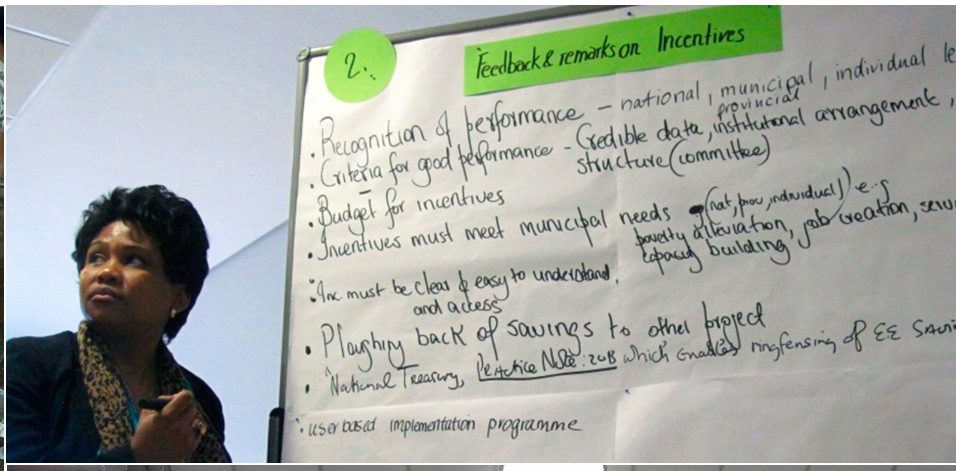

Sub-national involvement in NAMA development

Current and emerging practice towards vertical integration

On behalf of

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"V-NAMAs – Involving Sub-National Actors into National Climate Strategies through Vertically Integrated Nationally Appropriate Mitigation Actions" implemented on behalf of the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) / International Climate Initiative

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Context of the study

1.1 International Climate Initiative

Since 2008, the International Climate Initiative (ICI) of the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) has been financing climate and biodiversity projects in developing and newly industrialising countries, as well as in countries in transition. Based on a decision taken by the German parliament (Bundestag), a sum of 120 million euros is available for use by the initiative annually. The ICI was a key element of Germany's implementation of fast start financing. The Energy and Climate Fund launched by the German Government in 2011 is a further source of finance for international climate projects, and for activities to conserve biological diversity. Part of that funding is deployed through the ICI. That Fund is replenished from the auctioning of emission allowances. This innovative source makes Germany well-prepared to deliver long-term financing for climate and biodiversity projects worldwide.

The ICI is active in four areas: Mitigating greenhouse gas emissions, adapting to the impacts of climate change, conserving natural carbon sinks with a focus on reducing emissions from deforestation and forest degradation (REDD+), as well as conserving biological diversity. New projects are selected through a two-stage procedure that takes place once a year. Priority is given to activities that support creating an international climate protection architecture, to transparency, and to innovative and transferable solutions that have an impact beyond the individual project. The ICI cooperates closely with partner countries and supports consensus building for a comprehensive international climate agreement. Moreover, it is the goal of the ICI to create as many synergies as possible between climate protection and biodiversity conservation.

1.2 Sub-national actors in NAMA development

The BMU-ICI has commissioned the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH to implement a project focusing on sub-national actors in mitigating greenhouse gas emissions. Sub-national actors, e.g. provinces and municipalities, have key competences in a number of greenhouse gas emitting sectors such as waste management, buildings and urban transport. Business-as-usual scenarios anticipate that emissions in these sectors will continue to rise due, inter alia, to urban growth and the associated increase of resource and energy consumption. Therefore, national climate strategies often stress the need for involving sub-national actors in the planning and implementation of mitigation actions in these sectors. While the role of sub-nationals is undisputed, there is a lack of replicable experience with successful multi-level government approaches.

The project addresses this gap and supports national governments of developing countries in their efforts to mobilize sub-national actors for achieving national mitigation targets through cost-effective incentive packages and MRV systems. Two partner countries (Indonesia, South Africa) will pilot a multi-level government approach in the waste management and the public building sector, respectively. In both countries at least one bankable vertically integrated NAMA (V-NAMA) that meets the requirements of monitoring, reporting, and verification (MRV) will be developed. This includes the realization of capacity development measures as well as the identification of suitable domestic and/or international financing options.

Based on the lessons learnt, practical guidances for v-NAMAs will be elaborated. These will focus on methodological issues (capacity development, planning and management tools, MRV) as well as on policy issues such as proper regulations, economic incentives and financing instruments. Furthermore, they will provide orientation on the applicability of the approach in the context of different framework conditions (governance structures, etc.).

The experiences and outcomes of the project will be presented in national and international workshops and discussed with renowned climate policy experts for a broad dissemination. In this way, the project aims to ensure that the sub-national dimension is adequately taken into account in the international debate on the future design of the NAMA mechanism and that the V-NAMA approach is being developed into an effective instrument for promoting sustainable urban development.

1.3 GIZ – An innovative partner for the global challenges of tomorrow

The wide range of services offered by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH are based on a wealth of regional and technical expertise and on tried and tested management know-how. We are a German federal enterprise and offer workable, sustainable and effective solutions in political, economic and social change processes. Most of our work is commissioned by the German Federal Ministry for Economic Cooperation and Development (BMZ). However, GIZ also operates on behalf of other German ministries such as the BMU and public and private bodies in Germany and abroad. These include governments of other countries, the European Commission, the United Nations and the World Bank. We are equally committed to helping our clients in the private sector attain their goals.

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Executive Summary

The V-NAMA project supports national governments of developing countries in their efforts to mobilize sub-national actors for achieving national mitigation targets through cost-effective incentive packages and MRV systems.

This study was commissioned to inform the design of V-NAMA pilot programmes in their start-up phase by providing an overview of existing experience and emerging good practice of sub-national involvement in NAMAs. It seeks to address two questions. Firstly, what is the current evidence of the role of sub-nationals in NAMA design and implementation? And second, what could be building blocks for an emerging good practice in involving sub-nationals in NAMA design and implementation?

To answer these questions, the study reviews current entries in the Ecofys NAMA database, incorporates wider desk research into NAMAs and other comparable climate mitigation actions, and is supplemented with further insights from a range of experts and practitioners gathered through a series of expert interviews carried out for the study.

The study identifies a range of barriers to sub-national involvement:

» *Lack of financial incentives* such as inadequate budget support; poor access to finance (international finance in particular); or potential loss of revenue.

» *Lack of political/co-benefit incentives* caused by misalignment with sub-national political priorities, unclear co-benefits; negative impacts for certain stakeholders or barriers caused by vested interests or institutional bias preventing support.

» *Lack of integration* where hierarchies are not well aligned and effective bottom-up communication is prevented.

» *Institutional weaknesses* such as lack of effective coordination and regulatory mechanisms or 'institutional congestion' causing duplication and fragmentation of resources.

» *Institutional differences* in culture and perspectives, focus and priorities or political ideology; also a superiority-inferiority complex or 'culture of separation' or sometimes promoted by donors.

» *Lack of capacity* such as skills and knowledge of benefits and feasibility or the need for awareness raising and technical training. Also the lack of availability of data and information either because it is not collected or not organised or shared appropriately.

To address these barriers the study identifies a range of options for potential building blocks of future good practice. Key messages from this emerging good practice include:

Identify stakeholder barriers and incentives and find ways to overcome them.

This could include providing financial incentives such as grants, contracting agreements, performance based finance, fiscal transfers, revenue from new business models, or cost-savings and enabling access to loan finance. It will also require ensuring sufficient political/co-benefit incentives such as ensuring NAMAs offer politically popular co-benefits like job creation, economic growth, energy security or resilience to climate impacts. Providing reputational incentives such as the potential to enhance reputation or receive public praise or recognition from peers can also be effective.

Facilitate better institutional integration between national and sub-national actors.

This could include enabling integration into existing plans and processes and establishing formal arrangements for dialogue and to facilitate more bottom-up driven NAMA design. It also includes efforts to build common understanding through improving communication and facilitating informal approaches to find common ground between staff working at different levels.

Build capacity to enable stronger sub-national involvement

This includes strengthening sub-national skills and knowledge, either through providing additional resources or building local skills and knowledge through training and enabling knowledge exchange and learning. It also requires improving access to data and information which might require additional data collection or facilitating better sharing of existing data and information.

A checklist is included summarising potential options for addressing the barriers identified in the study and recommendations are also made for further areas of research building on the current work and providing further focussed insight to inform the design of the V-NAMA pilots.

1 Background

1.1 Objective

National Governments, in particular those with a federal constitution devolving certain authority and responsibilities to sub-national actors are often constrained in their ability to implement the mitigation actions proposed in their Nationally Appropriate Mitigation Action plans (NAMAs). It is therefore important that National Governments find ways of motivating and engaging sub-nationals in designing and implementing their NAMAs if they are to successfully deliver national climate strategies and targets. Through its V-NAMA project[1], GIZ, with funding from BMU, intends to support national governments in their efforts to engage sub-national governments in ways which effectively align the interests and competence of each government layer to achieve the desired climate change targets at least cost and with sustainable results.

The objective of this study is to provide evidence to support the design of the V-NAMA pilot programmes in their start-up phase by giving an overview of existing experience of sub-national involvement in NAMAs, and proposing potential building blocks for good practice to inform the development of V-NAMAs. To this end, the study addresses two key questions:

1. *What is the current evidence of the role of sub-nationals in NAMA design and implementation?*
2. *What could be building blocks for an emerging good practice for involving sub-nationals in NAMAs design and implementation?*

1.2 Approach

To understand more about how sub-nationals have so far been involved in (or excluded from) the design and implementation of NAMAs, we begin with a review of the Ecofys NAMA database (www.nama-database.org) which is the most comprehensive inventory of NAMA information currently available. The database includes information on NAMAs at various stages of development from concept note to feasibility study to full proposal. For this study we reviewed the content of the database in March 2013 and extended our search of the information from the NAMA database with input from other sources focussed on both NAMAs and comparable climate change policies.

Additional to this desk research we also undertook a series of semi-structured interviews with a range of experts anticipated to have useful insights into current practices and potential building blocks for future good practice.

We are grateful to the following experts for participating in interviews and contribution to this study:

» Joao Aleluia, Project Coordinator, UNESCAP, Thailand

» Chuck Kooshian, Senior Policy Adviser, Centre for Clean Air Policy, USA

» Dr. Christophe Nuttall, Executive Director, R20, Switzerland

» Javier Eduardo Mendoza, Coordinator Integrated Regional Climate Planning, PNUD, Columbia

» Prof. Minal Pathak, Cept University, India

» Stefan Raubenheimer, Executive Director, MAPS Programme and Director SSN, South Africa

» Jessica Suplie, Ministry of Environment (BMU), Germany

» Dr. Eric Zusman, Senior Policy Researcher, IGES, Japan

With thanks also to Ryoko Nakano, Andreas Jaeger and Sudarmanto Budi Nugroho of IGES, Japan.

Disclaimer

The authors have endeavoured to faithfully represent the views expressed by interviewees but some variation in emphasis or language may have occurred in transcription. Any such errors are the responsibility of the authors and interviewees should not be held responsible for any views here which do not accurately reflect those expressed during interview.

1 ICI-Project "V-NAMAs – Involving Sub-National Actors into National Climate Strategies through Vertically Integrated Nationally Appropriate Mitigation Actions"

2 Introduction

"Most investments to reduce greenhouse gas emissions and adapt to climate change (50-80% for mitigation and up to 100% for adaptation) take place at the sub-national and local levels" (UNDP, 2012).

Sub-national governments have a key role to play in delivering effective mitigation action. They often have greater flexibility to deliver than national government while at the same time facing different barriers and challenges. Recent work exploring these challenges in the context of green growth in cities suggests a broad range of multi-level governance 'gaps' exist which interrupt effective policy integration and implementation between national and sub national levels. These include a range of barriers from the misalignment of strategic, policy and administrative arrangements to the lack of funding, capacity or information (OECD, 2011). In this current study, we identify similar barriers in relation to the design and implementation of Nationally Appropriate Mitigation Actions (NAMAs).

We begin by examining the current evidence of sub-national involvement in NAMA design and implementation and go on to explore some of the main barriers which disrupt it. Informed by the literature and the insights from our expert interviews, we then identify some potential building blocks for emerging good practice and finish with a summary checklist to aid consideration of ways to improve sub-national integration in future NAMA design.

3 The current evidence

3.1 How are NAMAs involving sub-nationals?

In the first section of this chapter, we provide a brief overview of the process by which sub-nationals are involved in the design and implementation of NAMAs, drawing on a range of material reviewed for this study. Evidence of sub-national involvement in NAMAs is to date quite limited and it should be noted that NAMA activities referred to here are for the most part, proposed rather than actually implemented, reflecting the general early stage of implementation across NAMAs as a whole. Nevertheless, they provide us with a useful initial insight into current thinking about the involvement of sub-nationals in NAMA design and delivery.

Of the 52 entries in the NAMA database reviewed for this study, 24 were focussed on the subnational or city level in their scope, seven focussed on the buildings sector and nine on the waste sector. Of these, six focussed on the involvement of just one single sub-national area (e.g. city) with five involving multiple sub-national areas (e.g. several cities or districts) and five mentioned a role for states, regions or provinces.

Based on such limited data it is not possible to draw any specific country, regional or sectoral characteristics. However, it is noted that the following countries are considering, proposing or implementing NAMAs which can be classified as sub-national or involve explicit sub-national components: Chile, Uruguay, Mexico, Indonesia, Uganda, South Africa, Jordan, Columbia, Thailand, Lebanon, Laos, Kyrgyzstan and Brazil.

The documents reviewed for this study proposed a range of stages and processes through which sub-nationals should be involved in NAMA design and implementation and we outline here a number of illustrative examples:

3.1.1 Project identification and selection of sectors and pilot sites

With the exception of city-focused NAMAs, there is little evidence of the role of sub-nationals in the identification of projects and the selection of sectors and pilot sites and this would benefit from further investigation. One interesting approach we noted in the design of an urban development NAMA in Colombia involved bringing together national and sub-national members of the core NAMA working group and taking them on an overseas study tour to the US. The group, consisting of planners, bankers, national and local government representatives, met with their counterparts in Washington DC to discuss and view examples of potential projects relevant for their NAMA. During the course of the tour the group began to identify projects and issues which they then voted on (both local and national representatives having equal say) crystallising what they thought was the best framework and projects to include in their NAMA. On return to Colombia, the group then worked together to get their other national and sub-national counterparts on-board with their proposals (Kooshian, 2013). One explanation for the stronger involvement of sub-national actors in this case, could be that the international partner initiating this process (CCAP) included staff who were selected from a sub-national background bringing a different focus to the usual national or international thinking which normally predominates in such work.

3.1.2 Identification of funding opportunities and mechanisms

Some NAMAs make very general reference to funding opportunities and mechanisms such as an urban mobility NAMA in Brazil which notes *"….funding from several sources: local (public and private), state, national, and international (grants, loans, development agencies). Climate funds (grants, concessional loans) can support the project in addition to other funding sources"* (WRI , 2010). Others propose mechanisms for revenue generated through NAMA implementation to fund the operational capacity needed for its implementation such as the charcoal NAMA in Uganda (UNDP, 2013).

Some reference is also made to mechanisms for coordinating finance at sub-national level, for example in the urban development NAMA in Colombia the establishment of a *Single Finance Entity* for each region or city is proposed, to bring together public and private funding sources, prepare short term infrastructure investment programmes and generally streamline and coordinate financial flows at the sub-national level (Kooshian, A Vertical NAMA for Sustainable Urban Development. Center for Clean Air Policy, 2012).

3.1.3 Establishing new institutions

Depending on the nature of the NAMA proposed, integrating activities into existing institutional structures may not be possible or desirable. In such cases a number of NAMAs propose the creation of new institutional bodies to operate within or in parallel to existing institutional arrangements. For example, the sustainable charcoal NAMA in Uganda proposes the development of a whole new institutional framework at sub-national level, integrating the roles of national and sub-national government to influence transformation across the whole charcoal value chain. The framework proposes the creation of *District Charcoal Units* which act as administration hubs for coordinating activities at the local level. These units are driven by a government employee (*District Charcoal Officer*) appointed at either district, county or sub-country level (based on volume of producers). Each district charcoal officer is served by three new departments which include: *Charcoal Purchase and Transportation Department* (responsible for collection, payments and transportation of charcoal to supply warehouses); *Charcoal Licensing Department* (responsible for licensing producers); and a *Charcoal Taxation Unit* (responsible for imposing a tax 'levy' at collection points and district boundaries). While implementing such institutional innovations, emphasis is also placed on ensuring that disruption to existing relationships in the supply chain are minimised as far as possible. This is important to avoid damaging the existing social fabric while securing acceptance by the charcoal retailer community who will play a key role in marketing, consumer acceptance and providing supply and demand data to ensure the price for charcoal is market driven (UNDP, 2013). Establishing new institutions may promise the benefits of fresh approaches which circumvent barriers or stimulate change in existing institutions; however they also incur set-up costs and to be effective must have a mandate, legitimacy and sufficient resources to operate. Consideration for the most efficient and effective approach will consequently need to be considered on a case-by-case basis.

3.1.4 Implementation of actions

When it comes to the implementation of actions, a number of NAMAs explicitly include some kind of sub-national representation on national NAMA planning or coordination groups and committees. For example, in a transportation NAMA in Laos recommendations are made for the national implementing body (Ministry of Public Works and Transport) to collaborate with local authorities, specifically through inclusion of local representatives (e.g. Vice-Mayor responsible for transport in the City of Vientiane; Representative from Vientiane Urban Development Management Directorate) on the national "Road and Public Transport Coordination Committee" established to oversee NAMA implementation (Mitsubishi and Morgan Stanley, 2011).

In many circumstances legal mandates are devolved to the sub-national level making engagement at this level crucial for effective NAMA implementation. For example a proposed bio-waste NAMA in Tunisia aiming to reduce methane emissions through improved waste treatment identifies the legal responsibility of municipalities for the *"collection, separate collection, treatment, transportation and disposal of waste in landfills"*. This mandate makes the municipality a powerful stakeholder with a direct interest in such a NAMA and their engagement in delivering key components (e.g. identifying appropriate sites for construction of composting and anaerobic digestion plants, commissioning and financing plant management, or developing infrastructure for residual heat and electricity from anaerobic digestion plants) crucial. (Ecofys, BIFFA, & GTZ, 2010).

3.1.5 Design and implementation of MRV systems

Whilst many NAMAs mention detail of MRV arrangements, few go into detail about the explicit role for sub-nationals in the design and implementation of an MRV system. Generally it is acknowledged that there are different roles and needs between national and sub-national levels, where typically the national level will lead on the design of the framework while sub-national level will lead on the MRV implementation, gathering and reporting on relevant data (Kooshian, 2013). In a transport NAMA in Mexico for example, this involves the state/local level transport ministry taking responsibility for the planning, implementation and MRV of the NAMA, while consistency with national reporting is addressed at the national level. (Huizenga & Bakker, 2010). One approach advocated to improve coordination of MRV at the sub-national level and between sub-national and national levels is the

establishment of a joint, multi-agency city level committee to facilitate communication and information sharing such as the one advocated in the urban mobility NAMA for the city of Belo Horizonte in Brazil (Huizenga & Bakker, 2010).

3.2 Barriers to sub-national involvement

In this second part of the chapter we consider what barriers are preventing sub-nationals from being more involved in NAMA design and implementation, and what impact this may have. Over the following pages we summarise some of the main barriers identified in material reviewed for this study. While our focus here is on sub-national involvement in NAMAs, given the very limited implementation experience available from NAMAs, we also supplement with some insights from the design and implementation of other comparable national climate mitigation policies.

3.2.1 Lack of incentives

Creating the right incentives is a key challenge to attracting and involving sub-nationals in NAMA design and implementation: *"the government needs to take responsibility for NAMA implementation and, in addition, needs to provide the respective framework for participation of the respective municipalities and local administrations in the planned incentive scheme"* (Opitz, 2013).

3.2.1.1 Lack of financial incentives

Without providing **adequate financial support** for sub-nationals to build capacity and implement NAMA activities, delivery will be limited or additional fiscal and administrative strain is likely to be passed on elsewhere (i.e. drawing resources away from other services and budgets). (Zusman & Sutomo, Institutions and Low Carbon Transport: The Case of a Decentralizing Indonesia, 2010). Even where sub-national governments have a legal mandate to undertake actions necessary for NAMA implementation, they may not be capable of performing new responsibilities effectively due to lack of resources or, "unfunded mandates" (UN-ADB, 2012). In one example, a waste management NAMA in Thailand notes that "*Fee collection...from local collections are not successful and cannot reflect the actual cost"* therefore there is a **need to increase budget allocation** for the waste management system operated in local communities (PC-iGER, 2011).

In some cases the only incentive which sub-nationals may require from national government may be financial: *"Often sub-nationals know what is needed and are leading themselves, so rather than try to tell them what to do, it's about the national level giving them access to finance to get things done"* (Kooshian, 2013). This may be through providing additional budget or grants, or enabling access to sources of public or private loans. Several of our interviewees identified **poor access to finance** at the sub-national level as *"an enormous constraint*". Particular reference was made to the **difficulties faced by sub-nationals in accessing international finance**, as there are currently no clear paths for access to climate finance or similar funds directly through the GCF, UN or development banks (Nuttall, 2013).

Lack of financial incentives may be a strong barrier to involvement, but an even stronger one may be **loss of revenue** from existing activities which the NAMA proposes to change. For example in South Africa, municipal governments have often bought power from the single national electricity utility (ESKOM) selling it on to local consumers with a margin. This margin provides significant additional income to the municipality and any new approaches which threaten this are unlikely to enjoy municipal support (Raubenheimer, 2013).

3.2.1.2 Lack of political or co-benefits incentives

NAMA design or implementation may also be disrupted when **not aligned with sub-national political priorities,** particularly in contexts where limited capacity and resources are stretched and **co-benefits are not clear** *"there's got to be something in it for them"* (Raubenheimer, 2013).

Other political barriers may arise when the implementation of a NAMA may **create negative impacts for certain stakeholders**. A good example of this being protesting taxi drivers faced with reduced income as a result of a NAMA encouraging transport modality shift (Raubenheimer, 2013) or angry bus drivers losing their jobs when a NAMA encourages a shift to Bus Rapid Transit (Zusman, Senior Policy Research IGES, 2013).

Resistance can also come from larger **economic or industrial actors with vested interests** who national-scale investment who are reluctant to engage or invest at sub-national scale (Nuttall, 2013). This can often be the case with energy NAMAs where a strong **institutional bias** towards large-scale projects can sometimes be a barrier to more locally appropriate solutions (Raubenheimer, 2013).

3.2.2 Lack of integration

Despite the benefits which decentralized governance arrangements may offer in terms of sub-national capacity for implementing national policy, it does not always follow that implementation will be better coordinated or effective. For example in India where there is strong political commitment to energy efficiency at the national level but *"the decentralized political and governance systems may reduce the effectiveness of programs that require local enforcement."* (World Bank, 2010a)

The type of national and sub-national governance arrangements in place in the country where a NAMA is to be implemented may also be a factor here. For example, in countries with more centralised governance arrangements, a top-down system may seem advantageous for 'command and control' policy implementation, but this is not always the case. Often such **hierarchies are not well aligned** either horizontally (i.e. across national ministries) or vertically (between national and sub-national bodies) the result being that the national level can often be unaware of what happens at municipal level leading to poor coordination (Kooshian, 2013) (Aleluia, 2013). As the old Chinese saying goes "the hills are high and the emperor is far away". This may **prevent effective bottom-up communication** which is important for sharing sub-national priorities and needs or identifying and scaling up successful sub-national practice.

3.2.2.1 Institutional weaknesses

Lack of administrative coordination between national and sub-national levels is a common institutional weakness which can hamper effective sub-national involvement. For example a waste management NAMA in Thailand notes that "*cooperation and coordination among offices are lacking"* (PC-iGER, 2011) and in a waste NAMA in Peru: *"Institutional barriers include partially untested working relations…at the central level; a sometimes dysfunctional cooperation between the two levels of local government, district and regional municipalities; and a lack of coordination between the central and local governments"* (NOAK-NEFCO, 2011). As might be expected, coordination becomes more challenging the larger the delivery context and the layers of government involved. For example, **lack of effective coordination and regulatory mechanisms** to enforce energy conservation building codes in India has represented a considerable barrier to effective implementation. In this case, responsibility for effective compliance lay with state governments but existing institutional arrangements were reported to be ill-equipped for this due to lack of effective coordination with central government and delegation of responsibilities to local government (Kumar, Ravi, Sanjay , & Archana, 2010). A similar story is told in China where under the decentralized planning system, municipal governments assume primary responsibility for urban development. Rapid economic and spatial changes at the local level are making it increasingly difficult for the national government to exercise effective coordination in a timely manner. As a result, given the large number of localities across the country, central monitoring and supervision is often inadequate at the local level where policy implementation is carried out (World Bank, 2012).

Another potential barrier particularly prevalent in countries engaged with multiple donors is "**institutional congestion**" where a proliferation of NAMA-related initiatives and similar but not identical initiatives, such low-emission development strategies (LEDS) and national green growth strategies are simultaneously emerging causing unnecessary duplication and fragmentation of resources (IGES, 2012).

3.2.2.2 Institutional differences

Part of the reason for these institutional weaknesses could be **differences in institutional culture and perspectives** between national and sub-national government. For example, it was noted that civil servants at national level often *"**don't speak the same language** as sub-national people and their concerns are different. In some cases there is even a sort of **superiority-inferiority complex** between national and sub-national civil servants which can be obstructive to good integration"* (Nuttall, 2013).

The **focus and priorities** of government employees working at different levels can often be quite different, with

the national level tending to be more concerned with national targets or international climate agreements and the sub-national level more focussed on local growth and development (Raubenheimer, 2013) or climate adaptation to deal with e.g. flooding and landslides (Mendoza, 2013). Another factor here could be mistrust driven by **differences in political ideology**, for example if the political party in power nationally differs from that at sub-national level. As a result, agreement on what should be priorities for a NAMA may vary considerably between the two.

Donors may also promote this 'culture of separation' as they largely do not incentivise national governments to engage with sub-national government in NAMAs and the majority of donor organisation employees originate from roles in national government and may not be aware of the barriers to, or added value of strong sub-national involvement (Nuttall, 2013). As a result of this lack of awareness, donors may also promote certain approaches in implementation which, while apparently solving a national problem, do not fit well with sub-national needs (Aleluia, 2013).

3.2.3 Lack of capacity

3.2.3.1 Insufficient skills and knowledge

Many NAMAs refer to the need for additional training and capacity building to increase human resources and improve skills and knowledge at all levels to enable effective sub-national involvement. In some cases this may be necessary at the design stage of a NAMA where lack of knowledge at national level around certain methods and approaches may curtail support for such approaches being included. For example, one interviewee told us how a **lack of knowledge around the benefits and feasibility** of decentralised solid-waste management made it quite a challenge to convince national government to consider supporting such interventions at the sub-national level (Aleluia, 2013).

When it comes to NAMA implementation, skills and knowledge development may be required at all levels of government to ensure consistency and efficient delivery. For example, a sustainable housing NAMA in Mexico identifies the need to build capacity for local, state and federal authorities through courses, virtual learning and an inter-institutional platform, to enable them to introduce and implement sustainability criteria in their daily processes and decisions around housing master plans and house construction (CONAVI-SEMARNAT, 2011). In other cases training may be required for staff of specific sub-national institutions necessary for NAMA delivery. For example, the need to train Local Administrative Organisation (LAO) staff to improve their abilities around waste reduction, re-use, recycling as part of a waste management NAMA in Thailand (PC-iGER, 2011) or *"capacity building…municipality staff of Beirut on sustainable transportation modes"* for a transport NAMA in Lebanon (Perspectives, 2011). While **training may often be required to develop technical skills and knowledge** at the right level of implementation, it may also be required where a new national policy is being implemented as lack of adequate training around the policy, its implementation and enforcement at the sub-national level may also curtail effective delivery. For example, experience from the implementation of India's Energy Conservation Building Codes identifies **lack of awareness** about the codes as well as **lack of technical knowledge** needed to enforce them as a key barrier to implementation in some states (Pathak, 2013).

Training may be required for the operation of new technology such as a heating NAMA in Kyrgyzstan which involves the implementation of new metering devices to monitor efficiency. *"The MRV system to be developed will…rely on this data…hence the implementation of MRV would need to set up a training scheme on monitoring and reporting for all owners of small boiler houses."* (Opitz, 2013). Depending on the focus of the NAMA activities, **training may also be required across a wide range of stakeholders** such as in a sustainable charcoal NAMA in Uganda where successful implementation of new processes and institutional arrangements across the entire charcoal supply chain requires training for everyone from the charcoal producers and forestry owners, to the district level administration units, transporters, wholesalers and retailers (UNDP, 2013).

3.2.3.2 Insufficient data and information

During the design and implementation of NAMAs, inadequate or unavailable data or information at sub-national level can often be a considerable challenge. For example while identifying options for a waste NAMA in Peru,

authors noted *"there is a substantial lack of data, and data handling, regarding generation of waste, waste management, law enforcement, and generally GHG emission figures"* (NOAK-NEFCO, 2011). In many cases **data or information may not be collected** due to financial or technical barriers at the sub-national level such as those identified in the design of a heating NAMA in Kyrgyzstan where *"a huge number of relatively small assets with their data difficult and costly to assess"* make it difficult to obtain baseline data to assess options and priorities (Opitz, 2013).

In other cases the **data may exist but it is either not shared or simply not collated** in a way which is easily accessible: "we know that the data is there but no-one knows how to get it" (Kooshian, 2013). When securing data or information is an MRV requirement imposed by a NAMA funder this can potentially overburden existing sub-national capacity (Aleluia, 2013) or demand additional capacity building costs for e.g. engaging a consultant or building local capacity (Kooshian, 2013). To some extent, these are problems common to all levels of delivery, but are particularly challenging at sub-national level where data collection and analytic capacity is often limited.

4 Emerging good practice

"It is crucial that developing country policy-makers devote resources to expanding in-house technical capacity; create clear incentives and increase the awareness level among domestic stakeholders; and strengthen coordination between agencies involved in NAMA formulation" (IGES, 2012).

Drawing on the current evidence for sub-national involvement in NAMA design and implementation (and from comparable climate change and development processes), we identify here a number of lessons learned which address the barriers outlined in the previous section and which could provide potential building blocks for future good practice. The analysis undertaken for this study is limited in scope and we can therefore only identify preliminary building blocks at this point.

4.1 Providing incentives

"In order to ensure active participation of key domestic stakeholders and realise expected mitigation impacts of NAMAs, incentives should be provided, for instance, through ensuring budget allocations for sectoral strategies and action plans" (IGES, 2012).

Depending on the fiscal, governance and political economy context of delivery, incentives may be needed at different stages and at different levels to effectively motivate engagement in NAMA design and implementation. They may be applied individually or in combination to one or several stakeholders throughout the different stages of NAMA design and implementation. The effectiveness of incentives will also differ from country to country, so it's important to map them through stakeholder analysis and **identify the barriers and incentives specific to the delivery context**. (Raubenheimer, 2013). Stakeholder mapping should aim to identify which sub-national stakeholders may be impacted by the NAMA and which stakeholders could have potential influence of the NAMA's delivery.

4.1.1 Financial incentives

Not surprisingly, according to most interviewees, chief among the incentives is finance and there are a range of financial incentives which can be utilised to attract and sustain sub-national involvement. These include: **grants**; **contracting agreements**; **performance based finance**; **fiscal transfers**; **revenue from new business models; carbon-market mechanisms** or **cost-savings** made through NAMA implementation (e.g. reduced waste disposal or energy costs). Enabling sub-nationals to effectively **access loan finance** (e.g. for larger capital investments) from public or private sources domestically or internationally can also serve as a strong incentive for involvement. Below we outline a range of examples illustrating how incentives such as these can and are being applied to improve sub-national involvement:

- ***Grants*** – In Sweden, direct state grants have been used to effectively fund local and regional climate change mitigation efforts and encourage local authorities to undertake activities on a broad set of issues, such as nature conservation, waste and energy. Through schemes such as the Climate Local Investment Programme, national government investment of €180 million triggered further sub-national investments of around €800 million (Schaefter, 2013). In Japan, the EcoModel-City project launched in 2008 provides special state funds granted to 13 selected cities for implementing actions to boost low carbon development and reduce emissions by more than 50 per cent by 2050 (Schaefter, 2013).
- ***Contracting agreements*** – Contracting agreements with private sector energy suppliers have been a popular mechanism for incentivising sub-national mitigation action. For example, in the UK, the Energy Company Obligation (ECO) commits the country's six largest energy suppliers to deliver a set carbon reduction targets over a 3 year period up to March 2015. Suppliers discharge their obligations by installing energy efficiency measures in domestic households with a focus on the fuel poor and vulnerable. In parallel to this, the UK's Green Deal programme covers up-front costs for people installing energy efficiency measures in their homes and businesses, which are repaid via energy savings on their electricity bill (Schaefter, 2013). Contracting agreements are also made between national and city government in the UK through the City Deal programme (see Box 2).
- ***Budget savings*** - Cost-saving incentives are particularly relevant for building energy efficiency or waste management NAMAs. Typically 20% of a municipal budget is spent on waste management, and cost savings from activities which reduce disposal costs (e.g.

reducing quantity of waste sent to landfills) can result in substantial budget savings which can be a strong motivator for municipal authority support (Aleluia, 2013). Other in-kind-type arrangements are also noted such as in an industrial organic waste management NAMA in Chile which proposes the establishment of a fund to support local community projects (to improve community support) and offering preferential tipping fees for municipal waste as an incentive for municipal support in establishing the waste management facility (CCAP, 2013).

» ***New business revenues*** – Furthermore, as well as saving costs, changing business-as-usual practices can also lead to the creation of new business models and revenue sources for municipalities through the sale of recovered waste products such as recyclables (e.g. paper and plastic) or through the generation of added value products such as horticultural compost from domestic organic waste (Aleluia, 2013). An excellent example of this the UNESCAP/Waste Concern solid waste management approach currently being implemented in small cities and towns across Asia (see Box 1).

» ***Fiscal transfer*** – Transferring fiscal powers to the sub-national level can also be an effective tool for incentivising involvement and raising revenue to cover additional operational costs incurred through NAMA implementation. For example, a sustainable charcoal NAMA in Uganda proposes the use of such powers to provide direct financial incentives for charcoal producers by offering

Box 1: Revenue incentives from waste management, Asia-Pacific

The United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) working with a Bangladesh-based NGO called Waste Concern, have successfully piloted an approach to „Pro-poor and Sustainable Solid Waste Management in Secondary Cities and Small Towns" in Vietnam and Sri Lanka which they are now replicating across the Asia-Pacific. The approach has successfully enabled participating local governments, civil society organizations and organizations of the poor to develop and implement town-wide solid waste management strategies that are financially viable, pro-poor, and low-carbon. Working through a national level sponsor (e.g. ministry of environment) the process of engaging and integrating the sub-national level is typically as follows:

» National workshop – a national workshop is convened where key stakeholders are invited from national and sub-national levels.

» Select participating sub-national areas – Sub-nationals are identified initially by their expression of interest (including attendance at the national workshop). A process of consultation is then undertaken with interested municipalities and a shortlist of promising candidates is then prepared on the basis of interest and suitability (i.e. are they producing enough waste)

» Background studies – background/baseline studies are undertaken to identify required statistics, stakeholders and institutional structures. For example to understand if there is a local market for compost. Or if not, what are the prospects for developing it? These studies are usually undertaken by a local consultant (e.g. a researcher from a local university) and stakeholders are encouraged to support the consultant as much as possible (e.g. existing community structures/committees).

» Ensure senior local support/buy-in – strong commitment by the municipality is considered key e.g. to provide access to land for waste processing sites. It becomes evident quite soon if there is high level support (e.g. if the mayor or senior staff do not attend a meeting in a city it's a sign there may not be). Key factors which usually attract high-level support are the potential for cost savings or if an area has acute problems with waste management (i.e. if landfill sites are running out of space and have to be relocated).

» Prepare a business plan – working with local partners, waste management companies and the municipality involved, a business plan can then be prepared. The business model will only work if organic wastes are separated at source and if a successful market for compost is cultivated. This requires information and social marketing campaigns.

» Information campaigns – local partners play a key role here in information and social marketing campaigns to encourage separation of waste at source. This would begin in the markets and then move on to people in their households. Partners will also play a key role in promoting the compost products.

Project website: www.waste2resource.org
Source: (Aleluia, 2013)

» ***Performance-based incentives*** – financial bonuses (or penalties) for municipalities achieving planned mitigation targets can be used as an effective performance-based incentive in implementation. An example of this is considered in some detail for a transport NAMA in Brazil (WRI , 2010). Direct financial rewards for key stakeholders can also be a powerful implementation tool. For example, the sustainable charcoal NAMA in Uganda proposes a direct financial incentive for district government employees who play a key role in enforcement. The idea being to provide a financial reward to encourage healthy competition between them (in promoting and enforcing sustainable charcoal production) and to discourage corruption which could undermine the programme (UNDP, 2013). In the UK, commitments called Local Area Agreements (LAAs) made between national and sub-national government were used to negotiate local actions and priorities on climate mitigation and attracted a performance reward grant as a performance incentive for sub-national implementation (CLG, 2010).

» ***Discounted finance*** – Thailand's Energy Efficiency Revolving Fund (launched in 2003) began providing a line of credit to local banks, which in turn supplied low-interest loans to developers for energy efficiency and renewable energy projects in the range of USD 2.5 to 10 million. To pump-prime project development, the fund initially provided the finance to local banks at zero percent interest (increasing to 0.5% as the volume grew). For an initial start-up period, local banks then began providing low-interest rate loans covering up to 100 percent of project costs. So far, the fund has reported unprecedented success, with thirteen public and commercial banks participating and funding over 294 projects with a total investment now exceeding USD 519 million. The expected energy savings so far exceed 320 thousand tonnes-of-oil-equivalent (Ktoe) per year, leading to GHG emissions reductions of about 1 million tonnes CO2-equivalent annually (CCAP, 2012).

» ***Accessing public loan finance*** – Access to national or international credit lines and loans can also provide incentive for involvement. Sometimes this requires finding creative ways to channel finance from national to sub-national level, an example for which is noted in a transport NAMA for Mexico City which proposes that, although being delivered in a single city, the administrative boundary of the NAMA could be defined at the federal level thus classifying it as a national transport program rather than a single transport optimization measure in one state. The benefit of such an approach being that it would open access to federal funding which might not otherwise be available (Huizenga & Bakker, 2010). National Public Development Banks (PDB) may have an important role to play in ensuring financing of sub-national NAMA implementation as they understand the conditions for long-term investment on the ground and as public entities can effectively work as agents of national government in administering budgetary resources to support sub-national mitigation programmes or investment projects. They could also bring valuable finance skills and knowledge into the design of effective sub-national mitigation actions and potentially bridge the current gap between sub-nationals and the international climate finance architecture (Maria Netto & Gomes , 2013).

» ***Accessing private loan finance*** is also a powerful incentive, particularly for NAMAs requiring larger capital investments. An approach being developed and deployed by Regions20 to scale up investment in energy efficiency and renewable energy at the sub-national level appears to be having some good results in this area. The brokerage approach they are developing involves working with sub-national governments and investors to match them up and facilitate better investment flow to sub-national projects. By introducing investors at the sub-national level they identify smaller, lower risk investments which can be more attractive for some investors. For example, energy infrastructure in particular is normally focussed on large scale national level investments (e.g. 200 or 500MW plants) and securing finance to implement such infrastructure relies on a stable policy environment which is not always present. Working at sub-national level on smaller 5-10 MW plants provides a safer investment prospect and as the organisation's increasing success is demonstrating, is increasingly attractive to both public and private investors (Nuttall, 2013).

» ***Carbon market mechanisms*** – An increasing number of sub-national carbon-market based mechanisms have begun to emerge over recent years - such as the California Cap-and-Trade Program – which in time could be replicated and offer financing potential (World Bank, 2013).

4.1.2 Political and co-benefit incentives

"One of the main drivers for successful Building Energy Efficiency Code (BEEC) implementation is a political commitment at the national and subnational level to energy efficiency or sustainable energy sector development" (World Bank, 2010a)

Ensuring strong political support at the sub-national level is also important for effective implementation. Therefore instigating activities through NAMAs which, as well as contributing to mitigation, also **offer politically popular co-benefits** at the local level is an effective way to incentivise sub-national political support. Such activities must have a beneficial impact on a high number of voters if they are to provide a political incentive. For example, improving household lighting for a large number of energy-poor households so that children can do homework after dark; or implementing solar water heating which reduces the cost (financial and health impact) of burning biomass to heat water, are potential vote winners and consequently likely to attract political support for NAMAs (Raubenheimer, 2013). Incorporating sub-nationally appropriate co-benefits will also widen the appeal of the NAMA to a broader range of stakeholders which in turn can attract additional resources and support for implementation. Understanding clearly what political priorities motivate individual or institutional support for NAMA implementation is key to designing effective sub-national incentives. Common co-benefits include **job creation** and **economic growth** e.g. feed-in-tariff legislation with its now well documented benefits for national and sub-national jobs and growth. Economic growth benefits provide the political incentive for many 'green growth' efforts currently underway such as in South Korea where the involvement of cities, provinces and districts is seen as critical for implementing the national strategy (OECD, 2011a). Other prominent issues such as **energy security** or **resilience to climate impacts** can also be strong motivators to consider building in as co-benefits. At municipality level in Colombia, adaptation to climate impacts (e.g. flooding and mudslides) is a strong driver in some localities and mayors in these localities will tend to listen much more carefully and be more engaged with proposals which also help reduce pressing risks and challenges they face such as the growing need for climate adaptation (Mendoza, 2013).

4.1.3 Reputational incentives

The desire of sub-nationals and their leaders/staff to **maintain a good reputation among their peers** or competitors can also be a strong incentive for involvement. For example, in the technocratic leadership culture of Chinese municipalities, the career prospects of senior leaders (e.g. mayors or party secretaries) is driven by a merit based system linked to performance. The publicity and the opportunity for further promotion based on good performance, leads to a strong sense and culture of competition between leaders in a province or a region as well as across time. Mayors consequently experience pressure to perform better than preceding mayors and their neighbours. Successful municipal leaders are promoted quickly to positions of higher responsibility and seniority, creating strong incentives for performance (World Bank, 2012). Until recently, performance has largely been measured by GDP growth. However the national campaign to achieve the 20 percent energy intensity reduction goal of the last Five-Year Plan (2006-2010) has put real pressure on local governments to step up compliance enforcement (World Bank, 2010a). With increasing steer from national government toward climate mitigation measures, the opportunity for identifying political incentives for supporting NAMAs is growing (Zusman, Senior Policy Research IGES, 2013). **Competition between sub-nationals** for praise or recognition can also serve as a powerful incentive with high performance bringing reputational rewards for cities and their leadership e.g. the *European Green Capital*[2] award or *Covenant of Mayors*[3] movement.

4.2 Enabling integration

4.2.1 Integrating into existing processes

While NAMAs may endeavour to be transformative in their implementation, they must also **take account of existing plans and processes**. For example *"a bus rapid transit system may fit NAMA definitions, but it may fall outside of the government or municipality's urban transport plan, and would therefore not be suitable for implementation"* (World Bank, 2010b). Integrating NAMA delivery into, or coordinating in parallel with future plans, processes

2 http://ec.europa.eu/environment/europeangreencapital/
3 http://www.covenantofmayors.eu/about/covenant-of-mayors_en.html

or institutional reforms at the sub-national level can offer unique opportunities to implement mitigation measures.

For example, a heating NAMA in Kyrgyzstan proposes modernisation of heating supply to residential and public buildings using the opportunity presented by institutional reforms and re-organisation of the local heating sector to pursue low carbon development goals. Typical of soviet era central Asian countries, the local heating sector in Kyrgyzstan consists of a large number of small boiler houses (predominantly coal-fired) which make up a significant portion of the country's GHG emissions. Poor performance of these boiler houses has led to under supply and the need for investment and modernisation. As part of this reform process, ownership of the boiler houses will shift from the national government *Zhylkommunsojus* (State agency for the communal sphere) to municipalities and local administrations. The NAMA aims to use the opportunity presented by this shift of ownership to the sub-national level to promote implementation of renewable energy and energy efficiency measures by creating demand through financial incentives (e.g. soft loans and grants). For implementation to be effective, the NAMA emphasises the importance of providing a framework for participation of the respective municipalities and local administrations in the planned incentive scheme (Opitz, 2013).

4.2.2 Building common understanding

Improving cooperation and strengthening effectiveness of coordination between the national and sub-national levels is a key step to improving design and implementation of NAMAs. Civil servants at national and sub-national levels who are unable or unwilling to work together are unlikely to facilitate effective subnational involvement.

Enabling effective communication between national and sub-national government employees is an important factor in improving both strategic and administrative integration so finding creative ways to get the different levels together to talk and build relationships can have a very positive impact (Kooshian, 2013). One approach referred to earlier (e.g. Colombia NAMA example in 3.1.1) is through a study tour where groups made up of both national and sub-national level actors undertake a study tour together for inspiration in designing the NAMA.

Facilitating informal approaches to bring the different levels together in ways they can step back from the day-job, see the bigger picture, **find common ground** and begin to build personal as well as professional relationships can be beneficial. For example, one interviewee remarked on the value of an away-weekend workshop bringing different actors together in a pleasant location so they could "eat lobster and stare at the sea together" and how this was an important first step to more effective cooperation between the two (Kooshian, 2013).

Establishing formal arrangements for dialogue are also key and it is important to ensure sub-nationals are also officially around the table - both figuratively and literally – when designing and implementing NAMAs: *"When designing NAMAs, there is usually a national (inter-ministerial) committee established which includes representatives from civil society organisations, industry and government. Including sub-national or local government in these committees is one of the best ways to improve their involvement"* (Nuttall, 2013). Facilitating formal dialogue of this kind between levels of government must, however, go beyond shallow or cosmetic consultation and should be a route to effective discussion and agreement of mutual needs and priorities. A recent example of an effort to achieve this is the City Deal programme currently being implemented in the UK (see Box 2).

4.2.3 Facilitating bottom-up approaches

In most, if not all NAMA development, "*engagement of sub-nationals is always top-down*" (Nuttall, 2013). But in many cases, despite lack of capacity to implement, sub-nationals are often ahead of the national level, and "*rather tell them what to do, the best role for national government is to empower them to get things done"* (Kooshian, 2013).

Many good examples exist where the sub-national level has incubated and developed scalable mitigation solutions. For example the Solar Ordinance of the city/state of Sao Paulo, Brazil which required new residential, commercial and industrial buildings to install solar water heating systems covering at least 40% of the energy used for heating water. Its implementation resulted in significant net savings and emissions reductions and it its being widely replicated cities across Brazil (IRENA/ICLEI, 2012). Examples such as this indicate that perhaps a stronger approach to designing NAMAs could be

Box 2: City Deals promoting sub-national low carbon growth, UK

At its launch in 2011, in a bid to help encourage and enable UK cities to "shape their economic destinies, boost entire regions and get the national economy growing", the UK government launched a programme of City Deals which promised to increase economic and political freedom for cities by giving them more power over money and infrastructure and power to boost skills and jobs. The programme commenced with a first wave covering the eight largest cities outside London with central government meeting and working with city representatives to negotiate individual 'deals' to devolve additional budget and powers from national to sub-national and improve integration between the two. Each deal was bespoke and aimed to reflect the needs of individual places under the broad objectives of (a) giving cities the powers and tools they need to drive local economic growth; (b) unlocking projects or initiatives that will boost their economies; and (c) strengthening the governance arrangements of each city (HMG, 2012).

Early evaluation of the first wave of the programme found that the deals were clearly being used as a valuable means to develop and deliver low carbon economic development (Green Alliance, 2012). Specific areas where the deals were used in this way include: Growing low carbon manufacturing; Accelerating building retrofit; Creating low carbon investment portfolios; Expanding district heating; and Enabling growth via sustainable transport. The deals also appear to have helped promote stronger working relationships between national and sub-national government on low carbon development, in the words of one city representative: "We see the relationship with DECC [national ministry of energy and climate change] as a really positive step forward and want to build on it towards a more strategic one. Hopefully, DECC will see from the individual projects that there is value in working at the city level and that we can each benefit from working together to meet shared objectives." However, the evaluation goes on to explain how the deals could have gone further and would have benefited from aligning overarching local growth priorities more prominently with their existing low carbon visions. Early learning from this first round included the following key messages:

» For national government: Emphasise the importance of using their deal to strengthen progress on low carbon growth; Prioritise strategic engagement with the city deal process; Invest in building effective, long term partnerships between cities and national government departments.

» For city government: Use existing city visions, policies and targets for low carbon growth to help frame deals and demonstrate its centrality to local economic imperatives; Investigate and embed low carbon opportunities across all aspects of the deal, making links explicit and consistent, not just in the obvious areas.

Source: the authors

through **facilitating more 'bottom-up' driven design.** One approach might be for national government to begin by empowering and collaborating with sub-national actors to develop their own regionally appropriate mitigation actions ("RAMAS") and then bringing these together into a combined plan which forms the basis of a NAMA or thematic NAMAs. The benefit of such an approach would be that sub-national leaders (e.g. mayors, governors etc.) would be more likely to own the actions and to get things done. (Nuttall, 2013). The *Territorial Approach to Climate Change* (TACC) model highlights this last point, emphasizing that because the implementation of climate strategies relies heavily on local behaviours and investment choices, success can only be assured when activities at the regional and local level are carried out simultaneously with national level initiatives (UNDP, 2009).

4.3 Building capacity

4.3.1 Strengthening skills and knowledge

Providing additional skills and knowledge capacity to sub-nationals, particularly at the concept note or full proposal design stage is often required and focused support for sub-nationals at this stage will be particularly important for their involvement. Many examples of sub-national technical support programmes exist, for example, the *Austrian Climate and Energy Model Regions programme* which supports the employment of a programme manager for climate change related activities in the region. The manager's work focusses on concepts and studies for measures related to energy and climate, as well as advisory services and networking.

In Germany, the *German National Climate Initiative* (see Box 3) also enables support with consultation services

Box 3: Direct Support for Local Authorities, Germany

In Germany, the national government supports local authorities through its "National Climate Initiative" (NKI). The initiative aims to mobilize existing reduction potential at the city level and develop innovative pilot projects. Since 2008 the NKI has supported more than 3,000 projects in more over 1,700 cities across Germany. Moreover, 60 outstanding projects targeting consumers, the economy or education have been promoted in the field of Combined Heat and Power (CHP) or industrial heating or cooling. So far, the NKI has led to reductions in carbon emissions of around 1.4 Mt. Co-benefits have included reduced municipal spending from lower heating costs in modernised infrastructure and municipal institutions. The funding focuses on climate protection concepts for the whole city or for specific sectors like buildings or transport. In general 65% of the costs for complete concepts and 50% for sectoral concepts are granted by the Federal Ministry for the Environment (BMU). The finance is raised via the sale of emission trading certificates and in 2008 the total amount of funding for the NKI reached €400m. Climate protection concepts should provide measures and requirements for a planning horizon of 10 to 15 years and should contribute to the overall national mitigation targets of 80-95% in 2050.

Support centre: http://kommunen.klimaschutz.de/portal.html

Source: the authors

and for the development of climate protection strategies and concepts. Local authorities are also provided with up to a 40 per cent subsidy for employing municipal climate managers responsible for the conceptualisation, coordination and implementation of mitigation activities, project management, consultation of policy makers, data collection and analysis, supervision of decision-making processes and the organisation of citizens' dialogues (Suplie, 2013).

Incorporating resources in NAMAs for **building local skills and knowledge** through training sub-national actors involved in delivery is also important. Training to improve skills and knowledge will often be required to support different stages of NAMA design and implementation, whether it be in new technologies or processes at design stage, new operational skills for implementation or for collecting and using data and information effectively for MRV. Training can take on different forms from "exposure visits" and study tours to inform priorities at the design stage of a NAMA (Kooshian, 2013) or hands on training for operational staff learning new skills necessary for implementing the NAMA (Aleluia, 2013). Where a NAMA involves delivery in a number of sub-national locations, then developing a national or regional training centre may be an important part of NAMA implementation. A good example of this is the Waste Concern training centre in Dhaka[4] which is used to train sub-national staff all across the region.

Where multiple sub-nationals are involved in delivery then processes **enabling knowledge exchange and learning** are also valuable. For example, the German *Bund-Länder exchange on climate change*, which has operated since 2008, enables an on-going dialogue and exchange between federal and state governments to discuss current questions and challenges in regard to climate and energy policy. In Japan, the *Coalition of Local Governments for Environment Initiative* (COLGEI) provides a network for the country's largest cities to agree on specific targets and access services such as GHG emissions inventory or the formulation of a local climate policy. In Sweden, networks of municipalities such as the *Swedish Eco-municipalities*, work together to reduce their emissions by motivation each other, exchanging experience and distributing information (Schaefter, 2013).

4.3.2 Improving data and information

In many cases NAMAs will introduce a climate mitigation dimension to existing activities such as transport, buildings or waste management. The availability and use of data and information around these activities, particularly at the sub-national level in the country of delivery can often be limited. An important part of NAMA design and implementation in such circumstances is therefore to improve the availability of such data and information for example, to assess options in the design stage or MRV delivery of activities.

4 http://waste2resource.org/regional-training-center/

In some cases this may require the **collection of new (or re-analysis of existing) data and information.** A good example of this is a proposed integrated urban mobility NAMA in the city of Belo Horizonte, Brazil. The NAMA aims to build on the development of new *Comprehensive Mobility Plans* which, during their development require extensive transport data collection and modelling to compare the impact of different transport scenarios. The NAMA proposes to provide tools to extend this assessment beyond the standard analysis by also quantifying greenhouse gas reductions, travel time savings, travel cost savings and air pollutant emissions prevented through the implementation of the integrated approach proposed through the NAMA (Huizenga & Bakker, 2010).

In other cases this may require efforts to **gain access to existing data and information.** Where data is already available at sub-national level, a common challenge faced in delivering a NAMA is actually getting access to it. As much data is generated for the use of individual sectoral departments in sub-national government (e.g. for monitoring and reporting to central government), silos can quite often exist which prevent effective sharing of this data. In addressing this problem in the UK a number of approaches have emerged.

Firstly the establishment of local information systems which have a strong focus on meeting the data requirements of local policy makers and citizens by enabling users to interrogate, map, analyse and download local and national data sets. These systems typically provide information to inform and enhance all stages of the policy design and delivery process, helping coordinate collection and analysis of data from local partners (which is often more up-to-date or at finer geographical detail than data provided by central government) and are frequently a catalyst for a more analytical focused culture (CLG, 2007). Secondly **to facilitate better data and information sharing** at municipal and regional levels, Local Intelligence Networks are established (see for example the *South West England Local Intelligence Networks*[5]) which bring people and information systems together to share data and information between local and regional government.

Where similar data and information needs exist across multiple sub-national areas, it may be more efficient to **build capacity at national level** as a way to provide information at the sub-national level. For example, gathering data on energy efficiency of housing stock often involves merging datasets from many different sources both within government and the private sector. This is costly and time-consuming to undertake at local level and significant efficiency gains can be made by undertaking it at a national level and providing data at a level of geographic resolution useful for sub-national actors. A good example of this can be found in the UK *Energy Saving Trust's Homes Energy Efficiency Database* (HEED)[6]. The HEED collects data from different national agencies and datasources to provide both national and sub-national government with key data about the condition of housing stock. It was designed and implemented to help monitor and improve the UK's housing stock and covers everything from property characteristics and heating systems to insulation and micro generation measures installed. This data is available at street/neighbourhood level and is made freely available to local governments. It has provided an invaluable tool for design and implementing national and sub-national programmes aimed at improving domestic energy efficiency across the country. Another example where nationally coordinated data collection has improved the design and implementation of mitigation actions at sub-national level is the production of 'Mini-Stern reviews' in UK city-regions (see Box 4).

5 http://www.swo.org.uk/swo-network/local-intelligence-networks/

6 http://www.energysavingtrust.org.uk/Organisations/Government-and-local-programmes/Free-resources-for-local-authorities/Homes-Energy-Efficiency-Database

Box 4: National data supporting 'Mini-Stern Reviews', UK

In 2008 the UK became the first country in the world to introduce a long-term legally-binding framework to tackle climate change, through the introduction of its national Climate Change Act. The Act provides the country with a legal framework, including a long-term target for emissions in 2050, 5-year carbon budgets on track to that target and an independent Committee on Climate Change (CCC) created to provide advice to the government on these targets and related policies. As a result of its analytical work, the CCC generated rich sources of data about the mitigation potential of a wide range of technologies which it has consequently made available to sub-nationals.

In 2010, utilising detailed data provided by the CCC, a team from a coalition of British universities undertook analysis of the costs and carbon effectiveness of a wide range of low carbon options that could be applied in households, industry, commerce and transport in a sub-national city region of the UK (Leeds). They then proceeded to explore the scope for implementation, the associated investment needs, financial returns and carbon savings, and the implications for the economy and employment. The resulting analysis (now known as the mini-Stern review after the national review of the economics of climate change on which it was modelled) has since been used to generate league tables of the most cost and carbon effective options available at the city scale and this evidence base is being used to help the region secure and focus large-scale investments to reduce energy bills and carbon footprint, to stimulate its economy and strengthen its communities. According to one of the team, the CCC data played a crucial role by providing data collated at a national level but with a level of detail which would have otherwise been prohibitively costly to produce at the sub-national level.

"The mini-Stern review has had a tangible effect on low carbon policy across the Leeds City Region. It has created a credible focal point around which Leeds can build momentum across the private and public sector. Critically, it has also given us robust data, allowing us to implement ambitious but deliverable targets for reducing carbon emissions." Tom Riordan, Chief Executive Leeds City Council.

Project website: http://www.climatesmartcities.org/

Source: the authors

5 Checklist

Based on the findings of this study, we provide here a checklist of potential options to address identified barriers to sub-national involvement in NAMA design and implementation.

Barrier	Option	Example	Potential limitations
Lack of incentives	**Provide incentives**		
Inadequate budget support available to attract sub-national's involvement in design, or ability to deliver	Provide grants, contracting agreements, fiscal transfers or performance-based incentives to support NAMA delivery.	See 4.1.1	May depend on the NAMA and national laws/fiscal arrangements
Potential loss of revenue to sub-nationals through NAMA delivery	Create new revenue generating business models for NAMA delivery	See 4.1.1 (Box 1)	May require capacity building and depend on accessible markets. Need to consider equitable sharing of revenues.
Poor access to finance to support NAMA implementation (e.g. those with large capital costs)	Find creative ways to channel national and international finance through discounted finance to pump prime credit lines or other approaches to access private and public loans	See 4.1.1	May depend on the NAMA and national laws/fiscal arrangements. For accessing private loans, need to ensure data accuracy, guaranteeing rate of return
NAMA does not fit to sub-national political priorities	Undertake stakeholder mapping to identify impact (of NAMA) on different stakeholders and potential influence (of stakeholders) over NAMA delivery.	See 4.1	Must be undertaken with care to avoid being considered politically divisive
Not all stakeholders sufficiently incentivised	Build in co-benefits and financial incentives to the NAMA which attract and secure support of all main sub-national stakeholders. Use reputational incentives for public praise and recognition through e.g. competitions.	See 4.1.2; 4.1.1 and 4.1.3	Required co-benefits may not be compatible with proposed NAMAs
Lack of integration	**Promote integration**		
Engaging sub-nationals too soon can lead to failed expectations and disengagement	Ensure expectations are well managed from the outset. Ensure effective and timely communication of risks and benefits to manage expectations and maintain engagement.	See 4.2.2	Previous bad experience may make sub-nationals wary or cynical of involvement.
Institutional weaknesses causing duplication and fragmentation of resources	Integrate into existing reforms and processes. Strengthen national level coordination of sub-national activity e.g. through ensuring strong sub-national involvement in steering committees or e.g. establishing a NAMA office.	See 4.2.1	Reforms and processes may not be underway or fit NAMA delivery timing.
Different institutional culture/perspectives between national and sub-national	Build-in opportunities for informal approaches to build common understanding and facilitate better communication between staff at national and sub-national levels. This might include e.g. combines study tours for the design of NAMAs.	See 4.2.2	Other cultural or political differences may disrupt well integrated working relationship. Relationships may be built but then lost due to individuals changing roles through election cycles/ staffing changes.
Donors promoting 'culture of separation'	Encourage international donors to require stronger involvement with sub-national actors.	...	Donors may not be aware of or favour the added value.
Lack of capacity	**Build capacity**		
Insufficient skills and knowledge	Provide additional technical assistance or training to build local skills and knowledge.	See 4.3.1 and Box 3	Training is dependent on there being someone to train. If capacity is so weak that suitable staff are not even available then this issue will need to be addressed first.
Necessary data or information not currently collected	Build-in resources and provide technical and political assistance to enable the collection of new data and information necessary for designing or effectively implementing and MRV-ing the NAMA. Develop national capacity to collect data needed at sub-national level.	See 4.3.2	Challenges to collecting new data may vary in feasibility and cost depending on context.
Necessary data or information not currently accessible	Develop networks and systems to facilitate better horizontal and vertical sharing of data and information. Develop national capacity to collect data needed at sub-national level.	See 4.3.2	Legal or institutional barriers may be held up as barriers to prevent sharing (e.g. civil liberty/data protection concerns)

6 Areas for further research

Through undertaking this study it has become increasingly evident that (despite the relative lack of evidence related to NAMA) this is a rich area for further study. Ensuring coherence and effective integration between national and sub-national government through the design and implementation of climate mitigation actions is an important emerging area for future study. As finance and resources begin to flow into the implementation of NAMAs and other climate mitigation actions, it will become increasingly important to better understand how to involve sub-nationals. The effectiveness of these investments and the impact they eventually have on mitigation efforts will depend to a large extent on how well these different levels of government can work together. Based on the material reviewed and interviews undertaken for this study, we identify here some initial areas for further research:

1. What are effective roles for sub-nationals in the identification of projects and the selection of sectors and pilot sites and how can these be facilitated?
2. What approaches to sub-national stakeholder analysis and community-engagement work effectively for identifying barriers and effective incentives? Do different sectors or stakeholder groups require different approaches?
3. Which incentives have proven to be effective with which stakeholders? In which contexts? Do incentives for some sub-nationals dis-incentivize other neighbouring sub-nationals?
4. What legislative and fiscal mandates have been effective in involving and empowering sub-nationals in implementing NAMAs and NAMA-type mitigation action? Particularly in contexts relevant for the South African and Indonesian V-NAMAs. As a starting point this could draw on, for example, the GLOBE climate legislation study (GLOBE, 2013).
5. How to enable SNs better access International Climate Finance either directly or through national government?
6. What are effective approaches to delivering training, knowledge sharing etc. and what role can South-South cooperation play? (e.g. sister-cities programmes, etc.)?
7. What can be learned from experience of sub-national integration on other international issues e.g. global health initiatives (AIDS, Malaria, etc.), REDD+, Clean Water/Water Management, Land-management of commons (land conservation that allows for sustainable, local usage).
8. How to improve data and information access and use for MRV where there is low analytic capacity at sub-national level. Is it more efficient to build local capacity or national capacity? Can new technology help (e.g. remote data collection, mobile phones etc.) and what role do donors have in encouraging this?
9. When is it appropriate to involve sub-nationals and when is it not necessary or useful?
10. What is the right stage in NAMA development to engage sub-nationals (particularly cities) in order to maintain their interest and engagement?
11. What role do national and sub-national governance conditions play in the process of involving sub-nationals? For example, if national governance (e.g. fiscal or regulatory power) is already very devolved, does this help or hinder? What are effective enabling approaches in different governance contexts?
12. What type of cities or other sub-nationals appear to be getting involved already? Are there any common factors which indicate optimal conditions for better involvement (i.e. strong sub-national leadership or capacity?)
13. How can state, regional or provincial government best facilitate integration between national and local government? How do they moderate or mediate effective integration?
14. Which analytical tools are most effective for cities and other sub-nationals to use to effectively identify appropriate mitigation options?
15. What can be learned directly from specific case examples of sub-nationals at different levels which have effectively integrated action with national government? And from those which have not?

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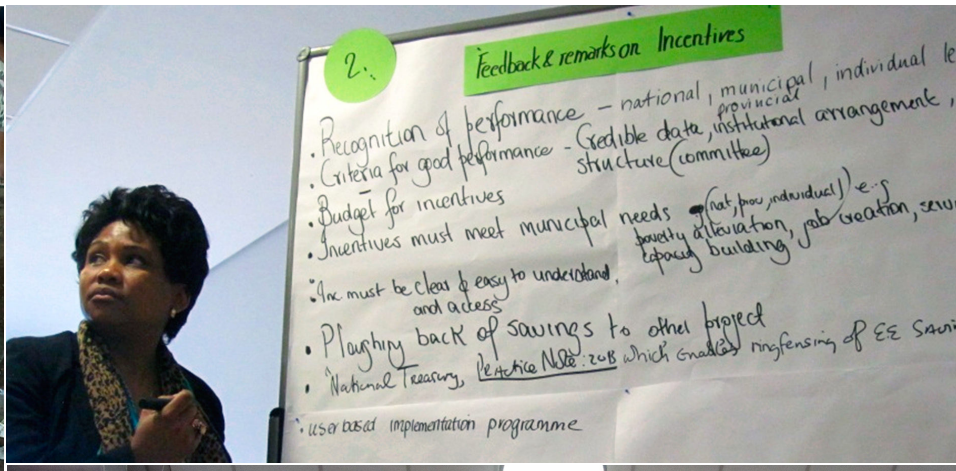

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