster implementation of mitigation actions. The Registry has five main categories: (i) NAMAs seeking support for preparation, (ii) NAMAs seeking support for implementation (iii) NAMAs for recognition, (iv) information on support available and (v) support provided/received. The NAMAs seeking recognition for efforts that are strictly domestically funded are not considered in this analysis, as the NAMA Database focus is on internationally supported NAMAs (multilateral as opposed to unilateral or domestically funded).[4]

The number of NAMAs in the Registry has increased significantly from 57 in November 2014 to 106 in October 2015 (see Figure 1). The biggest increase has been in NAMAs seeking support for preparation rather than for implementation. Since the mid-year review in May 2015 five additional NAMAs have found support (in Costa Rica, Namibia, Sudan, The Gambia, and Tunisia) and the total financial support reported in the Registry has increased by around 25% in the last six months. Overall the Registry currently lists 14 NAMAs that have found support in the form of financial, technological and capacity building assistance. However, this still represents a small proportion of the total number of NAMAs in the Registry. The support comes from a variety of sources including the Global Environment Facility, the Governments of Austria and Japan, the NAMA Facility, the Spanish NAMA Platform, the Inter-American Development Bank, and UNDP MDG Carbon.

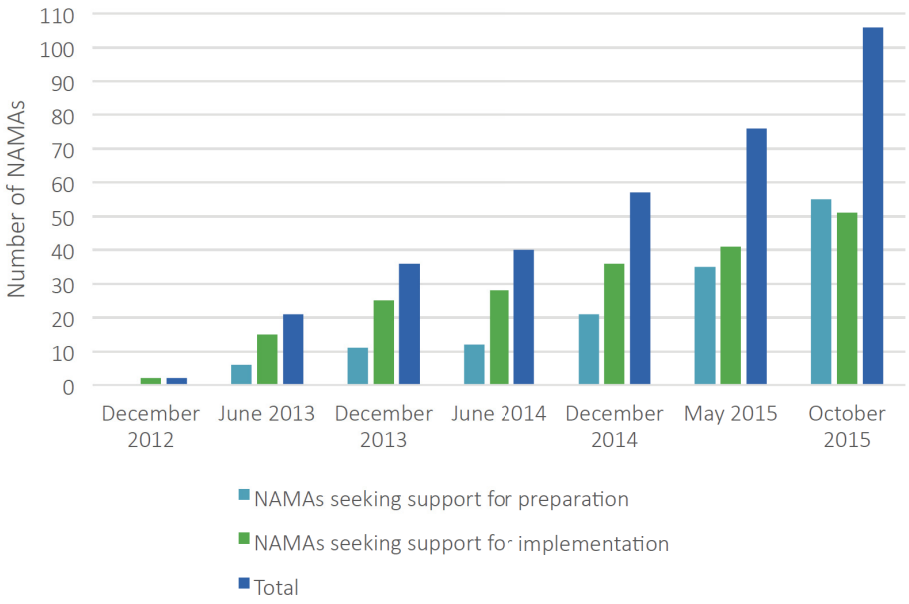


Figure 1: Submission of NAMAs to the UNFCCC NAMA Registry

[1] http://www4.unfccc.int/sites/nama/SitePages/Home.aspx
[2] http://nama-database.org/index.php/Main_Page
[3] http://www.namapipeline.org/
[4] At the time of writing there are 7 NAMAs seeking recognition in the NAMA Registry.

Current status of supported NAMA development

We present information here that is based primarily on the NAMA Database[5] which contains publically available information for NAMAs at the feasibility stage, under development, or under implementation. The database provides an overview of NAMA activities around the world beyond the officially registered NAMAs in the UNFCCC's NAMA Registry.

Africa and five in South America). Even though the number of NAMAs with secured implementation funding has almost doubled in a year, the overall number remains low compared to the total number of NAMAs being developed, indicating that funding is lagging behind the pace of NAMA development. Further tracking of the progress of particular NAMAs remains challenging as only limited information is available that offers the level of detail to allow to assess whether a NAMA has gone from development to implementation, even when financing has been secured. Having more publically available information would help build a wider body of evidence on success factors for NAMAs to move from preparation to implementation.

Box 1: What is included in the NAMA Database?

In the NAMA Database, information on NAMAs in various stages is compiled and updated on a regular basis. Key sources are the NAMA Registry, the NAMA Facility[6] and the Transport NAMA Database[7]. This information is complemented through additional information that is publically available. The NAMA Database includes initiatives classified into two phases of development: NAMAs under development and NAMAs under implementation. In order to be added into the database, NAMA initiatives must meet the following criteria:

A NAMA under development :

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

A NAMA under implementation:

- Meets all criteria for a NAMA under development (as mentioned above).
- Has a clear proponent and a clear set of activities across a defined timeline.
- Specifies its cost estimates and support needs.
- Specifies GHG mitigation and co-benefit impacts.
- Has received some international support to implement the actions contained in the proposal.
- The size and source of funding is publicly available

The NAMA Database also includes feasibility studies which describe potential NAMAs that have not received official government backing. However these feasibility studies are excluded from the statistics presented in this report.

The NAMA database currently records 165 NAMAs in 44 countries, and 27 feasibility studies in 16 countries and one region. Since the last Annual NAMA Status Report launched at COP 20 in Lima, the number of NAMAs has increased by almost 40% (Figure 2). Out of the 165 NAMAs, only 13 are currently under implementation (six in Asia, two in

[5] The NAMA Database (Ecofys, 2015) is managed by Ecofys. It does not represent official NAMA submissions and may not reflect the priorities of the country government.
[6] http://www.nama-facility.org/news.html
[7] The Transport NAMA Database (GIZ, 2015) is an open source platform, developed by GIZ as part of the TRANSfer project to support developing countries to develop and implement climate change mitigation strategies in the transport sector, together with the BMUB. The Database gathers information on transport NAMAs from publically available sources as well as GIZ's internal network.

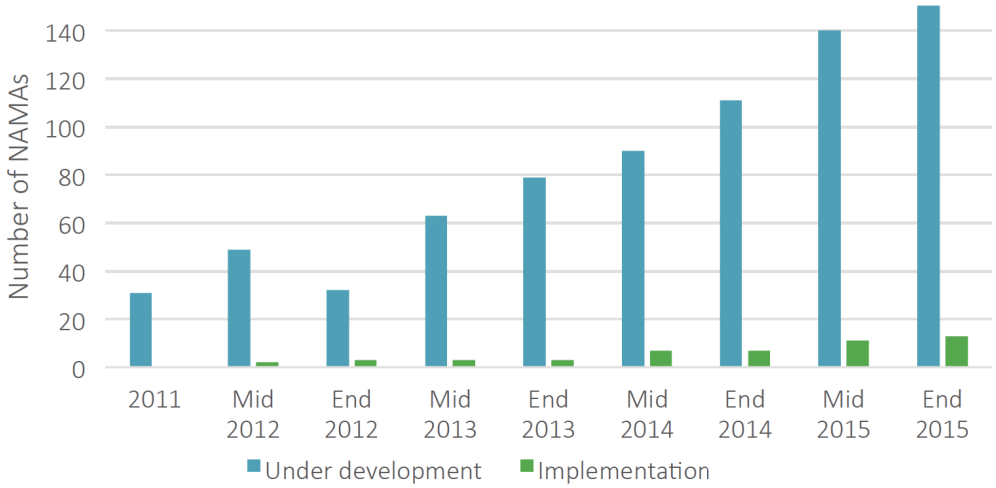


Figure 2: Development of NAMAs 2011-2015, www.nama-database.org

Distribution of NAMAs over regions and sectors

The number of NAMAs in the region Africa and the Middle East has nearly doubled compared to 2014, at 55, with activity particularly in the energy and transport sectors. Two NAMAs are listed as being under implementation in Africa. In Asia six NAMAs are under implementation of the total 40 NAMAs being developed. As in previous years, the greatest number of NAMAs is still in Latin America, with 57 NAMAs under development and five under implementation. In Europe only Serbia is seeking support for NAMAs, all of which are still at the development stage[8] (Figure 3).

Table 1 gives an overview of the NAMAs that have secured funding and are moving towards implementation. Financing information as of October 2015 is included in the table. This table is based on information publically available through the UNFCCC NAMA Registry, the Transport NAMA Database as well as the NAMA Facility. Upon writing the NAMA Facility has made public the selected NAMAs from its second call. These NAMAs have been included in Table 1.

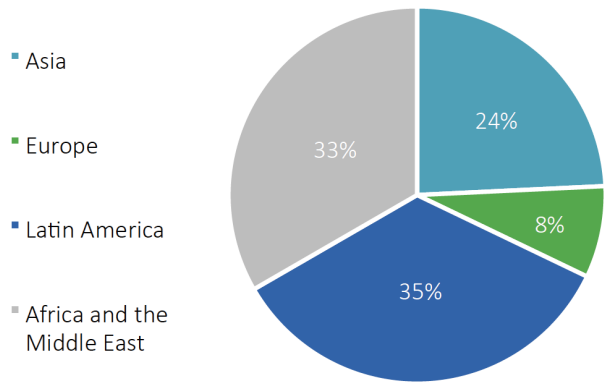


Figure 3: Regional distribution of NAMAs (under development and implementation)

[8] Serbia has submitted a total of 13 NAMAs, all seeking finance. Most of these are related to efficiency improvements in fossil fuel based energy generation, which is not an activity typically targeted by NAMAs.

Table 1 NAMAs are under implementation or have received implementation finance

Region	NAMA title	Country	Sector	Financing received (USD)[9]	Finance Sources
Africa	Biomass Energy NAMA	Burkina Faso*	Energy	14.7 mln	NAMA Facility
	Tunisian Solar Plan	Tunisia*	Energy	3.6 mln	Global Environment Fund (GEF)
Asia	Low-carbon end-use sectors in Azerbaijan	Azerbaijan*	Buildings, Transport, Energy	0.1 mln	GEF, SOCAR, EU, National Government
	NAMA for Low-carbon Urban Development in Kazakhstan	Kazakhstan*	Transport	71.3 mln	Government of Kazakhstan, UNDP, GEF, EDB, private sector
	Adaptive Sustainable Forest Management in Borjomi-Bakuriani Forest District	Georgia	Forestry	2 mln	Austria
	Sustainable Urban Transport Initiative	Indonesia	Transport	14 mln	NAMA Facility
	Tajikistan Forestry NAMA	Tajikistan*	Forestry	14 mln	NAMA Facility
	Thailand Refrigeration and Air Conditioning NAMA	Thailand*	Energy	16 mln	NAMA Facility
Latin America	Expanding self-supply renewable energy systems in Chile	Chile	Energy	16 mln	NAMA Facility
	Transit-Oriented Development (TOD)	Colombia	Transport	18.5 mln	NAMA Facility
	NAMAs in the Costa Rican coffee sector	Costa Rica	Agriculture	7.6 mln	NAMA Facility
	NAMA for sustainable housing in Mexico	Mexico	Buildings	15 mln	NAMA Facility
	Transport NAMA in Peru	Peru*	Transport	10 mln	NAMA Facility

NAMAs marked with a star (*) are NAMAs that have entered the implementation phase since the publication of the last Annual NAMA Status Report in December 2014.

[9] Based on information from the NAMA Facility and UNFCCC NAMA Registry .

It is important to mention that, based on the Transport NAMA Database and research carried out by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), there are 5 additional transport NAMAs with different sources of funding. However, no information on the amount and sources of financing received is publicly available and they are therefore not categorised as "under implementation" for this report. These are the transport NAMA on BRT in Kenya, the Passenger Modal Shift from Road to Rail – The Gautrain Case NAMA in South Africa, the NAMA Enhancing Vehicle Renovation and Operating Efficiency in Mexico's Federal Freight Sector, Addis Ababa Light Rail Transit Transit-Oriented Development NAMA and the Unilateral NAMA-Sustainable Road-based Freight Transport Colombia.

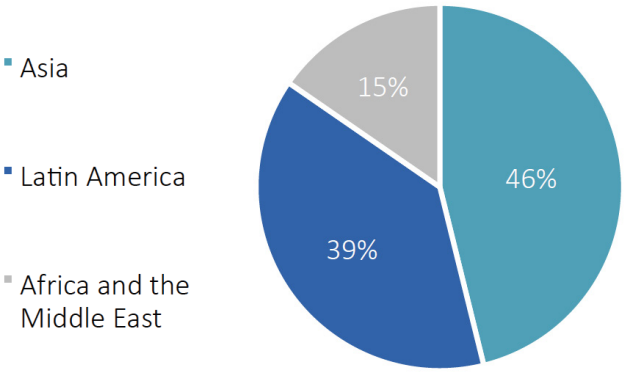


Figure 4: Regional distribution of NAMAs under implementation

NAMAs under implementation are in low income countries (1 NAMA), in lower-middle income countries (3 NAMAs), in upper-middle income countries (8 NAMAs) and in high income countries (1 NAMA). The question whether there are structural biases that might effect this distribution is discussed in more detail in Chapter 3.7.

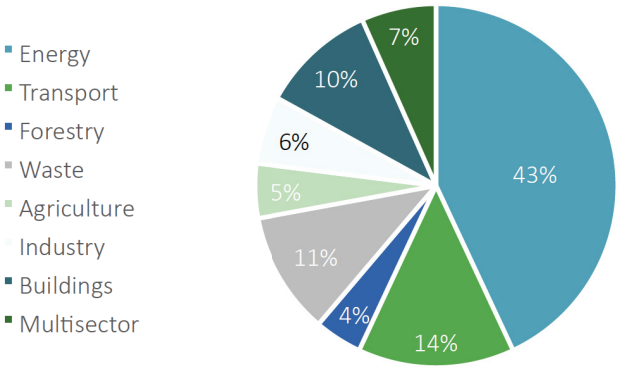


Figure 5: Distribution of NAMAs per sector (under implementation and development)

Activity type of NAMAs

The NAMA Database classifies NAMAs in two types of activities: 'strategy/policy' or 'project'. Policies and strategies have a broader scope than projects, and include longer-term objectives leading to transformational impacts. More than half of NAMAs are policies/strategies; examples include the Addis Ababa Light Rail Transit Transit Oriented Development in Ethiopia or the creation of a financing facility to support renewable energy development in the Philippines. Practice suggests that NAMAs that go beyond specific individual projects and comprise longer term strategic policy interventions are typically more likely to achieve transformational change (van Tilburg and Röser, 2014).

Developments on NAMA support in the past six months

As well as continued NAMA activity on the ground in countries as demonstrated by the increase in the number registered, there has been continued support for NAMAs from international organisations. This includes earmarked funds, new engagement on technical assistance and the first announcements from the Green Climate Fund (GCF) as it starts moving into operation.

Regional Workshops on NAMAs; hosted by the UNFCCC

The UNFCCC held regional workshops[10] in Bonn, Germany for Asia Pacific and Eastern European countries, in Kigali, Rwanda, for African countries, and in Santiago, Chile for Latin American and Caribbean countries. These workshops had a particular focus on financing and implementation and brought together countries with international organisations that provide technical and financial support for NAMAs.

The third call for NAMA Facility applications closed on 15 July 2015

A third call for NAMA Facility applications was made possible due to a joint contribution of additional funding of up to EUR 85 mln from the Facility supporters[11]. The Facility is currently evaluating the 42 submitted NAMA support project outlines[12] with regard to their eligibility, ambition and feasibility. 45% of applications originated from Africa, followed by Asia (31%), and South America (22%), the majority of which focus on energy efficiency and renewable energy. Six countries, Cameroon, Senegal, Tanzania, Bolivia, Guatemala and Sri Lanka, have made an application for the first time.

Cooperation between CTCN and UNFCCC Secretariat on NAMA support

The Climate Technology Centre and Network (CTCN) is an implementation arm of the Technology Mechanism hosted by UNEP and UNIDO. The CTCN does not provide funding directly to countries, but can in some cases play a matchmaking role with funding sources. The UNFCCC secretariat and the CTCN are collaborating to provide tailor made technical assistance for the preparation of NAMAs. The initiative invites developing countries to submit NAMA concepts to the Registry to access the support offered. Please note that the total funding secured by the CTCN for its operations is limited to USD 28.5 mln (CTCN, 2015) which might affect its effectiveness.

Green Climate Fund decides on first funding proposals

Since July 2015, 37 funding proposals[13] were received by the GCF, representing a total value of USD 1.5 billion, of which 29 originate from the public sector and 8 from the private sector. The majority of funds requested were not however for mitigation actions, but for adaptation and cross-cutting actions. More than half (56%) of the proposals cover Asia and the Pacific region, 27% focus on Africa and 17% on Latin America.

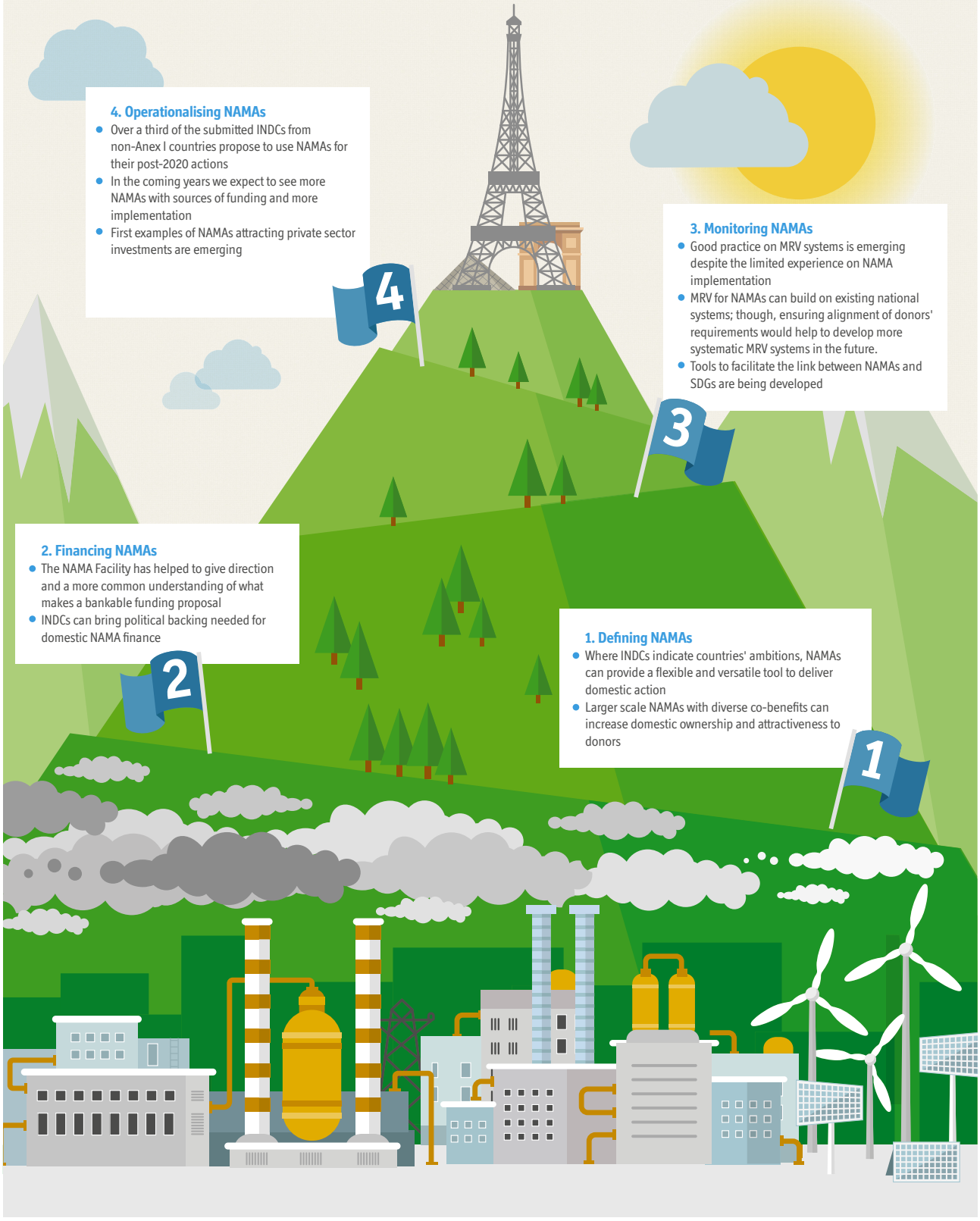
The GCF Board has approved 8 proposals for a total value of USD 168 mln, of which 6 originate from the public sector. The approved funding is also largely for adaptation and resilience, with only one proposal being purely mitigation, an Energy Efficiency Green Bond in Latin America. This proposal is linked to NAMAs in several countries[14].

Discussion

Overall NAMA activities have increased significantly in the last year, both for NAMAs under development and under implementation. However, the number of NAMAs receiving funding is lagging behind this activity. The fast-growing number of initiatives seeking support for preparation combined with increasing international support is positive and suggests that more importance is gradually being granted to the NAMA concept. More than half of the NAMAs in preparation have strategic or policy objectives at the core and are thus more likely to lead to transformational change than the project based NAMAs. However, fully achieving the objectives of NAMAs is possible only if there is a growing proportion of NAMAs that deliver strategic or policy components.

[10] http://unfccc.int/focus/mitigation/items/7429.php
[11] the German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB), the UK Department for Energy and Climate Change (DECC), the Danish Ministry of Climate, Energy and Building (MCEB) and the European Commission
[12] http://www.nama-facility.org/news/101215-extended-information-on-42-nama-support-project-outlines-received-in-the-3rd-call-of-the-nama-facility.html
[13] http://news.gcfund.org/gcf-publishes-first-funding-proposals-for-board-consideration/
[14] http://www.greenclimate.fund/home

WHAT HAS BEEN ACHIEVED
AND WHERE IS PROGRESS MOST NEEDED?



2. Where progress is most needed

Ann Gardiner, Angelica Afanador, Katja Eisbrenner, Michelle Bosquet (Ecofys), Lachlan Cameron, James Falzon and Natalie Harms (ECN Policy Studies)

NAMAs have gained critical momentum at this important juncture in Paris. As in previous editions of the NAMA Status Report, this section reviews areas where we need progress on NAMAs to continue that momentum and implement actions that achieve significant reductions in emissions of greenhouse gases (GHGs). This review is structured under four main headings: defining, financing, monitoring and operationalising NAMAs. The ideas proposed here draw on ongoing international dialogues and on-the ground experience, as well as the opinion pieces presented in Chapter 3.

2.1 Defining NAMAs

Since the introduction of Nationally Appropriate Mitigation Actions (NAMAs) in 2007 in the Bali Action Plan, the concept of a NAMA continues to be dynamic and evolving. Although there is an openness to the definition, there has been convergence around the principle that NAMAs should go beyond purely mitigation and include transformational change which delivers wider benefits aligned with national priorities. Although the definition of transformational change is in itself vague (see Section 3.4) it is clear that a sector-wide strategic or policy approach, rather than individual mitigation projects is needed to achieve paradigm shift.

In 2015, with the inclusion of climate change as a specific goal in the Sustainable Development Goals (SDGs), the link between mitigation and sustainable development is even stronger[15]. Developers have used the open definition to adapt NAMAs to meet the dual objectives of achieving emission reductions while facilitating sustainable development goals of their countries. This flexibility makes NAMAs very relevant to emerging policy frameworks such as green growth strategies.

This relevance is further supported when considering the link with Intended Nationally Determined Contributions (INDCs) submitted by Parties to the UNFCCC. These INDCs set out what contributions to mitigation and adaptation will be made by countries. Where INDCs provide the level of contribution within a country, NAMAs can provide a flexible and versatile tool to deliver domestic action. To date, implementation of NAMAs has largely been dependent on access to international funding. With the INDCs there is an opportunity to link NAMAs to the high-level contributions while using their more limited scope to demonstrate domestic benefits to increase buy-in. Lessons learned from more mature NAMA concepts also indicate that if they deliver larger and more diverse co-benefits, this increases the ownership from the country and also attractiveness to donors. At the same time, INDCs open the way for more unilateral NAMAs, i.e. ones that are not explicitly seeking external funding. Applying lessons learned from the developed NAMAs to domestic action, and using the same terminology, can help link the mitigation outcomes more strongly to transformational change and to sustainable development gains in a country.

New sources of funding for NAMAs are emerging, such as the newly operational Green Climate Fund (GCF) (see Chapter 1 and Section 2.2). The GCF builds on the work of the NAMA Facility and re-emphasises the importance of transformational change. Clear frameworks, indicators and measurement, reporting and verification (MRV) elements required in the application stage will be helpful and important to differentiate those NAMAs ready for implementation from those needing readiness support. These new criteria and definitions will further shape our understanding of NAMAs as they increase in importance. The experience the community will gain from the first round of GCF selection will give us a sense of what will be left to do in defining NAMAs to strengthen their role in the coming years.

[15] https://sustainabledevelopment.un.org/post2015/transformingourworld

2.2 Financing NAMAs

Availability of sufficient and appropriate sources of finance for NAMAs (and an apparent lack thereof) have been a particular topic of concern for NAMA developers. The financing landscape for NAMAs is now shifting. Funds are beginning to flow from an important international source, namely the Green Climate Fund (GCF). In addition, Intended Nationally Determined Contribution (INDC) commitments of national governments are potentially enhancing the mobilisation of domestic finance. This section looks at the lessons learned from the NAMA Facility, the opportunities opening up at the GCF and future international finance sources, and discusses possibilities for private and domestic finance linked to INDCs.

NAMA FACILITY BUILDS EXPERIENCE ON NAMAS: The lessons learnt from the NAMA Facility from designing successful proposals to receiving finance for implementation will be relevant to accessing funding from other sources such as the GCF. Since its announcement during COP18 in Doha, 138 NAMA Support Project Outlines have been submitted to the Facility and 8 NAMA Support Projects have been preselected in the first two calls. The results of the 3rd call are expected shortly. The breadth of projects and momentum created amongst countries through the Facility will undoubtedly serve as a solid departure point for development of a significantly larger GCF pipeline and other potential international finance sources. It is likely that some of the NAMA Facility applications that may have been unsuccessful due to funding limitations but show a promising level of technical quality, can be adjusted and re-submitted as GCF applications. One strength of the NAMA Facility is the encouragement of applicants to combine technical assistance with financial instruments in NAMA proposals - submissions are required to specifically detail a finance plan, as well as engage with a financial entity ranging from private companies to development banks and other financial institutions. The engagement of NAMA practitioners in developing countries with financial institutions and bodies built capacity on the requirements of (1) financial institutions that may channel climate finance or are Accredited Entities of the GCF, and (2) international public funders.

THE GREEN CLIMATE FUND BEGINS FUNDING PROJECTS: As discussed in Chapter 1, the GCF approved the first set of 8 projects at its board meeting in November 2015. The 'Energy Efficiency Green Bond in Latin America and the Caribbean' put forward by the Inter-American Development Bank (IDB) (GCF, 2015) was allocated USD 22 mln, and the GCF has earmarked USD 217 mln for the programme over the coming years. The funds for this project alone are comparable to the finance provided in the last three NAMA Facility calls combined (EUR 205 mln).[16] In fact, the NAMA Facility helped lay the groundwork for the GCF selection criteria, as well as for operational documents (CCAP, 2014). The investment criteria of the GCF (see GCF, 2014), while not directly referencing NAMAs, uses terminology that echoes the definition of NAMAs, for example paradigm shift potential and therefore it is evident that the GCF is open to NAMA submissions. The NAMA Facility focuses on relatively small amounts of grant funding for NAMA support as part of a bigger programme (while encouraging the leveraging of further private finance) - additional financial mechanisms need to be put in place for the GCF, with a shift towards concessional loans, guarantees, and bonds. Although the GCF can award grants, it will seek a return on its investments in the long term, in particular above the USD 10-20 mln mark. This requires a change in thinking for NAMA Finance.

ACCESSING INTERNATIONAL FINANCE WILL REQUIRE A CHANGE OF THINKING IN THE FUTURE: One clear message to keep in mind is that there is not a lack of funds for NAMAs, but rather an underdevelopment of project pipelines matched to the support available. This underdevelopment keeps project developers from tapping into finance for NAMAs and finance institutions to invest in them. Not only do NAMAs need to continue to evolve to look beyond grants toward concessional loans and adhere to the investment logic of banks and private investors (see Sections 3.2 and 3.3), but project developers also need to understand which avenues for finance are available now and how to access them. The GCF and Development Finance Institutions (DFI) will need to become the main sources of international support. NAMAs will need to look beyond the NAMA Facility and bilateral support and expand their reach to

[16] http://www.nama-facility.org/no_cache/about-us.html

include traditional development finance approaches. Multilateral Development Banks (MDBs) and other DFIs such as KfW (Kreditanstalt für Wiederaufbau) can play an important role in providing investment focused on NAMA implementation if they are presented with strong projects. Moreover, GCF-accredited MDBs can play an important intermediary role for countries to access the GCF and support the accreditation process for local entities. In this respect, the GCF may open up new opportunities for NAMAs if countries and practitioners work in close collaboration with DFIs.

NEW STRATEGIES ARE NEEDED TO ENGAGE THE PRIVATE SECTOR IN A MEANINGFUL WAY: It is clear that climate finance will have to come from a variety of public and private sources, including COP-mandated funds such as the GEF and GCF; multilateral, bilateral, and domestic public funds; private investments, and potentially the carbon market and 'alternative sources of finance'. Reality shows that public funding is likely to be limited putting the emphasis on leveraging private finance. Potentially scarce public funds may best be used to establish legal, regulatory and policy frameworks which are conducive to private sector investment by removing investment barriers (van Tilburg and Röser, 2014). The private sector continues to struggle to find entry points to NAMAs as they are largely government-driven, policy-oriented interventions. While NAMAs can be an opportunity to open markets for innovative technologies and approaches, they may be associated with higher investment risks than the CDM and JI mechanisms, where investment return was much clearer and more direct for the private sector (see Section 3.2). Open dialogues and concrete examples of successful private sector collaboration in the development and implementation of NAMAs will be important. Public private partnerships may provide valuable and adaptable conceptual frameworks to support cooperation and collaboration between public and private entities. The NAMA proposal for The Gambia on rural electrification, for instance, incorporates this element (UNDP 2015a). At the same time, practitioners and policy-makers will need to include investment plans in the design of NAMA proposals to appeal to private investors and development banks. The latter could play a role in de-risking more innovative approaches to make private investment more viable if the right conditions are met (see Section 3.3).

DOMESTIC FINANCE DEMONSTRATES COUNTRY OWNERSHIP AND INCREASES THE ATTRACTIVENESS TO THE INTERNATIONAL COMMUNITY: One notable development that we have seen at a country level is that the first examples occur where governments are contributing to the NAMA's financial plan from the national budget. These contributions can be in different forms mirroring structures of international finance. In Ethiopia for example two components (setting up policies, and setting up regulations for clean mini-grids) of the NAMA targeting the increase in renewable energy capacities in rural areas will most likely have national budget contributions, which would be matched with international technical assistance. There are multiple drivers for this, and it is a trend likely to increase with INDCs. NAMAs need to become more financially robust, and linked better to national revenue streams. INDCs could be a useful basis for this shift – as well as for driving NAMA development needed to reach the contributions outlined, INDCs will also influence how the finance of NAMAs is likely to be structured. As INDCs often required parliamentary (or equivalent) approval and / or legislative changes, domestic finance for NAMAs becomes a bigger part of the domestic budgeting process. Although the legal basis for INDCs differs across countries, many INDCs have a stronger legal basis in the country than NAMAs currently. For example, Mongolia's INDC is predominantly derived from a national energy policy that was ratified by the National Parliament (Government of Mongolia, 2015). This means that the Mongolian government has a mandate (and legally, an obligation) to allocate significant domestic public resources to meet the targets outlined in the INDC. For NAMA Finance, this means that the scope for domestic finance as a source for NAMAs will increase with INDCs. Inclusion of domestic contributions to NAMAs provides a strong signal to international donors that the initiative is

nationally owned (and appropriate). Assigning domestic public finance usually requires a series of approvals that is subject to relevant oversight. It also enhances the long-term sustainability of the intervention (i.e. that the government has a stake). This ultimately leads to greater attractiveness vis-à-vis the international community.

2.3 Monitoring NAMAs

Measuring, Reporting and Verification (MRV) of NAMAs is at the core of the UNFCCC agreements. In Cancun, the agreed text states that "internationally supported mitigation actions will be measured, reported and verified domestically and will be subject to international measurement, reporting and verification in accordance with guidelines to be developed under the Convention". MRV is important because it enables countries to measure and report the achieved impacts, it helps ensure accountability towards international (donor) support, and it helps keep track of aggregate emission reductions that count towards INDCs.

Though the UNFCCC has provided guidance for reporting and verification of mitigation actions, they do not include requirements on the measurement of NAMA impacts at the practical level. Practitioners have opted to develop tools to offer concrete approaches to countries; some call for flexible methodologies to estimate avoided emissions and track success, others call for more standardised processes to increase efficiency and comparability (van Tilburg and Röser, 2014).

Independently from the approach used, the need for MRV is not limited to the greenhouse gas emission reductions. It should also account for the finance expenditures and the NAMA co-benefits. Donor organisations often require transparent accounting systems to ensure that climate finance is well spent. The details of which financing elements are monitored are tailored to the particular NAMA; however, we believe that ensuring alignment of the general requirements and the terminology used by different donors would help development of MRV systems in the future.

In a national context, monitoring what co-benefits have been achieved by NAMAs, particularly with regards to sustainable development, can be important in encouraging further NAMA implementation. Sustainable development benefits include positive environmental impacts such as better air and water quality or decreased soil erosion. They may also include socio-economic impacts such as job creation, better health conditions or development of industries. For example, the self-supply renewable energy NAMA in Chile creates jobs through renewable energy projects financed by the NAMA; reduces environmental pollutants, noise and noxious odours from project sites; and improves energy security at the national and local level (de Vit *et al.*, 2013).

Despite the limited experience on NAMA implementation, good practice on MRV systems is emerging, see for example the greenhouse gas protocols from the World Resources Institute (WRI)[17]. MRV systems do not have to be developed from scratch but can be built on existing national platforms and capabilities. For instance in Tunisia the MRV system of its NAMA focusing on renewable energy technology in the building sector is moving towards operationalisation. The key tool for the MRV is a data management system in form of an IT platform and the objective is to integrate this system into the overall operation of the NAMA to track indicators such as the equipment installed and the number of subsidy requests. These indicators are useful to monitor the progress of the NAMA and are linked with the emission reductions achieved. Measuring progress on policy implementation and results is not a new concept and has been used by governments for a long time. Governments already track their pathway to achieving certain targets such as the Millennium Development Goals (MDGs) or, more generally, economic growth. With the link between NAMAs and the Sustainable Development Goals (SDG) this experience with the MDGs can be important in designing a robust MRV system. Tools to help make and monitor the link between NAMAs and SDGs are being developed by, amongst others, UNDP[18] (see Section 3.9 for more details of how this tool is already being used in NAMAs).

[17] http://www.ghgprotocol.org/policy-and-action-standard

In practice, implementing MRV for NAMAs is not just a case of developing (or adapting) tools, but also of building the right capacity on MRV implementation. It is important then that the implementation of the NAMA is accompanied by sufficient capacity building and clear buy-in on organisational responsibilities. Building on existing systems can clearly help with that buy-in. Aligning to and connecting with the MRV requirements set out by different donors will remain the key task for the upcoming years, while keeping the MRV element practical and integrated into the overall NAMA objectives.

2.4 Operationalising NAMAs

NAMAs have always been seen as powerful instruments that support a country to integrate its climate ambitions and actions with its sustainable development objectives. They form a bridge connecting mitigation impacts with development co-benefits. Indeed we are seeing an increasing number of developing country governments turning to NAMAs in their efforts to move their countries on a low-emissions development pathway while simultaneously facilitating the country's sustainable development. While NAMAs are generally government-driven policy or sectoral interventions, many also seek to provide significant opportunity for private investment by offering the means to make investments into low-carbon technology or projects more attractive. For example, a Kenyan NAMA provides risk mitigation support and a premium payment to attract private investment in geothermal energy. Evidence for the success of NAMAs in attracting private sector investments during implementation however, is relatively limited.

Despite increasing development of NAMAs, we still observe only slow progress from when NAMA financing is secured towards implementation. An important lesson from the past years in NAMA development seems to be: patience is important. Policy making in general is a process that requires time. It is further complicated by adding external actors and implementing agencies. Looking to the NAMAs successful in the NAMA Facility we see limited progress towards implementation. This is consistent with the experience from similar types of funding focusing on transformational change (e. g. Climate Investment Funds) where progress has also been relatively slow.

Our experience with NAMA development on the ground is that a factor in maintaining the momentum for implementation is having commitment from key individuals within government. Without these 'champions' for the NAMA, progress can stall due to political changes in priority.

The coming years will be interesting to see the progress in NAMAs with more sources of funding opening up and already financed NAMAs being implemented. This should mean that the real benefits to countries from NAMAs will be demonstrated. At the same time governments are looking for tools to implement their INDCs. Already we see that more than a third of non-Annex I countries communicate a role for NAMAs in their INDCs for their post-2020 actions (see Section 3.1). Both these factors may be key to stimulate the demand for NAMAs and their integration into national development and climate frameworks.

[18] The Nationally Appropriate Mitigation Action (NAMA) Sustainable Development Evaluation Tool can be found here: http://www.undp.org/content/undp/en/home/librarypage/environment-energy/mdg-carbon/NAMA-sustainable-development-evaluation-tool.html

ON THE GROUND EXPERIENCE
WHAT DO THE EXPERTS SAY?

NAMAs and INDCs: Interactions and opportunities
By ECN, Ecofys, CCAP, GIZ, Linköping University, NewClimate Institute, UNDP and WRI

How can NAMAs attract private sector low-carbon investment?
By Tobias S. Schmidt and Abhishek Malhotra, (Energy Politics Group, Department of Humanities, Social and Political Sciences, ETH Zürich)

The role of multilateral development banks
By Natalie Harms, Matthew Halstead (ECN) and Angélica Afanador (Ecofys)

Transformational change in practice
By Søren Lütken (NAMA Facility)

Bringing NAMAs from concept to implementation
By Chuck Kooshian, Leila Yim Surratt, and Steve Winkelman (CCAP)

Excursion: A survey on barriers to implementation
By Jiro Ogahara and Noboru Zama (OECC)

Mapping design and support priorities to flag structural biases
By Mathias Fridahl (Centre for Climate Science and Policy Research, Linköping University)

Climate friendly refrigeration and air conditioning and the role of NAMAs
By Philipp Munzinger (GIZ)

Tracking Sustainable development impacts: The case of the Philippines
By Alexandra Soezer (United Nations Development Programme)

3. On the ground experience

For this Status Report, we invited nine leading organisations active in the NAMA-space to contribute short opinion pieces. Three questions connect the contributions: 'What role can NAMAs play in a post-2020 climate regime?', 'What does the future look like for financing NAMAs?' and 'What does transformational change look like?'. The answers cover a variety of topical angles.

With 161 countries representing 91% of global greenhouse gases covered by submitted INDCs[19], the collective view of a number of organisations is that NAMAs are a key instrument in implementing the INDCs. Thus there is a clear and important role for them post-2020. ETH Zurich sets out what is needed in NAMAs to attract private sector investment and ECN/ Ecofys highlight that NAMAs will need to evolve to become more attractive for Multilateral Development Bank (MDB) finance. Transformational change has long been an important distinguisher for NAMAs, but lacks a robust definition. The NAMA Facility argues that transformational change requires a redirection of cash flows towards low carbon development. CCAP summarise the principles for NAMA operationalisation and the barriers to implementation are discussed by Overseas Environmental Cooperation Center, Japan. Linköping University raises the question as to whether the priorities of donor institutions providing financial support that explicitly target NAMAs correspond to the challenges posed by spurring transformational change. Finally, GIZ presents the opportunity for NAMAs to achieve transformational change in the refrigeration sector and the usefulness of Sustainable Development Tool (SD Tool) designed to define, quantify and monitor SD parameters is demonstrated through a case study by UNDP.

3.1 NAMAs and INDCs: Interactions and opportunities

Edited by: Lachlan Cameron (ECN Policy Studies)

This section is an extract of a new report, "NAMAs and INDCs: Interactions and opportunities" authored by ECN, Ecofys, CCAP, GIZ, Linköping University, NewClimate Institute, UNDP and WRI (Cameron and Harms, 2015).

The Paris COP will need to achieve an ambitious global climate agreement that commits all countries to reducing emissions and setting the world on a low-emission development pathway. Countries' INDCs will be the foundation of such an agreement and NAMAs will play an integral role for the implementation of urgently needed action, both in the short term and beyond 2020.

As NAMAs now move from a conceptual to an operative phase, placing them solely in the pre-2020 context would be misleading. There was indeed clear agreement in the Cancun decision that developing countries should undertake NAMAs aimed at achieving a deviation in emissions relative to business as usual scenarios in 2020. However, there has been no agreement to limit NAMAs to the pre-2020 period.

In fact, more than a third of non-Annex I countries communicate a role for NAMAs in their INDCs (Figure 6). NAMAs seem to play a more prominent role for low income countries[20]– where the need for support is higher or who are more likely to have submitted action-based INDCs – but is not insignificant to middle and high income countries. Another indication of developing countries' plans for NAMAs beyond 2020 can be found in the NAMA Registry. Of all registered NAMAs that seek support for implementation and have stated timeframes, almost 40 percent have estimated completion dates extending beyond 2020. In this instance, the registered NAMAs seeking support for implementation predominantly originate from middle and high income countries.

The new report, "NAMAs and INDCs: Interactions and opportunities", highlights the links between these concepts, in particular the importance of NAMAs as a tool to help countries progress toward and beyond their 2020 targets, to access international support and build political and societal support at home. Where INDCs provide an international framework – a commitment to contribute and share responsibility – NAMAs can provide a versatile tool to reach these targets and scale-up domestic action.

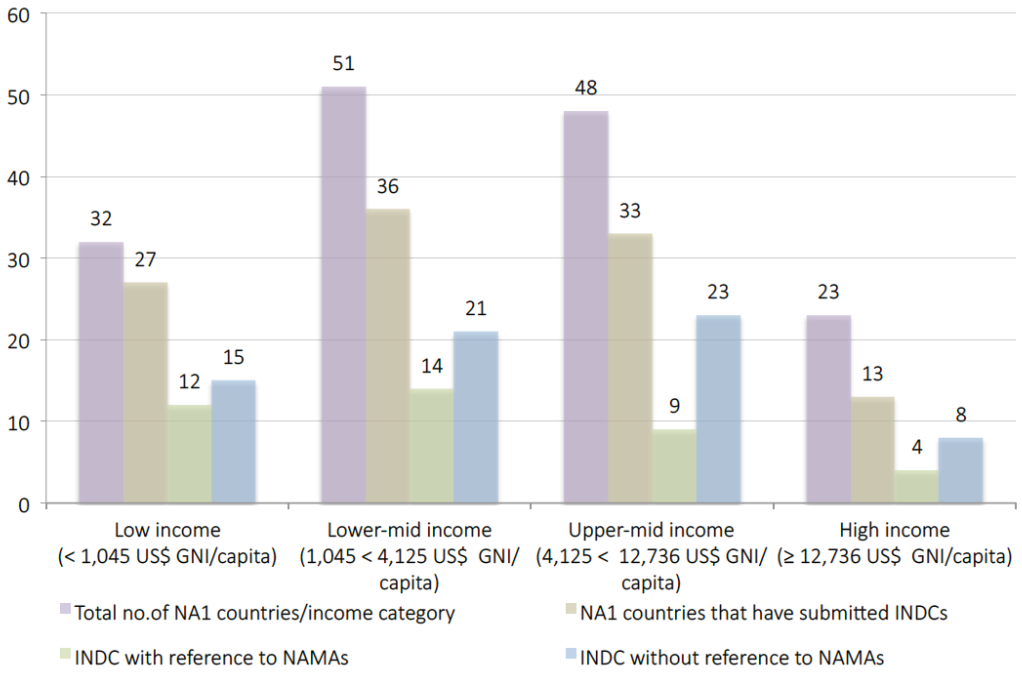


Figure 6: References to NAMAs in Non-Annex I country INDCs by income group

[20] The income categories are based on the World Bank's classification, using 2014 income levels and the Atlas method that adjust for fluctuations in exchange rates.

NAMAs have mostly signified voluntary government actions whose implementation depends on external sources of funding. This perception has, at times, limited their domestic buy-in, as implementation may be seen as dependent on international support. The national and highly visible nature of INDCs has the potential to increase domestic buy-in for sectoral action plans and individual measures, including NAMAs. In return, NAMAs can be a practical "mechanism" to materialise the contributions on the ground. In addition, the more clearly defined scope of individual NAMAs is an opportunity to illustrate benefits for a domestic audience. Engaging with a high level target is difficult for stakeholders, but understanding the impacts of a specific action is more feasible.

Nonetheless, the NAMA concept needs to continue to evolve. For the NAMA concept to be most impactful, NAMAs will need to become a term that is synonymous with government-led actions of all kinds and to be thought of in a more integrated way within sectoral plans/strategies, instead of as standalone efforts. If that is not the case, there is a risk of NAMAs becoming piecemeal efforts promoted by development partners. Consistently using the right framing for NAMAs offers an opportunity to engage more fully with financial institutions and key large economies who may have seemed reticent to date. INDCs and NAMAs can and should be linked in many ways, from channelling and leveraging finance, engaging stakeholders, assessing and emphasising co-benefits, conducting MRV, and building an integrated cross-sectoral institutional framework to bridge the gap between ambition and action. At the same time, NAMAs will need to demonstrate in the short to medium term that they can represent a viable and scalable means to achieve emission reductions in a cost effective manner.

What can we expect beyond 2020 in light of these links? NAMAs should and will continue to be an important tool to achieve mitigation and sustainable development. INDCs could support NAMAs, and domestic (unilateral) NAMAs in particular, with more legitimacy and recognition. In practice, many countries may choose a pragmatic approach to establishing an interface between INDCs and NAMAs in the form of sectoral strategies and action plans. Overall, governments will need to take a leading role in both INDC and NAMA implementation to be successful in achieving mitigation.

To avoid delaying mitigation action any further, it is important to keep momentum behind NAMAs as one of the few approaches available to us. We should also learn from the experience of the CDM in regards to retaining capacity, a situation where a lot of knowledge and energy for a mitigation approach were lost or scattered as that mechanism became less central in a changing climate regime. The skills and learning on NAMA development can be seen more fundamentally as capacity for bottom-up action design. Attention should be paid now to ensure that this capacity is maintained in the future. To do this, continued attention must be paid to NAMAs in Paris, as a key implementation tool for INDCs and, therefore, a key element of the success of a new global climate agreement.

INDCs ⟷ NAMAs

PURPOSE AND HIGH-LEVEL SUPPORT

Offer an overarching target for all ministries and agencies to strive towards, along with high-level commitment from government (partly through international scrutiny). This can help to build support for bottom-up actions and sectoral strategies.

A SENSE OF URGENCY

Countries have been encouraged to communicate their INDCs prior to the December 2015 climate negotiations, along with information about the timeframe for implementation. This can help to catalyse national planning processes and set deadlines for mitigation efforts.

FRAMEWORK FOR PRIORITISATION

Provide countries with an opportunity to look at options across sectors and evaluate them in terms of a variety of dimensions, including aspects such as mitigation potentials, costs and national impacts. This can give countries a consistent framework for determining "which NAMAs to prioritise"

BROADENING THE NAMA CONCEPT

Ambition in INDCs may act as a trigger for countries to apply the concept of NAMAs to more than supported actions and broaden the focus to domestic actions to receive recognition.

LONGER TIME HORIZON

Provide a longer-term timeframe and guiding vision for national climate action beyond 2020. This can help to provide a more stable and predictable environment for NAMA implementation and finance.

IMPLEMENTATION TOOL

The main opportunity for NAMAs is for them to directly serve as an implementation tool for INDCs to achieve mitigation targets; a practical mechanism to materialise the contributions on the ground and bridge the gap between ambition and action.

INPUTS FOR INDC DEVELOPMENT

Have provided valuable information on mitigation potentials, measures to achieve emissions reductions, costs/savings and other aspects. Action-based INDCs can build on existing NAMAs by aggregating their impacts.

SCALING

Can provide an approach to scale up, expand and deepen isolated domestic mitigation action in order to achieve commitments.

INTERIM TARGETS

Provide short-to-medium term targets and a measurable roadmap toward reaching a longer-term vision spelled out in an INDC, thereby providing a more stable and predictable environment for concerted action.

AS WELL AS ADDITIONAL SYNERGIES AROUND: FINANCE, STAKEHOLDER ENGAGEMENT, UNDERSTANDING (CO-)BENEFITS, MRV, AND DEVELOPING INSTITUTIONAL FRAMEWORKS, WHICH ARE DISCUSSED IN THE FULL REPORT

Table 2: What do INDCs and NAMAs offer one another?

3.2 How can NAMAs attract private sector low-carbon investment?

Tobias S. Schmidt and Abhishek Malhotra, Energy Politics Group, Department of Humanities, Social and Political Sciences, ETH Zürich

To enable low-carbon development, NAMAs need to spur substantial investments into low carbon infrastructure and industry. In the energy sector alone, infrastructure investments of USD 48 trillion will be needed by 2035 to meet the rising global energy demand primarily happening in non OECD countries (IEA, 2014). These investment flows have to be redirected from high-carbon to low-carbon technologies and topped up by a further USD 5 trillion to stay within the 450 ppm CO2 range. The magnitude of the investments needed to make this transition requires a strong private sector contribution (Bhattacharya et al., 2015).

Attracting additional investments, while simultaneously redirecting a large proportion of the total investments from high to low-carbon projects is not easy. Most low-carbon projects have a very different cost structure than their high-carbon alternatives due to significantly higher investment cost and lower operating cost. Since more up front finance is necessary to cover the higher investment cost, the availability of finance and its cost – i.e. the expected minimum return on equity and the interest rate on debt – have a major influence on the competitiveness of low-carbon projects. In contrast, high-carbon projects can often finance their (fuel) expenses based on cash flows and are therefore less dependent on upfront low-cost finance (Schmidt, 2014).

For a NAMA to be successful in tapping into the abundant private-sector funds to deliver emission reductions and sustainable development benefits, it needs to create investment conditions that attract upfront finance for low carbon projects, by the private sector, including both equity and debt. In other words, a NAMA needs to be 'bankable' and therefore should consider the key investment criteria of private sector actors. The three most important factors are (Schmidt, 2015):

1. Scale
2. Return
3. Risk

First, private investors typically dislike small project scales. This is due to the high efforts (and transaction costs) involved in evaluating potential sources of return and risk for each project. Different project types often require different legal arrangements, leading to additional costs. These evaluation and structuring costs typically occur long before an investment can generate returns and typically do not increase substantially with project size, which makes larger investments more attractive. On the other hand, financing very large investments (as is often the case with infrastructure projects) requires either large balance sheets or the building of consortia involving many partners. The former challenge leads to the exclusion of medium-sized and smaller investors; the latter can again result in high transaction cost.

Second, private investors demand a minimum return on their investments to a greater extent than most public sector or grant-based financing sources. In other words, the revenues from a private sector-financed infrastructure project need to cover factors such as depreciation on the equipment, operational expenditures, debt service and interest expenses to a bank, and also provide an annual income for the equity sponsor above a certain hurdle rate. To increase revenues of sustainable infrastructure projects and help surpass the hurdle rate, several sources of value might be combined in a business model (such as national government payments based on performance, revenues from the global carbon markets, etc.).

Third, downside risks can be defined as the combination of (i) the probability of negative events that can affect an investment and (ii) the financial impact if these events occur (ISO, 2009). Private investors, particularly those willing to invest in long-term infrastructure undertakings, are typically risk-averse. The minimum return an investor demands depends on the risks present in a project. Each additional risk adds to the hurdle rate. The presence of certain risks can even make projects entirely unattractive for private sector investment.

Bankable NAMAs therefore should have a balanced scale, achieved by aggregation in investment portfolios for example or by splitting large projects into different phases (Monk et al., 2015). The returns a NAMA provides to the private sector need to be adequate to the risk that the investor is facing. Generally, NAMAs should provide (most of) returns on a results basis, i.e., the returns need to correspond to an investment's performance in terms of the goals of the NAMA. Instead of attracting investments by simply increasing returns (e.g., by providing subsidies), NAMAs can be designed to reduce investment risks and therefore reduce the hurdle rate. De-risking can work in two ways:

De-risking can work in two ways:

1 *Risk mitigation*, or policy de-risking reduces the probability of a negative event happening. It acts by removing barriers in the investment environment. Typically it involves policy reform.

2 *Risk transfer* or financial de-risking mitigates the financial impact of a negative event on the investor by transferring it to public actors (see Section 3.3 on the role of multilateral banks in this context). The provision of insurance or guarantees are typical forms of risk transfer. The insurer or guarantor can take these risks at lower costs as they pool contracts.

Addressing risks through de-risking measures increases the willingness of the private sector to invest and can reduce the cost of equity substantially. It can also bring additional debt finance on board, which is essential for reducing financing costs due to the lower cost of debt as compared to equity (Shrimali et al., 2013).

There are several examples of NAMAs or NAMA proposals that take into account these criteria and provide de-risking measures. For instance, The Gambia has proposed a NAMA for rural electrification based on renewable energies that builds on a mechanism providing private investors with performance-based payments. Kenya, with the support of Germany, the Climate and Development Knowledge Network (CDKN), and others, has developed a geothermal energy NAMA that provides performance-based incentives and drilling risk insurance. Drilling risk, i.e. the risk of not detecting a (large enough) geothermal resource when drilling, is arguably the biggest risk when developing a geothermal project. Tunisia is currently developing its NAMA for large-scale wind and solar electricity on the basis of a comprehensive risk assessment methodology that was developed by UNDP and ETH Zurich (Waissbein et al., 2013). The NAMA includes a performance-based mechanism and is likely to make use of both risk mitigation and risk transfer instruments.

These examples are in line with the suggestion that a bankable NAMA should be designed around a performance-based 'cornerstone' instrument, which is complemented by de-risking measures. This combination can improve the effectiveness and efficiency of NAMAs. Effectiveness refers to the ability of a NAMA to attract private sector finance at sufficient scale. Efficiency refers to the public cost incurred under the NAMA to attract private sector investment. NAMAs that manage to deliver on the three investment criteria of scale, returns, and risk are likely to be both more effective and efficient in leveraging private investments and thereby enabling low-carbon development.

3.3 The role of Multilateral Development Banks

Natalie Harms, Matthew Halstead (ECN) and Angélica Afanador (Ecofys)

The following section takes a closer look at the role Multilateral Development Banks (MDBs) play regarding NAMA development and finance. Based on interviews[21] with representatives from the Asian (ADB), African (AfDB), and Inter-American Development Bank (IDB) and the World Bank Group, this piece presents key challenges perceived within banks that may be preventing a mainstreaming of NAMAs into MDB's climate portfolios. The paper concludes with a brief discussion of potential changes in the relationship between MDBs and NAMAs after Paris.

MDBs play an important role in financing and implementing a large variety of projects focussed on sustainable development and poverty reduction across a multitude of sectors in developing countries around the globe. Among the vast amount of initiatives, MDBs also engage in climate change adaptation and mitigation and collectively provide substantial funds for climate finance (USD 28 billion in 2014) and mitigation activities (over USD 100 billion in 2014) in developing and emerging economies (World Bank, 2015). Of this support specifically earmarked for mitigation-focussed action, resources to finance, design and implement projects explicitly framed as NAMAs seem limited to date. Given the potential scale of finance available at MDBs to fund mitigation activities in the context of sustainable development, it is important to understand the role that MDBs (could) play in NAMA project development, finance and implementation.

THE PRESENT: MDB INVOLVEMENT IN NAMAS.

MDBs have been engaged in NAMAs to differing degrees to date. The IDB, for instance, views NAMAs as a strategic instrument for mitigation in Latin America and the Caribbean aligned with the Banks' Climate Strategy (IDB, 2011)[22]. Four main elements are required by IDB to engage in NAMAs: the NAMA should (i) be country-driven, (ii) cover sector-wide programmes with impact at the national, regional or city level, (iii) be integrated into national policies and regulations, and (iv) have strong commitment of stakeholders. IDB engagement in NAMAs ranges from offering concessional funds and loans to support prioritising areas for intervention, capacity development for preparing and designing NAMA concepts, helping to leverage international and private sector financing and encouraging the sharing of best practices in the region.

The ADB launched a Transport NAMA Support Facility in 2015 to support selected governments in designing NAMAs in the transport sector and eventually to leverage investment for their implementation. The small scheme is part of a technical assistance programme for sustainable transport and was an initiative of the Nordic Development Fund (NDF).

The AfDB has signalled initial engagement with NAMAs, both in theory and in practice. In 2012 they published guidance for African states, *Building Blocks for Nationally Appropriate Mitigation Actions* (AfDB, 2012), as part of their programme for the development of NAMAs. More recently, the Bank identified itself as an implementing agency in association with the NAMA Facility. NAMAs also offer a key opportunity for developing a pipeline of projects and programmes, which will be needed in light of AfDB's stated goal of tripling its climate finance contributions to USD 5 billion in the next five years.

[21] The authors conducted semi-structured interviews with five experts from four MDBs working on climate change mitigation projects and/or on climate finance. The interviews focused on past and present NAMA involvement at MDBs, the challenges interviewees perceived that may be preventing NAMA development or finance and the opportunities they saw for the future relationship between MDBs and NAMAs. The information is explicitly not linked to specific interviewees by name to protect their integrity and does not reflect the official position of MDBs mentioned, but is sourced from individual interviews. The authors would also like to thank all interviewees who kindly provided us with their valuable insights.

[22] IDB's Climate Strategy is a guiding instrument for scaling up IDB support for actions to mitigate and adapt to climate change in Latin America and the Caribbean.

The World Bank appears to have provided some financial support for the development of NAMAs in Viet Nam, Colombia, Mexico and Peru by offering to purchase Certified Emission Reductions (CERs) generated by selected NAMA activities through the Banks' carbon funds or facilities[23] in its Carbon Finance Unit. These funds, of which there are now 15, have financed 145 active projects spanning 75 countries. While NAMAs can be an opportunity to disperse these funds, offering NAMA Finance through certificates – also in light of a weak global market for CERs – seems to be exceptional for the time being.

Interviewees highlighted that partner countries approach MDBs with requests for information on NAMAs and available funding, however, it seems MDBs are not commonly requested to develop or finance NAMAs directly as part of their core operations. At present, MDB NAMA engagement seems to focus on capacity development or finance 'readiness'. This suggests that there may be a number of challenges on the road to success for NAMAs in MDBs.

Perceived challenges

Interviewees identified challenges or circumstances that may explain why MDBs are not taking a more active role in NAMAs. The perception was that (i) the demand for NAMAs needs to be voiced by partner countries, (ii) NAMAs rarely offer 'bankable' proposals, (iii) mitigation action in MDBs follows a development-first framing.

COUNTRY DEMAND IS CONSIDERED CRUCIAL

Financing flows from MDBs to developing countries are described as demand-driven, meaning that priorities for support and potential programmes are jointly developed between countries and MDBs in line with national agendas. Since MDB activities are built on these partnership agreements, developing country governments are viewed as the active party responsible for including NAMAs in this dialogue. However, while line ministries and other stakeholders are involved to varying degrees, it seems, national ministries of finance are considered the main counterpart for MDB cooperation.

While line ministries leading NAMA development may be more closely involved in implementation, they could engage early with ministries of finance to set the agenda for NAMAs and make a good case for their inclusion in MDB portfolios. One perceived challenge to mainstreaming NAMAs into country programmes is the need to increase inter-ministerial cooperation and early engagement with sector ministries interested in developing NAMAs.

If country demand for inclusion of NAMAs in partnership agreements is viewed as crucial to setting the stage for MDB NAMA support, countries need to be aware of their options to receive funding and development support for NAMAs from MDBs. If MDBs are not considered open to NAMAs or to playing a more prominent role in their development and implementation alongside bilateral finance institutions and development cooperation agencies, it seems less likely that countries will push for NAMAs in their partnership agreements. To overcome this stalemate, countries may need to express their interest in NAMAs toward MDBs more clearly, and at the same time, MDBs need to signal what role they can and want to play if interest in NAMAs continues to grow. From this view, one explanation for IDB's engagement in NAMAs may be the growing awareness of NAMAs as instruments for mitigation action and sustainable development in the Latin America region and more pronounced country request for IDB NAMA support. Similarly, expressed donor interest in funding NAMA support programmes implemented by MDBs are an interesting opportunity for Banks to enhance their NAMA track record, as is the case with the ADB Transport NAMA Facility.

NAMAS ARE NOT PERCEIVED AS 'BANKABLE'

Internal incentive structures at MDBs may not favour investment in NAMAs that are still in an early stage of development, in light of transaction costs involved in building fundamental institutional capacity. The level of advancement and calculated risk are named as decisive factors for selecting projects to invest in. Developing NAMAs and a respective MRV system is considered to

[23] The World Banks carbon funds purchase project based greenhouse gas emission reductions in developing and emerging economies within the framework of the Clean Development Mechanism and Joint Implementation Kyoto Protocols. Follow the link for more information about how the fund is structured and the its projects portfolio - http://www.worldbank.org/en/topic/climatechange/brief/world-bank-carbon-funds-facilities

require a substantial amount of technical assistance before they are perceived to provide an investment opportunity that offers a calculated rate of return within a given financial year. While MDBs reserve a variety of grants and trust funds for technical cooperation and reducing initial investment risks, lending remains their core business, even more so for mitigation than adaptation projects (World Bank, 2015). Development banks are financial institutions that favour 'bankable' proposals, meaning project opportunities with clear business plans that offer an attractive risk-return profile while considering certain safeguards and sustainable development goals. Similar to the investment logic in the private sector (see Section 3.2), development banks may tend to favour investments (loans) in larger-scale projects to reduce transaction costs and associated risk. One opportunity might be to embed NAMAs and support projects in larger-scale sustainable development programmes.

In this context, a perceived challenge concerns the underdevelopment of a project pipeline for NAMAs at MDBs in combination with an observed lack of bankable NAMA proposals geared toward MDB investment. This may explain why (supported) NAMAs are rather considered an instrument of bilateral cooperation. Moreover, developing a NAMA with all its building blocks is not seen as a prerequisite to applying for and receiving multilateral funding for a project that reduces emissions. However, MDBs do not seem fundamentally opposed to working on NAMAs, in fact, a project proposal composed of emission reductions, sustainable development benefits, an MRV system and respective technical, financial and capacity support needs, would align well with MDB's strategic goals. Moreover, MDBs may expand their efforts to support NAMA Finance readiness and encourage the development of proposals in partner countries if the availability of NAMA-targeted financing increases (e.g. through the GCF or private sector, see Sections 2.2 and 3.2) and access to NAMA Finance is perceived as a more predictable and meaningful alternative to fund mitigation action on a larger scale.

DEVELOPMENT-FIRST VERSUS MITIGATION-FIRST FRAMING

When discussing the role of MDBs in contributing to climate change mitigation action, it is important to keep in mind that MDBs are first and foremost development (finance) institutions whose priorities are sustainable development and poverty reduction. While NAMAs were born out of UN climate negotiations and use a very mitigation-focussed 'language' with emission reductions at the centre, mitigation may often be framed rather as a co-benefit of an energy, transport or other sustainable development MDB project. This may explain the notion that NAMAs do not seem to be a widely familiar approach within MDB operation departments and that there may be a certain scepticism toward UNFCCC concepts and abbreviations and what they might deliver. While MDBs work on climate change issues across all operative departments and also support projects with a clear mitigation objective, for instance through the Climate Investment Fund (CIF), emission reduction targets may often be integrated in sector-specific projects focussed on urban infrastructure, transport systems and access to energy in line with partner countries' socio-economic development strategies. For all intents and purposes, many MDB projects that achieve emission reductions in the context of sustainable development resemble NAMAs, but are not necessarily framed as such.

The future: What could change?

Assuming NAMAs are here to stay and will act as important implementing tools for much needed mitigation action spelled out in INDCs, what role could MDBs play in a changing climate (finance) landscape? What would need to change to better integrate NAMAs into MDB operations or to make NAMAs more attractive for MDB finance?

One issue that was reiterated across all banks is the perceived lack of country demand for NAMAs developed or funded by MDBs. However, if project development is indeed a strongly country-driven process, the knowledge of and interest in NAMAs both on the country level and within banks would need to increase. If NAMAs continue to evolve and are perceived as an opportunity to implement mitigation and development targets by countries and donors, they may find their way into country partnership agreements and MDB operations. Increased coordination across sectors and ministries at the national level may play an important role. At the same time, MDBs could engage with countries in discussing the opportunities and challenges for NAMA support and highlight the role they could play. In this sense, the weight NAMAs are given after Paris and how they are embedded in INDC implementation may affect the MDB-NAMA relationship. If MDBs will play a significant role in supporting countries to implement their INDCs, NAMAs may well be part of this mix.

NAMAs themselves will need to evolve to include a solid investment plan and become more attractive for MDB finance. Policy-makers and project developers need to develop NAMA business plans that adhere to finance institutions' investment logic, including considerations of scale, returns and risk (see Section 3.2). NAMAs need to be proposed and framed as a financially viable opportunity that ensures domestic buy-in and can also attract private finance by including risk-return considerations and possibly embedding NAMAs in larger-scale programmes or projects.

There are many lessons to be learned from experience with the NAMA Facility and bilateral investment banks' funding for NAMAs (such as KfW). Development cooperation and sustainable climate projects seem most effective when finance considerations and technical assistance are closely combined and coordinated across bi- and multilateral organisations. Technical cooperation agencies can help to develop the capacity to design such bankable NAMAs and advance NAMA projects to the stage necessary to engage MDBs. Through improved coordination, MDBs and technical cooperation agencies can tap into existing NAMA expertise and share knowledge of investment requirements and opportunities. The comparative advantage of MDBs may be their ability to step in at the investment stage and de-risk projects by providing funding, inter alia for up-front infrastructure investments, at better conditions than private banks and as a trusted partner in their region. Institutions such as the IFC can reduce risk for companies and private investors to fund NAMA implementation. As GCF accredited entities, MDBs may also play an important intermediary role for countries seeking access to NAMA Finance (see Section 2.2). Bank-wide internal strategies to increase lending to least developed countries (LDCs) where interest in project-based NAMAs may be particularly high (see Section 3.2), may be another opportunity to further mainstream NAMAs into MDB operations.

Time will tell what changes Paris and beyond may bring for NAMAs and the role MDBs play on the climate (finance) stage. Assuming NAMAs can be an important tool in implementing crucial mitigation action in a sustainable and verifiable manner, they will require more attention and financial backing and will need to evolve to attract funding from more sources. The question remains whether and how MDBs, partner countries and NAMA developers will seize this opportunity.

3.4 Transformational change in practice

Søren Lütken (NAMA Facility)

The NAMA Facility was established initially as an interim financing structure while the Green Climate Fund (GCF) was still under development. The aim was to provide funds to support the implementation of NAMAs rather than readiness finance. When launched, the general notion was that there was a pipeline of developed, ambitious and financeable NAMAs simply waiting for funding for implementation. The NAMA Facility was meant to contribute to filling this gap and serve as a learning platform for the mitigation window of the GCF.

The NAMA Facility has been instrumental in insisting that NAMAs should be transformational (see also Section 2.1). It has been regarded as the essential parameter that distinguishes the NAMA Facility from other sources of climate finance and in that sense has also influenced the narrative surrounding the NAMA (UNFCCC et al., 2013). The demand for transformation is seen as a sort of 'quality characteristic' of a NAMA, but it is a demand that is difficult to uphold. The challenge is that while the NAMA in itself is a concept that lacks a precise definition, so does the term 'transformational'. It therefore seems to be applied at different scales. While it would be straightforward in the context of a nationally appropriate mitigation action to interpret the term as requiring transformation at a sector and/or *national* scale, only a relatively small share of the 140 applications received by the NAMA Facility address sector and/or *national* scale actions.

The other dimension of transformation is the degree of change. If change is the norm, transformational change is ahead of the game – otherwise there would be no need to add the word 'transformational'. The UNFCCC Secretariat's recent publishing of submitted INDCs[24] leaves no doubt that a radical deviation even from that baseline is required to move toward the 2 degree target. Transformation in the NAMA Facility is described along these lines, but it seems that the term is being used in an inflationary manner as long as it does not have a clear definition – which obviously becomes a challenge both when evaluating and also implementing NAMAs.

Instead of compromising, transformation should be kept high on the agenda and for that a more precise definition would be useful. Attempts at clearly defining transformation are in fact few and far between, among which is the NAMA Facility rationale for transformational potential[25]. Still, there is a risk of becoming intuitive: 'You'll know transformation when you see it'. Obviously, this is not a practicable approach.

Given where the NAMA Facility is coming from, the criterion could be more focussed on the achievement of GHG emission reduction in line with the perspective toward transformational processes taken by other (development assistance) sources. The difficulty is that GHG emission reduction is hardly ever seen as a purpose of its own but a side effect of other actions. For instance, reducing emissions is a co-benefit of constructing a metro system to reduce traffic congestion on city streets. Which part of such an initiative is attributable to the pursuit of an emission reduction agenda? Probably none, but it still entails an emission reduction effect. How should that be translated into a financial contribution from the NAMA Facility?

[24] Available on the UNFCCC website at: http://www4.unfccc.int/submissions/indc/Submission%20Pages/submissions.aspx
[25] See General Information Document, April 2015 page 17

It is obvious that putting this in a formula is rather difficult. Therefore, ultimately, the biggest challenge may lie in articulating and communicating transformational change related to GHG emission reduction. In the absence of a large pool of transformational NAMAs under implementation, covering different sectors, from which a 'case law' could be extracted, maybe the most easily adoptable (but not necessarily fully covering) clarification relates to the financing of NAMAs. Most, if not all, sectors are defined by the way in which money is flowing. That is a simple reflection of political priorities, some explicit, others less so. A transformational change requires a redirection of cash flows. How this can be achieved – through strong national climate change policies, awareness raising and/or technical assistance – depends on political and economic options of a partner country, but in terms of NAMAs it must happen in a way that promotes the lesser emissions alternative either on a country or sector wide scale, or at least a significant share of a given sector must be targeted so as to be called 'nationally appropriate'. Oftentimes this is where project proponents need more assistance – to develop the contours of policy frameworks and clearly define financial mechanisms that redirect activities and current and future cash flows on a permanent basis towards low emission alternatives. Further defining the NAMA concept along these lines may help proponents navigate towards transformation.

Being aware that this might still not be sufficient it could be recommended that proponents ask themselves honestly if what they see in their own proposals is truly *nationally* appropriate transformation towards the 2°C target.

3.5 Bringing NAMAs from concept to implementation

Chuck Kooshian, Leila Yim Surratt, and Steve Winkelman (CCAP)

The number of NAMAs that have been prepared has grown over the past few years. In that time, developing countries, and the organisations providing technical support, have identified some useful lessons about how to undertake a NAMA development process that moves smoothly and deliberately toward implementation. These lessons include a set of core principles and a process to align a NAMA with the latter.

CORE PRINCIPLES

Although every NAMA and every country will be different, certain core principles are common to most successful NAMAs and should shape their concept outline.

NAMAs should be country-driven efforts to reduce GHGs and advance sustainable development in line with national goals and needs, although very often donors play an important role in putting NAMAs on the agenda. Generally, domestic barriers to a transformation to low-carbon development fall into three categories: technology, funding and the policy and regulatory environment. These barriers lead to three core elements that can be found in most successful NAMAs.

First, most NAMAs have a component that is aimed at transforming policies to sustain GHG reductions. Second, NAMAs should be designed to apply technical assistance to surmount implementation barriers and foster replication. This can take the form of capacity building, technology transfer or other strategies to ensure that the country has access to the appropriate technology to solve the problem. Third, most NAMAs that ask for international support will have a component that will finance catalytic projects for short-term results. International climate funding is unlikely to be sufficient to pay for all the projects a country needs to transform a sector to a low carbon model. Pilot projects are funded to demonstrate the feasibility and economic and development benefits of the NAMA driven changes and inform and catalyse the shift to a low carbon economy.

These three core elements of the NAMA are only the beginning. They are developed so that sectoral transformation can take place through private and public investment. Assembling the financial elements of the NAMA is a key challenge. The financing model needs to be considered at the beginning of the NAMA design process, not at the end. The NAMA design should include a sound business plan to attract private and public support and leverage investment for low-carbon development (see Sections 2.2, 3.2, and 3.3 for details on NAMA Finance).

International support for NAMAs is available through two main funds, the NAMA Facility and the newly operational GCF. The goals of both funds align with the principles listed above as their competitive selection processes for mitigation NAMA support are judged on similar criteria:

- Paradigm shift / Transformational ambition
- Strong regulatory framework
- Support for sustainable Development
- Country ownership
- Catalysing private sector investment
- GHG reductions

NAMA DEVELOPMENT PROCESS

The process of developing a NAMA and taking it from initial concept to full implementation can be described as a series of steps that identify, refine, analyse, and endorse a set of proposed actions to reduce GHG emissions. If the NAMA is being proposed for international support, there will be an application process associated with the donor entity. NAMAs that are wholly unilateral will be prepared within the framework of the domestic political and administrative system. In either case, the NAMA will likely be documented and registered with the UNFCCC at some point. A typical process of developing a NAMA for international support involves the following steps:

Step 1: Scoping Analysis to identify potential NAMAs

This initial look should determine the GHG emissions from the entire sector, broken down by the primary sources and how fast it is growing. The key policies currently in place should be reviewed and their gaps identified. INDCs may provide an important foundation for NAMA development and can indicate the level of support needed to detail and implement a country's mitigation contribution (for a closer look at the links between NAMAs and INDCs, see Section 3.1).

This step should also examine the barriers that are preventing change, whether regulatory, technical or financial. Understanding the barriers leads to identification of strategic long- and short-term opportunities that could be implemented if the barriers were removed. These opportunities represent the kernels of NAMAs.

Throughout this first step it is essential to gather input from key stakeholders. One useful technique is to form a workgroup that brings stakeholders together for discussion of GHG issues and plans for dealing with them within the context of sector priorities.

Step 2: Prepare an Initial NAMA Concept

During the workgroup discussions certain stakeholder groups or individuals may show themselves to have the leadership ability or position to move new ideas forward and influence opinion. These champions should be identified concurrently with the NAMA concept; a concept without a champion is as ineffective as a champion without a concept.

Working with the champions, the NAMA developer should document a "program" rather than simply a list of individual projects. If there is already a program in place the NAMA should consider how that could be leveraged with climate finance. A brief analysis should identify where the greatest opportunities lay and answer threshold questions, e.g., Where are the biggest mitigation opportunities? What is feasible in terms of cost and implementation? This analysis will inform an initial prioritization of the measures.

An initial NAMA concept should outline the what, why, how, and who of the NAMA and a preliminary estimate of mitigation potential and order of magnitude costs. It is often useful to develop a pictorial schematic of alternate NAMA concepts at this stage that can be shown to political entities to seek their comments and endorsement.

Step 3: Technical, Economic & Policy Studies

Once the initial NAMA concept is developed, it is time to perform more in depth technical/economic pre-feasibility studies, market impact studies, regulatory analysis and financial analysis to thoroughly understand the implications of the proposal. Existing government programs may have much of this information already at hand; in other cases supporting organisations can help with technical details.

The analyses should include an evaluation of the technical, economic, and policy considerations to determine if the NAMA should move forward. A good feasibility analysis will assess the technical and policy options and evaluate their economic and GHG impacts. It will also address the practicality of the proposed options, the costs versus benefits, and implementation strategies, and include an analysis of potential financial, technical, behavioural, and institutional barriers to implementation.

These studies are a chance to more thoroughly examine the potential value of the proposal and gain a clearer picture of the actual feasibility of the NAMA.

Step 4: NAMA Concept Note

A NAMA concept note describes the NAMA in sufficient detail for submission to a potential funder. Both the NAMA Facility and the GCF have a two-step process of application that includes a concept-note style submission that is reviewed by the donor and leads to suggestions for improvement or an invitation for a full submission.

The concept note fills in the details of the initial concept with the findings from the technical analysis. At the concept stage it should also contain proposed projects and a potential financial mechanism along with an estimate of the implementation and support budget. Strong proposals offer a clear justification for international involvement and indicate the potential for maximising climate finance, for example by mobilising other sources of funding, especially private, and including a potential for "reflow" of funds back to the donor entity for reuse for other NAMAs.

Key to the concept note is the evidence of host country buy-in. Evidence of support from all national ministries and local governments involved in the NAMA usually results in a stronger application. Endorsement is a minimum demonstration of host country buy-in; better still is strong allocation of country budget resources to the NAMA project.

Step 5: Funding Application for NAMA support

The application for NAMA support is usually the second document submitted to a donor. Based on the concept note, it has solidified the technologies, policy reforms, projects and financial mechanisms. It includes a well thought out MRV component and implementation time frame.

CONCLUSIONS

A successful supported NAMA should be a host country driven proposal designed to combine transformative policies with technical assistance and catalytic projects. It should be aimed at leveraging public investment to create a pipeline of projects that will mobilise private finance and replicate the catalytic projects' models across the sector.

A typical NAMA development process should be deliberate and proceed in steps. These begin with developing preliminary NAMA options, selecting and documenting an initial NAMA concept for endorsement by stakeholders, and performing technical assessment studies. After feasibility is confirmed, the NAMA can be written as a concept note to show to potential climate funders. If the project meets the funders criteria they will ask for a formal funding application, which will solidify and add detail to the concept note.

A strong NAMA proposal, one that has followed the principals and process laid out in this section, will have a better chance of gaining support from international climate finance sources. Once a NAMA is approved for support, implementation begins and GHG emissions can be mitigated.

3.6 Excursion: A survey on barriers to implementation

Jiro Ogahara and Noboru Zama (OECC)

Introduction

As discussed in Chapter 1, many countries have been actively developing NAMAs and MRV is an important component of those developments. The Ministry of the Environment, Japan (MOEJ) and the Overseas Environmental Cooperation Center, Japan (OECC) have been cooperating with ministries handling environmental issues in partner countries. This was carried out with the objective of providing capacity building through joint studies of NAMAs from an MRV angle. The NAMAs covered different sectors according to priorities of host countries with which the ministry collaborated.

As previously discussed, one of the main challenges that NAMAs face today is to move successfully from the planning stage to the implementation stage. Even if they are implemented, the question remains how to assess the impact NAMAs are having in terms of sustainable development within their host country.

The transformational potential of NAMAs

Implementing entities are shifting towards the transformational aspect of NAMAs. If transformational change in the context of NAMAs refers to a paradigm shift beyond GHG emissions reduction, it involves a longer-term transformation toward low-carbon technologies and practices, with a clear contribution to sustainable development (see Section 3.4 for a discussion of the definition of transformational change). In other words, interventions should have a clear impact on sustainability while providing local ownership and opportunities for systematic learning. At the same time, they need to be based on a clear and inclusive regulatory framework.

Developing proposals for truly transformational NAMAs in this sense poses considerable challenges. As there are a limited number of NAMAs in the implementing stage, we have carried out a survey to identify the challenges developing countries are facing to prepare transformational NAMAs.

Key lessons from a survey on NAMAs and the way forward

The survey defined two groups in terms of NAMA implementation: countries that are planning NAMAs but are not yet implementing them and countries that are both planning and implementing NAMAs. In the first group, financial support received is very limited and only few other forms of support were offered. In addition, the domestic institutional arrangement to implement NAMAs remained weak. For the country group that are both planning and implementing NAMAs, all projects were funded either by domestic or international donors. One feature of these countries was that they all had existing sectoral strategies for NAMAs and they were all aligned with national roadmaps, plans and strategies. They all had a well-organised coordination system or structure between central government and line ministries to propose/implement NAMAs.

Most of the challenges seen in countries that are planning, but are not yet implementing NAMAs, were absent in countries that have moved to implementation. Although, it should be noted that the latter countries did experience those challenges in the early stages of NAMA planning and implementation. Sharing lessons learnt and good practices should help the countries that are planning NAMAs to overcome the challenges of implementation. The survey also suggested the need for continuous financial and capacity development support.

Although it is still early to provide definite conclusions, it can be inferred that even with a solid policy and institutional framework, developing countries still require support in the form of guidance to prepare proposals; to improve coordination among central government, line ministries and other stakeholders; and to develop long-term strategies in a comprehensive manner. Capacity building, finance and technology support continues to be necessary.

3.7 Mapping design and support priorities to flag structural biases

Mathias Fridahl (Centre for Climate Science and Policy Research, Linköping University)

The great potential of NAMAs to move to implementing transformational change is promising. Developed countries' support to developing countries is central to this task. The vague international consensus on NAMAs, resulting from different prioritisation of objectives for NAMAs among developed and developing countries is both a blessing and a curse. As discussed in Section 2.1 the flexibility of the NAMA concept encompasses a broad spectrum of potential actions but it also raises questions as to whether the priorities of donor institutions providing financial support to explicitly target NAMAs and NAMA design correspond to the challenges posed by spurring transformational change.

In a recently published article (Fridahl, Hagemann, Röser, & Amars, 2015) , we compare (mis)alignments in support providers' priorities for NAMAs and actual NAMA designs. Although the findings should not be overemphasised, lack of information impedes more authoritative statements, two warning flags were raised: 1) misalignment between the priorities of bilateral support providers and countries with a low capacity to act, and 2) the emphasis given by support providers to short timeframes and to measuring direct emission reductions, which can become an obstacle for spurring longer-term transformational change through NAMAs.

Comparing support and design priorities

To date, experience from successful matches of support with NAMA proposals is limited. So are the effects of implemented NAMAs. The following compares the NAMA design priorities voiced in a survey among practitioners in the public sector (including traditional aid agencies but also government ministerial departments and their line agencies dealing with climate finance), whom provide financial support to NAMAs, to the design priorities that can be found in the proposals submitted to the NAMA Registry (see Chapter 1 for more information on submitted NAMA proposals).

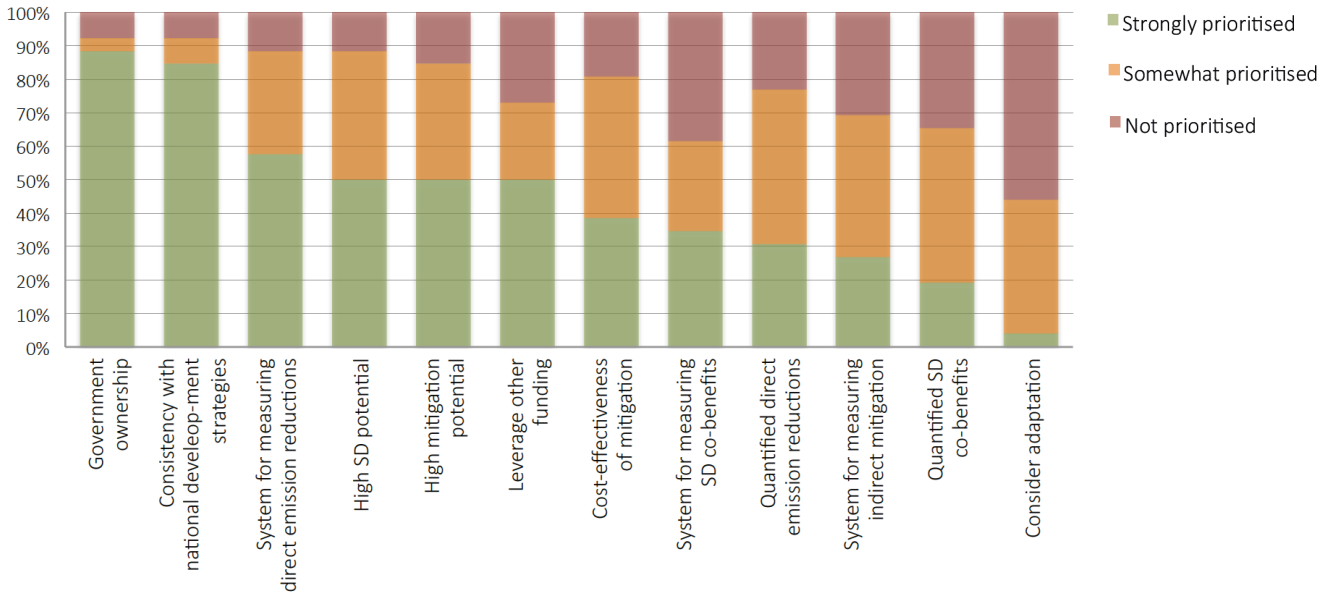


Figure 7: Support providers' prioritisation of eligibility criteria for support

The support providers described an ideal NAMA as: 1) having government backing, 2) being aligned with national development strategies, 3) incorporating a system for monitoring direct emission reductions, 4) displaying great potential for emission reductions and sustainable development, and 5) using international support to leverage other funding (Figure 7) (see also Section 3.4).

Although there are significant overlaps, support providers seem to have a more narrow understanding of priorities for NAMAs than expressed through the multitude of actions proposed by NAMA designers. While South-South competition for support is strong, misaligned priorities will likely lead to support providers' cherry picking certain types of NAMAs and to drive NAMA development in ways seen as undesirable in some host countries, infringing on the notion of 'national appropriateness'. It may result in emerging structural biases and give rise to distrust in the UNFCCC negotiating process.

Potential structural biases disfavouring low-income countries

On the other hand, when it comes to priorities for sectors, timeframes and types of NAMAs, alignment is relatively high. Both support providers and designers of NAMA proposals prioritise actions across all sectors, yet with less priority given to the agriculture and forestry sectors. The prioritised timelines are similar too; less than five years is the most favoured. Alignment in priorities of type of actions is also high, focusing mostly on policy and strategy. However, looking behind the aggregate numbers makes it possible to identify some potential structural biases that may emerge from the priorities voiced by support providers and certain categories of NAMA proposals. Structural biases may emerge where particular categories of NAMAs, emanating from particular categories of countries, are misaligned with priorities among NAMA support providers.

For example, although few agriculture and forestry NAMAs are put forward globally speaking, individual countries, particularly in parts of sub-Saharan Africa and Latin America, prioritise mitigation action in these sectors. This potential bias in priorities among support providers and NAMA design may be reinforced by priorities for types of NAMAs. Countries with low capacity to act often coincide with countries that have large agriculture sectors. The value added from agriculture to the economy in many Least Developed Countries (LDCs) on the African continent, for example, was 30 % to 60 % of GDP in 2014. Such countries many times prefer or are only able to put forward project NAMAs. In light of the strong priority of policy and strategy NAMAs among support providers, this may reinforce a structural biases that may emerge from sector priorities.

The examples of potentially emerging structural biases discussed above may indeed be softened if finance explicitly targeting NAMAs is put in context of other sources of climate finance and climate change related aid. NAMA support providers' lack of interest in forestry can, for example, be compensated for by support to REDD+ activities. Similarly, lack of interest in the agriculture sector may be compensated for by adaptation finance that increasingly also acknowledges the great potential for simultaneously addressing adaptation needs and the mitigation potential in the agriculture sector. However, learning from other support instruments such as the CDM, the question of potential structural biases is worth continued attention from researchers in the coming years.

NAMAs and transformational change

Both support providers and NAMA proposals, in the Registry, primarily focus on short time periods for NAMAs (<5 years). Support providers indicate that they do not want to institutionalise their support. Yet, this does not mean that they are opposed to their support having long-term effects. The problem when it comes to spurring transformational change is that combining short-term funding with a strong preference for measuring direct emission reduction, as desired by most support providers, will limit the kinds of NAMAs that can be expected. Spurring transformational change, on the contrary, often requires long timeframes for measuring effects of interventions and investments in actions that have a high potential for indirect rather than direct emission reduction. Striking a balance between MRV requirements and long-term transformation can become a key challenge for the development of matching support with the design of effective NAMAs for spurring transformation.

Using multilateral support institutions to bridge gaps in bilateral support

Structural biases in matching sources of bilateral NAMA-support with NAMA proposals may be mitigated by multilateral support. The GCF and the GEF could play a key role by supporting NAMAs that other support channels disfavour. In particular, NAMAs with great potential for transformational change, which often require long-term support and may sometimes not achieve short-term emissions reductions that can be monitored, otherwise run a risk of being underfunded. Such NAMAs with high short-term risk but also high long-term potential could fall outside the scope of bilateral support providers' preferences, but may prove hugely significant for reaching the Conventions' objective. Special funding windows for actions that have particularly high sustainable development co benefits, which is often the case in for example the agriculture sector, could also be prioritised by the GCF to offset potential biases in NAMA support.

The operating entities under the UNFCCC's Financial Mechanism already work towards bridging emerging gaps in bilateral support, such as the GCF's priorities to bear risks for transformative NAMAs in the energy sector and to support actions towards climate resilient, low emission agriculture. This is encouraging. As the GCF is only now starting to accept funding proposals, how these priorities will materialise remains a question for analysis in the coming years.

3.8 Climate friendly refrigeration and air conditioning and the role of NAMAs

Philipp Munzinger (GIZ)

With a significant market growth ahead, the refrigeration and air-conditioning (RAC) sector is increasingly contributing to global GHG emissions. The following section looks at the potential of NAMAs as a vehicle for developing countries to realise more climate-friendly cooling pathways, thereby bringing together GHG mitigation efforts within the UNFCCC and the Montreal Protocol (MP).

Climate impact of refrigeration and air conditioning

An expanding middle-class in need of air conditioning and growing cold chains in emerging countries are driving the rapid market growth of various cooling appliances worldwide. With a market volume of approximately EUR 150 billion that is expected to more than double by 2030, the RAC sector will account for roughly 16% (GCI, 2014) of global GHG emissions – a huge potential for a wide range of more climate-friendly technology alternatives within a wide range of application fields over the next years (see Figure 8).

First, the major share of GHGs from cooling is attributed to indirect emissions electricity consumption of RAC appliances generated mainly by fossil fuel combustion. RAC appliances account for roughly 16% of total electricity use worldwide (GCI, 2014; IEA, 2014)[28]. Second, direct emissions result from the release of fluorinated GHGs used as refrigerants. If left unchecked, both types of emissions will significantly rise within the next three decades, turning RAC into a significant area for mitigation and a key target for NAMAs and INDCs that focus on:

- Enhanced energy efficiency through improved RAC system design, such as improved refrigeration cycles, and an optimised cooling load management. RAC systems running on renewable energy (such as solar cooling solutions) can further minimise the carbon footprint.
- The immediate avoidance of fluorinated refrigerants through technology options with a significantly lower global warming potential (GWP) including, for instance, natural refrigerants such as hydrocarbons, ammonia or carbon dioxide which are already used in various RAC systems.

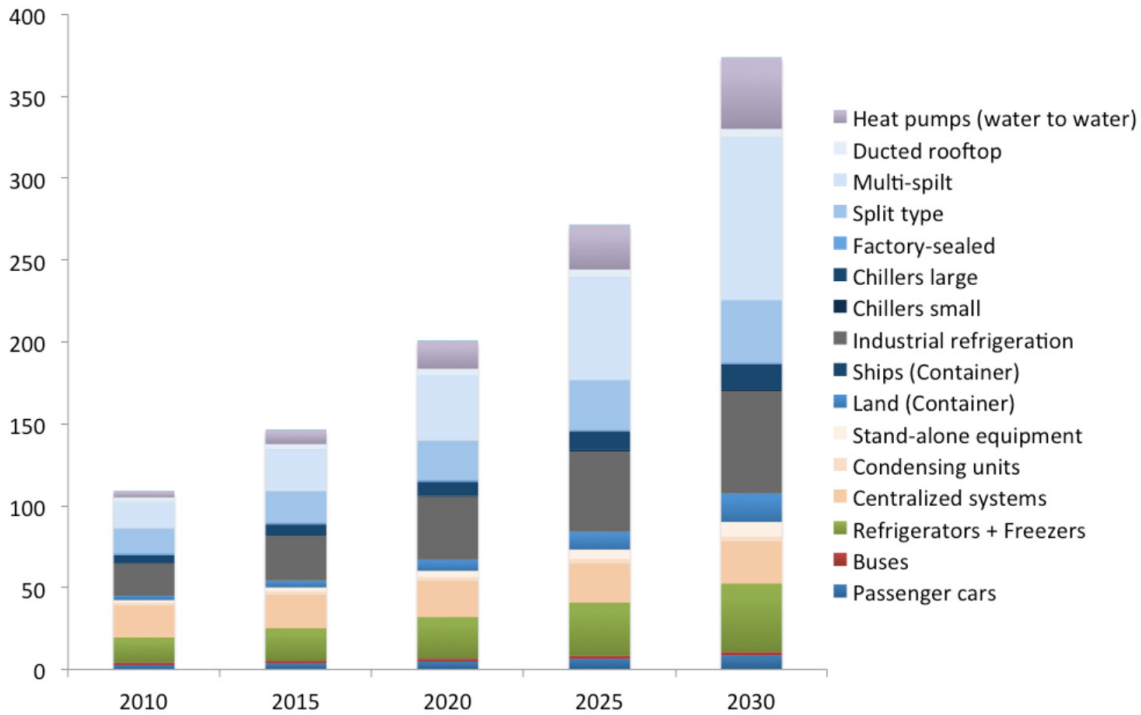


Figure 8: Global market volume of different refrigeration and air conditioning appliances in billion euro

[28] Relative share calculated based on global electricity consumption for RAC in 2012 by green cooling initiative in relation to global electricity consumption in 2012 by IEA (2014).

Whereas efforts to reduce CO2 emissions have gained most of the attention within the UNFCCC, Hydrofluorocarbons (HFCs) have been left unregulated on a global level. The phase-out of ozone depleting substances (ODS) such as Chlorofluorocarbons (CFCs) and Hydrochlorofluorocarbon (HCFCs) is regulated under the Montreal Protocol (MP) and the recently established contact group at the Meeting of Parties to the MP to discuss the MP amendment may provide real prospects of a global HFC phase-down next year. This important step sends a clear signal to the INDC process and the negotiations at the COP21 to further integrate efforts on GHG reduction between both regimes.

With steadily growing CO_2 and HFC emissions, the latter being the fastest growing GHG globally,[29] the RAC sector must move into the focus of climate mitigation efforts. The UNFCCC INDC process provides the necessary foundation to tackle both emissions: More than half the submitted INDCs include HFC considerations and many raise the need for energy efficiency in the RAC sector[30].

NAMAs as an integration tool in the RAC sector

Given the unique features of the RAC sector, an approach to frame both relevant gases in a comprehensive mitigation strategy is required, especially in fast-growing RAC markets in developing countries.

The NAMA concept presents a systematic approach for an accelerated HFC phase-down by combining the promotion of low GWP refrigerants with progressive energy-efficiency policies. NAMA methods[31] and tools can help design a RAC sector mitigation strategy with different reduction scenarios of direct (HCFC/HFC) and indirect (CO2) emissions in comparison to a BAU development and aligned with national development priorities. As the following examples illustrate, NAMAs are already applied as a bilateral or multilateral support vehicle to realise RAC technology transfer and development, including capacity building and required financing to further decouple GHG emissions from refrigeration and air conditioning. In this way, NAMAs can pave the way for more ambitious climate-friendly cooling as part of a global climate agreement from 2020 onwards (Munzinger & Gessner, 2015).

Policies and measures in different stages of the RAC technology cycle can be framed and adopted in a NAMA in a way that raises ambition on GHG mitigation, for instance:

- At the manufacture and supply end, NAMAs can introduce low GWP refrigerants for selected RAC products that go beyond a country's HCFC phase-out management plan. This could go hand in hand with a periodical review and update of Minimum Energy Performance Standards (MEPS) and labelling schemes in order to reap energy savings sooner and avoid locking-in inefficient products.
- NAMAs can put forward extra incentives (e.g. accelerated depreciation, tax rebate or subsidy/ concessional loan programmes) for the purchase and installation of low GWP and highly-efficient cooling equipment in combination with refrigerant safety standards to accelerate low GHG technology deployment.
- At stages of RAC disposal, NAMAs can help establish costly infrastructure required to properly dispose of the large amounts of F-gases from cooling equipment which is commonly released into the atmosphere in most developing countries.

NAMAs in the RAC sector are currently being developed in Thailand and Indonesia – two countries with a growing energy and refrigerant demand for refrigeration and air conditioning due to high ambient temperatures, increasing urbanisation, expanding cold chains and a growing middle class[32].

[29] Relative share calculated based on global electricity consumption for RAC in 2012 by green cooling initiative in relation to global electricity consumption in 2012 by IEA (2014).
[30] Among the seven GHGs identified by the UNFCCC: Carbon dioxide (CO2), methane (CH4), nitrous oxide (N20), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF6), and nitrogen trifluoride (NF3). See for instance Environmental Investigation Agency: http://eia-global.org/blog/bringing-hfcs-to-the-table-on-climate-and-health
[31] Ghana and Jordan, for instance, have put forward GHG mitigation in the RAC sector as one of the actions to materialize their INDC. Submissions as of 25th of October 2015 at: http://www4.unfccc.int/submissions/indc/Submission%20Pages/submissions.aspx
[32] See methods and practical tools in GIZ technical handbook on NAMAs in the refrigeration, air conditioning and foam sectors: http://www.giz.de/expertise/html/4809.html RAC NAMA development is also ongoing in Colombia, Mexico, Azerbaijan

Refrigeration and Air Conditioning NAMA in Thailand

The cooling sector contributes approximately 20% to Thailand´s total GHG emissions and is forecast to triple by 2030 in a BAU development[33]. Thailand is the second largest Asian air conditioner producer after China, covering about 7% of the world production (Gloël *et al.*, 2014). There are a number of challenges to climate-friendly cooling in Thailand, for instance, the relatively low Minimum Energy Performance Standards (MEPS) for cooling appliances and the slim availability of skilled technicians and low GWP refrigerants. Consequently, supported by the NAMA Facility the Thai Government developed a NAMA to initiate a sector-wide transition towards climate-friendly and energy-efficient cooling technologies including the necessary political and regulatory framework. Producers and assemblers of RAC technology will be provided with the technical means to produce/assemble such technologies and the servicing sector will receive training on maintenance. Finally, a mechanism will be set up to provide producers with the necessary financial support. Financial incentives shall enable end-users to invest in clean technologies instead of conventional appliances.

NAMA for commercial and industrial refrigeration and air conditioning in Indonesia

Along with Indonesia's economy, the use of air conditioning is forecast to grow exponentially over the next years (TechSci Research, 2014). Although the energy saving potential in the targeted sector is estimated at 15-30% (Government of Indonesia, RIKEN 2011), energy efficiency has not yet gained much attention due to the highly subsidised electricity prices, an underdeveloped RAC service market, and low capacities in the safe and energy-efficient operation of RAC technologies.

To address the mitigation potential, the Ministry of Energy and GIZ are developing a NAMA for energy-efficient RAC in industry and commerce[34]. Ten pilot projects including certified training programmes on safe manufacturing and maintenance aim to demonstrate the economic and technical feasibility of RAC systems based on natural refrigerants and will ease the enforcement of energy performance standards and labelling schemes.

Key factors within RAC NAMAs

The success of RAC NAMAs to unfold transformative change in the RAC sector is influenced by three key factors:

- Level of political willingness and leadership to pursue a coherent mitigation strategy that addresses direct (HFC) emissions and indirect (CO_2) emissions. – Pooled competences and joint forces among climate, energy-efficiency and ozone policy-makers is required to steer the sector towards a less GHG-intensive pathway.
- Degree of risk assessment and standardisation to help ensure common practice, technology development and legal conformity – Risk assessments are crucial, especially with regard to the application of refrigerants, to reduce perceived risks. The design of both refrigerant application standards and MEPS builds the basis for safe and efficient use and design of cooling systems.
- Scale of leveraging funds to induce technology innovation and transfer on local producers and consumers, enabled by optional international support – The MP's Multilateral Fund finances projects to demonstrate climate-friendly and energy-efficient technology alternatives to HCFCs. NAMAs could build on these production-based approaches and assist the larger-scale deployment of efficient and clean RAC technologies by focusing on the necessary changes in framework conditions in order to reach transformative scale.

In this context, NAMAs present a bridging function by generating valuable experiences that can be used to set sectoral mitigation policies within INDC implementation. Along these lines, countries with a large cooling demand are well-advised to assess their CO_2 and HFC mitigation potential in the RAC sector and to consider NAMAs as a vehicle toward more climate-friendly cooling.

[33] NAMA facility website: http://www.nama-facility.org/projects/thailand.html
[34] Further information can be found at: http://www.greenchillers-indonesia.org/index.php/en/

3.9 Tracking Sustainable development impacts: The case of the Philippines

Alexandra Soezer (United Nations Development Programme)

As discussed previously, sustainable development benefits have become a vital part of NAMA concepts. However experience on how the impact of a NAMA on sustainable development should be measured is limited. UNDP responded to the need to measure and monitor sustainable development impacts by providing countries a tool that allows for quantification as well as precise and transparent monitoring of sustainable development impacts of NAMA interventions.

The Sustainable Development Tool (SD Tool) designed to define, quantify and monitor SD parameters while gathering instrumental data to help policy makers make informed decisions and create the right policy instruments to lead to sectoral paradigm shifts. In this context the SD Tool has two main goals: (1) help policy makers evaluate the sector transformative impacts of country-led NAMAs and (2) enable countries to track the SD impacts of a NAMA over the entire lifetime.

The SD Tool is the first tool that quantifies, measures, and monitors sustainable development benefits of NAMA interventions in a comprehensive but practical way. It is currently also the only tool that aligns the sustainable development impacts of a NAMA with national Sustainable Development Goals and tracks the progress made in environmental conservation, poverty reduction and growth and development. It has been applied to NAMAs in the Philippines, The Gambia, Namibia, Vanuatu and Lao PDR. The result delivered by it is a systematic examination of the sustainable development benefits and concrete indicators to track them in a simple manner.

Case study: The Adaptation and Mitigation Initiative, the Philippines

The Adaptation and Mitigation Initiative (AMIA) in the Philippines is a good example of a NAMA that provides key sustainable development benefits in addition to large volumes of GHG emission reductions. It promotes the method of Alternative Wetting and Drying which is an effective way to substantially avoid methane formation in rice production. It therefore provides an ideal opportunity to test the SD tool and the results it is able to deliver.

The SD tool applied to AMIA not only evaluates the overall success of AMIA intervention but also provides data necessary for the Department of Agriculture to develop a new insurance product for farmers that are switching from conventional rice cultivation methods to Alternative Wetting and Drying.

The insurance product seeks to incentivize farmers to participate in the new cultivation system by providing compensation in case of yield losses. A robust dataset on the potential changes of rice production after the introduction of Alternative Wetting and Drying will help to estimate the level of risk and calculate the insurance contribution scheme. Other parameters that will be collected through the SD Tool are a possible increase in the income of farmers due to the expected increase in irrigated area.

The government also highlighted the need for simplification of monitoring and identified solutions for the application of the tool to limit the burden on human and financial resources. The aspects to be monitored were further linked to the Sustainable Development Goals (SDGs) and their targets which will allow for an assessment of the NAMA impact against a country's overall sustainable development targets.

Selection of Indicators. The SD indicators were selected in line with the country's Millennium Development Goals (MDGs), as reflected in the seven pillars of the Philippine National Climate Change Action Plan namely, Food Security, Water Sufficiency, Ecological and Environmental Stability, Human Security, Climate-Friendly Industries and Services, Sustainable Energy, Knowledge and Capacity Development.

The indicators reflect the SD impacts of the AMIA and were quantified wherever possible through precise parameters, otherwise qualitative descriptions were provided. The goal was to collect data that are measureable, and cost effective to collect.

Determination of Parameters. Following the indicator selection, parameters for each monitored indicator were determined. The parameters build the basis for the monitoring of AMIA's sustainable development impacts; they were carefully selected to ensure transparent and precise tracking of the indicators. For each parameter a unit and measurement approach was defined.

Monitoring. The data collection will start from the individual rice farmers who adopt Alternative Wetting and Drying as their water management practice. It will be processed, aggregated and archived by the AMIA implementer. It will also be possible to consider the integration and addition of monitoring parameters to the existing ones.

In the Philippines, the SD Tool has been well received as an instrument to help policy makers to collect data for the development of new products. These products offer the opportunity to increase the sustainability of the proposed NAMA intervention beyond international support and allow for a true transformation of the selected sector.

UNDP will continue to apply the tool in a variety of NAMAs to improve its applicability. Once concrete monitoring results of implemented NAMAs are available, the comparability of results between NAMAs could be evaluated and the contribution of NAMAs to a country's overall SDG targets assessed.

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