

Euroconsult Mott MacDonald

European Commission

EuropeAid/127404/C/SER/Multi

Service contract No

21.040100/2009/SI2.539350/SER/C1

Developing countries, monitoring and reporting on greenhouse gas emissions, policies and measures

Final Report



Euroconsult Mott MacDonald
in association with:

- ECN (The Netherlands)
- Ecoprogresso (Portugal)

December 2010

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A project funded by the European Union. The views expressed in this report are those of the consultants and do not represent the views of the Project Partners or European Commission

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Issue and revision record

Revision	Date	Originator	Checker	Approver	Description
6	13 dec 2010	Cavalheiro	Mourão Bakker Saenz-Core Leclert	La Chapelle	For submission to client

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Executive Summary

The objective of the scoping study “Developing countries, monitoring and reporting on greenhouse gas emissions, policies and measures”, for which this document constitutes the final report, is to assess the gaps, barriers, and needs of developing countries with regard to mitigation and measurement, reporting, and verification (MRV), and, based on such assessment, to provide concrete recommendations on the structure and elements of capacity building programs to be implemented in the near future. This study was largely based on a stakeholder consultation process with Indonesia, Kenya, Mexico, Peru and Thailand.

Despite the lack of an international agreement under the UNFCCC on mitigation and MRV, and the lack of clarity on what constitutes a nationally appropriate mitigation action (NAMA) and an acceptable MRV framework, the 5 countries welcomed the project, as they, overall, acknowledge both the opportunities arising from pursuing a low emission development path, and the importance of MRV as a fundamental element of good policy management practices and feedback mechanisms. Countries actively participated in the project and raised issues related to the current climate change-policy making processes and to the procedures for the elaboration of national communications and GHG inventories. The countries having a higher level of engagement on climate change issues had a higher political buy-in to this project with the national focal points (usually high-ranking officials nominated by the respective government) being instrumental in ensuring stakeholder engagement and in ensuring that national political sensitivities are understood and respected.

All countries participating in the project have a leadership role, be it regional or global, in terms of mitigation and MRV. Nonetheless, it is clear that poverty eradication through rigorous economic development remains their main priority. Countries often still do not realise that mitigation can be an integral element of development strategies and can enhance competitiveness, with many of them still struggling to bridge the gap integrating climate change mitigation (and adaptation) in their respective poverty reduction and economic development strategies, due to limited institutional and policy coordination.

In general, the main gaps, barriers and needs, in relation to mitigation and MRV, identified in the five countries are largely similar and can be broadly split into two main categories:

- Institutional – the lack of awareness on climate change issues and of clear definition of roles and mandates among the several ministries and government agencies involved in climate change policy, in addition to the lack of sufficient human, technical and financial resources, often lead to structural and coordination problems with regard to mitigation policy, and to the elaboration of national communications and GHG inventories; and
- Methodological – the complexity of the data and information needed for policy planning, design, implementation and evaluation (from historical activity data, to nationally appropriate emission factors, to socio-economic scenarios and other

modeling outputs), pose great challenges. These same challenges associated with data requirements and tools (such as data bases and other types of software) are faced by countries in their regular efforts for the elaboration of national communications and GHG inventories.

Based on the identified gaps, barriers and needs, and the inputs provided by stakeholders, this project proposes a "way forward" towards effective mitigation planning, implementation and MRV, consisting of three main steps:

- Consolidation and coordination (of current and future efforts):
 - enhancing the policy making and coordination mechanisms, namely by defining and attributing roles and mandates and by increasing resources devoted to climate change in key ministries and agencies, in particular in the ministry responsible for the overall coordination of CC policy;
 - setting up national systems, including all institutional, legal and procedural arrangements for the estimation and reporting of GHG emissions (as well as for national communications);
- Planning and design (of mitigation action and MRV systems):
 - enhancing the awareness of potential benefits from climate change policies;
 - consolidating and facilitating access to key reference data and enhance expertise in terms of methodologies for the establishment of baselines and determination of impacts of measures, including the use of modelling tools;
 - elaborating inventory development plans, in order to identify needs and set priorities in relation to activity data, emission factors and other parameters;
 - elaborating a Quality Assurance / Quality Control (QA/QC) Plan for the GHG inventory;
- Implementation (of actions and of MRV):
 - identifying, understanding and acting upon barriers, taking into account information reported (both quantitative and qualitative) on the measurement of the implementation of measures;
 - making available human and technological resources for the regular and timely collection and archiving of data for the estimation of emissions.

Based on the identified gaps, barriers and needs and "way forward", a number of specific capacity building activities are also proposed as part of this project with regard to mitigation and MRV, in an effort to facilitate discussions between donors and recipient countries. In proceeding with their implementation, donors need to ensure that these are country driven, meet country interests and priorities, and are further tailored to specific issues.

Given the wealth of efforts already undertaken by countries, it is important that cooperation activities be prioritized, taking into account specific national circumstances and interests. This report proposes that actions are prioritized based on the following approach:

- support institutional framework to ensure coordination and institutional memory;
- build a historical data foundation to allow for the estimation of GHG emissions as the definition of baselines;
- build capacity to plan the future to allow for an informed decision making process.

It is clear that independent of an agreement under the UNFCCC, countries have already started to undertake activities related to mitigation and MRV. This report is meant to be a useful hand book for donors and recipients alike, to allow them to approach cooperation partners and discuss, further detailing and adapting to national circumstances (as no solution fits all), a set of capacity building activities which will assist developing countries in more effectively moving towards establishing appropriate mitigation and MRV frameworks.

1. Introduction

The Bali Action Plan adopted in 2007, brought to the international and national political agendas two new concepts, which enclose great challenges, risks and opportunities for countries and their respective stakeholders. The first concept is “Nationally Appropriate Mitigation Action” or NAMAs. The second is Measurable, Reportable and Verifiable or MRV. These concepts apply, on what this report is concerned to developing countries only.

By COP-15, countries were expected to reach an agreement which would lay precise definitions, rules and requirements, detailing what countries were expected to perform in relation to implementation of NAMAs and of measuring, reporting and verifying GHG emissions, including those directly or indirectly impacted by the implementation of NAMAs.

Despite the fact that the Copenhagen Accord does not provide a complete framework, countries are intensifying efforts in terms of planning, designing and implementing mitigation action and to enhance their capacity to measure and report such efforts (less is being done on the side of verification, as there is a much less clearer perception of how verification requirements and procedures will be established). Although at varying degrees, all countries have in place some sort of measures which directly or indirectly reduce or limit GHG emissions. Unfortunately, in the current state of play, it is also true that many sectoral policies are being implemented without taking into account the opportunities arising from considering lower GHG emitting options. Countries’ number one and overriding priority is poverty reduction and economic development, which is still seen by some stakeholder as contradictory to climate change mitigation objectives.

Lack of awareness related to the opportunities arising from climate change mitigation is one of the key barriers indentified in an intensive in-country stakeholder consultation exercise in 5 developing countries, with a view to identifying gaps, barriers and needs in relation to Mitigation and MRV and actions and cooperation opportunities to fill, overcome and meet them.

In this report, the discussion with stakeholders on of the identification of gaps, barriers and needs, led to the design of the way forward, which represents a “to do list” of efforts that need to be undertaken by any country striving to achieve low emissions development (LED), i.e. a development path which pursues poverty reduction and economic growth objectives, in a less carbon intensive manner than business as usual, in a Measurable, Reportable and Verifiable (MRVed) manner. In order to move forward, there are concrete capacity building actions which constitute an opportunity for international cooperation (which, in turn, can be traced back to addressing a given gap, barrier or need). These opportunities for cooperation are now working tools which both recipient and donor country can use in approaching their counterparts in discussions related to building capacity on climate change mitigation (NAMAs and Low Emission Development Strategies) and MRV.

All gaps, barriers, needs, proposed way forward and actions constituting cooperation opportunities have been derived from the findings and lessons learned in the stakeholder consultation process in Indonesia, Kenya, Mexico, Peru and Thailand. This report provides the insights and conclusions from the five countries in this project, However as the conclusions have been generalized they are deemed to be applicable to developing countries in general.

2. The project approach

2.1 Project Methodology

The objective of this project is to provide proposals and recommendations for the way forward on developing country's mitigation action and Measurement, Reporting and Verification, including National Communications, Greenhouse Gas Inventories; and to provide concrete recommendations on the structure and elements for a capacity building programme to be implemented between 2010 and 2013-2014 with a view to "assisting developing countries in implementing MRV requirements of a future climate change agreement." This capacity building programme will be designed based on and with a view to addressing institutional, procedural and methodological, relating in particular to data gathering, barriers, needs, constraints and opportunities, identified during an intensive in-country interactive stakeholder engagement and consultation process.

5 countries have participated in this project: Indonesia, Kenya, Mexico, Peru and Thailand, selected from an initial analysis of 10 countries. The 5 countries were selected based on the following criteria:

- perceived need of capacity building in/by the country;
- perceived buy-in / willingness to be subject of the scoping study and potential follow up of capacity building activities by the country;
- potential for replication of activities in other developing countries;
- potential for dissemination of the lessons learned by the country;
- relevance of the country in terms of the United Nations negotiations;
- availability of reputed MRV (inventories and national communications) experts in the country;
- country political engagement on the climate change process, including country's readiness to design, implement and MRV NAMAs and LDGP;
- emissions level and trend;
- ongoing country activities which may have a positive impact on the project (e.g. is the country initiating discussions on MRV? Has the country just delivered a National Communication/LDGP or is about to?).

The identification of capacity barriers, gaps and recommendations for the measuring and reporting of GHG emissions and mitigation policies and measures in Indonesia, Kenya, Mexico, Peru and Thailand has been a process of stakeholder consultations and iterative thinking. The following steps have allowed the team to arrive to 5 final country reports and to this report containing the elements for a capacity building programme on mitigation and MRV:

- development of a first draft of country report which included national circumstances, based on secondary information, which served as a basis for the preparation of the discussions with stakeholders in the country visits;
- first in-country mission: which served the major purpose of interviewing stakeholders. Stakeholders interviewed included:
 - data providers (public and/or private) for the main inventory sources, including statistics office and entities responsible for the energy balance, LULUCF data or other according to the analysis of emissions/policies and measures on key sources;
 - data users and analyzers (those public or private experts or organizations which are involved in the estimation of the main emissions sources);
 - key decision makers on mitigation action / economic development (planning);
 - representatives of key private sector organizations;

- universities and research centres;
- other key NGOs.
- second in-country mission, when the national workshop took place as well as additional interviews were held;
- Final International Workshop: engaging country stakeholders and other international experts;
- final country reports (see each of the country reports in the annexes to this report): containing country specific findings on gaps, barriers and needs and specific proposals and recommendations on the way forward and concrete actions which constitute cooperation opportunities;
- Final Report: containing generalized findings, recommendations and proposals applicable to all developing countries.

In each of the countries, discussions were focused on two key GHG emission sectors, from which gaps, barriers and needs and actions to fill, overcome and meet them were derived. In all countries the two sectors were energy (both production and use) and LULUCF (with special emphasis on REDD and with greater links identified to agriculture as well as to energy). Findings and proposals for those two sectors are specifically treated in the country reports, but have been generalized and integrated into general findings and proposals in this report.

Finally, there are two issues of methodological relevance which should be mentioned. The project had, as can be seen below, a very country driven focus. Gaps, barriers and needs were to be identified by stakeholders, as well as actions to fill, overcome and meet them. Similarly, results will primarily be important and useful for countries and therefore, their respective ownership was fundamental for the objectives of the project. In that sense, the team was composed of national experts based in each of the 5 countries, which brought priceless insight to the results. Furthermore, in each country, a high-level official was appointed as project focal point, thus ensuring that indeed the project was steered towards findings which were of relevance and interest to the country.

2.2 Mitigation and MRV: concepts to be defined

MRV stands for Measurement, Reporting and Verification. This concept was first introduced by the “Bali Action Plan” – BAP (Decision 1/CP.13) under the United Nations Framework Convention on Climate Change (UNFCCC). The BAP foresees MRV of nationally appropriate mitigation commitments or actions for developed countries, MRV of nationally appropriate mitigation actions (NAMAs) for developing countries and MRV of financial and technical support for NAMAs.

Later, the Copenhagen Accord provided a broad vision of the overall scope and main goal of the MRV procedures to be created.

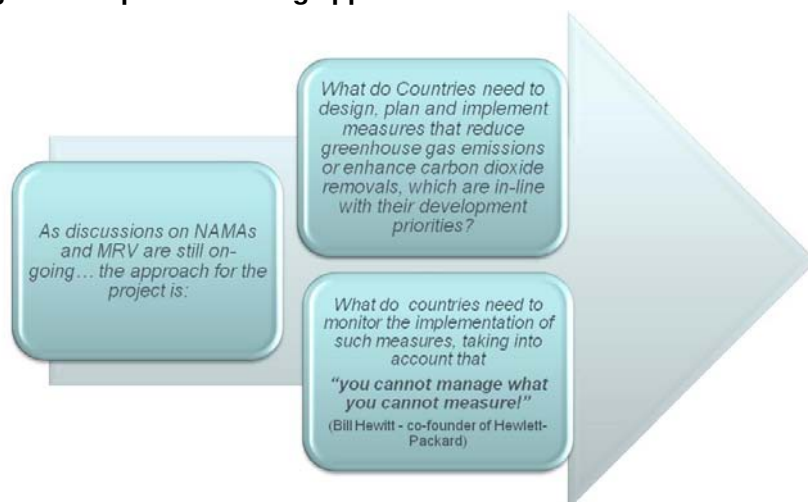
"Non-Annex I Parties to the Convention will implement mitigation actions, including those to be submitted to the secretariat by non-Annex I Parties in the format given in Appendix II by 31 January 2010, for compilation in an INF document, consistent with Article 4.1 and Article 4.7 and in the context of sustainable development. (...). Mitigation actions subsequently taken and envisaged by Non-Annex I Parties, including national inventory reports, shall be communicated through national communications consistent with Article 12.1(b) every two years on the basis of guidelines to be adopted by the Conference of the Parties. Those mitigation actions in national communications or otherwise communicated to the Secretariat will be added to the list in appendix II. Mitigation actions taken by Non-Annex I Parties will be subject to their domestic measurement, reporting and verification the result of which will be reported through their national communications every two years. Non-Annex I Parties will communicate information on the implementation of their actions through National Communications, with provisions for international consultations and analysis under clearly defined guidelines that will ensure that national sovereignty is respected. Nationally appropriate mitigation actions seeking international support will be recorded in a registry along with relevant technology, finance and capacity building support. Those actions supported will be added to the list in appendix II. These supported nationally appropriate mitigation actions will be subject to international

measurement, reporting and verification in accordance with guidelines adopted by the Conference of the Parties."

The general terms of the Copenhagen Accord as described above do not provide a clear understanding what NAMAs or LEDS are and of how the MRV system will function and how its requirements will be implemented. It allows, however, to narrow down the key issues one must address when thinking ahead and start preparing for the establishment of an MRV system for climate policy.

In this context, countries were asked by the project team to, while taking into account the on-going discussions at the UNFCCC level, take the following approach into consideration:

Figure 1 Proposed working approach towards NAMAs and MRV



The lack of a commonly shared definition agreed at the international level was then replaced by a more country driven approach, in which stakeholders were asked to identify gaps, barriers and needs from their own perspective, irrespective of where any international agreement may arrive.

To further help country stakeholders focus their thinking and their recommendations, an additional steering was proposed from the project team. It was asked that discussions were focused:

- In terms of Mitigation (Low Emission Development Strategies / Nationally Appropriate Mitigation Actions) on:
 - the process, including the access and use of underlying data and information in the decision making process;
 - the capacity to include carbon and climate change considerations in the sectoral planning and decision making;
 - the availability of systems and the existence of capacity to monitor progress in implementing measures and reducing emissions or enhancing removals;
- In terms of National Communications / Greenhouse Gas Inventories on:
 - the institutional set up to elaborate national communications and GHG inventories;
 - the availability and quality of data and emissions factors to estimate greenhouse gas emissions.

In order to facilitate discussion during the interviews with stakeholders, there has been no discussion nor have the following issues, which are at the core of discussions at the UNFCCC, been addressed or considered:

- whether there will be different types of NAMAs (unilateral, supported or credited) and whether different MRV requirements will be attached to each different type;
- whether a registry of NAMAs would be established, its purpose and the type of information it would include;

- what information in relation to NAMAs would need to be reported, in what format and with which periodicity;
- whether there will be more frequent or additional reporting (in relation to NCs and GHG Inventories);
- whether different on MRV requirements will be defined taking into account any different national contributions / commitments towards any global effort;
- whether and which specific indicators to evaluate the performance of NAMAs would be established;
- what would be subject to verification, under which procedure and by whom would information be verified;
- the legal status of any guidance/guidelines to be adopted.

With this conceptual framework, which takes into account the fact that COP-15 did not deliver the expected references, it was possible to implement the project. However, it must be highlighted that indeed gaps, barriers and needs (as well as the concrete actions) have not been identified by stakeholders against a concrete set of requirements and are therefore prone to be revisited once an agreement on mitigation and MRV is achieved at the UNFCCC.

2.3 Working with the Countries

The project methodology and its results relied heavily on endorsement from the country's authorities and of franc and open discussions with stakeholders.

Of the 10 countries pre-screened for participation in the project, all have expressed interest in participating in the project and, despite the lack of clear progress at COP-15, all considered the project to be timely. In the 5 participating countries, the project has actually constituted an opportunity to either start a discussion on mitigation and MRV (with the new impetus of a future climate regime) or to consolidate work being undertaken by different stakeholders in different parts and administrative levels of the country. In some, the scoping nature of the project was of use to decision makers in planning and coordinating activities.

In that regard, in most of the countries, there are several initiatives, programmes and projects implemented in cooperation with the international community which directly or indirectly would contribute to building the countries' capacity in relation to mitigation and MRV. Some of these projects were well integrated and in line with national priorities and work plans. Others, however, were less well known by key stakeholders and were therefore either not aligned with national priorities or were not being taken into consideration in the identification of gaps, barriers and needs, thus leading to potential duplication of efforts. It became clear that there is indeed a need to enhance coordination of work implemented in international cooperation. That will require an effort both from national authorities as well as from the international community. In some of the countries, there were efforts on both sides but the current experience is not enough to ensure effective coordination. For instance in Peru, the Peruvian Cooperation Agency coordinates all international programmes which are managed through this agency, but does not coordinate with projects being managed by other ministries or agencies; on the other hand the international community shares information among its members via two mechanisms: the Green Table (where all members of the international community share information about all cooperation projects in the environmental area) and the Climate Change Table (composed only of cooperation teams from EU member states).

It could be noted that, the highest interest and enthusiasm about the project was demonstrated by those countries with the highest political engagement on climate change issues, in particular mitigation and by those countries which hold or seek a global or regional leadership role.

The different levels of political engagement and of country development do reflect the level of preparedness of stakeholders to engage in the highly technical discussion, yet "polluted" by politically sensitive (internal more than external) issues. If the political sensitiveness of some of the issues was easily factored out of the discussions, the technical degree into which discussions occurred varied much from country to country and, within countries, from stakeholder to stakeholder. Due to the highly specific nature of the subject - in a simplistic form, mitigating and estimating GHG emissions – some stakeholders

were not prepared or did not have enough information to engage in discussion aimed at identifying concrete gaps, barriers and needs, which could range from designing regulation to empower a given institution to collect the necessary data, to describing the country's capacity and needs to model economic activity and to assess different mitigation options. However, most stakeholders could clearly identify gaps, barriers and needs related to their respective streams of work and were able to make suggestions on concrete actions which could facilitate their respective work in what it related to mitigation or MRV. To a certain degree, one could conclude that having stripped most of the discussion of the hermetic language and very specific technicalities used at the international level may have actually contributed to producing better results. Many stakeholders were, nonetheless well aware of the efforts and of the overall discussions in the international arena.

There were very specific circumstances in which certain stakeholders expressed a vivid concern about being imposed additional requirements (in particular in relation to MRV), which could bring un-estimated costs to the country and its economy, as well as being a burden to government official who have to carry out tasks related to MRV without a clear benefit to them. In such circumstances, the role of the country focal point was key. All project focal points were respected high ranking officials, which lent the project and project team the legitimacy to be in-country discussing issues of a, as per the approach taken, mostly domestic nature.

It was interesting to note that, the clear government endorsement of the project conveyed by the nomination of a high ranking official as focal point, is counter-weighted by the fact that these officials have an overwhelming agenda (including in their role as focal points for several other international cooperation projects), thus allowing most of them little availability for a closer follow up of the project activities.

3. Mitigation and MRV: Where Countries Stand

3.1 Where countries stand in terms of mitigation

In all five countries there was a declared interest and commitments towards climate change, although, the levels and the robustness of such interest and commitment differed among them.

It is nonetheless interesting to note that most stakeholders in all countries were very clear to enunciate the country's number one overwhelming priority: poverty reduction through economic development. This was true for all countries. However, the understanding that climate change mitigation is a fundamental aspect of the country's development and poverty reduction strategies and the acknowledgement that increasing carbon efficiency can contribute to economic development differed widely among countries.

All countries have historically, and that is still mostly the case, attributed political priority to adaptation to climate change. National climate change policies or strategies usually include adaptation and mitigation. Some have a balanced approach; others have more detailed planning for the adaptation side and less on the mitigation side. In any event, all countries have at least some sort of policy or measure in place which are designed to, or have the co-benefit of reducing GHG emissions. Some countries, like Mexico, have an extensive body of policy and regulations with long-term goals and short term targets, with a detailed analysis of implementation costs and benefits and with a robust monitoring and evaluation system; other countries, like Kenya, have less structured policies and a greater difficulty in implementing them. Some countries have in place sectoral policies with a high focus on GHG emission reductions, such as the Energy Policy in Thailand, which aims at reducing emissions by 20% and increasing the share of renewable energy to 20% by 2022.

Given the current understanding of NAMAs, most countries believe that policies currently being developed can be considered NAMAs and that is reflected in most of the letters of Association with the Copenhagen Accord sent to the UNFCCC secretariat. All participating countries, besides Thailand (which requires a parliamentary discussion and approval for the effect), have associated themselves with the Accord. It can be noted that, the NAMAs sent by countries in the association letters (not all countries have identified NAMAs, e.g. Kenya) reflected different realities. While some of the NAMAs included in the letter were extracted from robust policy documents, others were much less structured, sometimes with little technical studies to back up even the objectives implied in those NAMAs.

As regards LEDS, there is a much greater uncertainty as to how prepared countries are and as to how much capacity needs to be built before countries can produce such strategies.

In all countries mitigation priorities are being directed towards two sectors: energy and forestry (while Thailand may attribute high importance to agriculture as well). Some of the countries are oil producers and tend to see climate change mitigation as a threat. However, even in these countries, soaring oil prices make energy efficiency investments each time more attractive. Focus on mitigation action in the energy sector can be found mostly in energy use: electricity consumption and fuel combustion in the transportation sector. Energy use in the industrial sector is also of great concern to countries. In most of the countries, energy use (in particular in the household sector) is linked with the forestry and agriculture sector, as

biomass is still a very important energy source. Energy production from renewable and non-conventional sources is also a political priority in countries.

Reducing Emissions from Deforestation and forest Degradation, forest carbon stock conservation, sustainable management of forests and enhancement of forest carbon stocks (REDD+) is a key national priority in all countries. Drivers for deforestation differ greatly from country to country and from region to region within countries. Carbon stocks and sink potential also vary much, as well as tools and mechanisms to promote forest conservation. Methodologies for baseline determination and measuring and estimating GHG emissions and removals are complex and depend on technology which is not available for most countries.

The high international interest in tackling emissions from deforestation has created a flow of financing (from bilateral cooperation as well as with international organizations) to support the preparedness of countries to halt deforestation and degradation rates. The World Bank's Forest Carbon Partnership Facility, in which countries need to include a proposal for an MRV system, is present in all the countries participating in the project, in addition to several other initiatives (such as the Norwegian Climate and Forest Initiative and the UN-REDD Initiative).

As mentioned above, most countries have not been able to fully integrate climate change mitigation (and adaptation) in their respective poverty reduction and economic development strategies, which is why it cannot be said that countries have designed or adopted LEDS (even though, the pure use of semantics may lead into different conclusions). This is a reflection of a key feature of climate policy in most countries: a lower degree of institutional and policy coordination. This low degree of coordination results in some circumstance lack of consistency and coherence among sectoral policies, in which given sectoral policy goals may be conflicting with climate change goals. In addition, most countries still do not have a clear institutional framework for the design and implementation of climate policy and most line ministries still are not sufficiently aware and staffed with climate change experts to be able to provide adequate answers to climate policy needs, thus resulting in many uncoordinated efforts and consequently to gaps and overlaps. This issue will be further analysed in the section on gaps, barriers and needs.

3.2 Where countries stand in terms of GHG Inventories and National Communications

Countries consider MRV (broadly defined), mostly, as an opportunity. All consider MRV a fundamental aspect of their respective national climate change policy, if for nothing else, the reason that it provides for recognition of national efforts to mitigate climate change. However, countries do recognize that MRV is a fundamental aspect of climate policy as well as it is a fundamental piece of any other sectoral policy. It is usual that policies are enacted and that their respective implementation is not tracked, thus not giving feedback to the policy makers on the effectiveness of the instruments adopted. When finally policies are deemed ineffective, there is no information available to allow for an analysis of the barriers to the successful implementation. In this context, countries recognize both the internal and external importance of robust MRV procedures.

All countries involved in the project have expressed willingness to step up efforts on MRV and to do so as soon as possible, in order to gain experience before any MRV requirements become mandatory. It is, nonetheless important that countries receive support to step up the current systems in place to measure and report GHG emissions.

More frequent and regular GHG inventories and National Communications are considered important, although countries recognize the challenges associated with compiling and treating the information required in a more frequent manner. They note, however, that the increased frequency of reporting may constitute, provided that the sufficient resources are made available to countries, an opportunity to establish permanent teams and, with that, build and maintain capacity in these areas.

The notion of a “system” is present in the mind of most stakeholders in all countries. They recognize that, in order to be able to fulfil even the current requirements, there is an absolute and urgent need to systematize procedures (being it legal or technical), in order to ensure the effective, efficient and timely delivery of NCs and GHG inventories. The need to establish an “MRV System” (which can be understood as the institutional, legal and procedural arrangements established with a view to systematizing MRV activities) is therefore clearly identified by most countries and some of them have passed or are preparing legislation in the sense of defining and establishing systems which at least respond to the needs of the elaboration of GHG inventories. Additional needs in relation to MRV of NAMAs are not yet fully considered in the systems planned or in place in the countries (with the most notable exception to Mexico, where the Special Climate Change Programme as set up a detailed and vigorous MRV system, for which the country is currently building, with international support, a computer software).

In this context, it was possible to note that, in relation to MRV, countries are fairly interested in finding clarity at the UNFCCC level in order to facilitate internal work. In general terms, stakeholders in the countries believe that it should be straight forward to establish guidance on measurement and reporting, which would be based upon the current Annex I and Non-Annex I reporting guidelines under the UNFCCC and the Kyoto Protocol. There is a wide recognition that, from a technical point of view, the current system has proven to be effective and conducive to a continuous improvement of the quality of the reported estimates.

As for verification, different stakeholders have at times expressed concerns due to the highest uncertainty in relation to the rules to be established at the UNFCCC level. Irrespective of that, some stakeholders in several countries have expressed that verification is a key part of the measurement and reporting system, nonetheless for internal purposes. They stated that having third party verification gives greater credibility to the M&R procedures and results.

Albeit, different issues, some stakeholders made a parallelism between verification and review, in which they constitute the final stage of the M&R process and in which they allow for the collection of the opinion of an independent third party. Some stakeholders, in particular those more directly involved in the elaboration of NCs and GHG inventories have noted that the review of individual national communications and of GHG inventories are important feedback mechanisms, which contribute to the improvement of the estimates and of the reported information.

4. Gaps, barriers and needs in relation to Mitigation and MRV

Gaps, barriers and needs in relation to Mitigation and MRV are remarkably similar in all countries. In fact, there may also be traced a parallelism between gaps, barriers and needs faced by Non-Annex I countries today, with the gaps, barriers and needs identified by Annex I countries in the processes of preparing for reporting on emissions, emission projections and policies and measures, both in the scope of the NCs and inventory guidelines under the UNFCCC and the Kyoto Protocol¹.

The gaps, barriers and needs listed below represent the average status quo found in the countries. In given countries, some of the gaps, barriers and needs are more acute and important than actually portrayed in this report, others may not even apply.

Gaps, barriers and needs identified both for Mitigation and MRV are of two distinct natures:

- Institutional;
- Methodological.

Institutional	Methodological
<ul style="list-style-type: none"> ■ Unclear institutional framework <ul style="list-style-type: none"> – Lack of clarity of roles and mandates – Weak coordination capacity <ul style="list-style-type: none"> – Including with sub-national administrative entities – Duplication of efforts and gaps to be filled ■ Usually weaker CC ministry <ul style="list-style-type: none"> – Weaker leadership and capacity to enforce ■ Difficulty in maintaining expert human resources <ul style="list-style-type: none"> – Loss of institutional memory and capacity – Duplication of efforts – Loss of historical data and institutional memory ■ Ineffective civil society engagement mechanisms <ul style="list-style-type: none"> – Disconnect between research and policy making 	<ul style="list-style-type: none"> ■ (IPCC) Methodologies to estimate GHG emissions ■ Readily available and up to date information <ul style="list-style-type: none"> – Including the use of satellite and geo-referenced information for the LULUCF sector ■ Incomplete and inconsistent time series ■ Country specific (national/regional/local) emission factors for sources and sinks, including key sources and sinks ■ Methodologies for modelling activities, including macro-economic modelling ■ Methodologies for the determination of mitigation options and of emission pathways ■ Methodologies for the determination of baselines ■ Methodologies for the determination of the impacts of measures on emissions ■ Methodologies for the determination of costs and benefits of measures

¹ For further information see report of Workshop on the preparation of the fourth national communications by Parties included in Annex I to the Convention, held in Dublin; Ireland in October 2004, available at http://unfccc.int/meetings/workshops/other_meetings/items/2927.php, as well as the work on Good Practices on Policies and Measures, available at http://unfccc.int/national_reports/annex_i_natcom/pams/items/1069.php.

Additionally, financial and budgetary issues need to be taken into consideration as a cross-cutting barrier. Non-Annex I countries, including those participating in the project, face severe financial and budgetary restriction and a fierce competition for internal and international funds. Lack of financial resources underlies many situations in which capacity has not been built in the countries².

These gaps, barriers and needs will subsequently be analyzed on what they concern mitigation and MRV.

4.1 Gaps, barriers and needs in relation to Mitigation

The findings on gaps, barriers and needs focuses basically on the issue of nationally appropriate mitigation actions (NAMAs) and are mostly derived from the specific circumstances of the two sectors prioritized in the project: energy and land use, land use change and forestry (LULUCF). It identifies the main gaps throughout the NAMA cycle which includes planning, design, implementation and evaluation.

The main phases of the NAMA cycle, alike a usual policy cycle and taking into account that additional phases of a NAMA cycle are still to be agreed at the UNFCCC level, could be described as follows:

- planning: relates to “macro” policy planning, including the information and modelling needed for developing “Low Emission Development Strategies” or similar instruments;
- designing: means defining and creating specific instruments and mechanisms to reduce emissions. Baselines and methodologies to estimate the potential for emission reductions are needed for this phase. The linkages with information contained in the GHG inventory are very relevant in this stage;
- implementation: under the concept of MRV is the phase in which the “measurement” takes place. During this phase information system that collect the adequate data are needed, together with indicators that allow adequate monitoring of results;
- evaluation: refers to the phase in which the relevant players look into the measured data and react to it by retro-feeding it and adjusting polices.

4.1.1 Gaps, barriers and needs in mitigation planning

Awareness on Climate Change Mitigation

Many stakeholders, including decision makers, at political and technical level, in the public and private sectors, at national or sub-national levels are not fully aware and well informed about the challenges, risks, opportunities, costs and benefits arising from climate change mitigation. While the average level of information varies considerably from country to country, stakeholders are found in the same country that are very aware and informed, while others hold important misconceptions, e.g. related to former legal and technical barriers which have in the meantime been removed or for which there are tools and mechanisms to address them.

A key barrier identified is related to the fact that stakeholders still address climate change as an issue to be tackled with by developed countries. Others will go a step further and accept that climate action may take place provided that support is given. However, support should primarily be given to adaptation, according to some. These stakeholders usually fail to realise that mitigating climate change should be an integral instrument of the development strategies and that mitigation is to enhance countries’ competitiveness rather than hurting it. Very much related is the notion that mitigation creates an actual constraint to economic growth. In this situation, stakeholders fail to realize that Low Emission Development Strategies are about meeting development goals in a low carbon and energy efficient path.

Much of these perceptions are a result of the lack of studies on costs of climate change and the cost-benefits of climate change mitigation. Traditional barriers related to access to technology also reinforce this notion that climate change is an issue to be tackled by those who own the technology, in which countries

² The issue of financial and budgetary constraints will no further be explored in this report, while it should be noted that some opportunities for cooperation with countries participating in the project may simply require direct financial and budgetary support.

opt not to consider a technological option when it is not produced in the country (e.g. several Mexican stakeholders have highlighted the fact that no economic light bulbs are produced in the country is an effective barrier to its widespread distribution).

The private sector, in particular the energy intensive sectors, do not tend to see climate change as an opportunity. Concerns over loss of competitiveness are more acute in those more advanced economies, whose companies compete in the global or regional markets with other companies from countries without carbon regulation.

Lack of leadership and support by industrialized countries can also be identified as an argument for mitigation not to be given priority in the political agenda. Furthermore, in many countries high level political decision makers find it difficult to prioritize climate change mitigation in agendas mostly overwhelmed by strictly considered developmental issues.

Unfulfilled expectations about the financial flows the CDM should have promoted, is pointed out by stakeholders as a reason for disbelief in the effectiveness of future mechanisms to support climate change mitigation.

Institutional coordination mechanisms

In all countries, although at different degrees, stakeholders (both public and private) have identified the lack of solid institutional coordination mechanisms as one of the most important barriers to mitigation planning, but also to its designing and implementing. In most cases, the lack of clearly defined roles, responsibilities and competences over climate change issues may be attributable to the fact that climate change policy has only very recently been introduced in the portfolio of public policies. In this sense, it may be said that all countries are inexperienced on what climate change policy is concerned (the same could even be said about environmental policy – in one of the participating countries, the environment ministry has been established as recently as 2008).

The institutional set up for climate change is similar in many countries in which there is a strong component of inter-ministerial settings, such as committees or commissions. Although this is considered a good practice – given the cross-cutting nature of climate change – it can be observed that the decision making process is lengthier and even more cumbersome than in other policy areas.

The cross-cutting nature of climate change and the interministerial decision making bodies usually established, require that a great level of consensus is achieved among all governmental players (without mentioning civil society in this case) before decisions can be made. In most countries, the “climate change ministry” is the environment ministry, which usually is endowed with smaller political importance when compared with other line ministries such as economy, energy and agriculture. Therefore, it is sometimes the case that the “climate change ministry” does not have the necessary tools to provide impetus and leadership to advancing climate change policy in the countries.

On the other hand, relevant line ministries are usually understaffed in terms of climate change experts. It is usually the case that climate change focal points inside line ministries accumulate climate change issues with their “normal” sectoral tasks. This differs and may not be the case in some specific cases, but it is clearly so the case for the majority of countries and ministries and is pointed out by stakeholders as barriers for more effective and streamlined coordination.

Ineffective coordination mechanisms and low climate change expertise leads to a situation identified in several countries, where sectoral policies may have defined goals and created instruments which may be contradictory to the goals of climate change policy.

Development Paths and Mitigation Options

The main and overriding barrier to the modelling of development paths and mitigation options is access to technology. Most countries do not have access to modelling tools. Neither the government nor the universities have developed robust modelling tools that allow the country to model different development paths and consider mitigation options. In this case it becomes apparent that there is little technical capacity to develop and use models in the countries.

In some more advanced countries it is common to identify experiences in using different models, and cases in which the results of different models gave input to different policy decisions. In addition, when models are actually used, background data, which usually lacks quality and reliability, and assumptions used, are most of the times different, thus rendering differences in results.

4.1.2 Gaps, barriers and needs in mitigation designing

Reliable data

Designing mitigation action is an information intensive exercise. It requires inputs of historical data and of projected data. Like in any model, discontinuous, unreliable and low quality information used as an input will result in unreliable and low quality outputs.

There are cases in which historical data is simply not available. In other cases the information is scattered and outdated. In most circumstances the data available has not been subject to quality control checks and sometimes it is protected by confidentiality issues.

The problems commonly identified in that data to be used, usually leads to duplication of efforts, in which information once collected is not archived and made available to others.

Problems with data needed to the design of mitigation action and to estimate historical GHG emissions are frequently common.

Methodologies for determination of baselines

The definition of baselines against which to determine the effectiveness of the action is a key feature in climate policy.

Most countries have identified that there is little expertise on the use of methodologies for baselines projections. Several experts refer to the body of baseline methodologies developed and made publicly under the CDM as an useful basis for the determination of baselines for NAMAs. Training in using these methodologies is required.

If lack of expertise on methodologies for baselines is true for all sectors, it is acute for REDD+. Despite the fact that there is yet no guidance from the UNFCCC, there are many initiatives being currently implemented on the ground. Many countries are opting for a nested approach in which REDD+ is managed at project, regional and national levels. There is a wide profusion of methodologies and assumptions being used in determining baselines for REDD+, which will soon constitute a barrier to effective implementation and MRV, when methodologies used at project, regional and national levels will be deemed not compatible. In this regard, there is a need for the promotion of "official" baseline methodologies to be recommended by the national and/or international official entities.

Other methodological challenges

Similarly to the previous items, countries have identified there is a lack of expertise and of access to modelling tools to determine

- the emission reduction potential of measures;
- emission reduction scenarios; and
- the marginal abatement costs.

4.1.3 Gaps, barriers and needs in mitigation implementation

The most important barrier to implementation of mitigation action is lack of access to international financing. Given the discussions on the UNFCCC arena on this specific issue, it was not discussed with stakeholders.

Lack of access to technology is also an important barrier to implementation of mitigation action, which also sometimes works as a barrier at the earlier stages of planning and designing.

Lack of a monitoring and evaluation mechanism is also identified as a barrier to implementation, as it does not allow decision makers to have on time information in respect of the effectiveness of the tools and mechanism in place, consequently not allowing for their respective adjustment.

In this respect, stakeholders often refer to the lack of knowledge and understanding of barriers to implementation. It is very frequent that a given policy does not deliver the expected results and that there is no information available on why the policy was not implemented as planned, thus not allowing for any corrective action to be directed towards the correct barrier.

4.2 Gaps, barriers and needs in relation to NCs and GHG inventories

Institutional framework

As for mitigation, a solid and clearly defined institutional framework is specifically designed for the purpose fundamental for the regular and efficient elaboration of National Communications and GHG inventories. As for mitigation, such a framework does not exist in most of the countries. A key reason presented for that is the fact that most of the countries have only prepared one or two National Communications and GHG inventories, which is not seen as a strong enough reason to deploy a full legislative cycle to set up such institutional framework. In accordance with the opinion expressed by several stakeholders, the potential increase of frequency in reporting will constitute enough motivation for the formalization of the institutional set up. Without such a scheme, stakeholders are of the opinion that, even with international support, it will not be possible to increase the frequency of reporting.

In addition, institutional instability (including high rotation of technical experts and outsourcing of work) has, in some countries, led to loss of institutional memory. In some situations, knowledge acquired and experience gained is not transmitted down to other experts remaining on the job. In more severe cases, the information basis is lost which implies that subsequent exercises are restarted from scratch. Some countries highlight the outsourcing of work to universities not as a barrier, but actually as a mechanism to ensure continuity, given that academic posts tend to be more stable than other civil service jobs. Countries like Mexico, rely heavily on universities for the performance of the methodological work, while government institutions have coordinating and validating roles.

Finally, most participating countries have complex sub-national administrative schemes. Both for MRV and for mitigation, state governments, for instance, are being given powers to elaborate climate change plans and GHG inventories. In most of the countries, coordination between national and sub-national entities (including civil society) is noted as a challenge. The recent devolution of power in the of climate change, implies that there still are no such coordination mechanisms. This means also, that most gaps, barriers and needs identified at national level apply (most likely in a more severe degree) to sub-national levels.

Expertise in relation to GHG emission estimates methodologies

Despite the fact that there are experts with knowledge on the IPCC GHG inventory guidelines, including experience in using them, most stakeholders in all countries have referred the need for increasing such knowledge by providing training primarily at the sub-national level as well as at the level of data providing entities (in this last case, the main objective is to raise the organizations' awareness to the required data and its respective quality). The subject of training should be the 2006 IPCC Guidelines as countries are moving towards using this guidance in elaborating GHG inventories.

Other aspects of the IPCC Guidance family have also been mentioned, such as QA/QC procedures as an issue for which capacity should be built at the appropriate levels.

Activity data

Most countries do not possess a complete and coherent time-series of activity data. Data have been collected for specific years (usually 1994 and 2000), which many argue are not compatible and, therefore, comparable. Besides the lack of data collection procedures which provide the adequate input to the requirements of the GHG emissions estimates methodologies (in certain circumstances data is collected for given activities but not in a manner which is enough to estimate GHG emissions, e.g. data collected for the purposes of controlling local air pollution), countries have not set up robust data bases which would allow for the management and archiving of the underlying information.

The construction of a data base linked to a software for the estimation of GHG emissions would certainly improve the countries' capacity to regularly update their respective GHG emissions estimates.

Those countries which already have such tools believe that the amount of data and the complexity of the calculations is no longer compatible with the Microsoft Excel based solutions which they are using and expressed the need to upgrade their system to a more solid structure.

For sectors like the energy sector, most countries are in possession of good quality data (for energy production in particular, but also for energy consumption when it concerns data included in national energy balances). Those more advanced still have not found a satisfactory explanation to the differences between the two methodologies required by the IPCC guidelines (the reference and the sectoral approach). For most other sectors the case is much more complex, in particular for LULUCF. For most countries there is no updated forest inventory, satellite or radar imagery or land use map. Most countries find it particularly challenging the collection, management and use of such highly technology dependent information. Lack of information on soil carbon has also been identified by some countries as a gap in their respective GHG estimates.

Emission factors

In addition to the lack of reliable data, countries feel that their respective GHG emission estimates are not accurately represented when default IPCC emission factors are used, which is the case for a majority of sources, including some key sources in most countries.

The need for the development of nationally and, in some cases, sub-nationally appropriate emission factors has been identified for all types of emission sources and sinks: from energy production to use, to waste and agriculture, to land use and forestry. The development of national emission factors is usually performed as part of scientific research and therefore universities and research centres are key players and to which support should be directed.

In conclusion, countries need solid institutional frameworks, fully staffed with technical experts, capacitated to master different technical and methodological aspects which range from estimating emissions to assessing the costs and benefits of a given technology.

5. The Way Forward

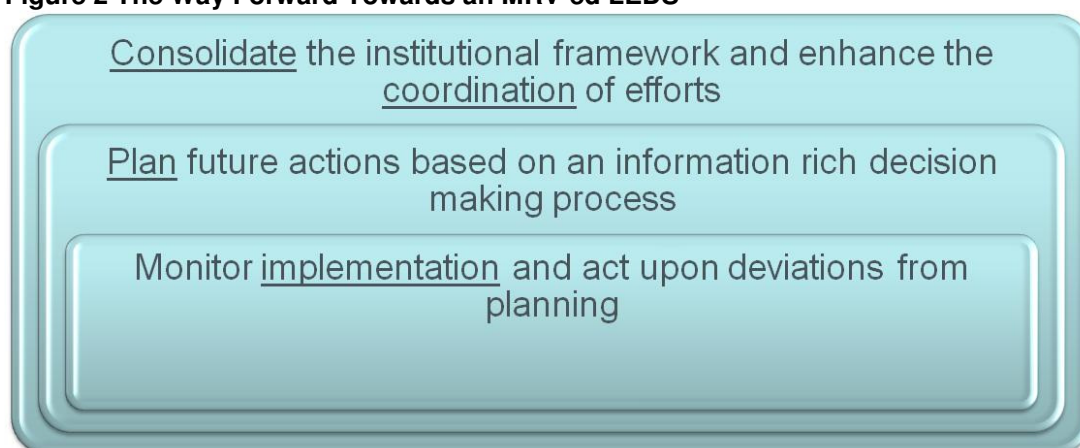
5.1 Proposal for a way forward

Based on the stakeholder interaction and on the analysis performed, the way forward by developing countries towards a Low Emission Development (LED), in a manner that is measurable, reportable and verified (MRV) comprises three main areas (as shown in the figure below):

- consolidation and coordination;
- planning and designing;
- implementation.

The way forward stands for action each country may undertake irrespective of any international cooperation in order to achieve the goals of an MRV-ed LED. In the following chapter the action proposed as way forward will be matched with capacity building activities in which international cooperation could make a contribution.

Figure 2 The Way Forward Towards an MRV-ed LED



The consolidation of the institutional framework takes into account that most countries already have institutional frameworks in place, but recognizes that they lack effectiveness in that they have neither delivered, for most cases, sound climate policy nor regular high quality GHG inventories and NCs. It is now important that roles and mandates are clearly defined and institutions empowered to fulfil such roles and mandates, in order to increase their respective capacity to plan, design, implement and MRV and to enhance the coordination of efforts.

Future policy planning and design of climate action, including NAMAs, is to be made based on a decision making process which relies on data and information which is historically accurate and reflects the country's long term development strategies and which accrues from the GHG inventory and from robust modelling tools.

The implementation of action is to be monitored via a robust and efficient MRV system which provides timely information to decision makers, identifies deviations from planning and, when deviations occur,

allows for the identification and understanding of barriers to implementation, in such a manner as corrective action can be applied.

5.2 Way forward regarding Mitigation

Several lines of action, specifically addressing the gaps, barriers and needs identified, constituted the way forward regarding mitigation. They can be organized in terms of Consolidation and Coordination and in terms of Planning. Lines of action related to monitoring implementation will be identified in the way forward regarding MRV.

Consolidation and Coordination

- Design and implement a solid institutional framework:
 - define roles and mandates of institutions;
 - empower the CC Ministry.
- Enhance policy making and coordination mechanisms.
- Ensure integration of CC in sectoral policies – avoid conflicting policy objectives:
 - increase resources devoted to CC in key ministries.

Planning and Designing

- Enhance the awareness of costs and benefits (including competitiveness) from LEDS.
- Enhance the understanding of barriers to implementation of CC measures.
- Consolidate and facilitate access to national historical reference data.
- Develop methodologies and enhance expertise for the establishment of baselines.
- Enhance expertise in relation to the use of modelling tools:
 - for the determination of long term emissions scenarios and development paths;
 - for the determination of emission reduction potential of measures;
 - for the determination of costs and benefits (efficiency gains, international competitiveness).

5.3 Guidance Needs to Facilitate the Way Forward Regarding Mitigation

When interacting with stakeholders on their views on the way forward, before making proposals for concrete actions which could constitute opportunities for cooperation, many would allude to the need to gain on the one hand, additional clarity on the requirements and, on the other, for guidance which helps countries steering their course towards an MRV-ed LEDS.

Although guidance needs were not subject to discussion in a setting which would allow for building consensus among stakeholders, it is nonetheless important to include recommendations for the development of guidance. In this context, these recommendations in relation to guidance needs (also applicable to guidance needs on MRV) would require additional research and validation with stakeholders.

Stakeholders were mostly vague as to the source of the guidance. However, they would point to an authoritative source which all countries and stakeholders would recognize and that could produce guidance which would be used by all countries. Under these circumstances and taking into account past experience, the UNFCCC could be a privileged forum for the issuance of such guidance.

On what mitigation is concerned the guidance to be issued could focus on the four parts of the NAMA cycle: design, plan; implement; evaluate; and shall serve the purpose of helping countries to identifying and quantifying mitigation opportunities.

Stakeholders mentioned that guidance could have the form of a step by step guidebook on planning and designing of LEDS/NAMAs, including on:

- data needs;
- baseline determination;
- long term emission scenarios;
- determination of marginal costs;

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- methodologies to estimate potential GHG reductions;
- methodologies to estimate cost-benefits;
- methodologies to identify barriers to implementation;
- measurement:
 - qualitative and quantitative;
 - from indicators to GHG.

Finally, not falling necessarily in the category of guidance, many stakeholders have referred to the importance of creating mechanisms for sharing experiences and best practice. Such mechanism can include workshops, seminars, web-sites, newsletters, reports.

5.4 Way forward regarding MRV

The way forward regarding MRV is to be seen in three major aspects:

- Monitor the implementation of mitigation action;
- GHG Inventories;
- National Communications.

Monitor the implementation of mitigation action

- Set up procedures for the regular collection of data.
- Determine the effects from implementation of actions:
 - define indicators;
 - estimate emission reductions.
- Identify and understand barriers to implementation.
- Act upon barriers to implementation and correct deviations from planning and designing.
- Report information which has been subject to Verification.

GHG inventories

- Design and implementation of a national system, including all institutional, legal and procedural arrangements for estimating GHG emissions and for reporting and archiving inventory information, including procedures for inventory planning, preparation and management.
- Inventory Planning:
 - elaboration of an inventory development plan, to identify methodological improvement needs and set priorities, in relation to:
 - activity data;
 - emission factors;
 - other parameters;
 - definition of a QA/QC plan.
- Inventory preparation:
 - compile historical time series;
 - regularly collect updated data.
- Inventory management:
 - establishment and maintenance of robust tools for the collection and archiving of data, as well as for the estimation of emissions.

National Communications

As regards mitigation information to be included in the NC, the elaboration process should benefit from all the efforts made in terms of consolidation and coordination, planning and monitoring of implementation of mitigation action and of compiling GHG inventories, both from institutional and methodological points of view. Having the actions above been effectively implemented, elaborating a NC should require no more than a compilation effort. Information on GHG emissions, emission projections, measures planned and implemented and their respective impacts should be readily available to be used in the reporting exercise of elaborating and submitting a NC.

It is important to note, however, that the institutional framework established shall explicitly make provisions in relation to roles and mandates in the elaboration of national communications.

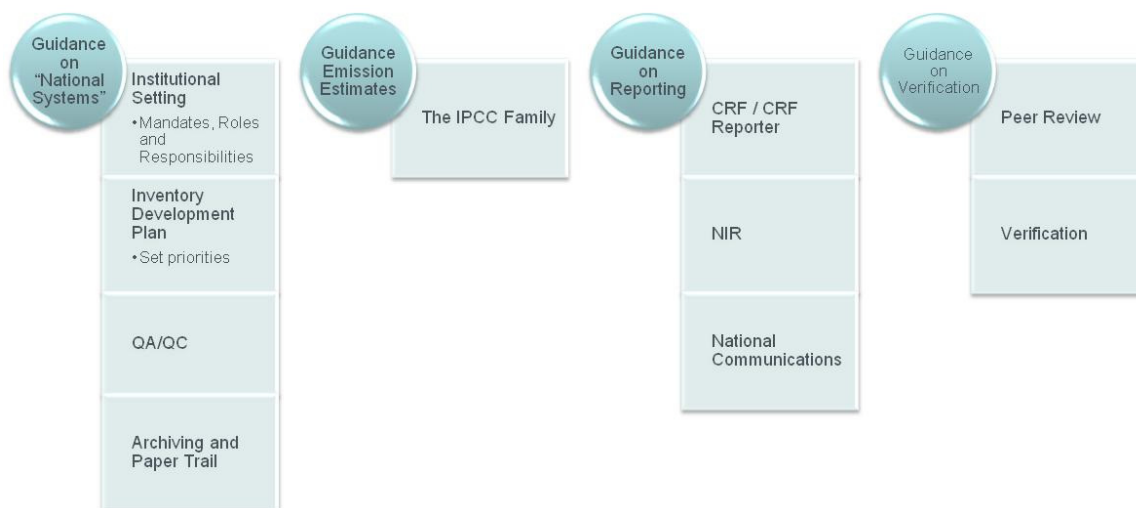
Issues related to other non-mitigation information have not been considered.

5.5 Guidance Needs to Facilitate the Way Forward Regarding MRV

As in mitigation, stakeholders highlighted the benefits of guidance to be used by all countries for the benefit of facilitating the implementation of the actions described above.

As can be seen in the figure below, stakeholders considered necessary that guidance addresses the design and functions of a “national system”, methodologies for estimating GHG emissions (which are already available – the IPCC guidelines), reporting (both for reporting GHG emissions and National Communications) and Verification (which could include guidance on verification tout court and guidance on peer review).

Figure 3 Guidance Needs on MRV



6. Elements of a Capacity Building Programme

The following elements of a capacity building programme include a set of actions, derived from those proposed by stakeholders during the consultation processes held in the demonstration countries, which better address the gaps, barriers and needs identified and which can facilitate countries moving towards an MRV-ed LEDS, as per the way forward proposed in the previous chapter.

These elements of a capacity building programme are designed in such a way as no longer holding country specificities, and may therefore be applicable to any developing country. The applicability of the following capacity building activities must always be preceded by the recipient country's engagement and validation, in order to ensure alignment with the country's needs, priorities and circumstances. The actions identified below are described in a succinct way and serve the purpose of facilitating discussion among recipients and donors (including international organizations) on potential pathways for cooperation.

The proposed elements of the capacity building programme are organized as follows:

- actions related to mitigation:
 - actions related to consolidation and coordination;
 - actions related to planning and designing;
- actions related to MRV:
 - actions related to monitoring of mitigation;
 - actions related to GHG Inventories;
 - actions related to National Communications.

In moving forward towards an MRV-ed LEDS, not all actions proposed in the way forward are to be necessarily subject to capacity building initiatives with the support of international cooperation. Some of those actions may need to be implemented by the country, which, in their turn, will be reinforced by the implementation of capacity building activities with the support of the international community.

The actions are presented as topics for cooperation. Each of these actions may/should be integrated in a comprehensive package (which can include several international partners), so that the implementation of the package reinforces the effectiveness of each of the individual actions.

It should be noted that the complexity of climate change policy is matched by the complexity of each country's climate change stakeholder network. Depending on national circumstances, capacity may need to be built at different levels (national, regional, local) and by different stakeholders (government, universities and research centres, NGOs, private sector). When designing any of the capacity building actions proposed below, participating countries (both recipient and donor) should clearly identify the target stakeholders.

6.1 Proposed elements of a capacity building programme on Mitigation

The following opportunities for cooperation to build capacity on mitigation are proposed:

Consolidation and coordination

- Training on climate change to key officials in key sectoral ministries and government agencies.

Planning and designing

- Support the development of long term mitigation scenarios.
- Support the development of studies for the estimation of costs and benefits of mitigation action.
- Support the development of a study on specifically the impacts of climate action on (selected economic sectors) competitiveness.
- Support the development of an economy wide study on social, economic and legal barriers to climate action as a tool to ensure effective planning or design.
- Support the identification of the information needed for the economy wide and/or sectoral mitigation action planning and designing.
- Support the determination of baselines in the process of designing mitigation action.
- Support the development of capacity to develop and use methodologies for the assessment of impacts of programs, projects and actions on emissions.
- Support the development of a case study (pilot initiative).

6.2 Proposed elements of a capacity building programme on MRV

The following opportunities for cooperation to build capacity on mitigation are proposed.

Monitoring action

Support:

- the design and implement an on-line data collection, storage and treatment tool, which is compatible with all NAMAs designed and implemented and is accessible by all relevant stakeholders (as data up loaders and users);
- the development of capacity for the determination of qualitative and quantitative data and information needs to monitor implementation, including the definition of performance indicators;
- the development of capacity to determine emission reductions based upon data collected to measure implementation of the actions, including taking into account effects of other measures;
- the development of capacity for verification of information measured and reported related to mitigation action.

GHG Inventories

Support:

- the design of the blueprint of the national system, including the definition of roles and responsibilities for the institutions involved;
- the elaboration of an inventory development plan, in order to identify and build consensus among stakeholders on methodological improvement needs and to set priorities, in relation to activity data, emission factors and other parameters;
- increasing knowledge on the IPCC 2006 Guidelines;
- the peer review of GHG Inventories;
- the elaboration of a National Inventory Report the estimation of nationally (and where applicable) sub-nationally appropriate emission factors;
- the definition of a QA/QC plan;
- the Compilation of historical time series;
- the Regular collection and archive of updated and accurate data;
- Reporting Emissions Data on a Standard Format.

National Communications

- Support the design and implementation of an institutional framework which allows for the elaboration of national communication containing up to date information on a timely manner.

Special item on Corporate GHG Inventories

Stakeholders in several countries were of the opinion that there is a growing interest by companies (both of public and private nature) in gaining experience in elaborating their respective GHG inventory. The joint Mexican/WRI initiative, called Mexico’s GHG Initiative has been named as an example of a successful approach, in which the private sector took the lead in gaining experience in estimating GHG emissions without necessarily having to make such data publicly available nor reporting it to government agencies. In this regard, and as a special item to these elements of a capacity building programme, it is recommended that support is provided for the design and implementation of a corporate voluntary GHG inventory initiative.

Table 1 Proposed Concrete Actions in Relation to Mitigation - Consolidation and Coordination

Way forward	Proposed capacity building action	Description of the capacity building action	Classification of the action	Gap/Barrier/Need Addressed Related to	Comments
Ensure Integration of CC in sectoral policies: Increase resources devoted to climate change in key ministries	Training/awareness raising among key officials in key sectoral ministries and government agencies on climate change policy options, challenges, opportunities, mechanisms, and associated instruments and tools.	Provide on the job training and coaching on key linkages between CC and the respective sectoral policies. Facilitate access to best practices, by facilitating access to seminars and workshops or to formal education courses (e.g. international post-graduates)	Institutional	Institutional coordination mechanisms	Specific training activities could include other stakeholders such as the private sector

Table 2 Proposed Concrete Actions in Relation to Mitigation Planning and Designing

Way forward	Proposed capacity building action	Description of the capacity building action	Classification of the action	Gap/Barrier/Need Addressed Related to	Comments
Enhance the understanding of benefits from the national LEDS within the country	Support the development of long term mitigation scenarios	Support (e.g., through workshops) a multi-stakeholder process to develop a common vision for low carbon development among different levels and sectors of government including civil society Support the multi-stakeholder low carbon vision development process, by supporting the determination of emission scenarios for different mitigation options and development pathways. Support access and build capacity to use modelling tools, including macro-economic models.	Institutional	Awareness on climate change	This action also addresses the way forward in relation to the enhancement of expertise in relation to the use of modelling tools
	Support the development of studies for the estimation of costs and benefits of mitigation action	Exchange of knowledge on methodologies for estimation of costs and determination of co-benefits of emission reduction measures through joint-work and workshops, as a key component of the process of understanding the opportunities arising from LEDS.	Methodological	Awareness on climate change	This action also addresses gaps/barriers/needs related to other methodological challenges – marginal abatement costs
	Support the development of a study on the impacts of climate action on (selected economic sectors) competitiveness	The support may be provided by, inter alia: <ul style="list-style-type: none"> • Hiring international consultants • Supporting national research • Exchanging information through workshops and seminars on carbon efficiency and competitiveness (including on potential carbon leakage due to emissions regulation) 	Methodological	Awareness on climate change;	
Enhance the understanding of barriers to implementation of mitigation actions	Support the development of Economy wide studies on social, economic and legal barriers to climate action as a tool to ensure effective planning or design.	Share experiences with using different methodological approaches . Hold workshops with key actors to share experiences on identification of barriers and, more importantly, on actions taken to overcome them.		Methodologies for the determination of baselines; Reliable data	Also addresses barriers related to implementation and evaluation. Most barriers can only be identified after the respective mitigation action has been enacted and is deemed to have been ineffective
Consolidate and facilitate access to national historical	Support the identification of the information needed for the economy wide and/or sectoral	Support a comprehensive exercise of identification of data and information sources, collection, compilation and	Methodological	Reliable data	This action should be done in conjunction with action for the construction of a complete and

Way forward	Proposed capacity building action	Description of the capacity building action	Classification of the action	Gap/Barrier/Need Addressed Related to	Comments
reference data	mitigation action planning and designing	<p>treatment of data.</p> <p>Support the definition and implementation of methods to overcome data gaps.</p> <p>Support the definition and application of quality control checks on the data.</p> <p>Support the design and establishment of a publicly accessible data base for the management and archiving of data.</p>			<p>coherent time series for the GHG inventory.</p> <p>Developers shall also consider links with any exercise related to collecting and treating implementation measurement data as proposed below.</p>
Develop methodologies and enhance expertise on the establishment of baselines	Support the determination of baselines in the process of designing mitigation action	Exchange of experiences and provision of support for identifying and using methodologies for determining baselines which are, when applicable, compatible across sectors and at all levels (national and sub-national)		Methodologies for the determination of baselines	
Enhance Expertise in relation to the use of modelling tools	Support the development of capacity to develop and use methodologies for the assessment of impacts of programs, projects and actions on emissions.	Provide support via on the job training and coaching. Workshops can be an option for a wider audience.	Methodological	Other methodological challenges; Reliable data	
	Support the development of prototype NAMAs	<p>Provide support for the design of prototype NAMAs for a specific sector and activity, which includes:</p> <ul style="list-style-type: none"> • Development and application of methodologies for determination of baseline • Design of tools and instruments to reduce GHG emissions, including analysis of technological options • Development and application of methodologies for the determination of potential emission reductions • Identification of potential barriers to the implementation of mitigation actions and concrete actions to proactively address them • Design of a system to measure, report and verify implementation, including 			

Way forward	Proposed capacity building action	Description of the capacity building action	Classification of the action	Gap/Barrier/Need Addressed Related to	Comments
		institutional roles and responsibilities			

Table 3 Proposed Concrete Actions in Relation to MRV of Mitigation Action

Way forward	Proposed capacity building action	Description of the capacity building action	Classification of the action	Gap/Barrier/Need Addressed Related to	Comments
Collect data	Support the design and implementation of on-line data collection, storage and treatment tools, which is compatible with all NAMAs designed and implemented and is accessible by all relevant stakeholders (as data uploaders and users). The tool is to be designed in a manner to provide outputs compatible with any reporting requirements and needs.	Provide support to IT development, including drafting technical specifications for any tools to be created.	Methodological		Identification of data needs, institutional set up for data collection and development of methodologies for data treatment are dealt elsewhere (e.g. the studies for the estimation of costs and benefits of mitigation action proposed below) and shall serve as input for the technical specifications of the tool.
Determine Effects from the Implementation of actions	Support the development of capacity for the determination of qualitative and quantitative data and information needs to monitor implementation, including the definition of performance indicators. Support the development of capacity to determine emission reductions based upon data collected to measure implementation of the actions, including taking into account effects of other measures.	Support can be provided by on the job training and coaching, as well as via workshops for wider audiences. Traditional experience and knowledge sharing mechanisms (such as manuals, handbooks, compilations of good practices, workshops and seminars) may also prove to be effective capacity building tools.	Methodological		Developers shall consider links with any exercise related to collecting and treating historical reference data.
Identify barriers and correct deviations from planning and designing	-	-	-	-	Actions related to this proposed way forward have been addressed elsewhere and are applicable.
Reporting and Verification	Support development of capacity for verification of information measured and reported related to mitigation action.	Exchange experience on the development and implementation of MRV systems for NAMA, with focus on the verification requirements. Provide support to the definition of requirements for certification of verifiers. Provide training of verification.	Methodological	-	Action related to reporting on mitigation action is strictly dependant on any needs or requirements to be adopted, either nationally or internationally (e.g. under national communications). In any event, as an end of line exercise, reporting shall be facilitated once the previous actions have been effectively implemented.

Table 4 Proposed Concrete Actions in Relation to GHG Inventories

Way forward	Proposed capacity building action	Description of the capacity building action	Classification of the action	Gap/Barrier/Need Addressed Related to	Comments
Design and implementation of a national system, including all institutional, legal and procedural arrangements for estimating GHG emissions and for reporting and archiving inventory information, including procedures for inventory planning, preparation and management	Provide support for the design of national systems, including the definition of roles and responsibilities for the institutions involved	Share experiences on the establishment of national systems, by means of workshops. Provide support to the drafting of the legal framework for the national system.	Institutional	Institutional Framework	The institutional framework designed for the national GHG inventory system, shall take in to account the institutional framework for the policy planning and for the elaboration of national communications.
	Provide support for the elaboration of inventory development plans, in order to identify and build consensus among stakeholders on methodological improvement needs and to set priorities, in relation to activity data, emission factors and other parameters	Provide expert support, via coaching, to promote and facilitate the technical discussions among the different stakeholders involved.	Methodological	Activity Data and Emission Factors	Coaching may most likely be needed by different experts holding expertise on the different sectors and sources/sinks of GHG emissions.
	Provide capacity building on the use of the IPCC 2006 Guidelines	Support the provision of training by experts on the GHG inventory sectors and sources/sinks, namely by IPCC experts, via workshops supplemented by on the job training.	Methodological	Expertise in relation to methodologies	
	Promote peer review of GHG Inventories	Support the establishment of multinational expert teams which peer review GHG estimates elaborated in different participating countries	Methodological	Expertise in relation to methodologies	Even though more actions can be done with more than one developing country, this action specifically requires the active engagement of experts of different countries (ideally both Annex I and Non-Annex I) as well as it ideally requires that more than one country voluntarily submits its GHG inventory to peer review.
	Provide support for the elaboration of a National	Provide training, including on the job training on the	Methodological	Expertise in relation to	

Way forward	Proposed capacity building action	Description of the capacity building action	Classification of the action	Gap/Barrier/Need Addressed Related to	Comments
	Inventory Report	elaboration of a National Inventory Report		methodologies	
	Estimate nationally (and where applicable) sub-nationally appropriate emission factors	Provide support to universities and research centres in estimating nationally and sub-nationally appropriate emission factors (and other parameters) for specific sources	Methodological	Emission Factors	This action should be implemented as a follow up to the adoption of the methodological development plan.
	Provide support for the definition of QA/QC plans	Provide training to key experts on procedures for QA/QC. Provide coaching on the elaboration of a QA/QC plan and manual based on the IPCC good practice guidance	Methodological	Activity Data	
	Provide support for the compilation of a historical time series	Provide support to the implementation of an exercise for the compilation and treatment of all available historical data.		Activity Data	This action should be based on any other actions related to consolidating the reference data necessary for action planning and designing, any action taken in relation to collecting and archiving monitoring and implementation data and any action related to the regular collection of updated activity data
	Provide support for the regular collection and archiving of data	Provide support to the design and implementation of an on-line tool to collect, manage and archive activity data, taking into account the roles and responsibilities defined on what data provision is concerned.	Methodological	Activity Data	This action should be based on any other actions related to consolidating the reference data necessary for mitigation action planning and designing, as well as any actions aimed at collecting information on the implementation of mitigation activities and compiling historical time series
	Provide support for the reporting of emissions data according to standard formats	Provide training, including on the job training, on the use of a common reporting format. Provide IT support on establishing links between data bases, emission estimate tools and a CRF.	Methodological	-	

Table 5 Proposed Concrete Actions in Relation to National Communications

Way forward	Proposed capacity building action	Description of the capacity building action	Classification of the action	Gap/Barrier/Need Addressed Related to	Comments
Establish an Effective Institutional Framework	Support the design and implementation of an institutional framework which allows for the elaboration of national communications containing up to date information in a timely manner	Share experiences on procedures for the regular submission of national communications. Provide support on the design and implementation of data archiving as a means to ensure capacity maintenance.	Institutional and Methodological	(Untimely and irregular preparation and submission of NCs)	The institutional framework established for this purpose, should take into account the institutional framework set for the policy planning and for elaborating GHG inventories.

6.3 Setting priorities

When defining priorities for action on the way forward towards an MRV-ed LEDS and in setting priorities for capacity building in cooperation with international partners, each country will do so taking into account its national circumstances and interests. The priorities set by the recipient country should be clearly communicated to the donor partners to ensure that cooperation and capacity building is country driven.

Nonetheless, from consultations with stakeholders it became clear that:

- capacity building action and priorities should be focused on issues clearly pertaining to the realm of climate change policy, thus not diverting resources to address broader aspects related to overall national circumstances which, directly or indirectly, influence climate change policy the same extent as they influence all other public policies in the countries;
- capacity building should first address the institutional gaps, barriers and needs, in order to enhance the prospects of maintaining the capacity built;
- a mix of institutional and methodological actions should, however, be implemented in tandem, in order to rapidly advance the country towards an MRV-ed LEDS.

The figure below illustrates a potential method for priority setting.

Figure 4 Setting priorities



7. Conclusions and Recommendations

It is fair to say that countries are making an effort towards low emission development and that there is a growing interest in doing so in a manner that is measurable, reportable and verifiable. There are, however, gaps that can be found between political will and declarations, planning and implementation. Despite the progress made, there is still a long road ahead and countries are expressing willingness to go down that road provided that the right (support) framework is established.

One major asset seems to be guaranteed in all five countries: political will, thus creating great opportunities to advance climate change policy in tandem with development and other sectoral policies. There is, however, a great lack of awareness on actual benefits of a LED, in which climate change mitigation is still often portrayed as a “responsibility” of developed countries and a heavy weight on the countries’ economies which will prevent them from achieving their respective development goals.

In the current state of play, where climate change is a very recent area of public policy, it is still the case for most countries that the institutional framework is weak and the policies in place are lacking structure and robustness, in that there is little capacity for policy coordination. It becomes, then, priority for countries to take stock of the different initiatives planned or implemented which related to climate change mitigation and to MRV, in order to effectively consolidate them and create a solid basis for enhanced climate change mitigation and development. All countries participating in the study have considered key that there is internal consolidation and coordination effort before seeking support from the international partners and that, in this context, this project supported by the European Commission has constituted an important contribution.

During the interaction with stakeholders in the countries, it was possible to identify a number of gaps, barriers and needs and to collect stakeholder’s proposals on actions to fill, overcome or meet them, which, in turn, could constitute opportunities for international cooperation (the specific findings and proposals for each country are in the respective country reports, in the annex to this final report).

It was possible to conclude that some of the gaps, barriers and needs which affect climate change policy are linked to the overall country policy framework and often embedded in the country’s national circumstances and are, therefore, not necessarily specifically related to climate change.

Those gaps, barriers and needs which are clearly related to climate change range from institutional, legal and procedural to scientific, methodological and technical and from basic (e.g. definition of mandates) to advanced (e.g. tools for modeling emissions scenarios). Stakeholders expressed the opinion that tackling basic obstacles/needs may be fundamental for successful CB on mitigation and MRV, but also that it is important to not expect basic needs to be met before advancing, as long as advances on more sophisticated areas are not jeopardized due to lack of a basic framework.

Donor countries and international organizations now have, with this report, a hand book which allows them to approach cooperation partners and discuss, further detailing and adapting to national circumstances (as no solution fits all), a set of capacity building actions which will allow developing countries to move towards an MRV-ed LEDS.

