

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

Country Report Mexico



Euroconsult Mott MacDonald
in association with:

- ECN (The Netherlands)
- Ecoprogresso (Portugal)

December 2010



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	17 December 2010	Gonçalo Cavalheiro A. Edmundo de Alba	Inês Mourão	Caroline La Chapelle	Submitted to client

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Executive Summary

The identification of capacity barriers, gaps and recommendations for the monitoring and reporting of GHG emissions and mitigation policies and measures in Mexico, has been a process of in-country intensive stakeholder consultations and iterative thinking made in May to August 2010.

This Report contains an assessment of Mexico's capacity building needs to plan mitigation policy (Low Emission Development Strategies – LEDS – and Nationally Appropriate Mitigation Action – NAMAs) and to measure, report and verify domestic GHG emissions as well as GHG related impacts of domestic policies and measures with a view to proposing actions corresponding to cooperation opportunities aimed at strengthening those capabilities.

The following steps were taken to derive the findings of this final country report:

- Development of a first report on national circumstances, based on secondary information. See Annex to this report;
- First in-country mission: consultation with stakeholders and summarisation of findings. During the first visit, stakeholders from the energy and industrial sectors, Research Institutes, Non-Profit Organizations and Donors were interviewed. Approximately 20 meetings were held with key stakeholders in relation to GHG monitoring, reporting and verification activities such as creating inventories, energy planning and climate change programmes, green investment funds, industrial processes and performance of government agencies. List of interviewed stakeholders and a summary of the interviews are also in the annex to this report;
- Second in-country mission: additional consultation with stakeholders and country workshop. During the second mission further contacts with stakeholders were held. The country workshop took place July, 14th, 2010. About 45 representatives from government Ministries and National Agencies, the private sector, civil society and the international community attended the workshop. The objectives set for the workshop were to validate preliminary findings, to gather more information about barriers, gaps and recommendations, and to identify key work areas for a MRV capacity building project.
- Preparation of the final country report. This report aims at, through an analysis of relevant national circumstances and of gaps, barriers and needs and taking into account the inputs received from stakeholders, propose a way forward including concrete actions to build capacity in Mexico, which constitute opportunities for international cooperation.

From the communication with the country stakeholders and their perspective, the project team included and analysed what was discussed, consolidating a clear listing of the potential activities that can be used to identify and prioritize future work to be undertaken with or without support and, in the first case, to approach donors.

From donors perspective, it allows them to have a comprehensive view of the necessary capacity building activities needed and to increase the efficiency and effectiveness of support avoiding the overlapping of actions and promoting synergies.

This report starts with an introduction to the relevant national circumstances, followed by a description of gaps, barriers and needs. Subsequently, the report presents a way forward and includes several concrete proposals for action.

1. About MRV and this report

MRV stands for Measurement, reporting and verification (MRV). 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 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.

The European Commission is implementing a scoping study aimed at understanding and exploring the needs of developing countries as regards enabling activities related to mitigation – focusing on measurement, reporting and verification (MRV) of emissions, the preparation of National Communications, Greenhouse Gas Inventories, and planning and development of nationally appropriate mitigation actions (NAMAs). The European Commission is in particular interested in understanding the needs related to capacity building in these areas.

The project, implemented by Euroconsult Mott MacDonald with Ecoprogresso and the Energy Research Centre of the Netherlands (ECN), seeks 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 assist 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 issues, relating in particular to data gathering, barriers, needs, constraints and opportunities, identified during this scoping study through an intensive in-country interactive stakeholder engagement and consultation process.

The following document is the result of a process of stakeholder consultations and iterative thinking that took place from June to August 2010. Said process was aimed at identifying capacity barriers, gaps and recommendations for the monitoring and reporting of GHG emissions and mitigation policies and measures in Mexico.

2. Brief Overview: Mexico, MRV and Mitigation

Institutional Framework

In order to fulfil demanding “MRV” requirements currently in place in Mexico, there needs to be a very strong institutional set up capable of producing and managing the information required. Climate change policy, including its MRV, is coordinated at the Interministerial Climate Change Commission (CICC - *Comission Intersecretarial de Cambio Climatico*), where all the relevant ministries are represented. The coordination of the implementation of the policy is done by SEMARNAT (Environment Ministry), in several of its institutes, but in particular at Instituto Nacional de Ecologia (INE), which holds, among others, the responsibility of coordinating the process of elaborating the national communications and the GHG Inventories. INE, in an institutional structure which relies mainly on the operational support of universities and research centres and official revision and approval by government entities, coordinates the elaboration of National Communications and GHG Inventories

As a Federal Nation, in Mexico State Governments have an increasing role in planning, designing and implementing and in MRV of mitigation action. All Mexican states are to prepare State Climate Change Plans (adaptation and mitigation) and are to elaborate regular GHG inventories. There can be found different levels of preparedness, engagement and of priority given to climate change issues in different States and this may actually pose one of the greatest challenges to an effective climate change policy in Mexico. INE has, with the support of the UK, set up a comprehensive and intensive training programme, including making available all the needed material (all translated into Spanish) in a dedicated website. Currently, there seems to be a shortage of resources for the continuation in the exact same structure of such a successful program.

Role of the private sector

The Mexican private sector is also highly engaged, but not less concerned, about the risks of regulation of carbon emissions. The fact that there is a rather extensive experience, in the key sectors, in estimating corporate GHG emissions, demonstrates that companies need to know the emissions as an input to the respective planning and risk assessments. There is a general understanding that reducing emissions via increasing energy efficiency may increase competitiveness, but there is also a fear that up front investments, in particular if required by legislation, may reduce the country’s attractiveness regarding, in particular, neighbouring countries.

Mexico and the Copenhagen Accord

Mexico associated itself with the Copenhagen Accord resulting from the COP15 voluntary mitigation goals and presented Nationally Appropriate Mitigation Actions described in the country’s Special Climate Change Program 2009-2012. The full implementation of the Programme will achieve a reduction in total annual emissions of 51 million tons of CO₂e by 2012, with respect to the Business as Usual (BAU) scenario. Mexico aims at reducing its GHG emissions up to 30% with respect to the BAU scenario by 2020, provided the provision of adequate financial and technological support from developed countries as part of a global agreement.

Mitigation activities

Mexico is one of the key players in the climate change arena. Its international leadership role reflects and/or is reflected by the great efforts made domestically to design effective mitigation policy and to track

the effectiveness of these measures and the path of its national and sub-national greenhouse gas emissions.

Mexico's climate change policy is well structured and comprehensive. There are three main policy documents shaping the Mexican climate policy (both mitigation and adaptation):

- Towards a National Climate Change Strategy (HENACC) (2006)
- National Climate Change Strategy (ENACC) (2007) – Lists a set of policies and measures and determines the respective reduction potential up to 2014.
- Special Climate Change Programme (PECC) (2009) - includes a long term vision –50% below 2000 emissions up to 2050, and attributes institutional responsibilities for implementation of given measures in the period between 2009-2012. The PECC also lays the grounds for an MRV system.

The adoption of such policy documents is preceded of extensive discussion among the different government sectors and with the civil society. It is evident that the Mexican society is focused on making good use of the opportunities arising from climate change mitigation, but it is also clear that the main and overriding priority for the country is economic development. With 47% of its population still living in poverty, many Mexican policies are directed towards increasing the level of living of the poor. Some of those policies have direct links with climate change mitigation policy, such as the subsidies to the electricity price for the poorer families or to agriculture, which may be in direct conflict with energy saving and efficiency goals, as well as with politics aimed at promoting the use of renewable and non-conventional energy sources.

Unlike many other countries, there is an unusual high amount of information on the economic costs of GHG emissions reduction measures and technologies. Of these studies, the McKinsey study shows opportunity costs ranging from -80€/tCO₂e to +60€/t CO₂e for a reduction of 17 Gt CO₂e/year up to 2020 with available technologies. The Universidad Autonoma de México study shows that the cost of climate change in Mexico can represent between 3.5%-4.2% of GDP, while mitigation can cost as little as 0,56% of GDP.

The Special Climate Change Programme requires that an “analysis and evaluation” scheme is set up, based on a “monitoring and reporting” system and that the Programme is revised taking into account the results obtained in the analysis. Given that the PECC sets up rather short term targets (2009-2012), the President's office has required that information on the implementation of the measures is collected and reported every two months. Such stringent requirements have resulted in the actual capacity to evaluate the capacity to achieve the goals, as can be seen in the background report below. Currently, Mexico is developing, with the support of the USA, a software for the monitoring of the implementation of the PECC.

National Communication and GHG emissions

INE has prepared 4 national communication and GHG Inventories and is preparing the 5th (way beyond any other Non-Annex I Party, which have submitted at the most 2 NC). To be noted that Mexico, in an effort which surpasses the UNFCCC requirements, also compiles and submits National Inventory Reports. The elaboration of the 5th NC, currently underway, is part of a strategy of regular reporting, as an effective mean to build and maintain technical capacity and to ensure that institutional memory and information are not lost in between the exercises of preparation of the NCs and GHGI.

Mexico's GHG emissions have risen significantly over the last years (40.3% between 1990 and 2006), reflecting a, nonetheless, slightly higher increase in its national wealth. Mexico's economy is therefore becoming less carbon intensive.

Donor Cooperation

Mexico attracts the interest of many countries and international organizations for engagement in cooperation initiatives. The high institutional capacity already existing in Mexico reassures donors and counterparts that the investment will have good results, which in turn can serve as example to others.

3. Findings: Gaps, Barriers and Needs

Mexico has demonstrated over the years that a careful identification of gaps, barriers and needs and a committed effort to overcome such difficulties in relation to climate change policy, can result in high benefits for the country. Mexico today has a long term goal, a strategy for emissions reductions up to 2014 and a programme of action up to 2012, which includes a MRV system which has already provided decision makers with the information that by mid 2010, the country is on track to meet its goals for 2012.

In such a context, it is not possible to discuss “gaps, barriers and needs” for Mexico as it would be discussed for most other Non-Annex I Parties and developing countries. Taking into account the current international requirements in force for policy planning, design and implementation and for monitoring and reporting, it is accurate to say that Mexico has over-capacity. In relation to what is shaping up to become future requirements in terms of mitigation action and MRV, Mexico’s stakeholders have actually only been able to identify two main gaps/barriers:

- Unavailability of data for the submission of GHG Inventories every 2 years (with the exception of energy balance data)
- Limited capacity at national level for verification.

The situation is, however, different at the level of regional governments. In the process of devolution of power to States, climate change policy is also included for those areas in which States have jurisdiction. The PECC covers all areas where the Federal Government has jurisdiction, the remaining areas are to be covered by State Governments. State governments are also to MRV their respective mitigation actions and are to produce GHG Inventories. Different circumstances can be found in different States. In this sense, the greatest gaps and barriers to mitigation action and to MRV can be found in state institutions. The level to which such barriers and gaps will hinder the Federal State’s capacity to act and to MRV is not determined, the same way as it is not yet determined how state plans and inventories can be combined and made compatible with the national plan and inventory.

There are, of course, a number of needs that need to be met, which, one could say, belong to a higher tier, compared to the needs, gaps and barriers common to most other countries. Such needs, have been identified previously to this project in several documents, such as the NC and are listed below. During the stakeholder engagement process, these and other gaps, barriers and capacity building needs have been identified and further elaborated, which are captured in this report.

In relation to institutional procedures

- To create a permanent process of data gathering for the calculation of GHG emissions within the administrative structure of the main federal secretariats and enterprises, as well as in the local governmental administrations (Mitigation and MRV)

In relation to technical expertise (human resources)

- To strengthen the human resources capacity at INE and collaborating institutions for the utilization of the 2006 IPCC methodology for inventories (MRV)
- To reinforce the personnel of the States of the Republic for the elaboration of state GHG inventories and climate change plans. This is particularly important at the local universities that are collaborating in the elaboration of the State CC Plans, as they guaranty the continuity of the process (Mitigation and MRV).

In relation to Methodological issues

- To reinforce and improve the methodology of the studies to determine nationally appropriate emission factors (MRV)

- To deepen the analysis of the differences between the reference and sectoral approaches for the energy sector (MRV)
- To improve the knowledge of the CDM project methodologies for baselines, determination of additionally, project limits/boundaries, GHG removals in sinks and those for the calculation of uncertainty, risks and leakage in mitigation projects (Mitigation)
- To improve methodologies for baselines for avoided deforestation, at the scales of project, region and country (Mitigation)
- To develop methodologies for the evaluation of the integral potential of emission reductions by human settlements and large new home complexes (Mitigation)
- To develop instruments for the analysis of the environmental, social and economic impacts of potential international measures and of Mexican commitments in front of climate change (Mitigation)

In Mexico, it became apparent to the project team that stakeholders are very much aware and involved in mitigation action and MRV. The high political engagement and the adoption of several high level climate strategies and plans contribute to raising such awareness in the civil society. Their engagement and commitment is attributable to the policy decisions made, but can also be the driver for such decisions. Civil society is very autonomous in terms of climate related information. Much research is done in federal and, to a lesser degree, state universities and research centres, same applying to private sector driven and conducted studies on risks (including costs) associated with GHG emissions.

Despite the availability of sound information on climate change mitigation action, some deeply rooted perceptions remain as barriers to its decision making and implementation. These perceptions result from years of empirical approaches to mitigation challenges, which are still based on outdated assumptions, technologies and drivers. Such perceptions – e.g., that mitigating climate change will inevitably result in loss of competitiveness - are usually not based on any scientific or technical report and sometimes remain despite contradictory evidence. This became also clear in different interviews with stakeholders in which, e.g. barriers to the introduction technologies for the use of renewable sources of energy were identified¹, which other stakeholders, in the possession of more up to date information, would contradict.

In this context, it still is the case for Mexico that key stakeholders often are not aware of opportunities and challenges related to LEDS (including MRV).

¹ Barriers mentioned include physical barriers, e.g. potential for wind power is located in remote areas of the country where there are no power lines to transport electricity; and cost barriers, in that renewable energy sources cannot compete with traditional, fossil based energy.

4. Needs, Gaps Barriers and the Way Forward

Like in any other country, building capacity is a continuous improvement process. The current high capacity found in Mexico is a result of a national commitment to climate change, to which several initiatives implemented in cooperation with other countries and international organizations have made a contribution.

The way forward in Mexico towards a Measured, Reported and Verified Low Emission Development is through enhancing the understanding of challenges and opportunities associated with LEDS, in order to remove the barriers to the implementation of mitigation policy which still remain at different levels and within different Mexican stakeholders. It still is required an effort to thoroughly identify and analyse such barriers and to raise the awareness of the relevant stakeholders to the tools and mechanisms available to overcome them.

On the institutional level, it seems evident that the greatest challenge Mexico currently faces is to find a mechanism that allows all the procedures and good practices in relation to mitigation and to MRV established at the federal level to be shared and implemented at intra-national levels, in particular at state level, where many competences regarding these issues are now being devolved.

4.1 GHG Inventories and National Communications

Despite having a stable, highly qualified and experienced team devoted to MRV at INE, Mexico suffers from a shortage of resources (in particular qualified experts and in particular at relevant ministries and agencies) which would allow for the country to further step up the frequency (and quality) of reporting. Ensuring the sufficient staffing of key ministries and agencies with experts focused on climate action and MRV would significantly increase Mexico's capacity in this regard.

Indeed, data availability is a key concern if NC and/or GHGI are to be submitted in 2 year intervals as mentioned in the Copenhagen Accord. Mexico recognizes that only with regards to emissions estimates for the energy sector, would it be ready to fulfil such 2 year interval reporting and that the most challenging sector is and will be LULUCF (AFOLU).

Mexico's greatest challenge in relation to compiling NCs and elaborating regular GHGI is related to the role of state governments in compiling data and elaborating their respective regional GHG inventory. INE has prepared a training programme and made available online material for regional experts and officials. Lack of sufficient resources to maintain such training courses and online materials may constitute a barrier to Mexico's MRV of GHG emissions.

Despite the fact that capacity needs to be build at State level, it is still advisable that actions are coordinated with federal institutions, namely with INE, which can provide guidance and recommendations regarding which States should be prioritized and which can more easily ensure no overlaps and good use of synergies.

Table 1 summarizes the Gaps and Barriers identified and correspondent actions to address those concerning GHGI and NCs.

Table 1: Gaps and Barriers identified and correspondent actions to address those concerning GHGI and NCs.

GAP/Barrier	Classification	Action	Focal Stakeholder	Other Stakeholder	Overall Estimate of Cost	Comments
The 2006 IPCC guidelines are quite recent and there is little knowledge about them. In particular, the fact that Forestry and Agriculture are now considered to be the same sector, and given the importance of such sectors for Mexico, makes it very important to train all relevant stakeholders, in particular at regional and local levels.	Information and Systems	Build capacity at INE, at state and sectoral levels and private and academic institutions for the utilization of the 2006 IPCC methodology for inventories. <i>Workshops with invited key experts participating in the IPCC process.</i>	INE	State and local authorities involved in the regional GHGI compilation.	€190 000	Involve in the process the national and sectoral GHG inventories as well as the state level. Look for a convergence between this process and the inventory under the GHG Protocol used by the private sector. Several initiatives aimed at building capacity on GHG inventories and NCs have taken place in the past, such as those supported by the GEF and the UNDP.
The lack of readily available up to date information (in particular activity data) is a key barrier for the frequent elaboration and submission of GHGI.	Information and Systems	Improve data gathering processes to assure the quality and consistency of the information used to estimate the inventories, assuring same level of disaggregation for all sectors and at the level of all federal states. <i>Knowledge sharing of best practices, via workshops involving all the stakeholders.</i>	INE	Ministries: Environment and Natural Resources (SEMARNAT), Agriculture, Livestock, Rural Development, Fisheries and Food (SAGARPA), Communications and Transport (SCT), Economy (SE), Social Development (SEDESOL), Energy (SENER), Ministry of the Interior (SEGOB), Foreign Affairs (SRE), Treasury (SHCP) and Health (SS). The Ministry of Tourism and the National Institute of Statistics and Geography (INEGI) Research institutes: Centro de Investigaciones en Ecosistemas (CIECO-UNAM); Colegio de la Frontera Sur (ECOSUR); Colegio de Posgraduados (COLPOS); Instituto de Ingeniería (II-UNAM); Instituto de Investigaciones Eléctricas (IIE); Instituto Nacional de Investigaciones Forestales, Agrícolas y Pecuarias (INIFAP); Instituto Nacional de Estadística y Geografía (INEGI); Comisión Nacional Forestal (CONAFOR)	n.a.	.

GAP/Barrier	Classification	Action	Focal Stakeholder	Other Stakeholder	Overall Estimate of Cost	Comments
The use of default emission factors as provided by the IPCC or other recognized international literature increases the uncertainty of Mexico GHG emission estimates.	Information and Systems	<p>Support the definition of nationally appropriate emission factors (EF), especially for:</p> <ul style="list-style-type: none"> Non technical waste disposal sites Urban residual water treatment Natural gas fugitive emissions Production, transformation and transport of oil, gas and derivatives The vehicular fleet of large Mexican cities Land use and Forestry Agriculture and livestock <p><i>Knowledge sharing via sectoral coaching sessions and/or workshops and cooperative research.</i></p>	INE	<p>Agriculture and LULUCF:</p> <p>Centro de Investigaciones en Ecosistemas (CIECO-UNAM); Colegio de la Frontera Sur (ECOSUR); Colegio de Posgraduados (COLPOS); Instituto Nacional de Investigaciones Forestales, Agrícolas y Pecuarias (INIFAP); Comisión Nacional Forestal (CONAFOR)</p> <p><u>Energy:</u> Instituto de Ingeniería (II-UNAM); Instituto de Investigaciones Eléctricas (IIE);</p> <p><u>General</u> Instituto Nacional de Estadística y Geografía (INEGI);</p> <p><u>Waste</u> INE, SEDESOL</p> <p><u>Housing:</u> INE et al:</p>	€440 000	<p>All the areas were considered of high importance by the stakeholders.</p> <p>The international Energy Agency has worked with Mexico in defining CO₂ emission factors from power plants, and there is experience in interacting with the IPCC on such matters.</p>
Mexico's efforts to understand and reduce the differences between the reference and sectoral approaches for the energy sector have not been fruitful.	Information and Systems	<p>Decrease uncertainty in the energy sector by deepening the analysis of differences between the reference and sectoral approaches.</p> <p><i>Peer review by energy experts (following the approach used by UNFCCC Expert Review Teams).</i></p>	INE	SENER	€40 000	Including interchange of experience with SENER on new methodologies to estimate energy efficiency emissions factors

GAP/Barrier	Classification	Action	Focal Stakeholder	Other Stakeholder	Overall Estimate of Cost	Comments
Although the current software programme used is flexible and friendly to most users, it no longer manages without greater risk of mistakes the vast amounts of data used and stored for the GHGI.	Information and Systems	Support the National Inventory System to migrate from the current Excel into stronger software and to replicate the system at state level, including the facility for public access to data. <i>Knowledge sharing with key countries where such systems are in place. Access to technology (software) and technical support.</i>	INE	SENEGI	€400 000	Facilitate the systematic updating of the Inventory, at all sectors and states.
Current Mexican policy is devolving power to State Governments (at regional level) and that includes power over climate change and GHGI related issues. Therefore, it is of the utmost importance that capacity is build at such relevant levels.	Information and Systems	To reinforce the capacity of personnel of the States of the Republic for the elaboration of state GHG inventories. <i>Support the continuation of INE's effort to build capacity at state level, namely the on-line courses.</i>	INE	State Governments	€200 000 per state	States with recent efforts to conduct inventories should be considered first for support, taking into account INE's work underway Several states have been supported on such matters, namely by the US and the World Bank. INE's training program has been supported by the UK.

4.2 Planning, Designing, Implementing and MRVing LEDS and NAMAs

Mexico has a rather structured, information-based national climate change plan. Several studies have been performed (with and without international cooperation) relating to elaboration of BAU projections and with measures projections, as well as relating to estimating the potential reduction of measures and their marginal costs. The resulting information has been used to base the elaboration and adoption of an extensive body of policies and measures which have been included in strategy documents and programmes of action with different time horizons.

Mexico has been exploring several opportunities for adapting its policies and measures to what NAMAs may be in the future. Some of that work is being done in cooperation with other countries.

Despite the country's demonstrated leadership and capacity to plan, design and implement measures that reduce greenhouse gas emissions, there are still barriers that need to be overcome. There are several potential misconceptions across different stakeholders in Mexican society (including in the administration) related to the potential benefits of energy efficiency or reduced carbon emissions. For instance, there is a feeling across some sectors of society that, increased energy efficiency means less jobs, while the potential gains, including in terms of employment, related to such efficiency are largely ignored.

It is also common that the business sector, and those in the public sector with regulatory power over such sectors, fear to lose competitiveness due to restrictions in carbon emissions.

Devolution of power to state governments will create gaps in mitigation action and MRV if such devolution is not accompanied by investments in building capacity of state actors. The current ENACC and PECC cover, broadly speaking, issues over which there is federal jurisdiction, while there is a need for State Governments to prepare their respective state climate plans and to establish the respective MRV system.

Table 2 summarizes the Gaps and Barriers identified and correspondent actions to address those, concerning NAMAs.

Table 2: Gaps and Barriers identified and correspondent actions to address those concerning NAMAs

GAP/Barrier	Classification	Action	Focal Stakeholder	Other Stakeholder	Overall Estimate of Cost	Comments
The Mexican government is actively incentivizing stakeholders to develop NAMAs. However, the lack of a clear definition, at the international level, of what NAMAs are creates a barrier to the full fledged use of opportunities. In addition, this lack of definition may lead to different outcomes from different exercises undertaken by stakeholders. Such differences may actually result in inconsistencies and unfulfilled expectations which may jeopardize future stakeholder buy in for NAMAs.	Plan	<p>Establish an EU-MEXICO Partnership towards enhancing the concept and the mutual understanding of NAMAs</p> <p><i>Exchange of knowhow and opinions on how to plan, design, implement and MRV a NAMA.</i></p> <p><i>Application of the results of the joint work in a case study and in any EU-Mexico initiatives on NAMAs.</i></p>	SRE	SEMARNAT	n.a.	There is work being done in cooperation with the US (implemented namely by CCAP) on designing NAMAs, including the definition of MRV procedures for such NAMAs
<p>Some initiatives are ongoing in terms of designing NAMAs in different sectors. A key sector in Mexico is housing, due to the high rate of construction currently underway.</p> <p>Current mechanisms in place such as the “Green Home Scheme” seem to be insufficient to curve the absolute emissions increase in this sector.</p>	Design	<p>Design a prototype NAMA relating to the opportunities for reducing emissions in the development of large new urban complexes.</p> <p>Exchange know-how on methodologies for the establishment of baselines for the residential sector.</p> <p>Provide support for awareness raising on low emissions technologies in the construction sector and for exchange of information on mechanisms and instruments to promote efficient construction and use of buildings.</p> <p>Design a system to MRV such NAMA., including the definition of the baselines, mechanisms and instruments (building upon the current “green home” scheme).</p> <p><i>Knowledge sharing with EU via workshops. Including the definition of research needs for emissions reduction in large urban complexes</i></p>	CONAVI		€100 000	<p>To make a review of ongoing programs at CONAVI, SEDESOL and INFONAVIT, like green mortgage program, and the norm on sustainable dwelling to come into effect next year. Give priority to medium size cities.</p> <p>See comment above on work with the USA.</p>

GAP/Barrier	Classification	Action	Focal Stakeholder	Other Stakeholder	Overall Estimate of Cost	Comments
Despite the high political profile of climate change in the country, some key stakeholders at relevant ministries and agencies are not aware of opportunities and challenges related to LEDS (including MRV)	Institutional	To enhance the dialogue among selected sectoral ministries on climate change, focusing on challenges and opportunities relating to NAMAs, LEDS and MRV. <i>Knowledge sharing with EU via workshops.</i>	SEMARNAT	Members of CC Commission State governments.	€150 000	Options for sectoral approaches by Ecofys, with support of several governments and international organizations, have been road tested in Mexico.
The companies in key energy intensive sectors, (either of public or private nature) are fundamental in the design of NAMAs. Their awareness to the opportunities and challenges is key for a successful design and implementation of NAMAs	Plan and Implement	To build a dialogue on mitigation frameworks, including the design of NAMAs and the system for MRV, at the level of key economic sectors. Setting the reference for key information for the decision making process. <i>Symposiums among key actors in the relevant economic sectors.</i>	SEMARNAT	CESPEDES Industry Associations and Companies.	€100 000	Candidates for pilot dialogues on mitigation frameworks are: power, oil and gas, energy efficiency, energy savings, transport, waste and land use and land use change. See comment above on work on sectoral approaches by Ecofys.
There is a common sense that implementing measures that reduce emissions will bring costs to the economy and cause, therefore, loss of competitiveness.	Plan and Implement	Improve the knowledge relating to competitiveness and emissions reductions. Learn from the experience of the EU on carbon leakage in critical economic sectors. <i>Study on competitiveness and carbon leakage in Mexico.</i>	SE	SEMARNAT Industry Associations and Companies.	€100 000	Main sectors: Electricity generation, energy efficiency, transport forest and waste.
The Mexican companies have shown global leadership by setting up a volunteer initiative for estimating corporate GHG emissions. There is a will from all stakeholders to deepen and widen the initiative.	MRV	Enhance the private sector capacity to monitor, report and verify greenhouse gas emissions, including greenhouse gas emissions reductions. <i>Support the enhancement and further development of the GEI Mexico Initiative.</i>	GEI Mexico (SEMARNAT and CESPEDES)	Mexican companies.	€100 000	Support and cooperation with the private sector and the GEI México program for measurement of emissions reduction. WRI and WBCSD have been partners of Mexico for this programme.

GAP/Barrier	Classification	Action	Focal Stakeholder	Other Stakeholder	Overall Estimate of Cost	Comments	
There is little clarity about Verification in the future climate regime. Current experience under the CDM shows that there is little capacity and experience in Mexico related to verification of GHG emissions estimates.	MRV	<p>Develop national capacity for verification in terms of designing and implementing verification systems and procedures and of defining criteria for certifying verifiers.</p> <p><i>To organize interchanges between Mexican organizations interested in the matter and similar European entities, both from the public "regulator" and the private "verifier" sides.</i></p> <p><i>To exchange experiences and provide training in designing and implementing verification systems and procedures.</i></p> <p><i>To exchange experiences and provide training in establishing a system for certification of authorized verifiers.</i></p>	Companies with core business related to verification and certification.		€70 000		
Before barriers can be overcome, they need to be identified and fully understood. There is still a need to perform an in-depth economy wide study on social, economic and legal barriers to emission reductions in Mexico	Plan Design	and	Understanding the social, economic and especially legal barriers to GHG emissions reductions. Learning from the experience of the EU.		€400 000		
Current Mexican policy is devolving power to State Governments (at regional level) and that include power over climate change and GHGI related issues. Therefore, it is of the utmost importance that capacity is build at such relevant levels.	Plan		To reinforce the capacity of personnel of the States of the Republic for the elaboration of state climate change plans.	INE	State Governments.	€200 000 per state	States with recent efforts to conduct inventories should be considered first for support, taking into account INE's work underway?
			<i>Support to the continuation of INE's effort to build capacity at state level, namely the on-line courses.</i>				Several states have received international support, namely by the US, the Interamerican Development Bank and the World Bank.

4.3 Mitigation, and MRV and the Energy Sector

Mexico's energy sector is highly regulated. The sector can be characterized by the constitutional framework provided to the electricity sector and the public ownership of the oil and gas company (PEMEX).

The national circumstances of Mexico make it very difficult to operate reforms in such sectors. However, it can be noted that changes are occurring with regard to energy policies in Mexico. For instance, renewable energy is no longer negatively discriminated and has now equal access to the grid (via changes in tariffs and costs attributed to producers). Positive discrimination is not yet possible inside the current constitutional and legal framework which mandates electricity to be sold at the lowest price possible. Further to that, PEMEX (the oil public company) has demonstrated being very progressive in terms of carbon management, participating in the GHG Initiative.

In terms of energy use, several challenges are currently present:

- The lack of implementation of energy efficiency measures, namely those related to the promotion of co-generation in the industrial sector
- The transport sector is highly dependent on fossil fuel and is rapidly increasing, despite the efforts to introduce, for example, rapid bus systems in the major cities
- The housing sector is growing rapidly and will do further so at an increased pace with the construction of the planned new urban developments (sponsored by the state as solution to the current lack of housing).

Mexico has a wealth of information for the policy planning and designing in the energy sector and has indeed made use of such information in designing its measures and putting together the climate change plan.

In this regards, barriers and needs identified in Mexico can be considered highly sophisticated in terms of allowing Mexico to plan, design and implement highly innovative and state of the art energy efficiency measures (such as Energy Services Companies - ESCOs and Smart Grids).

Table 3 summarizes the Gaps and Barriers identified and correspondent actions to address those, concerning specifically the energy sector.

Table 3: Gaps and Barriers identified and correspondent actions to address those, concerning the energy sector

GAP/Barrier	Classification	Action	Focal Stakeholder	Other Stakeholder	Overall Estimate of Cost	Comments
Despite being in place, it is noted that policies and measures related to energy efficiency, in particular related to cogeneration, are not being implemented as planned.	Implementation	To study barriers and implementation roadmaps of the potential of cogeneration in the Country <i>Study conducted in partnership between CFE and CRE and European similar.</i>	CFE CRE		€150 000	This study should complement/ take into account a study elaborated in 2009 on the cogeneration potential in Mexico
The Mexican oil sector has a rather relevant body of experience in MRVing emissions. However, this experience is mostly related to CO ₂ emissions, whereas there is little experience in MRV CH ₄ emissions	Information and Systems	Sharing best practices on MRV in oil companies. <i>Study conducted in partnership between PEMEX and European oil companies on MRV.</i>	PEMEX		n.a.	
Lack of access to financing constitute an actual concrete barrier to the full implementation of the energy efficiency policies and measures in place, both in the industrial and building sectors	Implement	Understanding the potential role of Energy Services Companies (ESCOs) in Mexico's energy efficiency. <i>Facilitate the creation of an ESCO by enhanced cooperation among European and Mexican private sectors.</i>	Private sector, including the banking sector.		n.a.	Work with US based Alliance to Save Energy on energy efficiency may be of relevance to this initiative.
Access to state of the art technology is one of the key barriers to implementing the most effective emissions reductions measures. The establishment of Smart Grids promise to be a key instrument in energy management.	Implement	Supporting the introduction of smart grids in Mexico. <i>To establish a Mexican-European Initiative on Smart Grids, including the transfer of knowledge and technologies and the creation of a pilot smart grid.</i>	CRE		n.a.	To extend efforts been done by Mexico with other partners as there are just few pilot projects in Mexico to introduce smart grid to improve energy distribution nets.

GAP/Barrier	Classification	Action	Focal Stakeholder	Other Stakeholder	Overall Estimate of Cost	Comments
<p>Mexico has invested in 1st generation biofuels. The failure of such energy source has now created a hurdle for the move towards the new generation biofuels in the country.</p> <p>In addition, it is of the utmost importance to guarantee that any policy which promotes biofuels and therefore devotes land to it, is not contradictory to other policies, namely on REDD.</p>	Plan and Design.	<p>Understanding the challenges relating to the production and use of 2nd and 3rd generation Biofuels.</p> <p><i>Build an EU-Mexico dialogue on Biofuels</i></p>	Bioenergy Commission	PEMEX, SENER, SEMARNAT and INE	€35 000	
<p>Having conducted a study on potential for Mexico and start of the technologies on CCS, it would now be important to complement such study by identifying barriers to fully use the opportunities identified.</p>	Plan	<p>Realizing the full potential of carbon capture and storage.</p> <p><i>Perform a study on the potential and barriers to CCS in Mexico.</i></p>	CFE	PEMEX Centro Mario Molina	€40 000	To complement the study on the state of art for carbon capture and storage and pilot projects around the world been conducted by the Centro Mario Molina, CFE and PEMEX.
<p>There are different perceptions, caused by the lack of an authoritative and comprehensive study or plan, about the potential for renewable energy sources as well as about the barriers for their use.</p>	Plan	<p>Support Mexico in building a National Renewable Energy Atlas and Plan.</p> <p><i>Cooperative studies for the economic and technical feasibility of the renewable sources. Design of a map of renewable potential in Mexico and a study on barriers for renewable energy.</i></p>	SENER	CFE	€250 000	

4.4 Mitigation Action, MRV and the Forestry Sector

In Mexico, deforestation is an important issue, in particular in the South – Southeast of the country.

While policies are in place and further are being planned, still some barriers exist in relation to this sector:

- Different values for current deforestation rate being considered by different stakeholders (the official government value is different from the value used by prominent scientists, even though some say that the difference might actually only be related to communication: as the government refers to net deforestation, scientist may be referring to gross)
- Different perceptions across stakeholders (including among different ministries) about the drivers for deforestation
- Different and potentially contradictory objectives for land use are pursued by different ministries

Indeed, there exists a need to enhance the coordination mechanisms between CONAFOR (Forestry) and SAGARPA (Agriculture) in much what concerns sectoral policies with impacts in greenhouse gas emissions as well as on what concerns MRV. Mexico has identified the need to update both the forestry and soil inventories, but there is fear that there may not be enough capacity to coordinate both efforts (the forest inventory will be update with the support of the USA).

Several stakeholders are of the opinion that, in addition to the highly technological mechanisms to monitor deforestation and other land use changes, there is a need to involve local users and governments in the MRV system as well as in the designing and implementation of action. In this regards, it may constitute an even bigger challenge for this sector to design and implement a system which engages the right stakeholders at the right levels of intervention, both in terms of designing and implementation of mitigation action and of MRV.

There are several initiatives planned and ongoing in cooperation and with the support of different countries and organizations such as USA, Canada and Norway; UNDP and World Bank. Likewise, Mexico is participating in several regional and global REDD+ initiatives which aim at sharing experiences and building capacity of smaller countries.

Efforts in cooperation in the area of LULUCF and REDD+, require, therefore, an additional scoping and coordination effort as it is a topic in which new challenges, opportunities and solicitations happen at a very fast pace. To be noted that a great effort to build capacity in Mexico in relation to REDD+, including MRV of actions related to REDD+ are included and will likely be addressed in the framework of the REDD Preparedness Plan supported by the World Bank.

Such additional scoping effort may allow the identification of cooperation opportunities in which a given project or initiative is replicated in different location. The current REDD framework provides for action to be taken at project, regional and national level. Therefore, many cooperation activities need to take place at those different levels. In that sense, a given project being implemented in a given area, region or state may be replicated in other places.

Table 4 summarizes the Gaps and Barriers identified and correspondent actions to address those, concerning forestry.

Table 4: Gaps and Barriers identified and correspondent actions to address those concerning forestry

GAP/Barrier	Classification	Action	Focal Stakeholder	Other Stakeholder	Overall Estimate of Cost	Comments
Currently there are several actors (both public and private, national and in cooperation with international entities) in different parts of the country moving ahead in designing REDD projects. The profusion of approaches, in particular in relation to methodologies for baselines determination and to the estimation of the emission reduction, will become a major barrier to the effective implementation of a REDD strategy or plan and recognition of efforts made across the country.	Plan Design and	Support efforts to harmonize methodologies for baselines for avoided deforestation, at the scales of project, region and country, by analysing current approaches in the country and by facilitating the dissemination of a harmonized approach. <i>Complement and update study already performed by CONAFOR and FAO and the efforts made in the framework of the REDD – Preparedness Plan supported by the World Bank</i>	CONAFOR	State governments. Private entities involved in the implementation of REDD projects	n.a.	Involve: CONAFOR, Planning Undersecretary, INEGI, Inventories office, Academic sector, REDD working group, Technical Consultant Committee (CTC).
Currently there is no one system to monitor REDD in a compatible fashion across the country. It is important that State Governments are guided in the design of such systems in such a way that all systems are compatible and combined allow for a national monitoring of REDD.	Information and Systems	Support the establishment of systems to monitor REDD, which are compatible at local, state and federal levels.	CONAFOR	State Governments	n.a.	CTC represents NGO's and private actors like local communities.
Despite the fact that some pilot projects are already being implemented, it is crucial to gain experience in designing and implementing such projects in different regions and ecosystems, where different driver to deforestation can be identified.	Design and Implement	Support to pilot REDD+ projects in different states and ecosystems, including implementation and monitoring.	CONAFOR	State Governments	n.a.	Support currently being provided by the World Bank and by Norway on REDD.
In order to avoid fraud or lack of recognition of early efforts and taking into account the several initiatives and projects planned or implemented, it is important to keep track of all project and emission reductions achieved and those which are involved in the international (informal) carbon market.	MRV	Support to the establishment of a national REDD projects emissions and removals registry.	CONAFOR	State Governments	n.a.	The USA are providing support to the elaboration of the National Forest Inventory.
Soil is a very important carbon pool for which, like in most countries in the world, there is little knowledge and low capacity to measure.	Information and systems.	Support the monitoring of carbon in the soil. <i>Joint start-up research and project for the design of the system.</i>	CONAFOR	SAGARPA	n.a.	

4.5 Initiatives to bridge gaps and overcome barriers

There have been along the years several cooperation projects for capacity building in the Country; they include most of the international organizations (World Bank, EU, UNEP, UNDP, ONUDI, ECLAC, OLADE, SEGIB, etc.), that have cover areas like Inventories, National Communications, CDM projects, etc. Also there has been a very rich bilateral cooperation on several topics, including Low Carbon Societies, CDM, Sustainable development, etc. with a large number of countries, including North- South and South-South cooperation.

A partial list is presented in the two following tables, all of them constitute good antecedents for the development of NAMAs, as many deal directly with CDM cooperation.

There are several international organizations promoting and financing potential CDM projects and conducting enabling activities in Mexico, some of them have intergovernmental character and others are international private sector organizations.

International organizations	Description
ABT (USAID)	Software to monitor the PECC
CCAP	Work with the transport sector. Sectoral studies. Designing NAMAs and defining MRV
Comisión Centroamericana de Ambiente y Desarrollo (CCAD)	Mexico is observer, several activities related to CDM in Central America
Ecofys	Sectoral Approaches
Economic Commission for Latin America and the Caribbean (ECLAC)	Several studies, including on electric plants emissions and energy use. Studies on the economics of Climate Change
European Carbon Fund (ECF)	Actively looking for potential CDM opportunities at Mexico.
European Union	Several CDM enabling activities and MiPymes technological development.
Global Environmental Facility (GEF)	Projects on renewable energy, energy efficiency, transport, agriculture and forest at Mexico. Capacity development. GHG Inventories.
Hewlett Foundation	Supporting several projects related to climate change. CDM projects in sustainable transport at Mexico. CC Mitigation Cost study.
Inter-American Development Bank (IDB)	Investment funds for energy efficiency and renewable energy. Capacity development. State CC Programs
International Emissions Trading Association (IETA)	Carbon Markets
International Energy Agency (IEA)	CO ₂ emission factors from power plants
International Panel of Climate Change (IPCC)	Methodologies for emission inventories and emission factors
McKinsey & Climate Works	Cost study
North American Commission for Environmental Cooperation (NACEC)	Activities on Climate Change, including studies of CDM opportunities in Mexico.
Norway	Norway's Climate and Forest Initiative will support Mexican REDD+ efforts with approximately USD15 Million for three years.
Organización Latinoamericana de Energía (OLADE)	Energy studies, inter alia, cooperates with Synergy 2000.
Packard Foundation	Cost study

International organizations	Description
The Alliance to Save Energy (ASE)	US based Organization that promotes energy savings
The World Bank Prototype Carbon Fund (PCF)	Baseline and monitoring methodologies. Mexican renewable energy projects in the PCF pipeline.
United Nations Development Program (UNDP)	UNDP has been involved at Mexico in several projects related to climate change and CDM, and several ongoing enabling activities, including: Capacity building Update of National Inventories of GHGs. National Communication to UNFCCC
United Nations Environment Program (UNEP)	Pilot institutional development project for Mexico, Central America and Cuba. Emission factors by live organisms. Adaptation network. Partial support of 5th NC.
United Nations Industrial Development Organization (UNIDO)	UNIDO has developed a large number of projects at Mexico to assist the development of the national industry. Created a network of National Centers for Cleaner Production, including the Mexican CMPL.
United Nations Institute for Training and Research (UNITAR)	Capacity building for CDM
World Bank	Several activities in alternative energy, Institutional development, economics of climate change, Carbon fund, State CC Programs, etc.
US Forest Service	Support and consultation on the National Forest Inventory
World Business Council for Sustainable Development (WBCSD)	Greenhouse Gas Protocol Standard
World Resources Institute (WRI)	Voluntary GHG reporting platform for Mexican companies
World universities	There is a very large interchange between Mexican scientists and colleges over the world on CC

The more important foreign governments promoting or supporting CDM related activities in Mexico are:

Foreign Governments	Description
Austria	MOU and capacity building
Canada	A MOU for CDM. Methane from animal and municipal waste and renewable energies. MRV scheme will be developed with PEMEX
Denmark	A MOU for CDM.
France	A MOU for CDM
Germany	The German Technical Cooperation Agency (GTZ) is active in Mexico on climate change, also the Friedrich Foundation. Cleaner production and reforestation.
Italy	A MOU for CDM was signed with Mexico
Japan	The 2004 Agreement between Japan and Mexico for the Strengthening of the Economic Partnership contains clauses for the capacity and institutional building of the CDM. A Cooperation Agreement (CA) was signed with the Japan Bank for International Cooperation (JBIC) related to CDM activities. Japan poses a CDM/JI Acceleration Program that includes Mexico. Low Carbon Societies. Climate models
Korea	Letter of Intent for Cooperation in Climate Change.
Netherlands	A MOU for CDM. Sectoral Approaches
Norway	First country to cooperate in emission reduction projects with Mexico (1994), supported in part the ILUMEX project. Old AIJ type. CCS between oil companies. Pilot REDD projects
Spain	A MOU for CDM was signed with Mexico. Synergy 2002 in the Latin America region and several other CDM related activities. State CC Programs
United Kingdom	Created REEEP, Workshops on energy efficiency. Workshops on international negotiations. Supports the Mexican corporations' voluntary protocol. Support to States CC Plans and REDD. Several actions related to climate models

Foreign Governments	Description
United States	<p><u>USAID</u> supported CDM enabling activities. Is participating at the voluntary GHG reporting platform of Mexican companies. Methodology for follow-up of PECC.</p> <p><u>Environmental Protection Agency (USEPA)</u> several bilateral projects on climate change. Methane to Markets Partnership, as well on the Carbon Sequestration Leadership Forum and the Hydrogen Economy Initiative. Emission factors.</p> <p><u>Bilateral Working Group on Climate Change</u>: Baselines; adaptation; agriculture and forest; climate change observation; carbon cycle, capture and sequestration; biofuels, and modeling.</p> <p><u>Mexico-USA Border Program</u>, CDM related activities at the Mexican Northern border.</p>

5. Background Information: CC Policy and MRV in Mexico

The report presents an overview of the Mexican general situation and the policies related to climate change, and discusses the capacity for elaborating GHG Inventories and the National Communications to the Framework Convention on Climate Change of the United Nations (UNFCCC).

This report was used to support discussions at different stages and interviews with stakeholders and also used the preparation of the national workshop.

5.1 National circumstances

5.1.1 Geography

The United Mexican States (the official name for Mexico) is located in the northern part of the American Continent (Figure I). The Mexican territory covers 1,964,375 km², of which 1,959,248 km² are continental and 5,127 km² insular.

More than 65% of the country's territory is over a thousand meters above sea level, and nearly 47% of its territory has slopes steeper than 27%. Some mountains are more than 5,000 meters above sea level (INE-SEMARNAT, 2006, 2008).

5.1.2 Government Structure and Institutional Framework for CC

Mexico is politically structured in 31 states and a Federal District (D.F.), which are in turn made up of 2,446 municipalities (including the 16 "delegaciones" or political districts of the D.F.). There are 199,391 towns and cities in the country, of which 178 have 50,000 inhabitants or more. Total population in México is about 107 million inhabitants.

Mexico is a Federal Republic; the President is elected by popular vote for a single six-year term. Has a Bicameral National Congress that consists of the Senate and the Chamber of Deputies.

The Mexican Constitution is the Supreme Law of the Nation. The International treaties ratified by the Senate are also Supreme Law, if they do not contradict the Constitution.

Intersecretarial Commission for Climate Change (CICC)

The Intersecretarial Commission on Climate Change (CICC) created in 2005, was the product of an agreement between Ministries to establish a permanent body in charge of coordinating actions on climate change within the Federal Public Administration.

The members of the Commission are the Secretariats (Ministries) of:

- **Environment and Natural Resources (SEMARNAT, Chair);**
- Economy (SE);
- Energy (SENER);
- Agriculture, Livestock, Rural Development, Fisheries and Food (SAGARPA);
- Communications and Transport (SCT);
- Foreign Affairs (SRE); and
- Social Development (SEDESOL).

The Secretariat of Treasury and Public Credit (SHCP) is permanently invited to the CICC sessions.

The Federal Government is devolving power to State Governments on issues related to climate change. Competences over planning, designing, implementing and MRV are divided among the different levels of government.

In this regard, State Governments are to prepare State Programs for Climate Change and State Greenhouse Gas Inventories. 3 States of the Republic have published their Plans, 5 are in process of preparing the, and 3 are in a planning stage. Several have published GHG Inventories.

5.1.3 Mexican GHG emissions

In 2006, Mexico emitted 711.65 Mt CO₂e.

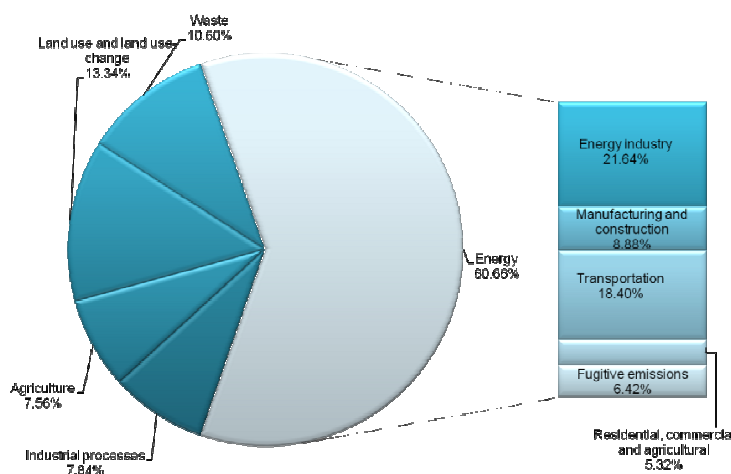
The contribution by category is as follows:

- Energy uses: 60.4% (430.1 million tonnes);
- waste: 14.4% (102.2 million tonnes);
- land use, land-use change and forestry: 9.9% (70.2 million tonnes);
- industrial processes: 8.9% (3.5 million tonnes); and
- agriculture: 6.4% (45.6 million tonnes).

In turn, the energy uses category is subdivided in:

- energy industry: 35% (49.1 million tonnes);
- transportation: 34% (144.7 million tonnes);
- manufacturing and construction industry: 13% (56.8 million tonnes);
- fugitive emissions: 11% (47.4 million tonnes);
- and other sectors (residential, commercial and agricultural): 7% (32.0 million tonnes).

Figure 1: National GHG Inventory, 2006



4th Communication to UNFCC, INE-SEMARNAT

Briefly analysing the Mexican GHG emissions, one may conclude:

- Mexico's GHG emissions grew 40.3% from 1990 to 2006
- "Energy" prevails as the main source of GHG emissions in Mexico, with the greatest part deriving from fossil fuel use in energy generation and in the transportation sector
- Improvements in energy efficiency and investments aiming at the use of cleaner technologies have improved the energy intensity (energy consumption per unit of GDP) and emissions intensity (CO₂ per unit of GDP) between 1990 and 2006
- The GHG emissions growth rate in Mexico is lower than the growth rate of its economy
- The results of the National GHG Inventory 1990-2006 show that there is evidence of decoupling of economic growth and GHG emissions in Mexico

5.2 Priority Sectors assessments: Energy and Forestry

This chapter identifies and provides an in-depth analysis of two major greenhouse gas emitting sectors, the energy sector and forestry. The analysis focuses on the gases, methodologies used, key drivers and sectoral projections. An assessment of the activity data, emission factors and parameters as well as of the information sources, quality checks and sectoral projections performed. The Special Program for Climate Change (PECC), announces that "Strategy, sectoral opportunities and specific mitigation targets (within the timeframe of the present Administration) are identified in two major areas:

- Energy Generation and Use, and
- Forestry and Land Use.

5.2.1 Energy sector

Legal and Institutional Framework

The energy sector is essentially a monopoly of the State, the Constitutional articles that regulate the sector are:

- Article 25, rules the strategic activities reserved exclusively to the Nation and the basis for sustainable development.
- Article 27, prescribes the "Direct Domain of the Nation over natural resources" and the authority to regulate the exploitation and use of the natural wealth. Also, establishes the State's domain over national water and natural resources, allowing the exploitation through "concessions" provided by the State.
- Article 28, legislate the strategic activities reserved exclusively for the Nation in relation to electricity, hydrocarbons and nuclear energy.

No Law has yet been emitted that regulates climate change. On renewable energy and energy efficiency recently two Laws have been put into effect:

- Ley para el aprovechamiento de energías renovables y el financiamiento de la transición energética (Renewable energy and energy transition)
- Ley para el aprovechamiento sustentable de la energía (Sustainable use of energy)

Laws on electricity allow private investment in electricity under the following modalities:

- self-generation and consumption,
- cogeneration,
- independent power producers;

The Federal Law for Electric Public Service created the Federal Energy Regulatory Commission (CRE), an autonomous and independent agency, to

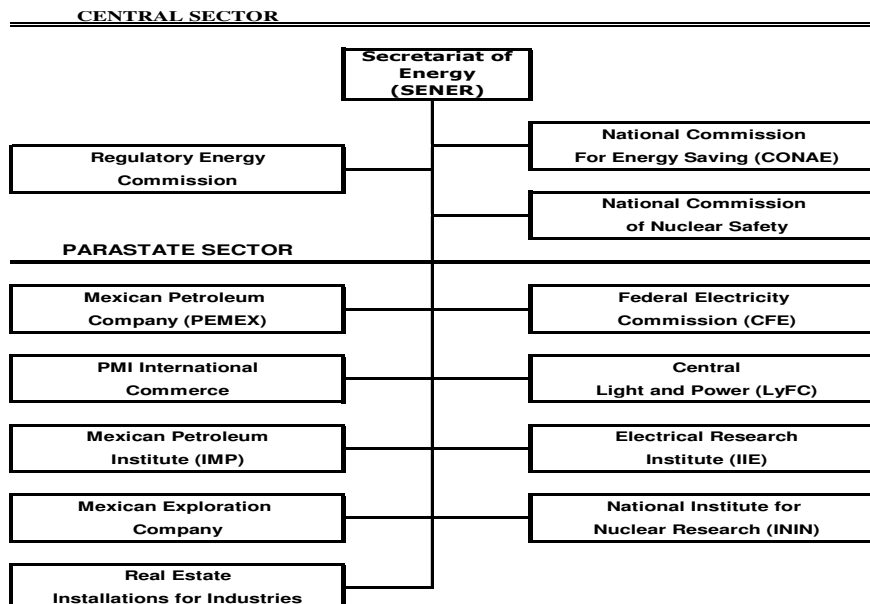
- grant power generation permits;
- enact tariff and transmission directives;
- regulate private participation in the transportation and distribution of natural gas; and
- regulate private producers of energy.

In accordance to national law, following constitutional prescription, the National Electricity Commission - CFE – (the Mexican electricity utility) has to use (distribute and sell) the most economical power available. This very strict legal requirement is considered by many stakeholders one of the main obstacles to the exploitation of renewable energy sources, which have higher production costs than traditional fossil energy sources.

Private power producers sell their electricity to CFE, under a fixed price formula (which applies to both conventional and renewable energy sources. Self-producers and co-generators are able to sell surplus energy to CFE for public distribution. Such recent arrangements are allowing for a, however modest, introduction of renewable and lower carbon electricity in the grid (particularly sourced from wind and co-generation).

The main government structure to administer energy is the Ministry of Energy (SENER). For the electricity sector SENER, CFE and CRE are the key stakeholders, while for the Oil sector the key stakeholders are SENER and PEMEX.

Figure 2: Energy central sector structure



Note: LyFC was dissolved recently and its functions and assets absorbed by CFE.

Key figures for the energy sector

In 2008, the primary energy production of the country was 10,500.2 petajoules (PJ), 0.2% less than in 2007. Although Mexico has renewable resources, their contribution to the total primary energy production was only 7.7%; hydrocarbons contribute 89.1%; hydro, 3.7%; firewood, 2.3%; coal, 2.2%; nuclear, 1.0%; sugarcane bagasse, 0.9%; geothermal, 0.7%, and wind, >0.2.

The sector that consumed more energy was transport with 47.6%, followed by the industrial sector with 26.3%, and the housing, commercial and public sectors with 17.7%. The requested final energy sources were gasoline, 32%; diesel, 16%; electricity, 13%; dry gas, 11%; LP gas, 8.9%, and firewood 4.8%. Renewable energy sources such as hydroelectric, geothermal and wind power represent 21% of the sources for electricity generation. (SENER 2009, Balance Nacional de Energía 2008).

Domestic electricity market 1997-2007 (SENER)

During the 1997-2007 period, domestic electric power consumption maintained an average annual growth rate of 3.9% as a result of the dynamics observed mainly in the residential and medium-sized industry sectors. Self-supply has also increased 10.2%.

The most dynamic power consuming sector during the last 10 years has been the residential sector, with an average growth of 4.5%, followed by the industrial sector with 3.2%.

Domestic electric power consumption forecast for 2008-2017 (SENER)

Domestic electric power consumption for the 2008-2017 timeframe is expected to grow at an annual rate of 3.3%. Consumption is expected to increase from 209.7 TWh in 2008 to 281.5 TWh in 2017

Between 2009 and 2017, the public service expansion program will require the addition of 14,794 MW of capacity, 3,520 MW of which is capacity already committed or under construction. 10,795 MW are additional capacity in projects that have not yet been put out for bid, and 479 MW are additional capacity in rehab and modernization projects. All in all, 14,315 MW will be added to public service capacity during aforementioned period.

Specifically, the fuel with the greatest increase in use – in this period - will be natural gas with an annual average increase of 5.0%, while fuel-oil will have the greatest annual decline with –7.6%, followed by diesel with –6.3%. Coal usage is expected to increase at an annual rate of 2.5%.

Greenhouse Gas Emissions in the Energy Sector

The energy sector is the main source of GHG emissions in Mexico, the sector with the largest number and volume of mitigation actions and is likely that efforts will continue to focus in this sector.

Table 5: Energy sector emissions

Emissions 2006 (thousand tonnes)	CO ₂	CH ₄	N ₂ O	Total CO ₂ eq
Energy	370,039.7	49,112.0	10,945.5	430,097.2
Fossil fuel consumption (Sectoral method)	370,039.7	1,717.0	10,945.5	382,702.1
Generation of energy	148,792.9	134.5	209.8	149,137.2
Fugitive emissions	0.0	47,395.1	0.0	47,395.1
Solid fuels	0.0	2,410.3	0.0	2,410.3
Oil and natural gas	0.0	44,984.7	0.0	44,984.7

4th National Communication, INE-SEMARNAT

5.2.2 Forest Sector

Institutional Framework and key climate change initiatives

The National Forestry Commission (Comisión Nacional Forestal, CONAFOR), arguably holding the most relevant competences over forest and climate change, aims to mitigate GHG emissions, to increase forest carbon sinks potential, to stabilize the forest-agriculture border and to reduce the incidence of forest fires.

The National Commission of Natural Protected Areas (Comisión Nacional de Áreas Naturales Protegidas, CONAMP), began developing its Climate Change and Protected Areas Strategy, launching its Fire Management Program in Protected Areas of Mexico, and has identified some pilot sites in protected areas in order to participate in the carbon market in the future.

The National Commission for Knowledge and Use of Biodiversity (CONABIO,) is expanding its activities on climate change. Among other actions, it has a monitoring program in mangroves and mountain cloud forests, and continues working on its program of early detection of hot spots for appropriate care and fire fighting.

Key forestry related figures

The vegetation cover of the country reaches 83.8% of the national total area (162.1million ha.). Mexico's forests covered 64,238,000 hectares (ha). This area is roughly evenly divided between coniferous and broadleaf forests, and large areas of shrubs and woodlands. In 2007, total commercial wood production was 7 million m³. It is estimated that 12 to 13 million people live in forest areas in Mexico and about 5 million of them are indigenous people, most of them living in extreme poverty conditions.

According to CONAFOR the net annual deforestation rate (rate of total or raw deforestation minus the rate of forest recovery) was 203,103 hectares in average between 1993 and 2002 and 160,667 between 2002 and 2007, with an average between 1993 and 2007 of 185,729 hectares. A decrease, albeit with higher absolute figures, was also observed in the rate of forest degradation from 341,639 hectares/year between

1993 and 2002, to 246,830 hectares/year between 2002 and 2007, indicating that the process of degradation is faster than the process of deforestation².

In accordance with INE, the primary drivers of deforestation and forest degradation include conversion to pasture land and slash and burn agriculture (80 %), and uncontrolled logging—over exploitation and/or illegal logging—(8 %), in some areas forest fires and pests (6 %), authorized land use change for development purposes (2 %), and hurricanes and other natural disasters (2 %) also affect forest cover, especially in the tropical lowland forest area¹. Estimates of the potential emissions savings from reducing deforestation and potential removals in Mexico, range from 263 Mt to 333 Mt CO₂e from 2012–2020.

In its strategy to reduce emissions from LULUCF and specifically from deforestation, during the 2007-2009 period, the Mexican government allocated a budget of more than 1.3 billion dollars to the Programa ProÁrbol. These funds have been applied to support:

- payment schemes for environmental services, for the conservation and development of community forestry;
- the establishment of commercial forest plantations;
- the protection of forests against fires, pests and diseases;
- ecosystem restoration; and
- increase in competitiveness in forestry activities.

In the Special Program on Climate Change 2009-2012 (PECC) mitigation in the forestry sector is focused mainly on:

- The incorporation of about 3 million hectares to sustainable forest management;
- the installation of 600,000 efficient wood stoves, and
- the addition of 750,000 hectares of forest ecosystems to the status of Protected Natural Areas.

5.3 Climate change policy in Mexico

The National Development Plan

The National Development Plan (2007-2012) regulates the federal activities during the present presidential term, and incorporates for the first time strategies for the control of climate change. OBJECTIVE 10, on GHG Mitigation strategies includes:

- Strategy 10.1: To promote energy efficiency and clean technologies (including renewable) for energy generation.
- Strategy 10.2: To promote the efficient use of energy in the domestic, industrial, agricultural and transportation sectors.
- Strategy 10.3: To promote the implementation of international standards in the transportation sector.
- Strategy 10.4: To promote energy recovery in the waste sector.

Most of the Sectoral Programs, derived from the National Plan, incorporate policies and programs related to CC.

² <http://www.forestcarbonpartnership.org/fcp/MX>

The National Strategy on Climate Change

The National Strategy on Climate Change (ENACC) identifies specific measures for mitigation, with estimates of their potential for emissions reductions. The National Strategy also proposes a suite of research objectives as a tool for laying out more precise mitigation targets. While the scope of the ENACC encompasses measures within the competence of the Federal Government, also contributes to a nationwide and inclusive process of consensus building which:

- Identifies opportunities for emissions reductions.
- Contribute to the development of strategies, priorities and policies for the Special Program on Climate Change (PECC), which is an integral part of the National Development Plan, 2007-2012.

The next Figure summarizes the emission reduction potential, up to the year 2014, of several activities contained in the ENACC. Several of them are describe and assigned with goals and responsible actors under the Special Program for Climate Change (mentioned below) for 2010-2012.

Figure 3: Emission Reduction Potential of Measures included in the ENACC

(in Mt CO₂e over the period 2007-2014)

Measure	Estimated Potential (Mt CO ₂ e)
Land Use, Forestry and Bio-energy	
Reforest 285,000 hectares a year through the <i>ProÁrbol</i> program, to accumulate 1.71 million hectares.	10-20
Restore degraded soils by 115,000 hectares annually through <i>ProÁrbol</i> , to accumulate 690,000 hectares.	5-15
Expand commercial plantations by 100,000 hectares per year, to accumulate an additional 600,000 hectares.	3-7
Identify opportunities for carbon capture projects in forest ecosystems under the CDM.	n.a.
Introduce 500,000 high efficiency wood burning stoves in rural communities.	2.5
Restore agricultural land to perennial and mixed crops in 900,000 hectares, through the PROCAMPO program.	4.2
Develop standards for fertilizer use according to region and crop.	n.a.
Reduce slash and burn-related forest fires from 50% to 35%.	n.a.
Employ conservation tillage and foster cover crops in 200,000 hectares.	0.9
Rehabilitate 450,000 hectares of grazing and rangelands through cattle production support program "PROGAN".	4.6
End Use Energy Efficiency	
Continue application of current energy efficiency standards and develop and implement new ones.	24.0
Strengthen current FIDE programs and promote new ones.	3.9
Develop the CHP potential of the national cement, steel and sugar industries, among others.	>25
Power Generation and Distribution	
Increase the efficiency of transmission and distribution lines by 2%.	6.0
Increase thermal efficiency of fuel oil-fired thermoelectric plants by 2%.	0.7
Reorient oil production incentives; gasification terminal for imported LNG; convert fuel oil-fired plants to combined cycle.	21.0
Install 7,000 MW of renewable energy capacity to generate 16,000 GWh per year.	8.0
Introduce sustainably produced biofuels.	n.a.
Oil and Gas	
Install CHP plants in the facilities of the National Refining System and in other PEMEX facilities.	7.7
Substitute individual generation plants for a 115 MW combined cycle plant connected to offshore platforms.	1.9
Increase PEMEX's energy efficiency target by 5%.	2.7
Reduce fugitive methane emissions from natural gas production, transportation and distribution.	2.4
Transport	
Replace freight trucks and diesel busses ≥10 years old from 2008 onwards.	2.0
Increase rail coverage for freight transportation by 10%.	1.5

The Special Program for Climate Change

The Special Program for Climate Change (PECC 2008-2012), enforced in 2008 by the Mexican Federal Government, rules the activity of the Federal Government on matters of Climate Change.

The PECC looks to the “decoupling” between GHG emissions and economic growth. By means of the reduction of the relation between emissions and economic product, induces the “decarbonization” of the Mexican economy.

In a long-term vision, the PECC establishes, as an aspirational goal, the reduction of 50% of national GHG emissions by 2050, as compared to 2000 levels, and a flexible convergence towards a global per capita emissions average of 2.8 tonnes of CO₂eq in 2050.

The PECC is formed by 4 chapters:

- Long term vision for the trajectories of mitigation and adaptation.
- Mitigation oriented to the generation and use of energy, agricultural activities, waste, forests and land use.
- Adaptation actions in water resources, forestry, fisheries, transport and communication infrastructure, cattle production, ecosystems, urban ordering and development.
- Cross-cutting issues, including foreign policy; institutional development; economy of climate change; education; training; communication; information and research, and technological development.

The total fulfilment of the goals of the PECC will reach a reduction in 2012, of 51 Mt CO₂e in relation to the baseline for that year. The relative reduction in the different sectors is as follows:

- Energy generation: 36%
- Agriculture and Forestry: 30%
- Energy use: 23%
- Waste: 11%

Cost of Mitigation of Climate Change: tools for the decision making

Mexican stakeholders and decision makers have availed themselves of extensive information regarding the marginal costs of reduction measures. This is perhaps one of the most important aspects of climate policy in Mexico, as it gives stakeholders and decision makers ample information on the costs and benefits from investing in emissions reduction policies and measures.

There are 3 main sources of information on mitigation costs in the Country. The first is the study specifically made for the measures included in the PECC for up to 2010. The second is the cost calculation applied to CDM projects, which give an accurate account of costs and benefits for specific circumstances and given technologies. The third source of information regarding costs of reducing emissions are four studies done on the economic cost of the climate change impacts on Mexico and the costs associated to the transition to a Low Carbon Economy. Under different hypothesis, all of them present a cost curve for different specific actions:

- Study on the Economics of Climate Change in Mexico, coordinated by SEMARNAT and the Ministry of Finance, with the participation of UNAM, with financial support from the UK Government and the Inter-American Development Bank (IDB) (2009);
- Low-Carbon Growth. A potential Path for Mexico, conducted by the Mario Molina Center (CMM) and the McKinsey consulting firm;

- Low Carbon Development for Mexico (MEDEC, “Estudio sobre la Disminución de Emisiones de Carbono”), developed with funding and technical assistance of the World Bank; and
- Climate Change in Mexico and Potential Emission Reduction by Sectors, conducted by an independent consultant (Gabriel Quadri, Nov. 2008).

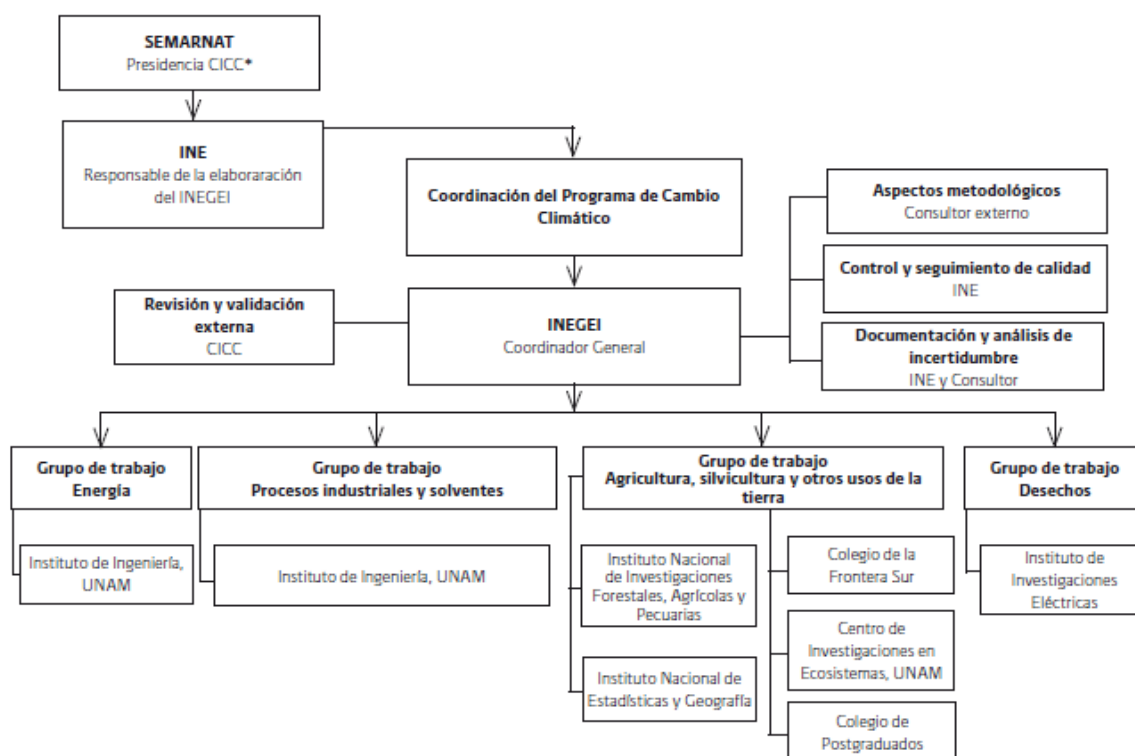
5.4 GHG Inventories and National Communications

5.4.1 Current Institutional set up and capacity

In Mexico there is ample experience in elaborating of National Communications and GHG Inventories. The 4 submissions of the NC to the UNFCCC (including NIR) are a reflex of an institutional capacity which has been built over the last ten years, under the leadership of SEMARNAT and the operational task force at INE.

As per the figure below, the coordination of any efforts by federal organizations related to climate change is done at the level of CICC. Under its mandate, roles and responsibilities are defined for all organization. INE (at SEMARNAT) is responsible for coordinating the implementation and for delivering the results. In the case of National Communications, the institutional set up is that of the CICC, in which SEMARNAT/INE coordinate the work carried out by the other institutions holding a seat at CICC. As for GHG inventories, institutions are organized in sectoral working groups. Interesting to notice that in the formal institutional set up non-governmental organizations, such as universities, can be found, where usually their work is sub-contracted by government organizations, themselves part of the formal institutional set up. For example, in the energy working group (Grupo de Trabajo de Energia), the Engineering Institute at the Universidad Autonoma de Mexico is part of the formal structure, where it usually would be expected that SENER (or CFE or CRE) would be part of it, subsequently subcontracting work by the UNAM. In the Mexican case, the NGOs are responsible for all work in the respective sector, collecting the relevant data from the respective official institutions, which are, at the end of the process, called to revise and validate the work done and the estimations of GHG emissions.

Figure 4: Institutional arrangements to conduct the GHG Inventory



It is interesting to realize that, the institutional framework set up under CICC is very operational and results oriented, thus being able to deliver high quality and regular submissions of GHG Inventories.

It should be noted however that, the mandate of CICC is limited to the Federal Government. It currently has no links to the state governments, which are being devolved many competences over climate change issues: from GHG Inventories to Climate Change Mitigation and Adaptation Plans. It still is to be solved how all the work done at state level will be coordinated and made compatible at Federal level.

Despite being a small team, there is great expertise on GHG emissions at INE and at the universities and research centres involved. Greater capacity gaps are found at state level, where resources available are scarcer and where teams are more recent and less structured. There are several initiatives going on to build capacity at state level on GHG Inventories. INE has a comprehensive training course and materials, with all materials translated into Spanish, which has been of great use in building capacity at state level, together with several other initiatives in cooperation with donors, namely the USA in particular in bordering states.

Furthermore, there is currently a growing body of knowledge and experience in corporate GHG Inventories, due to the MEXICO GHG Initiative set up with WRI. Currently about 110 companies are part of the initiative and estimate their respective CO₂ (mainly) emissions. It still is to be figured out if and how such exercise can be useful for the elaboration of the national GHG Inventory.

Implementation of the PECC

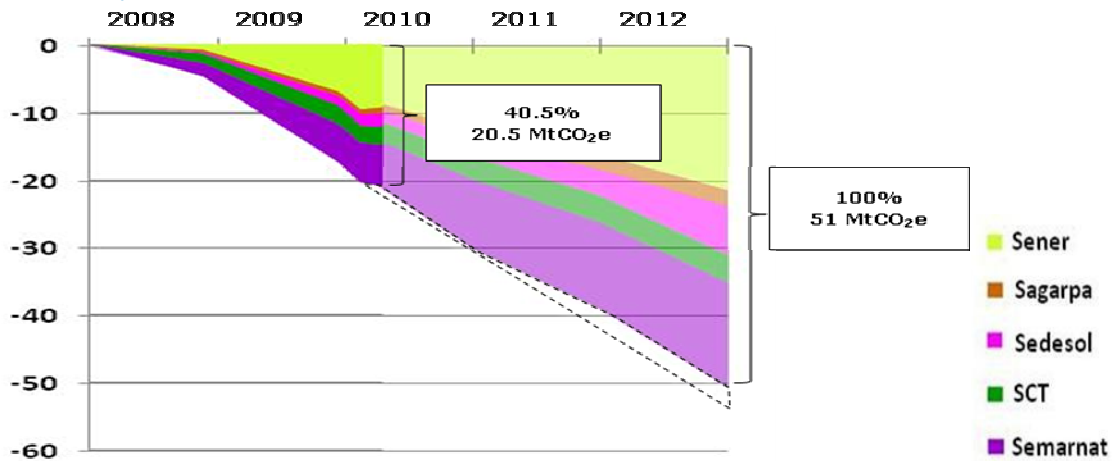
The PECC establishes in itself two goals in relation to MRV of its implementation:

- To set up an “analysis and evaluation” system which includes the “monitoring and reporting” of fulfilment of the goals and the implementation of the measures defined towards achieving the goals; and
- To revise the PECC, as needed, in accordance with the results of the analysis and evaluation performed.

In such a framework, the office of the President has ordered that each entity responsible for the implementation of each of the measures, reports every two months on it. Such requirement has been fulfilled, with some flexibility for some of the measures for which every two months reporting has been technically demonstrated as irrelevant (in this case, longer reporting periods have been agreed).

Based on such a system, coordinated at INE, it has been possible to arrive at the conclusion that the implementation of the PECC by mid 2010 can be considered to be on track towards meeting the target defined for 2012 (in accordance with recent unpublished data by SEMARNAT,).

Figure 5: Implementation of PECC to the middle of 2010



Recent Semarnat data

6. Working Material for Activities Implemented During the Project

6.1 Summary of key discussions and conclusions from the first visit interviews

The interviews were held in Mexico City and Guadalajara on the 17 to 21 May 2010.

Key stakeholders interviewed are:

- Data providers (public and/or private) for the main inventory sources, including statistics office, entities responsible for the energy balance, for provision of LULUCF data and other
- Data users and analyzers (those public or private experts or organizations which are the main users of data collected and/or are involved in the estimation of the main emissions sources)
- Relevant government authorities responsible for climate change policies/economic development (planning)
- Industry representatives from key GHG emitting sectors
- Universities and research centers involved in supporting activities (e.g., modelling) in regards to the elaboration of mitigation actions and/or involved in GHG emission estimations
- NGOs

Main topics/issues addressed during the interviews were:

- Existing and future climate policy plans
- Procedures, challenges and barriers for the design and planning of NAMAs
- Plans to implement the MRV requirements of the Copenhagen Accord
- The existing institutional framework to support MRV activities and any plans for improvement
- The process of preparation of GHG inventories, national communication (NC), and mitigation actions/NAMAs and relevant actors
- Current and expected challenges, gaps and constraints in the elaboration of GHG inventories, NC, and climate policies/NAMAs and views on how to overcome them.

Memo of Meetings with Stakeholders

Mexico City, 17 to 21 May 2010

Meeting at SEMARNAT With Several Actors

Relevant instruments to reduce and monitor GHG emissions

- National Communications (NC)
 - Inventories GEI
 - Program GEI Mexico (GHG Mexico) – initiated with WRI, registers corporate emissions
 - Registro de Contaminantes Obligatorio (Mandatory Pollutants Register) – does not include GHG. A possibility is to integrate GEI Mexico. While registro is plant specific, GEI Mexico register aggregate emissions from companies.
 - Programa Especial de Cambio Climático 2010-2012 (JM is responsible for monitoring)
 - Reduction of 51Mt below BAU baseline
 - Methodologies for projection of impacts of measures have been developed
 - Assumptions in models have been validated by focal points at CICC
 - Focal points are developing capacity to monitor impact of measures on GHG emissions
 - Monitoring of implementation of program is also done via the monitoring of the government plan “Agenda para la Transversalidad” (government plan which goes way beyond climate change, to account for Intersectoral activities). By September, a monitoring scheme for the special climate change plan will be adopted. US consultants with funding from USAID are providing support.
 - CDM has given rise to the development of capacity to monitor GHG emissions inside companies. However, much of the monitoring and verification work is done by international consultants (the big companies). This has several times been identified as a barrier.
 - Initiative Methane to Markets (Metano al Mercado): US sponsored initiative focused on potential use of biogas from landfills. Wastewater treatment, agriculture and livestock may be included in the near future. The initiative is creating information on GHG from landfills.
 - GEI Mexico
 - With the support from Canada, a specific program on MRV will be developed with PEMEX. PEMEX will visit Canada to get acquainted with the tool used by Canada and check possibility to adapt it to Mexican reality.
-
- GEI Mexico: 110 companies register emissions, 6 have CDM projects
 - Programas Estatales de Cambio Climático (State CC Programs) – being developed with the Support of BID and WB. The aim is that all states have their own CC program, focusing both on mitigation and adaptation.
 - Border States are very much interested in GHG inventories and in identification of reduction opportunities. Border American states are very active in providing support to such Mexican states, in particular on GHG inventories.
 - Instituto Nacional de Ecología (INE) is involved in such initiatives to ensure compatibility of methodologies.
 - Monitoring of implementation of the PECC
 - President Calderon requested to be informed of progress every 2 months
 - President office provides much support in doing so.
 - President Calderon has requested that a new NC is published before the end of his term in 2012.
-

- Several sectors are involved in GEI MEXICO, which account for about 30% of Mexican GHG Emissions
 - Steel
 - Cement (all companies)
 - Swine production companies
 - Service companies
 - Local governments as well as SEMARNAT
 - Freight transportation companies
 - Aviation companies
 - PEMEX (Mexican Oil)
- The electricity production sector – state owned CFE is not included.

Interview at INE

- Lots of information available to produce baselines and cost curves
- Not much thinking on monitoring yet.
- The McKinsey & Climate Works cost study
 - Funded by the Hewlett and the Packard Foundations
 - McKinsey had 4 people, 6 months full time. Mexicans, Colombians and Americans, led by Francisco Barnes Jr.
- PECC has a baseline based on the GHG inventory project based on international parameters.
- Baseline was bottom-up.
- Emission factors used are mostly IPCC, except for oil, electricity and transport. The remainder are too expensive to calculate.
- The target announced by the President (-30% by 2020) resulted from this study. A 50% reduction potential (from BAU) is projected to 2030.
- Electricity production and forest have the highest potential.
- Potential for the transport sector is only 50% of the potential for electricity production.
- Changing to efficient light bulbs as a negative cost of €160/tCO₂ avoided. A barrier for implementation is the cost of bulbs for the overall population. The fact that there is no efficient light bulbs production in Mexico was also considered a gap.
- Usage of biogas for electricity production is the most attractive measure, as well as distribution of gas for direct use (in kitchens).
- There has been no political discussion on which of the measures Mexico would implement on its own and which would require international support, beyond 2012.
- Baseline includes 5 new thermal power plants. Up to 2015.
- Energy efficiency law confirms that CFE needs to buy electricity at the lowest cost, but recently is required to take externalities into account.
- Wind potential in Southeast Mexico is great. However there are no sufficient installed power lines, which is a barrier.
- The fact that electricity for domestic consumption is highly subsidized makes it important for CFE that people to save energy.
- All information about present studies will be made public, except for the methodology embedded in the excel model used to calculate costs, as those are proprietary of McKinsey.
- The study is sufficient for the decision making. All information is there on each of the measures.
- Opportunities for cooperation
 - Exchange of experiences in overcoming barriers in implementing measures based on the EU experience
 - Transfer of knowledge on social, economic and legal barriers (e.g. via a workshop).

Interview at INE (II)

- CENER prepares energy yearly energy balances which could be a basis for an annual GHG inventory for the energy sector only.
- PNUD/RAF4 will support the 5th NC with USD 3M
- Elaborating NC and GHG Inventories in a regular basis is very important for Mexico in order not to lose information in between “sexenios” (six year terms of the presidents).
- The private sector demands for more regular inventories (namely those involved in the GEI Mexico initiative).
- There is a need for specific emission factors for methane and studies regarding the composition of waste in several parts of the country.
- INE has made much work at national level, which now needs to be replicated at the states level.
- EPA (US Country Studies Program) has supported several projects.
- UK is supporting the elaboration of the Veracruz PECC (which includes a State GHG Inventory)
- BID has expressed interest in supporting work in 5 states; Spanish cooperation and WB are to support 2 each.
- Spanish cooperation provides 50% of costs and limits cooperation to provision of funds. UK is 100% and also only funds. No technical assistance attached.
- INE has made available in its website, in Spanish:
 - Guidelines for GHG inventories
 - Guidelines for the elaboration of state plans
 - Guidelines for studies on impacts of climate change
 - Are currently developing guidelines for the identification of reduction measures
- A lot of work is done with/by Universities, because civil servants term in a given office is from 3 to 6 years, at the Municipal and State levels. Information and knowledge could be lost. In universities, knowledge is more stable.
- CC training courses on-line with the support of the UK (support will finish soon and therefore, courses will be paid in the future)

On the inventory

- Team is made up of 3 experts at INE
 - Coordinator and expert on energy, waste and industrial process
 - Expert on quality control
 - Expert on methodological aspects
- The remaining expertise is housed in universities
- Quality control is performed by a consultant. QA is informally performed through the validation by sectors.
- Each inventory takes at least 2 years to make. LULUCF is the most complex and the process which takes the longest. Next inventory will need to be ready by mid 2012.
- EF for energy are from IPCC
- Canadian Government has been in contact with INE and GEI Mexico on MRV
- Would like to migrate from excel sheet to another system such as access. A possible cooperation process would be to pass the current excel into a stronger software. Replicate this system at state level. System should facilitate public access to data.
- Mexico would welcome support to elaborate yearly GHG inventories, as the country would only be now ready to estimate emissions from the energy sector.
- Potential cooperation would be capacity building for sectoral ministries on designing NAMAs and on MRV.
- CCAP has done work with the transport sector.
- Ecofys did “Sectoral Approaches” with support of the Dutch government.

- EPA is supporting American consultants to perform GHG inventories in border states. The process is not very inclusive of Mexican expertise and is leaving little behind.

Interview at CESPEDDES (Mexican chapter of the WBCSD)

- Need to raise the private sector's awareness on opportunities and risks from climate change
- Need to build a framework (regulatory?) for energy efficiency and competitiveness
- Build capacity for creation of ESCOs
- Dissemination of good practices and best available technologies
- For COP 16, CESPEDDES is drafting a document on the vision of the Mexican private sector on CC. By contract with Oxford-UK. This vision will include:
 - Mitigation and clean development
 - Adaptation
 - Energy Security
 - Competitiveness
 - Improve energy efficiency
 - Improve carbon efficiency
 - Quantify product carbon footprint
 - Culture and education

THE GEI MEXICO Initiative – CESPEDDES+SEMARNAT (The Mexican GHG Initiative, methodology of the WRI)

- GEI Mexico includes up to 150MtCO₂, about 22% of national total
- Chemical industry did not participate originally due to unwillingness to share data considered confidential. Are now planning to join. Same for Paper and Transportation.
- Up to 2012 tow new levels:
 - Inventory certification in accordance with ISO 14064
 - Certification of emissions reduction (in order not to lose track of emissions which are actually being reduced in the framework of GEI Mexico, and to register them in the registry foreseen in PECC.)
 - Make the available in the voluntary market or, eventually in the CDM
- GEI MEXICO will establish a verification and registration system
- GEI MEXICO organizes up to 5 workshops a year on corporate GHG inventories. Aiming at 3 times as much, but are lacking the resources.
- Transferring knowledge to states and universities.
- Produce national indicators. Benchmark. Compare with international values.
- Develop national capacity for verification. Do this in such a way that this capacity is not limited to a few companies and much less to the few international ones.
- NAMAs and MRV should be designed in such a way as to eliminate all the international bureaucracy created under the CDM and which kept its opportunities away from most countries.
- Private sector does not believe a national carbon market makes sense, but that with a regional market (with US and Canada) could make sense.

Interview at Centro Mario Molina –Important Research Centre

- RETC (Registro de Contaminantes – Pollutants Register) could be the basis for the registry of industrial GHG emissions
- Sectoral Study on Cement (also on electricity, smelters, paper, transport, oil) – done by CCAP and afterwards with BID. Ecofys updated these studies, but they are independent.
 - Analysis site by site
 - Analysis of energy intensity
 - Analysis of carbon intensity
 - Ranking
 - International benchmark
- On cement, there is an oligopoly. CEMEX has 50% of the market. Data for energy consumption in other sector is sometimes derived from data on oil fuel sale made available by PEMEX. However, Mexican cement companies are very active in CESPEDES and GEI MEXICO.
- There are no rules on industrial energy efficiency due to the lack of basic information.
- CFE it is very transparent and provides good access to information. The problem is related to accessing up to date information.
- The law on the RETC forbids publication of information related to energy consumption by industry.
- Centro Mario Molina is working on an energy code for buildings. It is also working on norms for vehicle emissions.

Interview at PEMEX

- PEMEX had an internal carbon market. No longer does.
- Is drafting the PEMEX Carbon Action Plan
 - Mitigation
 - Adaptation
 - Crosscutting issues
- Actively involved in Methane to Markets
- Believes that sooner or later there will be mandatory GHG regulation
- Possible direct mitigation actions:
 - Efficiency
 - Co-generation
 - Leaks
- Possible indirect mitigation actions:
 - Reducing product life cycle carbon footprint (in their product use)
 - Offsets
- Technology deployment (access to)
 - CCS
 - Biofuels (2nd and 3rd generations)
 - Renewable energy
- Has 3.8Mt in CDM pipeline
- Cross cutting issues
 - Carbon finance
 - CDM
 - Green funds
 - “Financiamientos Blandos” (low interest loans)
- Have a 1st draft of baseline by 2030 and study of costs of mitigation opportunities
- Centro Mario Molina is responsible for compiling action already implemented

- IMP does baseline through model LEAP (Long-range Energy Alternatives Planning System). This model is too expensive. At the end of the day, an excel version will be developed. Baseline based on planning modeling by SENER (Energy Ministry)
- McKinsey will come in at the end of the process to fine tune both the baseline and the costs.
- PEMEX has monthly CO₂ data for over 10 years. The data system is audited. PWC is currently doing so. CH₄ data is less reliable as it depends on gathering very detailed information, e.g. number of valves, etc..
- PEMEX recommends a study on best practices on MRV in oil companies. Include PEMEX together with European companies. Include oil companies from all the countries in the study. Share know how. Take into account initiative Methane to Markets.

Interview at CRE

- Program to exchange old refrigerators (via a low interest loan): target of 50k overshoot.
- National Energy Strategy to 2024: 35% of clean energy including hydro and nuclear. Current level of 22/23%.
- About 30% of electricity is generated by private companies, in particular using combined cycle gas power plants.
- The CFE investment program for the next 15 years includes large hydro, geothermal and up to 600MW of wind power.
- The problem with wind is that there is a need to build power lines to bring electricity from southeast Mexico to where there is demand.
- Law to promote renewable energy has been published in 2009
 - 1st regulation published in the meantime
 - Eliminates negative discrimination to renewable energy (namely due to cost) which existed. There, however, is no positive discrimination.

Interview at CONAFOR

- Deforestation rate: discrepancy between what government (300 000 h/year – 0,5%) and academia say (600 000 h/year – 1%). The discrepancy may be due to the fact that government talks about net deforestation and academia about Gross.
- Drivers: agriculture, livestock, mining, road construction, power lines
- Biofuels may constitute a new important driver, even though the official line is that biofuels will only be grown in agricultural soils.
- Support on monitoring soil use for production of biofuels.
- Mexico considered to be at the level of India and Brazil on forest monitoring.
- Support to establishment of local systems to monitor REDD. Build a system compatible at local, state and federal level.
- Proposes support to build capacity of local and state governments on REDD
- UK resources (USD300k), via WWF, to the Comité Técnico Consultivo de REDD (which provides recommendations to the working Group on REDD at the Interministerial CC Commission).
- Starting to design the National REDD Strategy
- RPP for WB: USD3.6M to develop strategy. Not enough as it requires engaging the population and solidifying monitoring.
- Come up with a system in which local communities are responsible for monitoring REDD, while in chain other verify and other report (local communities, municipal governments, state governments), up to the federal level.
- Establish a national REDD registry of emissions and removals, which would
 - Register a historic baseline
 - Register a projected baseline for 2020/2030/2050

- Register emissions/removals (namely from projects which could afterwards be sent to carbon markets)
- Support to monitoring carbon in the soil.

Interview at CFE

- Proposes to support building capacity in Mexican companies for verification of GHG emissions.
- The law on electricity dates back to 1937. The last reform took place in 1992 and stretched the constitution as far as possible. It created room for:
 - Independent producers
 - Self-supply
 - Co-generation.
- All electricity generated by private companies for public use (currently 30%) is delivered to CFE.
- Transmission and distribution is done by CFE.
- CFE's planning is regulated, contrary to PEMEX
- Planning is for 15 years: Programa de Obras e Inversiones del Sector Electrico (POISE). Adopted in 2009, valid up to 2024 (at CFE's website). Monitored and revised yearly.
- By 2012: 2500MW of renewable energy (excluding large hydro and nuclear). Currently 85MW are CFE's, while 350Mw are private (wind). CFE holds 1900MW of geothermal.
- The main barrier to renewable energy is article 36bis on the economic dispatch.
- Hydraulic index is also a barrier to full deployment of renewable energy.
- There is no kind of benefit or feed-in tariff for renewable (no positive incentive). There is flexibility for the connection contracts and reduction costs of "porteo".
- Planning capacity is within CFE. Some work done by Universities.
- All info from monitoring is retro-fed to planning.
- 13 CDM projects in the pipeline
- Reduction potential of 13MtCO₂ up to 2012 (included in PECC), most of it from energy efficiency in production.
- Support to the creation of an ESCO, which could be the basis for a NAMA: energy efficiency in public buildings via an ESCO.
- Support CB at CFE at the operational level
- Support for a feasibility study of the PECC in the electricity sector
- Support CB for the creation of instruments related to the National Electric Sector CC Program.

Meeting with ABT/CCAP

- CCAP is working for USAID on a project related to designing NAMAs and defining MRV for such NAMAs. Results are to be expected by mid-fall.
- Work is to be focused on cement and steel
- SEMARNAT is the focal point for this project
- Project will develop recommendations on activities, which could also include recommendation on which activities could be done with internal effort only and which could be implemented with international support, post 2012. Ideally, these activities could be considered/shaped as NAMAs, which SEMARNAT would submit to the UNFCCC.
- CCAP has signed confidentiality agreements with the sectors.
- CCAP is also working on forestry in Chiapas: scaling up local activities; also working on NAMAs in the transport sector and a comprehensive low carbon transportation system.
- Involved in CB with the WB. Lessons learned from work on NAMAs. 3 workshops. Mid-July in Costa Rica, with Mexico and 5 or 5 more countries. African and Asian countries to be decided.

- Abt with USAID is developing a software to monitor the PECC (with SEMARNAT). Something to be ready by COP-16.

6.2 Report on the Stakeholder Consultation Workshop

(This information is presented in Spanish as it has been prepared in the language of the stakeholders, to facilitate their engagement)

6.2.1 Agenda

Taller sobre el "Proyecto Monitoreo y Reporte de Emisiones de Gases de Efecto Invernadero (GEI), Medidas y Políticas de Mitigación en Países en Desarrollo"

Ciudad de México, 14 de Julio del 2010

Introducción y Alcance

La Comisión Europea está realizando un estudio de alcance dirigido a comprender y explorar las necesidades de los países en desarrollo, para implementar medidas que permitan la medición, reporte y verificación (MRV) de actividades relacionadas a la mitigación de emisiones de gases de efecto invernadero (GEI) como las comunicaciones nacionales, los inventarios de GEI, y la planificación, diseño, desarrollo, implementación y evaluación de las medidas de mitigación apropiadas para cada país (NAMAs, por sus siglas en inglés) y Estrategias de Desarrollo Bajas en Carbono (LEDS, por sus siglas en inglés). La Comisión Europea, está particularmente interesada en entender las necesidades relacionadas con la creación de capacidades en estas áreas.

El proyecto, ejecutado por Euroconsult Mott MacDonald con Ecoprogresso y el Centro de Investigación de Energía de los Países Bajos (ECN), hará recomendaciones concretas sobre la estructura y los elementos para un programa de capacitación a ser ejecutado entre el 2010 y el 2013-2014, con el fin de ayudar a los países en desarrollo en la implementación de un sistema de MRV para un acuerdo global sobre cambio climático en el futuro. Este programa de capacitación será diseñado sobre la base y con el fin de abordar cuestiones institucionales, de procedimiento y metodológicas, en particular con respecto a la recopilación de datos, barreras, necesidades, limitaciones y oportunidades, identificadas en este estudio de alcance, a través de un proceso interactivo e intensivo de consulta con los grupos de interés en el país.

Objetivos del Taller

Este taller es una parte fundamental de la metodología del proyecto que además, se compone de una audiencia de todos los grupos de interés del sector público, privado y de la sociedad civil.

El objetivo del taller es:

- Informar a los participantes sobre los resultados preliminares del estudio y recibir sus comentarios.
- Recolectar mayor información para el estudio.
- Identificar áreas potenciales de trabajo que se abordarán en un proyecto de construcción de capacidades

Metodología

El taller se dividirá en dos componentes principales. Durante la mañana, el debate se centrará en las políticas relacionadas a los logros alcanzados y especialmente a las barreras en relación con la planificación, el diseño, la implementación, la evaluación y el MRV de las acciones y estrategias de mitigación. Se tendrá un espacio de preguntas y respuestas.

En la sesión de la tarde, los participantes serán invitados a reunirse en una Mesa Redonda dedicada a la discusión de los temas siguientes:

- Inventarios, Comunicaciones Nacionales
- NAMAs: Diseño, Implementación y MRV
- Sector Energético
- Sector Forestal



Taller MRV AGENDA

8:00 – 8:30	Inscripción de los participantes
SESIÓN DE APERTURA	
8:30 – 9:00	Palabras de bienvenida <i>Marie-Anne Coninx, Jefa de la Delegación de la Unión Europea en Mexico</i> <i>Dr. Fernando Tudela Subsecretario Planeación y Fomento Ambiental, SEMARNAT</i>
9:05 – 9:15	Metodología y Objetivos del Taller <i>Edmundo de Alba, Consultor Nacional del Proyecto</i>
9:15 – 9:40	Actividades de Mitigación en Curso y Sistemas de Información y Monitoreo en México <i>Juan Mata - SEMARNAT</i>
9:40 – 10:20	Medidas Nacionales de Mitigación y Sistemas de Monitoreo, Reporte y Verificación: Perspectiva de la Unión Europea <i>Erasmia Kitou, Comisión Europea</i>
10:20 – 10:40	Preguntas
10:40 – 10:55	PAUSA DE CAFE
El Proyecto de MRV en México e otros 4 países	
10:55 – 11:20	Estudio de Alcance para el Proyecto Monitoreo y Reporte de Emisiones de Gases de Efecto Invernadero (GEI), Medidas y Políticas de Mitigación en Países en Desarrollo - Principales Resultados en México <i>Gonçalo Cavalheiro, Consultor de la Comisión Europea</i>
CIRCUNSTANCIAS NACIONALES	
11:20 – 11:45	Curva de costes de mitigación del cambio climático en México <i>Rigoberto García, INE</i>
11:45 -12:05	El sector forestal en la 4ª Comunicación Nacional <i>Aquileo Guzman, INE</i>
12:05 – 12:30	Oportunidades en el sector empresarial <i>Alejandro Lorea CESPEDES</i>
12:30 – 14:00	ALMUERZO
MESA REDONDA	
14:00 – 16:00	Oportunidades de cooperación en materia de NAMAs y MRV <i>Moderador: Roberto Cabral</i>
16:00 – 16:20	PAUSA DE CAFE (20 min)
16:20 – 16:50	Continuación y conclusiones de la mesa redonda
16:50 – 17:00	Clausura

6.3 Workshop Report Shared with Stakeholders

Reporte del Taller sobre MEDICIÓN, REPORTE Y VERIFICACIÓN (MRV)

Ciudad México, 14 Julio del 2010

Objetivos del Taller

Los objetivos del taller fueron:

- Socializar y validar los resultados preliminares del estudio, productos de la investigación y las entrevistas con interesados realizadas previamente.
- Recopilar mayor información que permita completar el estudio de barreras, carencias y recomendaciones para el fortalecimiento de capacidades para el MRV de emisiones de GEI y de medidas y políticas de mitigación.
- Identificar en México las áreas potenciales de trabajo cooperativo a ser abordadas por un proyecto de construcción de capacidades en MRV.

Metodología y secciones del Taller

La metodología del taller se enfocó en el cumplimiento de los objetivos y buscó combinar presentaciones informativas con sesiones de discusión e intercambio con todos los participantes. El taller se dividió en 3 secciones:

1. La **sesión de Apertura** que consistió en presentaciones introductorias sobre las expectativas de las instituciones anfitrionas (CE y SEMARNAT), la metodología y objetivos del taller, así como una explicación más amplia del proyecto en el cuál se enmarca. Esta sesión se centró en poner en contexto a los participantes mediante presentaciones y una sección para preguntas y respuestas.
2. La **sesión de Circunstancias Nacionales** se ocupó de brindar un panorama de logros alcanzados, acciones en marcha y especialmente barreras relacionadas con políticas y medidas de mitigación, así como los sistemas de información relacionados que contribuyen a su monitoreo y reporte.
3. La **sesión de Mesa Redonda** se desarrolló durante la tarde y tuvo como objetivo validar y complementar información en torno a iniciativas y oportunidades de cooperación para diseñar e implementar medidas de mitigación y los sistemas de información relacionados a su monitoreo y evaluación.

Un total de 45 personas interesadas participaron en el Taller, representando al sector público, privado, social, académico y a países y organizaciones internacionales.

Desarrollo del Taller

SESIÓN DE APERTURA

Palabras de bienvenida

Marie-Anne Coninx, Jefa de la Delegación de la Unión Europea en México

La Embajadora destacó la natural alianza entre México y la Unión Europea en la lucha internacional contra el cambio climático, del que este proyecto es una clara muestra. Destacó los avances en la Ruta de Bali, la importancia del Acuerdo de Copenhague (apoyado por ambas partes) y la oferta Europea para poner a disposición de los países en desarrollo 2400 millones de Euros para acciones rápidas hasta el año 2012. Asimismo destacó la excelente preparación que se lleva a cabo para la COP de Cancún, en donde espera resultados concretos.

Fernando Tudela, Subsecretario de Planeación y Política Ambiental, SEMARNAT

El Subsecretario hizo notar la voluntad de las altas autoridades nacionales para lograr un resultado exitoso en la reunión de Cancún, donde se espera una continuación del liderazgo de la Unión Europea, que coincide con el interés y posiciones de México.

Consideró que un aspecto fundamental es lograr acuerdos en Cancún sobre el MRV. El monitoreo es el menos contencioso de sus aspectos, al permitir medir la eficacia de políticas y acciones de mitigación. Mencionó los avances en la actividad de Reporte, donde México ya ha presentado su Cuarta Comunicación Nacional y relató que el PECC presenta un informe cada 2 meses, aunque consideró que las Comunicaciones de los países no son usadas con la profundidad que merecen. El aspecto más controversial del MRV es la Verificación, no existiendo desacuerdos para las acciones que reciben apoyo internacional, sin embargo las domesticas se consideran por algunos países como parte de su soberanía. Ello no es una preocupación para México.

Hizo notar que no sería una sorpresa si México es considerado como uno de los países en desarrollo con mayor capacidad para implementar el MRV, aunque ello no implica que disminuya su voluntad de cooperar internacionalmente en el tema, para consolidar y difundir las mejores prácticas.

Una de las próximas reuniones informales que México convoca en el camino a Cancún estará dedicada al MRV.

Metodología y Objetivos del Taller

Edmundo de Alba, Consultor Nacional del proyecto

Explicó que el taller se dividiría en dos componentes principales, tal como se presenta en la sección III del presente informe. Sobre el objetivo, indicó que el trabajo serviría para que la cooperación de la Unión Europea pueda aportar un valor agregado al trabajo nacional. Resaltó que los documentos entregados como insumo al taller eran preliminares y serían sujetos de discusión para ser mejorados, ya que fueron el resultado de una primera aproximación con diversas instituciones interesadas.

Medidas Nacionales de Mitigación y Sistemas de Monitoreo, Reporte y Verificación: Perspectiva de la Unión Europea

Erasmia Kitou, Comisión Europea

La exposición estuvo centrada en cuatro temas: 1) El marco internacional de cambio climático; 2) La experiencia de la Unión Europea y algunas lecciones aprendidas; 3) Las bondades de implementar sistemas de monitoreo, registro y verificación (MRV) en los planes de mitigación; y 4) Los beneficios que

podría traer a México el desarrollar planes de mitigación y monitorear sus avances.

Hizo notar que el MRV es para todos los países, incluyendo el apoyado internacionalmente, y es indispensable para dar seguimiento al objetivo de acotar en 2°C el aumento de la temperatura global.

Las principales conclusiones que se derivan de la presentación, son las siguientes:

- 1) La planeación de bajo carbono y el MRV son partes de un mismo ciclo y están interrelacionadas
- 2) Implementar un sistema MRV de un plan o de una política de mitigación como parte de un esfuerzo global, permite: construir confianza entre países; contar con un seguimiento del desempeño en relación a una meta de mitigación global y permite ajustar o incrementar acciones en la medida en que sea necesario; reconocer las acciones que los países están haciendo en el mundo en términos cuantitativos; hacer mejores evaluaciones sobre las necesidades de apoyo y de provisión de los recursos necesarios, e intercambiar lecciones aprendidas y buenas prácticas que permitan mejoras en los procesos.
- 3) La implementación de iniciativas de mitigación y sistemas MRV permitió a la Unión Europea: cumplir con los compromisos establecidos en el tiempo adecuado; identificar áreas de mejora y contar con información cuantitativa para formular mejores políticas; generar nuevas inversiones y flujos financieros; así como co-beneficios en seguridad energética, creación de empleos y salud pública, y plantear un mejor plan y metas para la Segunda Fase de Cumplimiento del PK, por contar con información cuantitativa;
- 4) Para México, el desarrollo de Planes de Mitigación y el establecimiento de un sistema para monitorearlos, reportarlos y verificarlos, permitirá atraer nuevas inversiones y participar del mercado de carbono; ser más costo eficientes, pues permitiría integrar acciones y por tanto ahorrar recursos; implementar mejores políticas, pues las mismas serían formuladas, implementadas y modificadas en base a adecuada información cuantitativa disponible, y contabilizar las reducciones de emisiones o emisiones evitadas y mostrarlas globalmente, de manera veraz y confiable. Asimismo, se mostraría la contribución del país al mundo en términos de mitigación y el potencial para desarrollar LEDs (inversiones, mecanismos REDD y mercado de carbono, etc.)

La presentación completa se encuentra disponible en:

http://dl.dropbox.com/u/9894409/Workshop%20Mexico/20100714_EKA3%20MRV%20Mexico.ppt
http://dl.dropbox.com/u/8638536/Taller_MRV_presentaciones/2_20100622_EKA3_MRV_Peru.ppt

Estudio para el Proyecto “Monitoreo y Reporte de Emisiones de Gases de Efecto Invernadero Medidas y Políticas de Mitigación en Países en Desarrollo” - Principales Resultados en México.

Gonçalo Cavalheiro, Consultor de la Comisión Europea

La presentación buscó informar a los participantes sobre el contexto internacional en el que se desenvuelve el proyecto, los objetivos del proyecto en sí y, especialmente, los avances logrados en el trabajo hecho con México hasta el momento. En términos generales explicó que, a través de 2 misiones; más de 15 entrevistas interesados del gobierno, de la sociedad civil, del sector privado y de la academia y, el presente taller, se busca identificar acciones prioritarias para afrontar carencias y barreras de MRV para la mitigación en el País y dar recomendaciones de apoyo a la Unión Europea para un potencial programa de fortalecimiento de capacidades.

Sobre los principales hallazgos mencionó que se ha encontrado, por un lado, que México está altamente desarrollado en su capacidad y preparación para planear, diseñar, instrumentar y dar seguimiento a las políticas y medidas de mitigación de emisiones de GEIs, y por otro que debido a varios estudios sobre oportunidades y costos económicos y planeación climática, incluyendo metas a corto medio y largo plazos, así como a medidas para reducción de emisiones, México se encuentra al frente en la lucha contra el cambio climático.

Se hizo notar que la cooperación con México puede hacerse en tres líneas:

- Cuestiones transversales: Inventarios; Comunicaciones Nacionales, y diseño, instrumentación y MRV

de NAMAs.

- Energía
- Sector forestal

La presentación completa se encuentra disponible en:

http://dl.dropbox.com/u/9894409/Workshop%20Mexico/1%20GoncaloCavalheiro_Mexico.ppt

CIRCUNSTANCIAS NACIONALES

Actividades de Mitigación en curso y Sistemas de Información y Monitoreo en México

Juan Mata, SEMARNAT

El ponente enfocó su presentación en tres aspectos:

- El cálculo de la línea base como herramienta clave para la definición y evaluación de políticas ambientales en materia de cambio climático.
- Los avances en mitigación del PECC
- Evaluación y Seguimiento del PECC

La línea base original del PECC fue calculada con el apoyo de CMM, McKinsey y de Climate Works, algunos datos del “Environmental Outlook” de la OCDE fueron de utilidad. Se ha hecho una revisión de la línea base original del PECC, mediante:

- El uso de las guías del IPCC para construir árboles de cálculo identificando variables clave, construyendo las emisiones por sector, considerando los datos del INEGI y las prospectivas sectoriales disponibles y
- La utilización de las fuentes de información nacionales para proyectar las variables críticas de cada sector, tales como las prospectivas de SENER, SEDESOL, INEGI, CONAPO, SAGARPA (SIACON y SIAP) y CONAFOR

La línea revisada presenta poca diferencia en las emisiones globales, pero a nivel sectorial se encuentran algunas diferencias significativas.

Se hizo notar que las medidas del PECC, a indicación del Presidente, están siendo monitoreadas y reportadas cada dos meses en áreas como agricultura y forestal. Otras áreas como el desarrollo de fuentes alternas, por su naturaleza, no requieren un monitoreo tan frecuente. El monitoreo es responsabilidad de cada una de las Secretarías involucradas, las que envían sus datos a SEMARNAT para su concentración y armonización con metodologías previamente convenidas. Se están revisando los factores de emisión del sector eléctrico por su importancia, especialmente en el cálculo de emisiones evitadas por renovables.

Se espera que próximamente se logre su verificación y certificación, incluso con apoyo internacional.

Se destacaron como áreas para el trabajo futuro las siguientes:

- Metodologías
- Verificación y certificación
- Líneas base y escenarios

La presentación completa se encuentra disponible en:

<http://dl.dropbox.com/u/9894409/Workshop%20Mexico/Avances%20PECC%202ndo%20bimestre%20MRV%20UE%20140710.pdf>

Curva de Costos de Mitigación del Cambio Climático en México

Rigoberto Garcia, INE

Hizo notar que conocer el costo económico estimado es útil para alcanzar un “desarrollo de bajo carbón” y representa un instrumento para evitar barreras en la toma de decisiones (políticas, legales, tecnológicas,

económicas, financieras y culturales). La curva de costos no trata con un modelo determinista, sino sólo indicativo de las diferentes estrategias de mitigación en un horizonte temporal determinado (corto, mediano o largo plazo).

Para ello la secuencia a seguir es la siguiente:

- Desarrollo de la línea base
- Curva de costos de abatimiento
- Barreras a la implementación
- Plan de acción

La presentación completa se encuentra disponible en:

<http://dl.dropbox.com/u/9894409/Workshop%20Mexico/2%20Presentaci%C3%B3n%20Comisi%C3%B3n%20Europea.pptx>

El Sector Forestal en la 4ª Comunicación Nacional

Aquileo Guzman, INE

Hizo notar que en la Comunicación Nacional se reportan las acciones recientes en materia de

- Reforestación
- Conservación y restauración de suelos forestales
- Diagnóstico y tratamiento fitosanitario

Durante los años 2007 y 2008, ProÁrbol (el Programa más importante para mantener las reservas de carbono) apoyó los trabajos de diagnóstico y tratamiento fitosanitario en una superficie de 1.4 y 1.1 millones de ha, respectivamente. Estas acciones han permitido mantener bajo control a las plagas y enfermedades forestales que afectan la salud y vitalidad de los ecosistemas forestales.

Con apoyo del Banco Mundial, se dio inicio al proceso para el desarrollo de un Plan Nacional para REDD, bajo una Estrategia Nacional de Reducción de Emisiones por Deforestación y Degradación.

Se hizo notar que el inventario de USCUS es el más complejo y costoso de los inventarios sectoriales. Asimismo señaló áreas de oportunidad para una potencial cooperación en el tema.

El ponente notó que en un estudio de costos de mitigación realizado con el apoyo del Banco Mundial (MEDEC), el escenario implica que las emisiones USCUS en México serían negativas en el año 2030, es decir, México se convertiría en un sumidero neto en términos de USCUS.

La presentación completa se encuentra disponible en:

<http://dl.dropbox.com/u/9894409/Workshop%20Mexico/3%20Presentacion%20INE%20-%20Seminario%20MRV%20%2814%20JUL%2010%29.ppt>

Oportunidades en el sector empresarial

Rosa Jiménez, CESPEDS

Afirmó que México necesita crecer y desarrollarse, reconociendo la relevancia del fenómeno del Cambio Climático. Hizo notar que desde hace más de 10 años, el sector empresarial privado mexicano ha participado en diversas acciones relacionadas con el cambio climático.

- Programa voluntario en coordinación con SEMARNAT para generar inventarios empresariales de emisiones de gases de efecto invernadero (Programa GEI México).
- Estudios integrales de cambio climático para sectores intensivos en uso de energía.
- Participación en diversas instancias tanto nacionales como internacionales.

Explicó el Programa GEI México, sus alcances actuales y los planes futuros. Hizo notar la urgente necesidad de una más amplia reforma al sector energético y anunció que se trabaja en la revisión de "La Visión del Sector Empresarial sobre cambio Climático", a ser presentada en la COP de Cancún donde se

expresaran los puntos de vista del sector privado ante la negociación internacional.

La presentación completa se encuentra disponible en:

http://dl.dropbox.com/u/9894409/Workshop%20Mexico/4%20Presentacion%20CESPEDES_MRV%20140710.ppt

El Sector Energético

Katia Hernandez, SENER

Presentó las bases del sector energético:

- Operación segura, eficiente y sustentable del sector energético
- Aprovechamiento sustentable de la energía, desde la producción hasta el consumo
- Investigación y desarrollo de tecnologías limpias
- Diversificación de la matriz energética

Entre los ejes rectores del sector presentó:

- La diversificación de fuentes;
- El incremento de la eficiencia en el consumo, y
- La disminución del impacto ambiental

La presentación completa se encuentra disponible en:

http://dl.dropbox.com/u/9894409/Workshop%20Mexico/5%20KATIA_HERNANDES_SENER.pptx

RESULTADOS DE LA MESA REDONDA SOBRE PLANES DE MITIGACIÓN Y SISTEMAS DE INFORMACIÓN: OPORTUNIDADES Y BARRERAS

Durante la tarde, los asistentes al taller fueron invitados a participar en una Mesa Redonda para considerar, comentar y ampliar las propuestas de oportunidades de cooperación detectadas en la etapa previa del proyecto. El intercambio fue ágil y abundante, con la participación de todos los presentes, presentándose un alto número de sugerencias que enriquecieron el documento considerado.

El moderador, Roberto Cabral (de SEMARNAT, punto focal del proyecto en México), anunció que los comentarios y nuevas propuestas serán distribuidos a todos los asistentes, para dar una oportunidad oficial a que contribuyan a la identificación de las prioridades que se incorporarán para su consideración dentro del Programa de Cooperación en MRV con la Unión Europea y con otros interesados internacionales.

Los comentarios generales más sobresalientes se enlistan enseguida, mientras que los específicos a los puntos concretos del Memorándum presentado a la consideración de la Mesa Redonda, se incorporan y presentan en el cuadro general de Oportunidades de Cooperación que acompaña a esta sección.

Comentarios Generales

- Se hizo notar la existencia de otras metodologías que guían inventarios y factores de emisión adicionales a los del IPCC, los del “Greenhouse Gas Protocol” y la norma ISO 14064-1. Asimismo, se hicieron notar las metodologías para la estimación de reducción de emisiones en el sector eléctrico.
- Se propuso que los factores de emisión (y otros parámetros clave) se pongan a disposición pública para los interesados.
- Se propuso que el Inventario de emisiones se incorpore y sea compatible con el Registro de Contaminantes (RETC), actualmente en vigor para otras sustancias.

- Se propuso que las prioridades tomen en cuenta el nivel absoluto de emisión del asunto considerado y su ritmo de crecimiento.
- Se mencionó la actividad con el PNUD para la creación y desarrollo de capacidades de monitoreo del PECC en las entidades proveedoras de datos.
- Se propuso la creación de bases de datos al nivel estatal, compatibles con el nacional.

El ejercicio de este proyecto, incluido el Taller, se orientó principalmente a la detección de las brechas, barreras y necesidades del proceso Mexicano conducente al reforzamiento de las capacidades para realizar los Inventarios de emisiones de GEIs y las Comunicaciones Nacionales a la CMNUCC, y definir, diseñar, implementar y MRV de NAMAs. Se dio prioridad a los sectores de Energía y Forestal.

A pesar del desarrollo ya logrado en México para realizar Inventarios y Comunicaciones Nacionales, es aún necesaria una mayor institucionalización de los mecanismos de recopilación, verificación y análisis de los datos, en cada sector y aún en cada institución relevante, de forma que la recopilación institucional sea sistemática y permita tener inventarios y reportes de calidad cada dos años. Se definieron durante el proyecto, seis actividades de cooperación entre México y la Unión Europea con este propósito, destacando las actividades de aseguramiento de la calidad, factores de emisión nacionales, sistemas de manejo de datos y el perfeccionamiento metodológico de los inventarios.

Al estar las NAMAs en el período de negociación internacional, el proyecto detectó las capacidades potenciales y oportunidades de cooperación para la pronta preparación Mexicana para la detección, diseño, implementación y MRV de NAMAs. Se cubrieron las necesidades de los sectores público y privado, así como las de reforzamiento de los órdenes de gobierno federal y estatal, incluyendo estudios y formación de personal. Se definieron sectores y acciones prioritarios a través de 9 proyectos de cooperación.

En el sector energético, se definieron ocho proyectos de cooperación, tanto de aplicación general como los que involucran a las empresas energéticas nacionales, se establecieron prioridades sectoriales cubriendo aspectos: de captación de datos; cogeneración y renovables; eficiencia y ESCOs; CSC, y biocombustibles.

Seis actividades fueron propuestas para la cooperación en materia forestal, abarcando tanto las entidades de la administración pública involucradas en el problema, como el sector privado y comunidades académicas y forestales locales. Destacan los requerimientos metodológicos, los estudios de carbono, proyectos piloto y el desarrollo de las capacidades para MRV en el sector forestal.

Un total de 29 proyectos específicos de cooperación han sido el resultado del ejercicio.

A continuación se presenta una tabla resumen de la amplia lluvia de ideas sobre las oportunidades específicas y los criterios de priorización para las actividades de cooperación en las áreas de: Inventarios y Comunicaciones Nacionales; NAMAs, Energía y Forestal. Todas ellas fueron recogidas tanto en las entrevistas previas como en el Taller:

Inventarios, Comunicaciones Nacionales

Propuestas de cooperación	Acciones potenciales concretas	Otras recomendaciones de los participantes	Interesados Principales	Apreciación de costo
1. Desarrollar capacidades en los niveles local, estatal, nacional, sectorial, privado y académico para la utilización de la metodología 2006 del IPCC para los inventarios.	Taller con expertos clave del IPCC en la material.	Buscar la convergencia con la metodología del Programa GEI México	Todas las entidades interesadas en inventarios de GEIs	
2. Perfeccionar el proceso de garantía de calidad y consistencia de la información que se usa para producir los inventarios en todos los sectores y todos los estados.	Intercambio de experiencias sobre mejores prácticas, mediante talleres con todos los interesados	Algunos sectores requieren de la estrecha colaboración con el sector privado, por ejemplo, transporte, sectores comercial y residencial y sustitución de sustancias fluoradas.	Todas las entidades interesadas en inventarios de GEIs	
3. Dar apoyo a la mejoría en la definición de factores de emisión más apropiados nacionalmente, especialmente para: <ul style="list-style-type: none"> – Sitios no-técnicos de disposición de desechos – Tratamiento de aguas residuales urbanas – Emisiones fugitivas de gas natural – Producción, transformación y transporte de petróleo, gas y derivados – Flota vehicular de grandes ciudades – Uso del suelo y silvicultura – Agricultura y ganadería – Producción y consumo de gases fluorados 	Intercambio de experiencias vía talleres e investigaciones conjuntas	Todas las áreas mencionadas fueron consideradas de importancia por los participantes.	SEMARNAT considera esta actividad como alta prioridad.	
4. Disminuir incertidumbres en el sector energético profundizando sobre las diferencias entre los métodos de referencia y sectorial.	Revisión entre pares con expertos de los Grupos de Revisión de la CMNUCC	Incluir intercambios de experiencia con SENER sobre nuevas metodologías para estimar los factores de emisión relacionados a la eficiencia energética	INE, SENER, CONUEE, industria de alto consumo energético	
5. Apoyar el cambio del Sistema Nacional de Inventarios del actual lenguaje Excel a un lenguaje más poderoso y apropiado, replicable a nivel estatal y con facilidades para el acceso a los datos por el público en general.	Intercambio de conocimientos con países europeos donde se encuentren ese tipo de sistemas. Acceso a la tecnología (software) y apoyo técnico	Facilitar la sistemática puesta al día de los inventarios nacional y estatales. Conectarlo con el sistema de monitoreo del PECC	INE, SEMARNAT y Estados	

Propuestas de cooperación	Acciones potenciales concretas	Otras recomendaciones de los participantes	Interesados Principales	Apreciación de costo
6. Reforzar la capacidad del personal de los Estados de la República para la elaboración de inventarios de emisiones de GEI, incluyendo el de universidades locales.	Apoyar la continuación de las actividades del INE en la creación de capacidades a nivel estatal, mediante cursos en línea.	Los Estados con esfuerzos incipientes de inventario deben ser prioridad.		

NAMAs: Diseño, Implementación y MRV

Propuestas de cooperación	Acciones potenciales concretas	Otras recomendaciones de los participantes	Interesados Principales	Apreciación de costo
7. Cooperación México UE para lograr consensos internacionales en la definición apropiada de los NAMAs	Mediante propuestas consensadas a la negociación		SRE, SEMARNAT, CICC	
8. Impulsar el dialogo entre sectores económicos clave sobre retos y oportunidades en relación con NAMAs y MRV. Incluir información clave para la toma de decisiones.	Intercambio de experiencias con UE mediante talleres.	Incluir: Generación de energía, petróleo y gas, acero y cemento. Además, eficiencia energética, desechos, transporte, USCUS.	Entidades interesadas.	
9. Incrementar el conocimiento sobre la relación entre competitividad y mitigación y aprovechar la experiencia europea en fugas de carbono en sectores económicos críticos.	Estudio sobre la relación entre competitividad y fugas de carbono en sectores económicos críticos.	Sectores prioritarios: generación de electricidad, eficiencia energética, transporte, forestal y residuos. Incluir niveles macro y sectorial		
10. Diseñar un NAMA prototipo sobre oportunidades para la reducción de emisiones en el desarrollo de grandes complejos de edificios urbanos, incluyendo la definición de líneas base, mecanismos e instrumentos, y un sistema de MRV.	Intercambio de experiencias con la UE mediante talleres. Incluyendo la definición de necesidades de investigación sobre la reducción de emisiones en grandes complejos urbanos	Revisar y aprovechar los estudios y programas actuales de CONAVI, SEDESOL, INE, INFONAVIT y la norma del CMM. Dar prioridad a ciudades medias.	CONAVI, SEDESOL INE, INFONAVIT y la norma del CMM	
11. Incrementar la capacidad del sector privado para monitorear, reportar y verificar emisiones de GEIs, incluyendo para reducciones.	Apoyar el desarrollo de la Iniciativa GEI México	Apoyar a GEI México en la actividad de definir medidas de reducción de emisiones.	CESPEDES y participantes en la Iniciativa GEI México.	
12. Desarrollo de la capacidad nacional de verificación y certificación.	Organizar contactos entre organizaciones mexicanas y europeas	Intercambiar experiencias sobre la capacidad Europea para el sistema EU ETS.	EMA y otras entidades	

Propuestas de cooperación	Acciones potenciales concretas	Otras recomendaciones de los participantes	Interesados Principales	Apreciación de costo
	interesadas.			
13. Mejorar el entendimiento de las barreras sociales, económicas y especialmente legales a la reducción de emisiones. Aprovechar la experiencia de la UE.	Estudio para identificar y analizar barreras en México. Intercambio de experiencias con UE mediante talleres.	Intercambio de experiencias sobre valuación de costos y de potenciales de mitigación en sectores y actividades clave.	Entidades públicas y privadas interesadas	
14. En los Estados de la República, reforzar la capacidad del personal involucrado en la elaboración de Inventarios y Planes Estatales de Cambio Climático, incluyendo personal académico de las universidades locales.	Apoyar la continuación de las actividades del INE en la creación de capacidades a nivel estatal, mediante cursos en línea.	Los Estados con esfuerzos incipientes de planeación deben ser prioridad.		

Sector Energía

Propuestas de cooperación	Acciones potenciales concretas	Otras recomendaciones de los participantes	Interesados Principales	Apreciación de costo
15. Revisión de la metodología utilizada y el control de calidad de la base de datos de SENER	Intercambio de expertos, para compartir experiencias al efecto.		SENER	
16. Estudiar barreras y rutas de implementación para el aprovechamiento del potencial de cogeneración en el País	Estudio conducido en sociedad entre CFE, CRE y similares Europeos.	Extensión y profundización operativa del estudio sobre cogeneración potencial en México recientemente realizado.	SENER, CONUEE, PEMEX, CFE y otras industrias intensivas en energía	
17. Compartir mejores prácticas sobre MRV entre compañías petroleras,	Estudio a ser conducido en sociedad entre PEMEX y compañías petroleras Europeas sobre MRV.		PEMEX	
18. Incrementar el papel potencial de las ESCOs en México en materia de eficiencia energética	Facilitar la creación de una ESCO mediante cooperación entre el sector privado Europeo y Mexicano.	Involucrar instituciones financieras. Propiciar un seminario entre interesados de ambas Partes.	CESPEDES, CONUEE, empresas de consultoría.	
19. Apoyar la mayor introducción de Redes Inteligentes en México.	Establecer una Iniciativa Mexicano-Europea sobre Redes Inteligentes, incluyendo la transferencia de conocimiento, tecnología y la creación de	Ampliar los esfuerzos hechos por México y otros socios.	CFE, CRE	

Propuestas de cooperación	Acciones concretas	potenciales	Otras recomendaciones de los participantes	Interesados Principales	Apreciación de costo
20. Profundizar en el entendimiento sobre los problemas relacionados a la producción y uso de biocombustibles de 2a y 3a generación.	Construir un diálogo entre Europa y entidades mexicanas como la Comisión de Bioenergía, PEMEX, SENER, SEMARNAT e INE		Se propuso incluir también biocombustibles de 1a generación		
21. Alcanzar el mayor potencial posible de la Captura y Secuestro de Carbono.	Levar a cabo un estudio sobre el potencial y las barreras al CSC en México.		Complementar el estudio conducido por el Centro Mario Molina, CFE and PEMEX.	SENER, Centro Mario Molina, CFE and PEMEX	
22. Elaborar un mapa del potencial de las energías renovables en México y analizar las barreras para su desarrollo.	Estudios cooperativos sobre la factibilidad económica y técnica del uso de las fuentes renovables			CFE, GTZ, CFE, CRE, instituciones de investigación y diversos interesados	

Sector Forestal

Propuestas de cooperación	Acciones concretas	potenciales	Otras recomendaciones de los participantes	Interesados Principales	Apreciación de costo
23. Apoyar el desarrollo de metodologías para líneas base de deforestación evitada en las escalas de proyecto, región y país.	Complementar el estudio hecho por CONAFOR y FAO		Considerarlo alta prioridad	CONAFOR y Comunidades Forestales	
24. Apoyar el establecimiento de sistemas de monitoreo de REDD, compatibles entre los niveles locales estatales y nacional			CONAFOR, Subsecretaría de Planeación-SEMARNAT, INEGI, Dirección de Inventarios INE, Instituciones Académicas, Grupo de Trabajo del REDD, Comité Consultivo (CTC).		
25. Apoyar la identificación, elaboración y desarrollo de proyectos piloto de REDD+ en diferentes Estados y ecosistemas, incluyendo su monitoreo y verificación.					
26. Apoyar el establecimiento de un registro nacional de proyectos REDD			CTC representa a ONGs y sector privado, comunidades locales forestales		
27. Apoyar el monitoreo de carbono en suelos.	Investigaciones conjuntas y diseño de sistema				
28. Apoyar el desarrollo de metodologías para asesar y MRV fugas de carbono en las iniciativas REDD.			Considerarlos de alta prioridad. Tomar en cuenta la presente		

cooperación con Noruega.

Incluir a la UE en el proyecto de
preparación de REDD con el
BM.

6.4 Lista de Participantes

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Nº	ORGANISMO	NOMBRE	CARGO	TELÉFONO	CORREO ELECTRONICO
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Glossary

C4	CICC`s Advisory Committee of Climate Change
CC	Climate Change
CCDS	Regional Committees for Sustainable Development
CCS	Carbon Capture and Sequestration
CMM	Mario Molina Center
CERs	Certified Emission Reductions
CESPEDES	Center for Studies for Sustainable Development of the Private Sector
CFE	Federal Commission of Electricity
CHP	Combined Heat and Power
CICC	Intersectoral Commission on Climate Change
CIECO-UNAM	Centro de Investigaciones en Ecosistemas
CMPL	Centro Mexicano para la Producción más Limpia
COLPOS	Postgraduated College (Agriculture)
COMEGEI	SEMARNAT`s office in charge of CDM projects
CONABIO	National Commission for Biodiversity
CONACYT	National Council of Science and Technology
CONAE	Former: National Commission for Energy Saving
CONUEE	Present: National Commission for Efficient Use of Energy
CONAFOR	National Forest Commission
CONAGO	Coordinating scheme of the Governors of the Mexican States
CONAGUA	Water National Commission
CONANP	National Commission of Natural Protected Areas
CRE	Federal Energy Regulatory Commission
D.F.	Federal District
ECLAC	Latin-American and Caribbean Economic Commission
ECOSUR	Colegio de la Frontera Sur
ENACC	National Strategy on Climate Change
EU	European Union
FIDE	Electric Energy Saving Fund
FONDEN	Fund for Natural Disasters
GDP	Gross Domestic Product
GHG	Greenhouse Gases
GJ	Gigajoules
GT-ADAPT	CICC, Working Group for impacts and adaptation
GT-INT	CICC, Working Group for Mexican international position

GT-PECC	CICC, Working Group for mitigation and integration of the Special Program
GTZ	German Technical Cooperation Agency
Ha.	Hectares
HENACC	Towards a National Strategy on Climate Change
IDB	Inter-American Development Bank
IEA	International Energy Agency
IIE	Instituto de Investigaciones Eléctricas
II-UNAM	Instituto de Ingeniería, UNAM
IMP	Mexican Petroleum Institute
INE	National Institute of Ecology
INEGI	National Institute of Statistic, Geography and Informatics
INIFAP	Instituto Nacional de Investigaciones Forestales, Agrícolas y Pecuarias
IPCC	International Panel for Climate Change
IPP	Independent Power Producers
IPR	Intellectual Property Rights
KJ	Kilojoules
LULUCF	Land Use, Land Use Change and Forestry
LyFC	Central Light and Power (dissolved)
MEDEC	Low Carbon Development for Mexico
MoU	Memorandum of Understanding
MRV	Monitoring, Reporting and Verification
MUSD	Million USA dollars
MW	Megawatts
NAMAs	Nationally Appropriate Mitigation Actions
OECD	Organization for Economic Cooperation and Development
OLADE	Latin-American Organization for Energy
PEACC	State Programs for Climate Change Action
PECC	Special Program for Climate Change
PEMEX	Mexican Oil Company
PJ	Petajoules
PK	Kyoto Protocol
REDD	Reducing Emissions from Deforestation and Forest Degradation
RETIC	Registro de Contaminantes – Pollutants Register
R&D	Research and Development

SAGARPA	Ministry of Agriculture, Livestock, Rural Development, Fisheries and Food
SCT	Ministry of Communications and Transport
SE	Ministry of Economy
SEDESOL	Ministry of Social Development
SEMARNAT	Ministry of Environment and Natural Resources
SENER	Ministry of Energy
SHCP	Ministry of Treasury and Public Credit
SRE	Ministry of Foreign Affairs
TAPs	Technology Action Plans
TWh	Terawatts-hour
UK	United Kingdom
UNAM	Autonomous National University of Mexico
UNFCCC	United Nations Framework Convention for Climate Change
USA	United States of America
USAID	United States Agency for International Development
USD	United States Dollars
USEPA	USA Environmental Protection Agency
WBCSD	World Business Council for Sustainable Development
WRI	World Resources Institute