

TOWARD MEXICO'S THIRD NATIONAL COMMUNICATION TO THE UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE – UNFCCC

Report on the Workshop held on November 19, 2004,
in the Miguel Álvarez del Toro Auditorium of SEMARNAT

Mexico City, December 7, 2004

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Acronyms

UNFCCC	United Nations Framework Convention on Climate Change
NC	National Communication
DGICURG	<i>General Directorate for Research into Urban, Regional and Global Pollution</i>
FUMEC	<i>Mexico-United States Science Foundation</i>
GEF	Global Environment Facility
GHG	Greenhouse Gases
GWP	Global Warming Potential
INE	<i>National Institute of Ecology (Mexico)</i>
IPCC	Intergovernmental Panel on Climate Change
CDM	Clean Development Mechanism
NGO	Non-Government Organization
ppm	parts per million
UNDP	United Nations Development Programme
SEMARNAT	<i>Secretariat of the Environment and Natural Resources</i>
UNAM	<i>National Autonomous University of Mexico</i>
UNFCCC	United Nations Framework Convention on Climate Change

GHG Greenhouse Gases

CH ₄	Methane
CO ₂	Carbon dioxide
HFC	Hydrofluorocarbons
N ₂ O	Nitrous oxide
SF ₆	Sulphur hexafluoride
PFC	Perfluorocarbons

I. Opening Plenary Session

Kyoto Protocol to go into effect on February 16, 2005

Figure 1: Press notice. Source: Milenio Diario. November 19, 2004. p. 44.

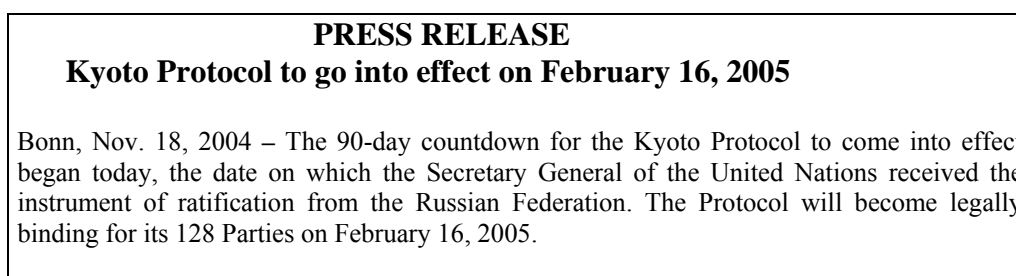


Figure 2: Official press release from the United Nations, Nov. 18, 2004. Source: <http://unfccc.int>

I.1. - Opening

The Workshop called “Toward Mexico's Third National Communication to the UNFCCC” was held on Friday, November 19, 2004, in the “Miguel Álvarez del Toro” Auditorium of the Under Secretariat for Management of Environmental Protection, in the facilities of the Secretariat of the Environment and Natural Resources (SEMARNAT).

The workshop organization committee was made up of the United Nations Development Programme (UNDP), the National Institute of Ecology (INE), and SEMARNAT.

In order to begin the workshop activities, the General Director of Research into Urban, Regional and Global Pollution of the INE, Dr. Adrian Fernandez Bremauntz, welcomed the more than sixty Workshop participants on behalf of the organization committee. The day was especially significant, given the announcement of the ratification of the Kyoto Protocol by Russia. With the delivery of this ratification, it was announced on November 18, 2004, in the headquarters of the United Nations, that the Kyoto Protocol would go into effect on February 16, 2005 (Figure 1 and Figure 2)

As members of the presidium, Dr. Fernando Tudela Abad, Under Secretary for Environmental Planning and Policy of SEMARNAT; Mr. Thierry Lemaesquier, Representative of the UNDP in Mexico; Dr. Adrian Fernandez Bremauntz, Director of the DGICURG of the INE; and Mr. Jonathan Ryan, UNDP-SEMARNAT liaison officer, were present.

For the opening ceremony, Dr. Tudela and Mr. Lemaesquier addressed the audience.

In his opening words, Dr. Tudela emphasized six main aspects to explain the context within which Mexico's Third National Communication is being prepared for the UNFCCC. These six aspects are the following:

1. The activation of the Kyoto Protocol and the need for a national climate change strategy

Russia's ratification was mentioned and the consequent activation of the Kyoto Protocol. In this regard, Dr. Tudela mentioned some of the efforts and activities carried out in Mexico, coordinated by SEMARNAT and INE, in the construction of a national climate change strategy. There were four main points: a) the preparation of the present workshop with a view to preparing the Third National Communication; b) the relationship with the Mario Molina Centre and the Metropolitan Autonomous University; c) the putting into effect of projects related to the Clean Development Mechanism (CDM); and d) the dissemination and development of capacities in the different sectors of society.

“The Kyoto Protocol is already activated following Russia's ratification, which clears the way for the effective implementation of the protocol.

SEMARNAT and INE promote activities intended to strengthen our country's capacity to respond to this commitment. This workshop and the efforts directed toward the preparation of Mexico's Third National Communication to the UNFCCC are located within this context. Revision of the national climate change strategy has begun. A first step is the contact already established with the Mario Molina Centre and with the Metropolitan Autonomous University so that these institutions can support the process that will permit a fine definition of a national climatic action strategy. Similarly, there are already 14 projects under way that are related to the Clean Development Mechanism - CDM -, related to article 12 of the Kyoto Protocol. In addition to this, a series of workshops in different cities (such as Monterrey, Jalapa and Puebla, among others) have been promoted so that the corporate sector and local authorities may become familiar with the topic of climate change and with the opportunities offered by the CDM. In this respect, the dissemination and development of capacities on the topic will be intensified through extracurricular programs and seminars in the academic and corporate environment.”

2. *Greenhouse Protocol*: better methodologies for estimating GHG emissions

Mention has already been made of Mexico's adherence to the "Greenhouse Protocol" initiative, developed and promoted by two important, well-known international institutions: the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD).

This initiative aims at developing accounting systems and standards for GHG (greenhouse gas) emissions to be accepted internationally. Together with their development, the initiative promotes their adoption and use by companies and organizations around the world.¹ To date, 12 companies around the world are already

¹ WBCSD (2004). “About the GHG protocol”.
<http://www.ghgprotocol.org/about.htm>

following the Greenhouse Protocol, and slightly more than 100 more companies are participating voluntarily in climate change initiatives.²

“As a government, there has been support for the Greenhouse Protocol, which is a methodology for measuring and monitoring greenhouse gas - GHG - emissions. This initiative, promoted by the World Resources Institute - WRI - and by the World Business Council on Sustainable Development - WBCSD - proposes a simpler, more acceptable methodology for the industrial sector focused on greenhouse gas emissions accounting. A pilot group of companies has been promoted in which monitoring exercises and emissions estimates will be carried out in order to encourage the implementation of this protocol for measuring and monitoring, and so that this tool can support the corporate strategies for emissions reduction.”

3. Incipient evaluation of carbon capture and climate change mitigation services

Emphasis was placed, under this heading, on the need to have promotion mechanisms in accordance with national conditions for the development of the national market for providing services in GHG emissions capture and reduction.

“At this moment we are witnessing the birth of the worldwide carbon market. However, the evaluation of carbon capture and climate change mitigation services that are offered in different activities and in relation to different natural resources, is still in its first stages. Promotion mechanisms are needed that would recognize our needs as a country, so that the national market for providing services in GHG emissions capture and reduction can be consolidated.”

4. Advances in scientific research and evidence recognized by the scientific community concerning the acceleration of climate change

The commentary focussed on the new scientific evidence generated at the world level regarding climate change. In this regard, emphasis was placed on the information provided for the preparation of the 4th international report of the Intergovernmental Panel on Climate Change (IPCC), the international effort to fix a limit on the concentration of CO₂ in the atmosphere, and on the opportunities generated by the mitigation efforts for countries such as Mexico.

“Preparation of the 4th report of the Intergovernmental Panel on Climate Change (IPCC) is under way. According to partial reports of the IPCC regarding this 4th report, which should be made known toward the end of next year, several scientific aspects are still under discussion; although data exist that indicate tendencies toward acceleration in the climate change process over the last few years (report by the Arctic working group).”

² WBCSD (2004). “Corporate GHG Accounting and Reporting”.
<http://www.ghgprotocol.org/standard/users.htm>

“Some sectors of the international community, such as the European Union (EU), have supported the adopting of 450 ppm of CO₂ as the limit concentration, in terms of an interpretation of article 2 of the Protocol. However, it is considered that a concentration of 450 ppm of CO₂ is now impossible to reach, given the current tendencies in the generation of CO₂ emissions and that, as a planet, we have missed our opportunity to reach this concentration.³ Possibilities of reaching the goal of 500 or 550 ppm are recognized; to the extent that this goal is higher, greater consequences related to climate change are also to be expected. On the other hand, emissions reduction commitments will cause enormous development opportunities, whether used or missed, in countries that, like Mexico, have a considerable potential for taking advantage of new areas for opportunity and for participating jointly in the worldwide effort toward climate change mitigation.”

5. Mexico's climate change responsibility and the preparation of the Third National Communication (NC)

Mexico's active participation in the preparation of the National Communications was emphasized by pointing out that it was the first country to present the Second National Communication to the UNFCCC, and that it is now seeking to be the first country to present the Third National Communication.

Mention was also made of the development of previous national GHG emissions inventories prepared for the years 1990, 1994, 1996 and 1998 - concerning their evolution, and regarding the need to prepare a methodologically serious and credible inventory, with the Third NC in mind, that would serve as a basis for establishing public policies.

“Mexico should do its job regarding climate change, which requires an effort in putting together information, strategies and measures at the national level. Activities are inserted into this task that are oriented toward the formulation of the Third National Communication - NC. In previous years, Mexico was the first Non-Annex 1 country to present its First NC to the Convention [UNFCCC]. We claim to be the first again to fulfil our duty with respect to the Third NC, for which the UNDP has given its support. The challenge is a great one in a context of a greater demand for quality in the information to be communicated, included in the National GHG Inventory, so that a very serious effort must be made methodologically. Fortunately, the country has a sequence and experience in drawing up inventories, and with the First and Second NC. In the Third NC, we shall have better inventories, elements of information that will allow us to identify tendencies in emissions and in forestry and energy mitigation, and also to register aspects of vulnerability and adaptation to climate change.”

“The crux will, as always, be the development of methodologically serious, credible inventories that will give us a basis for establishing policies. It is

³ At the moment approximately eight thousand million equivalent tons of CO₂ are thought to exist in the atmosphere, which produces a concentration of about 350 ppm. According to the climate change models prepared by the UNFCCC, it is estimated that, derived from the increase in emissions, there will be an increase of between 1.4 and 5.8 degrees centigrade in the temperature of the planet by the year 2100.

difficult to establish policies when one does not know what is emerging from the sectors. And how was it done? By presenting the evolution of these emissions. We have a sequence of inventories for the years 1990, 1994, 1996 and 1998, and we hope to have, in the framework of this Third Communication, the most recent version possible of these emissions, so that we will now have a very clear image of how our emissions are evolving, ideas that are, as always, much more precise with respect to fossil fuels and to what comes from land use and changes in land use. But this also happens in other countries; there are much greater methodological uncertainties in the forestry area than in the energy area.”

6. International support and social participation for the preparation of the Third NC

The support provided by the GEF and PNUD to Mexico in the preparation of the Third NC was also mentioned.

There is international support such as GEF funds to bolster the preparation of the Third NC as well as greater methodological requirements that require the allocation of economic and human resources in order to achieve an effective process of preparation of the Third NC. For this reason, it is of special interest to put this process into action and to open the way to the construction of a NC that will include the participation of relevant sectors in climate change. A country of the economic and demographic dimensions of Mexico should maintain its GHG inventories periodically and update its climatic action strategies in a structured, systematic way. This work should be permanently ongoing and based on a national, internal process, as is sought in supporting the preparation of Mexico's Third NC. This process is very important in order to ensure that the national communication is representative, so that the participation of academic and research institutions, international agencies, civil society and business is stressed. Although this effort is coordinated at the level of the federal government, it cannot be a vertical process but rather depends on the participation of these sectors without which it would be impossible to fulfil the expectations indicated in the Third NC.

“What we are doing with regard to the Third Communication is to "fast-track" the preparation of the Third National Communication. This means mobilization by the GEF of a lower quantity of resources more quickly in order to get the Third National Communication started. A National Communication for a country like Mexico should not be an isolated event (once each presidential term), but rather we would try to have ongoing, continuous, national communications, based on permanent work, as often as possible. In this context, it is necessary to use GEF funds quickly and efficiently, in order to speed up a process that should be national and internal, and not dependent on extraordinary funds. The continuity and stability of the process is high priority.”

For his part, the Resident Representative of the UNDP in Mexico, Mr. Thierry Lemaesquier, stressed the following three elements, which he considered relevant in the framework of the preparation of the Mexico's Third National Communication to the UNFCCC:

1. The UNDP participates in the preparation of Mexico's Third National Communication to the UNFCCC attempting to give impetus to the process. The processes involved in preparing the NC should be open, participatory processes, especially if one takes into account the fact that climate change is affecting the different aspects of sustainability. Hence the importance of considering economic, ecological and social dimensions in the process of preparing the NC. The effective participation of the relevant actors in the climate change mitigation and adaptation strategies should be promoted so that the information of the different sectors can be considered and their points of view incorporated into the thematic contents of the NC.
2. Climate change is the point par excellence at which the cross-sectoral approach and the interactions of public policies are evident. The processes associated with climate change affect absolutely everyone.
3. As part of the international agencies involved in conventions and strategies linked to the United Nations system, the UNDP maintains activities in Mexico to accompany their implementation in Mexico. Among other things, activities for monitoring the Millennium (Human) Development Goals and agreements on Financing for Development (Monterrey Summit). GEF resources have been important in financing these activities, and the UNDP in Mexico will be able to continue its work as a facilitator of these processes. This workshop aiming toward the preparation of the Third National Communication of Mexico before the UNFCCC is situated in this context, and it is hoped its results will be relevant for documenting the advances that Mexico has made in its emissions inventories and climate change mitigation and adaptation strategies.

Later, Dr. Adrian Fernandez Bremauntz invited the members of the presidium to take their places and he presented Mr. Jonathan Ryan, who welcomed the audience and made a presentation based on the Guide: "Guidance on Stocktaking and Stakeholder Consultations for the Preparation of National Communications."

I.2. - Presentation: "*Guidance on Stocktaking and Stakeholder Consultation*"

The purpose of the consultation process called "*Guidance on Stocktaking and Stakeholder Consultation*" is to identify the activities carried out in the area of climate change, and to identify the needs and deficiencies that exist in the preparation of a National Communication in Non-Annex I countries of the Kyoto Protocol. This exercise allows the development of local capacities and of institutional arrangements for the preparation of a National Communication.⁴

The consultation process is one of the initial steps in the "*National Capacity Self-Assessment*" - NCSA - carried out by countries to analyse their capacity needs and to identify synergies in the implementation of three international conventions: the UNFCCC, the Convention on Biological Diversity, and the Convention to Combat Desertification.

⁴ GEF. (2004). "Guidance on Stocktaking and Stakeholder Consultation for the Preparation of National Communications" Work document.

The presentation of the results obtained from the exercise “*Guidance on Stocktaking and Stakeholder Consultation*” was given in two parts. In the first of these, Mr. Jonathan Ryan presented the context and the methodology followed in the exercise, as well as its relationship with other work carried out in Mexico and financed by the UNDP-GEF. In the second part, Julia Martinez presented the results obtained from this first exercise.

In this regard, Mr. Ryan's presentation included the following:

1. The methodology at this stage is divided into two exercises: the first exercise was already carried out according to the *Stocktaking and Stakeholder Consultation* program; it contemplated the identification of gaps and uncertainty in the data presented previously, as well as the identification of new areas of collaboration and work, the definition of the context of priorities and policies that in time create new focuses, and the identification of synergies of other actors that could be relevant to the Third National Communication. The second exercise corresponds to the workshop of public consultation (... “taking place today”) concerning the content of the Third NC.
2. The process of public consultation regarding the content of the Third NC forms part of a national effort, as Dr. Tudela commented. Therefore, it requires symposiums and mechanisms for the dissemination of information, transference, and consultation with all possible sectors. The mechanism of public consultation is an activity required by the GEF in order to have access to funds to support the development of national communications of Non-Annex I countries.
3. There are other processes also underway with GEF funds from the World Bank, such as the self-evaluation of institutions' capacities related to compliance with international conventions. This activity can result in a project for the development of institutional capacities related to the Conventions on Biological Diversity, to Combat Desertification and Drought, and on Climate Change.
4. The institutional appropriation of the consultation process is successfully carried out in Mexico, which will make it possible to fulfil, without difficulty, the requirement of involving all the participants related to climate change. The consultation helps to validate the initial exercise concerning the identification of current efforts and gaps, and also proposes the revision of institutional agreements and the steps to follow in the preparation of the Third National Communication, obviously for establishing clear roles and responsibilities among the participants, and for the development of the appropriation process; the National Communication is a government obligation, however it is a national product whose preparation is based on the commitment and involvement of all possible actors.

The presentation given by Julia Martinez, for her part, regarding the results of the exercise explained the following:

1. In ratifying the UNFCCC, Mexico's commitment as a Non-Annex I country was to follow the IPCC guidelines approved in 1997 for Non-Annex I countries. These guidelines, which were relatively easy to follow, consisted in preparing a

National Greenhouse Gas Inventory according to source [degeneration] and sinks of only 3 gases (CO₂, N₂O and CH₄); describing national circumstances; and mentioning the actions that Mexico was taking at that moment to confront climate change.

2. According to the guidelines for the preparation of National Communications, the main point in the Communications is the National Emissions Inventory. This makes it possible to rank Mexico as a GHG emitter in the world context.
3. The First and Second National Communications followed the guidelines being used by the UNFCCC at that time, with an emissions inventory, the description of national circumstances, and the policies, programs and measures [being followed] in fulfilment of the commitments adopted in the Convention. The First Communication was presented in Kyoto in December, 1997, and on July 2nd, 2001.
4. At the present time, the terms of reference for the Third National Communication are being prepared. These terms of reference were presented to the UNDP for its review and approval, and the country is now in the process of following the steps suggested by the UNDP to opt for the corresponding funds [for supporting the preparation of National Communications].
5. Regarding the consultation exercise, the UNDP and SEMARNAT carried out a process of consultant selection in Mexico and finally the project was prepared by Odon de Buen. This process was very important because, for the first time, various academic, public, and private institutions, and non-government organizations were consulted regarding their opinion of the First and Second National Communications. The consultants interviewed participants from the following institutions: World Bank, CEDES, CESPEDES, CNA, CONAFOR, Eco-energy, FIDE, Hewlett Foundation, Greenpeace, United States Embassy, INFONAVIT, MGM International, SEMARNAT, SENER, USAID, USEPA.
6. As results of a review of the First Communication, the following results were sent in:

Inventories of sources and sinks

- Some industrial processes or solvent are not included
- Procedures are not established for the annual updating of all parts of the inventory
- Vulnerability
 - It is necessary to update the results of the vulnerability studies conducted in 7 areas: precipitation, changes in humidity, droughts, desertification, forest fires, alteration of river basins and an increase in sea level. There are new methodologies for conducting these studies of the country's present and future vulnerability.

- Adaptation
 - No adaptation activities are noted
- Mitigation
 - Institutional efforts and programs oriented simply toward environmental protection in general and fuel improvement
 - Organisms in charge of energy saving actions are mentioned but not their results
- Gaps in information are mentioned regarding carbon content in vegetation and soils, and in general the lack of information for forestry projects
- Some joint implementation projects with other countries are mentioned
- 7. Concerning the review of the Second National Communication, the main comments received were:
 - Inventories of sources and sinks
 - Drawn up using a methodology between level 1 and level 2; when the information was sufficient, level 2 methodology was used, and when it did not exist, level 1 methodology was simply used. At that time, and even now, the UNFCCC does not require developing countries to have a complete level 2 inventory.
 - International emission factors are used, all of them IPCC, including the oil sector
 - There are preliminary numbers corresponding to a change in land use; it was completed by 1996 but a complete national inventory for 1998 was lacking. The figures were at the field verification stage.
 - There is no inventory of methane emissions sources.
 - Information on other gases is scant. Even in the new guidelines for inventories of developing countries it is mentioned that if the country so decides, it can report on its gas emissions, but if it fails to do so, there is no problem.
 - Vulnerability
 - There are no vulnerability scenarios presented; no work was done after that presented in the First National Communication.
 - Biodiversity is starting to be taken into account.

- Adaptation
 - Only one adaptation study was mentioned, conducted in the state of Tlaxcala in the area of agriculture.
- Mitigation
 - The structural reform program is mentioned, in the area of regulation and promotion of environmentally friendly development
 - Programs related to the care of forests and biodiversity are mentioned
 - Projects related to carbon capture are described
 - The results of energy saving programs are mentioned
 - New joint implementation projects are mentioned
 - The need for methodologies for determining emission baselines in the areas of energy and forestry. This must be addressed in the Third Communication

According to the results of the evaluation exercise, advances from the First to the Second National Communication are the following:

- Industrial process emissions were now included
- An inventory estimation methodology was now defined
- Climate change adaptation activities are included
- The aspect of biodiversity is included
- There are advances in the development of mitigation programs
- The aspect of scientific and technical research is included

The gaps that exist in each topic are the following:

- Inventories of sources and sinks
 - It would be ideal to have a biannual updating of national inventories
 - Emissions updating due to changes in land use
 - To include categories of solvents and industrial processes
 - Procedures for updating the inventory

- National emissions factors are lacking, but these are very expensive, long-term studies, very useful however
- A detailed inventory of methane emissions sources is lacking
- Information concerning carbon densities in vegetation and soils
- There is uncertainty in the estimates of the national forest inventory due to the fragmentation of information on critical parameters
- Scant information on other gases (HFC, PFC, SF₆). Everything possible will be done to have an inventory with complete information on these 3 new gases
- Vulnerability
 - Advances must be made towards a preparation of the country's vulnerability scenarios that would be more detailed (by regions), and more complete (regarding economic and institutional aspects). Regional studies must be conducted in which the human dimension is included horizontally, and economic and institutional aspects as well.
- Adaptation
 - Absence of references to adaptation measures
- Mitigation
 - The results of some joint implementation projects need to be given in detail.
 - Studies must be conducted on methodologies to determine the baselines for greenhouse gas emissions in the areas of energy and forestry.

General deficiencies in the preparation of the National Communications include the following:

- There are no procedures for annual updating, control of quality or uncertainty estimation
- Inconsistency in the content of these two National Communications, e.g. vulnerability scenarios were not included in the second National Communication.
- Little information on other gases (HFC, PFC, SF₆), their equivalent in CO₂ and uncertainty estimation.
- Methodologies need to be developed to determine emission baselines
- Weakness in methodology for estimating and capturing emissions in the forest sector and change in land use

- Ignorance of the total cost of the preparation of a National Communication (with a view to requesting financing or to budgeting for this cost). The previous National Communications were prepared with Mexican government tax funds, but the inventory figures were produced with the economic support of the United States government

It is important to point out that the preparation of National Communications has undergone an important methodological advances since, at the present time, there exists a system for updating GHG emissions inventories, for their electronic file and for the public to consult.⁵

The objective of this workshop is precisely to review and analyse the rough draft for the Third National Communication. The draft that SEMARNAT presented to the UNDP was enriched with the results obtained in the “Stocktaking and Stakeholder Consultation” exercise, with all the observations made concerning the First and Second National Communications. The rough draft was e-mailed to workshop participants for their perusal.

According to the results previously mentioned, the topics that are considered high-priority for the Third National Communication are:

1. Greenhouse Gas Emissions Inventory
2. Mitigation in the energy area
3. Mitigation in the forestry area
4. Present and future vulnerability, and adaptation options
5. Dissemination strategies and communication
6. Scientific and technological research and development - technology transfer
7. Education and training

I.3. - Presentation “Terms of Reference of the Third National Communication”

The rough draft of the Third National Communication was prepared taking into consideration the new IPCC guidelines for the preparation of National Communications. The terms of reference for the Third National Communication include the following 8 chapters:

1. National Circumstances
2. Greenhouse Gas Emission Inventory

⁵ Available at: <http://www.ine.gob.mx/dgicurg/cclimatico/lineas.html>

3. Mitigation Measures and Policies
4. Emissions Projection to the Year 2020
5. Vulnerability and Adaptation
6. Financial Aid and Technology Transfer
7. Systematic Observation and Research
8. Education, Training and Raising Public Awareness

Each of the eight chapters will be made up of specific information on the topic, as follows.

Chapter 1. National Circumstances

This will be made up of information on:

- The structure of the Mexican government
- The country's geographical and climate profile
- The population dynamic
- The country's economic and industrial profile
- Emphasis on sectors or activities that generate greenhouse gases: energy, transport, waste, agriculture, forests, water resources.

Chapter 2. Greenhouse Gas Emission Inventory

This will be made up of information on the following:

- A summary of the national inventory for the seven generation sources and the six main emissions
- Scientific coordination of the inventory:
 - Quality and verification procedures and methodology follow-up procedures
 - Periodic inventory updating
 - Human resource training in taking inventory
 - Emissions estimation and/or measurement
 - Emission factors used in calculation

- Uncertainty estimation
- Drawing up and publication of the inventory

Chapter 3. Political and Mitigation Measures

This will be made up of information on the following:

- Political and mitigation measures according to generation source
- Evaluation of the measures' macroeconomic effect
- Scenarios for quantification of mitigation potential and carbon capture
- Mitigation activities

Chapter 4. Projection of emissions to the year 2020

This will be made up of information on:

- Establishment of baselines for estimation
- Projections and scenarios to the year 2020 according to generation source
- Sensitivity analysis of these scenarios

Chapter 5. Vulnerability and adaptation

This will be made up of information on:

- Present vulnerability situation of high-priority sectors: water, agriculture, forest
- Adaptation strategies to climate change in the high-priority sectors.

In this chapter the regional project with UNDP financing with GEF funds called “Vulnerability and adaptation to the climate change in Mexico, Central America and Cuba” will be mentioned. This is a 3-year project, but the advances will be included reached in the same

Chapter 6. Financial aid and technology transfer

It will be made up of information on:

- Financing mechanisms
- Mechanisms for technology transfer

Chapter 7. Investigation and systematic observation

It will be made up of information on:

- Updating of the infrastructure for climate recording
- Measurement, recording and modelling of the climate in Mexico (proposal of the National Meteorological Service and the Centre for Atmospheric Sciences of the UNAM) to study the natural climate variability in Mexico - 15
- Modernization process of the national meteorological network for studies on present and future vulnerability.
- Updating of database for climate change research conducted in this country. The UNAM carried out a study for the INE into the potential for climate change research in Mexico; plans are being made to modernize this study and to include it in the Third National Communication.

Chapter 8. Education, training and increasing public awareness

This will be made up of information on:

- Involvement of NGO's, universities and academic and research institutions, private initiative and the media
- Public access to national climate change information.

The participation of all those involved, their ideas and proposals should allow Mexico to prepare a Third National Communication that will establish a model for subsequent communications:

- With consistent information
- With transparent information
- According to our circumstances
- In fulfilling our international commitments
- As a guideline for the preparation, application and follow-up of public policies and of specific sectoral programs
- As a reference for the financing of projects and activities
- Available for public access

When the presentation was concluded, the next step was to proceed to the explanation of the dynamic to be followed for working in teams.

II. Group Dynamic (Working in teams)

II.1 Introduction to Group Dynamic

The group dynamic was carried out according to the indications given by Julia Martínez Fernández, Director of Climate Change Research at the INE.

The objective of the workshop was identified as:

"Reviewing and analysing the rough draft of the Third National Communication, in the light of what was recommended in a National Communication, in order to discuss and develop proposals for the improvement of the Third National Communication based on UNFCCC guidelines."

Before beginning of dynamic, Julia Martínez explained the progress achieved thus far in climate change, and offered a review of Mexico's commitments to the UNFCCC and of the context in which the preparation of the Third Country NC has begun, with the following description:

Mexico's UNFCCC Commitments

National Emission Inventory

- *"To develop, periodically update, publish and make available a national inventory of anthropogenic emissions, (estimated and classified) according to sources and sinks..."*

National Communication to the UNFCCC

A National Communication should contain:

- The national inventory of anthropogenic greenhouse gas emissions
 - By sources
 - By sinks
- The description of the national circumstances that affect the inventory's figures and tendencies
- The description of the policies, programs and measures for fulfilling the commitments adopted, reducing the emissions, mitigating the impact, and reducing the vulnerability and adapting the country to climate change
- Any other information relevant in reaching the UNFCCC objectives

Mexico's National Communications

Mexico has already issued two national communications,

- First National Communication. –
09/12/1997

(118 Non-Annex I countries have submitted their First National Communication)

- Second National Communication. –
23/07/2001

(3 Non-Annex I countries have submitted their Second National Communication: Korea, Mexico, Uruguay)

And a third one is being prepared:

- Third National Communication. –
Possibly, the first Non-Annex I country to submit its Third National Communication.

Methodological Guidelines

Mexico followed the 1996 UNFCCC guidelines for the preparation of the First and Second National Communications. The 2002 guidelines will now be followed for the preparation of the Third National Communication. As part of these, two initial stages were developed that were directed toward the preparation of the Third NC, and defined in *Guidance on Stocktaking and Stakeholder Consultations for the Preparation of National Communications*⁶

As part of the activities developed by the INE to correct the deficiencies identified in the GHG emissions inventory, and as a reference for applying the group dynamic, mention was made of the implementation of a system of updating and consultation in the area of climate change available at the INE website

(<http://www.ine.gob.mx/dgicurg/cclimatico/inventario/index.html>)

In the updating of the GHG emissions inventory, the good practices recently published by the Intergovernmental Panel on Climate Change - IPCC - available at <http://www.ipcc.ch/pub/guide.htm>, will be adopted. Although on previous occasions the information was insufficient to develop level 2 inventories, according to the present UNFCCC limits, a project has been programmed in collaboration with the United States-Mexico Foundation for Science – FUMEC (for its initials in Spanish) – to update

⁶ GEF (2004). "Guidance on Stocktaking and Stakeholder Consultations for the Preparation of National Communications" Work document.

and complete the GHG emission inventory to be included in the Third NC. Until now there had only been level 1 inventories, which also need to incorporate some sources whose contribution has still not been estimated. Similarly, scientific coordination and quality assurance and quality control (QA/QC) activities have been planned in preparing the emissions inventory.

Similarly, it is anticipated that the Greenhouse Pilot Program in Mexico (Greenhouse Protocol) developed by the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD) in collaboration with the SEMARNAT makes it possible to establish GHG inventories in industrial sources, certified on the carbon bond market and CDM authorized (for further detail see the note **Mexico Adopts Standards for Calculating the Greenhouse Gas Emissions** through the INE website http://www.ine.gob.mx/dgicurg/cclimatico/est_calcular_emisiones.html.

Regarding the country's climate change adaptation, a regional project has been started with GEF funds in which scenarios and possible adaptation measures will be evaluated in Mexico, Central America and Cuba. With respect to climate characterization, a closer collaboration between the UNAM and the National Meteorological Centre of the National Water Commission (CNA for its initials in Spanish) as well as joint efforts are expected among several institutions to disseminate the Third NC and to expand, and improve access to, the information on climate change.

At the request of several participants, it was agreed to reflect the importance of the oceans as GHG sinks, although it was explained that the NCs, in principle, include only information of anthropogenic sources and sinks. With respect to the scientific knowledge related to the carbon balance in Mexico's heritage seas and territory, the formation of a research network at the North American level was recognized, promoted by the North American Commission for Environmental Cooperation with the INE as the focal point in Mexico, which has begun activities and is expected to take on the scientific commitment that these tasks represent.

In order to offer a starting point for the workshop, the INE drew up a document of Contents - second draft - of Mexico's Third National Communication to the UNFCCC (see appendices). This working document, in which the thematic contents are identified by chapter and by those tentatively responsible for their development, allowed workshop participants to collect their suggestions within the context of the preparation of the Third NC. The document is made up of 8 Chapters, which have already been described:

1. National Circumstances
2. Greenhouse Gas Emission Inventory
3. Mitigation Measures and Policies
4. Emissions Projection to the Year 2020
5. Vulnerability and Adaptation
6. Financial Aid and Technology Transfer
7. Systematic Observation and Research
8. Education, Training and Raising Public Awareness

II.2. – Working in teams

In order to implement the work from the workshop, the following seven high-priority topics of the Third National Communication were listed:

- Inventory GHG Gas Emissions
- Mitigation in the energy area
- Mitigation in the forestry area
- Present and future vulnerability, and adaptation options
- Dissemination and communication strategies
- Scientific and technical research and development, and technology transfer
- Education and training

It was stressed that the participation, ideas and proposals should enable Mexico to prepare a Third. National Communication that would set the standard for subsequent communications:

- With consistent information
- With transparent information
- According to our circumstances
- In fulfilling our international commitments
- As a guideline for the preparation, application and follow-up of public policies and of specific sectoral programs
- As a reference for the financing of projects and activities
- Available to the public

The dynamic was carried out over a period of 75 minutes according to the Workshop Agenda. The dynamic included 3 general activities: 1) explanation of the dynamic itself to the participants; 2) the formation of teams by areas; and 3) Working in teams by areas.

The methodology will now be described for each of the 3 activities.

1. - Explanation of the dynamic

- a) In the workshop plenary session, indications were given for the teamwork dynamic. Originally, 7 working teams were to be formed, one for each area to be

discussed. For working in teams, the participants were to participate on one of the following teams:

- i. GHG Emissions Inventory
- ii. Mitigation in the energy area
- iii. Mitigation in the forestry area
- iv. Present and future vulnerability, and adaptation options
- v. Dissemination and communication strategies
- vi. Technological research and development - technology transfer
- vii. Education and training

Given the space available, the number of participants, and the cross-sectoral nature of the topics, 2 working teams were finally formed.

b) The criterion for the distribution into teams was the following:

- i. The assistants selected the team in which they would take part according to their own interests.
- ii. When several participants came from the same institution, they were asked to be distributed with at least one participant of this institution per team.

2. Working in teams (75 min)

a) The work method for each team consisted in the following:

- i. There was a brain-storming and synthesis of ideas within each team. Each team was aided by a facilitator.
- ii. At the beginning, the facilitator briefly mentioned the weak points detected in the first two National Communications (in list form).
- iii. As additional material, each participant received a format which listed, according to the 7 high-priority topics mentioned, the areas or topics to be reviewed and discussed during the session (the formats given are shown in the Appendix).
- iv. Immediately after this, the facilitator aided the group in a brain-storming and clarification of ideas. The participants had 25 minutes for the brain-storming session
- v. After this, the participants had approximately 30 to 40 minutes to discuss the ideas and to form proposals
- vi. The proposals were recorded on a unique format given to each team. In concluding the work in teams, the participants returned to the plenary session and the "Presentation of results" stage began.

b) Each room had the following equipment:

- i. Markers (black or coloured); or, if not possible, then pens
- ii. 40 to 50 cards measuring 15 X 10 cm (approx., or a third of a sheet of letter-size paper) of Bristol board or recycled paper.
- iii. Scotch tape
- iv. Walls to post the cards on
- v. Seats and tables for the number of participants

c) The facilitator listed the weak points detected in the last two National Communications.

d) Then, regarding the topics (or areas) to be dealt with on that team, he asked the members of the team to write one proposal (idea) per card about how improvements could be made or what should be included in the Third National Communication.

e) Members of the team had 10 minutes to write down as many ideas as there were cards available. Each member stuck their idea under the corresponding area or topic.

f) Then, the facilitator began the idea clarification. For this the facilitator asked the participants to step forward and briefly explain the contents of their cards, in order to clarify the context or message of their idea and to begin the discussion.

g) The discussion lasted 30 to 40 minutes, and during that time specific proposals were developed for the Third National Communication, taking the ideas expressed as a basis. The facilitator made sure that all topics or areas were discussed, developed, and included in the conclusions. The proposals for each topic were written down on a flip chart. In concluding, the format was submitted and placed in the auditorium for its presentation in the "Presentation of results" section.

Two working groups were formed to cover the following topics:

a) **Working Team #1:** Inventories, energy mitigation and forestry mitigation.

Facilitators: Luis Conde, Aquileo Guzmán, Israel Laguna.

b) **Working Team #2:** Vulnerability and adaptation; education, communication and dissemination; research and observation.

Facilitators: Montserrat Ávalos, Patricia **Osnaya**, Julia Martínez

On Working Team #1, there were a total of 38 participants assisted by 3 facilitators, while on working team #2, there were 23 participants assisted by 3 facilitators.

During their individual presentation in the plenary session, the participants showed interest in one, two or more topics of the 7 high-priority topics outlined. A total of 22 people did not mention interest in any topic in particular; however, all participants took part in one of the 2 working groups. A total of 17 people indicated interest in only one topic, 18 people in 2 topics, 9 people in 3 topics and only one person indicated interest in 4 topics of the NC (Figure 3 and Table 1).

Figure 3: Indication of interest in topics of the Third National Communication.

Indication of interest in topics of the Third National Communication

Number of persons

Number of topics in which they expressed an interest

Number of topics mentioned per person.

Of the topics mentioned, two received particular attention from the participants: GHG Emissions Inventory, with 17 mentions, and Vulnerability, with the same number of mentions (Figure 4).

Given the audience profile, with a preponderance of academic and research institutions, another topic that drew particular attention was that related to research, systematic observation and technology transfer, with 14 mentions.

The topic of Mitigation also attracted the attention of those present. On the whole, mitigation in the energy and forestry areas received 23 mentions.

Number of persons interested per high-priority topic of the Third National Communication

Number of mentions

GHG Emissions Inventory

Mitigation in Energy

Mitigation in the Area of Forestry

Vulnerability

Adaptation

Education and Training

Research, Systematic Observation and Technology Transfer

Dissemination and Communication

Figure 4: Indication of interest in topics of the Third National Communication.

Number of mentions per topic.

A total of 17 participants expressed interest in only one high-priority topic. Mitigation in the area of energy and vulnerability received the greatest number of mentions in this group of people (Table 1).

A total of 18 participants expressed interest in 2 high-priority topics. Once again, the topic of the GHG emissions inventory received the greatest number of mentions, followed by the topic of vulnerability, and research and systematic observation. Among this group of participants, mitigation received an interest comparable to that of

inventory, with a total of 9 mentions, but 4 mentions were focused on mitigation in the area of energy and 5 on mitigation in the area of forestry.

A total of 9 participants expressed interest in 3 topics. In this group of participants, practically all topics received the same number of mentions, except for the topic of dissemination and communication, which was mentioned by only one person.

Table 1: Statistics of participation per high-priority topic of the third National Communication

Number of mentions per topic
Number of topics mentioned per person
GHG Emissions Inventory
Mitigation in Energy
Mitigation in the Area of Forestry
Vulnerability
Adaptation
Education and Training
Research, Systematic Observation and Technology Transfer
Dissemination and Communication
Total no. of persons
0 topics
1 topic
2 topics
3 topics
4 topics
TOTAL

Workshop participants listen attentively to an explanation of the subject matter of the topics included in Mexico's Third National Communication to the UNFCCC

Montserrat Avalos, INE official, clears up doubts about communication and dissemination aspects related to Mexico's Third National Communication to the UNFCCC

Representatives of the private sector and research institutions in the brainstorming dynamic

Working team #2 collects the results of the brainstorming dynamic concerning the topics of vulnerability and adaptation; education, communication and dissemination; research and observation.

III. Results

The results produced during the working team dynamic will now be presented. The results are divided into 2 groups: The first one corresponds to the contributions and ideas recorded on cards during the dynamic; the second corresponds to the conclusions recorded on the flip chart pages and presented during the plenary session of the "Presentation of results". For both groups, the ideas and conclusions were arranged according to the high-priority topics discussed during the workshop.

III.1. - Result of brainstorming.

The transcription of the ideas that were recorded by the participants for each of the topics analyzed in the work teams is presented next.

GHG Emissions Inventory

- To invite the INEGI specifically to participate with the group that will coordinate the preparation of the Third Comm. - In the preparation of the inventory An institutional "mapping" is needed to know which and how many departments (of the APF etc..) have authorities that authorize them to obtain information on (for) emission factors
- To identify sources of information, authority of departments and agencies
- To permit a horizontal comparison among inventories through the recalculation of data; the IPCC permits the use of methodologies proper to the country in order to estimate emission sources, provided they are well documented.
- To include the inventories of the natural sources (emissions-sinks), - to include the methodology in the national forest inventory
- Quantification of the biomass in the ocean (contained in the sea), to quantify the sources and sinks and their evolution (space-time), to propose methodologies on the marine environment and ocean-atmosphere interaction.
- To recalculate inventories improving the sources and quality of the information
- To apply an identical methodology every year
- To generate the information in sources as requested in the methodology
- Inter-institutional training among government bodies at their 3 levels: federal, state, municipal., the information produced in the conceptual field, regardless of who produces it, will be uniform – comparable and comparative, valid.
- To collect general information on the marine environment - CONACYT, Dept: of Maritime Affairs, SAGARPA (fisheries) and INEGI

- Continuous process: to establish long term, systematic measurements such as oceanographic cruisers and instrumented buoys
- To promote the standardization of methodologies for the estimation of inventories and of forms of evaluation that would verify the credibility and certainty of the estimates, to stimulate communication among scientists, NGOs and government institutions for the generation of appropriate information that would make it possible to calculate the inventories with less uncertainty and to support the institutions that can generate the critical missing information with resources and technology transfer.
- To strengthen the activities of the institutions that are already dedicated to inventorying the country's resources so that they can increase their production, frequency, quality of information, etc.
- To minimize the increase in focuses and methodologies. To look for a plan of operation that will reduce costs and increase efficiency in the release of reliable, sure products.
- To design databases with links, to estimate rates of annual behaviour, in order to make projections into the future. The annual updating is facilitated by simple changes in the emissions factors.
- To evaluate comparatively the levels of uncertainty, with the use of the country's existing vs. specific factors and to encourage decision making for conducting studies to develop the specific factors
- To reduce uncertainty through numerical simulation by means of prediction models, coupled computational models and earth-ocean atmosphere - socioeconomics models
- For greater detail in the data on emissions sources and a better selection of emissions factors, a lower level of uncertainty
- Official agencies and private companies could collect the information according to IPCC methodology
- To increase resources for recalculating the inventories
- To use and compare data and methodologies that would make it possible to calculate uncertainty based on IPCC AC and CC
- That there be a national office in charge of the collection, generation of emission factors and administration of inventories
- To involve agencies that produce the necessary basic information for the inventories
- IPCC methodology guidelines: quantification of the biomass in oceans, to quantify the source or sink and its evolution and the determining of ocean-atmosphere interaction including costs

- To include inventories of natural sources
- General: - uniformization of methodologies
- Making the processes of collection, processing, recording and dissemination of critical information more efficient in order to make reliable, updatable inventories; and to increase the allocation of resources to support the institutions that generate the inventories so that they can function efficiently.
- To include analyses of GHG emissions determinants according to different activities, namely: demographic dynamics, economic growth, technology innovation/transfer and constitutional change.
- To improve information quality and knowledge of the topic and to compare the inventory to other models and methodology for measuring uncertainty.

Vulnerability

- Climate change. - oceanographic phenomena; Coastal area. - Mexican Pacific, Gulf of California.
- Information systems and diagnosis; definition of critical areas; disaster areas; ONDEN; reconstruction
- Incorporation of regional studies of change of land use. For this purpose, a database updated to 2002 and field validation are required
- To identify those biological systems with greatest vulnerability
- Natural phenomena plus bad urban planning = natural disaster. Certain phenomena are intensifying
- The need to understand the possible response of terrestrial ecosystems regulated by temperature (e.g. temperate forests) to predicted changes in temperature due to climate change
- The need to understand the possible response of terrestrial ecosystems whose functioning is regulated by the availability of water (e.g. dry tropical and deserts) given predicted changes in the precipitation regimes with climate change
- Effects on the rise in sea level due to the ocean warming; the most vulnerable areas are the populations near the costs and located in low-lying areas. Changes in marine populations in coastal areas (mangrove swamps, reefs)
- To construct the model of long term precipitation runoff
- Issuing/revision of national strategy in the water sector

- To construct the analysis of regional climatic variability
- To construct the regional climate modelling; to check with IPCC results
- To define mechanisms for linking the results of research into the topic of vulnerability. To incorporate results into the rough draft and national analyses with the researchers involved
- The probabilistic character of (present and future) vulnerability should be made clear. The separation between qualitative and quantitative evaluation of vulnerability complements our risk estimate and facilitates communication of the concept to key actors
- To implement joint strategies with social actors for the development of pilot programs
- To prepare vulnerability maps of Mexico's biomes, including the factor of alteration and impact. To develop research (e.g. terms of reference) according to vulnerability figures (e.g. precipitation reduction, increase in CO₂)
- To analyze and complement with national strategy in point 4
- To generate a national climate change policy: what interests us, why our vulnerability at the overall level is different from that of other countries and has present and future costs
- As the point to address is climate change, it should be clear that our interest is vulnerability to climate change. Be careful not to fall into excessively deep diagnoses of the socio-economic-cultural context, etc. that frequently lead to forgetting about the climate factor
- The need to develop realistic drought rates
- Greater effect of tsunamis (waves produced by earthquakes) since sea level rises due to the ocean warming. - Effects on low relief coastal areas; populations on the coastal margin, hotels, tourist developments.
- To consider human health under vulnerability
- Escalation of tropical storms in Mexico's tropical and subtropical Pacific region, and of the Caribbean and Gulf of Mexico. - Effects on coastal areas mainly tourist and fishing regions
- Construction of vulnerability scenarios of forests and rainforests that include climate change risks and changes in land use
- The adaptation also requires a study of society's habits in its environment

- As a result of observation and research, to take the corresponding measures in time and explanation as well as their programming. Systems of dissemination and simulation and field testing. As a result of this, evaluation. The department gives the country's research metadata. To complete the databases
- A greater incidence of harmful blooms related to variations in the ocean's surface temperatures. Effects on health, fisheries, environment
- Organization of updating of climatological database
- And social vulnerability? A necessary aid is to make clearer diagnoses of socioeconomic, institutional, cultural conditions
- To make up databases that would analyze the environments of (forest) species distribution in order to recognize their vulnerability to climate change

Adaptation

- Information on future scenarios in relation to adaptation measures that are being adopted
- Identification of specific geographical areas for conducting pilot adaptation studies
- To draw up a list of the barriers to the implementation of adaptation measures in communities or regions including political barriers, those of social organization, traditions, public and local policies.
- Global vision of vulnerability and adaptation in critical areas
- To explain that the vulnerability evaluation is required because we have an idea of the characteristics of climate change in Mexico. In this way, we should arrive at a risk estimate, in order to determine thereby why, when and how we should adapt, even with the uncertainty inherent in climate change projections
- Linking with other topics/strategies in the climate change scenarios
- Prioritization of adaptation measures based on vulnerability information
- To include a diagnosis indicating to what extent and how climate change and variability effects have been included in public policies, that is to say, in laws and regulations, national development programs, etc.
- Evaluation of environmental services
- Balance, mitigation, adaptation
- Indicators of adaptation and measure strategies

- Analysis of regional case studies: Tlaxcala, Puebla, Querétaro
- Evaluation of regional projects in sustainable development (success or failure)
- Long-term water supply scenario in the agricultural sector
- Measures to motivate studies on adaptation
- Urban planning of coastal areas considering the effects of climate changes (e.g. rise in sea level, hurricanes, floods, etc.)
- Uses of climatic information and application to real problems. Comprehensive projects: academy, social and scientific research, institution and population, among others. And regional development
- To define the steps for formulating programs: 1) Forming organized social groups; 2) incorporating results of the diagnosis.

Dissemination and Communication

- Design of a climate change clearing-house for Mexico
- To generate documents of scientific popularization to explain the problem of climate change in Mexico
- To disseminate widely the types of effects identified in order to promote the carrying out of demonstration pilot studies
- To form strategies that would make it possible to disseminate and promote the results of pilot studies so that they could be extensively reproduced
- Communication strategy for the various stakeholders (public, industry, media, federal agencies)
- Communication strategy for different sectors (clear, with solid bases)
- Production of dissemination strategies for the different vulnerability areas to the different sectors of society
- To include the CENAPRED and, in general, the Department of the Interior/Civil Protection (SINAPROC). CENAPRED has prepared a Risk Atlas.

Education and Training

- To include the topic of climate change in educational topics in the various grades jointly with the SEP

- CECADESU/SEMARNAT works with the program GLOBE ("Global Learning and Observations to Benefit the Environment"). In this program, climate change activities can be proposed
- To carry out campaigns to raise public awareness of following development plans that take into account the effects of climatological phenomena

For the mitigation panels in the area of energy and forestry mitigation, cards were not made, since the work was carried out directly on the flip chart pages.

III. 2. - Results presented in the plenary session (flip charts)

During the plenary session, a representative from each working team stepped to the front to present the conclusions reached in each of the high-priority topics discussed during the workshop. After this presentation, the plenary participants asked questions and/or made additional comments to enrich the conclusions. The questions, answers, and commentaries contributed are transcribed in order to transmit the participants' doubts and ideas regarding the corresponding topic. In any case, photographs of the flip chart pages that were used during the presentation in the plenary session are included.

GHG Emissions Inventory

- To uniformize methodologies for the calculation of the 1990, 1994, 1996 and 1998 emissions.
- To recalculate 1990, 1994, 1996 and 1998 inventories
- To draw up an inventory of natural sources and sinks (terrestrial and aquatic)
- To allocate resources for the development of methodologies for calculating emissions factors in the activities that are most polluting.
- Description of activities for collecting and storing data in order to make the preparation of the inventory an ongoing process.
- To uniformize methodologies for streamlining the process of data collection, processing of records and dissemination of critical information in order to make reliable, updatable inventories; this is so that those who are taking inventories can exchange methodologies, data sources, in order to streamline the use of existing human and methodological resources in both institutions, and to propose joint studies between institutions
- To allocate resources to support the institutions that generate inventories so that they can work efficiently. To train the institutions in the process of taking the greenhouse gas inventory, and to make sure these data agree with the way the inventory is developing, for the emissions estimate.
- Information of the uncertainty level associated with the inventory data. To try to improve the quality of the information in the inventory, and as an additional

factor, to consider the sensitivity and experience of whoever is making up the inventory in order to estimate what uncertainty these sources of information could have. Another form of estimating uncertainty, as suggested, is to compare the inventory with other models and methodologies for measuring uncertainties.

Question:

"We didn't understand very well what point number 2 referred to. We were to evaluate how much we could improve our uncertainty levels if we used an own-country factor, and how much it would cost us weighed against the uncertainty level that we have, using the factors indicated by the guidelines, and to be able to evaluate this effective cost of developing new factors that could improve our uncertainty levels in order to have better data on emissions. Because it seems there that funds were to be allocated to the most polluting sources and so I don't understand exactly."

Answer:

"Representative of SEDESOL which is the specific area that gives us information on landfill and wastewater. It's not only for the most polluting sources, but we *are* interested in having the emission factors for the change". "We don't have the national emission factors. Not having them, we're using those proposed to us by the IPCC. That was the criticism. But toward what emission factors would we want to calculate. We should identify which sources are the key sources, which are those that contribute to our greenhouse gas emissions. What we need to know is what source, what quality, what emission factors we want to improve in order to allocate funds to that source that we've identified as most polluting. That was what we meant by "most polluting activities". If we identify them, then we should develop the national emission factors in order to calculate those emissions with greater certainty. All of this involves a cost. Perhaps at the end, if we have these emission factors and compare them with the IPCC, there isn't much variation, but first we need to generate the emission factors."

Question:

"I would like to remark on at least two aspects, and I hope it will be taken into account to clarify the written document as a conclusion. First regarding water, inventories of natural processes, of sources and sinks, in water systems. Marine ones should be included permanently. Concerning what was written on the second page, on ensuring funds for institutions that produce inventories, it seems to me that a little more should be specified about the need for information that is used to produce inventories. That was what we meant in the panel, to have funds to carry out systematic observations of the natural, oceanographic, terrestrial, and atmospheric environments with the idea of having long term measurements. So when funds need to be provided for institutions that produce these inventories, I would like it to be made clear about the need to establish long term measurements. Lastly, in point number 4, it's about reducing uncertainty, or at least defining uncertainty. My comment was the use of coupled numerical models to make predictions. Here I mean coupled ones that include the natural atmospheric, oceanographic, terrestrial processes, and in addition socio-economic processes and human impact. So that if a model had all these models, it could simulate the present state or to predict the future, and thus have a basis of reference for defining the uncertainty of the estimates or of the inventories calculated."

Comment:

“Here I believe that there is a confusion. The point is that in the inventory which it is an obligation to present ultimately to the UNFCCC in the Third National Communication, it is the inventory of emissions produced by human activities, what we burn, what we deforest. In this case if it can be agreed to determine the amount of recapture of the CO₂ that is emitted to the atmosphere by degraded areas, growing forests, etc., these are emissions in which there was human intervention. It is not part of the inventory to include the country's natural carbon cycles, which as a matter of fact it wouldn't be a bad idea to know about. Because the CO₂ of the future depends on the models and how the carbon cycle behaves. This is a very important research project that should exist at the national level. But for purposes of the inventory, we have to put what is being emitted. The precision of the inventory has to fit the circumstances. In one case we want a very precise inventory, because we are going to enter the CDM or we are going to enter one of those markets and we need to know the tons to several decimal places, or in another we want a third-world inventory that gives us flexibility to function within the third world. This question of accuracy is also a matter of opinion. And on the other hand is the matter of IPCC methodologies, and what has been mentioned about good practices in making up the inventories. We have to make the effort that is required for our purposes. If only Mexico were working toward mitigation, then we would need very good inventories indeed.”

Group: Inventories

1)

- Uniformize methodology and Recalculation of emissions
- Take inventory of natural sources and sinks (terrestrial and aquatic)

2)

- Allocate funds for development of methodologies for [activities] emissions that pollute the most
- Streamline the process of collecting, processing, recording and dissemination of critical information for ...

Figure 5: Conclusions in the topic GHG Emissions Inventory

Reliable, updatable inventories

- Allocation of funds to support institutions that produce inventories so that they can function efficiently

4)

- Improve quality of information and knowledge of topic
- Compare inventory with other models and methodologies for measuring uncertainties

Figure 6: Conclusions in the topic GHG Emissions Inventory (2)

Energy Mitigation

In mitigation in energy, other possible topics were reviewed which, in addition to those established as weak points, should be included as high-priority topics.

The group considered the following additional topics:

1. The group considered that methodological and thematic continuity with regard to the area of energy mitigation should be analyzed;
2. The results should include recommendations regarding public policy;
3. The economic and social impacts of scenarios of possible mitigation commitments need to be evaluated;
4. It is recommended that "learned lessons" be incorporated; in particular they should be recommendations and should be used as project feedback.

As possible solutions to these topics, it was suggested that a sectoral mitigation working group be formed, possibly coordinated by the SENER or other sectors; that it be inclusive, that it include the public, private and social sector, and the three government levels. The working groups should make a summary of the program and include the steps or procedures used. A second proposal is the evaluation of mitigation potential through technology. This evaluation should include financing sources and the real potential of projects for the CDM. Thirdly, it was mentioned as recommendable to include various appendices to the Third NC: a collection of barriers encountered and project solution proposals; an appendix of the state of mitigation policies as of 2005 and what the tendencies would be; and an appendix of relevant information for the use of baseline methodologies for CDM projects in Mexico.

Lastly, after reviewing the document of terms of reference for the Third NC, two comments were made. The first is to eliminate the word "some"; the proposal was to eliminate the word so as to include not only projects already carried out but also new projects. The objective is to show in a condensed form what the group's recommendations in energy were.

Comment:

"Perhaps it is not precisely what you were analyzing, but in the exercise presented to us that was done previously, there is a part that says that there is no inventory of methane emission sources. I imagine that that will be considered in the Third Communication. It seems to me that methane is always underestimated. Here in Mexico City alone, with the inventory that is taken, 160,000 tons of methane are generated a year. So it is not a trivial quantity, and nothing is being done about it, except in Prados de la Montaña, which is where it is being burnt. I believe that it *is* necessary to consider this, somehow, as something that is lacking, for this Third Communication."

Comment:

“Just one comment regarding methane. I believe that it is considered less important because its residence time in the atmosphere is very short, 5 years, compared to 200 for CO₂. Maybe that is the reason.”

Comment:

“One clarification. In the first place, methane is 21 times more important than CO₂ as a greenhouse gas, and this has to do with what is called Global Warming Potential. Even taking into account the fact that its residence time is much shorter than CO₂ as a greenhouse gas, it is 21 times more important. The other question. Hopefully we can coordinate the evaluation of the economic and social impacts of the possible mitigation commitments. I look at it from the point of view of the opportunities that are given to get into mitigation. I hope others will contribute to mitigating here. Politically speaking, being third-world that is what applies, that others would pay for our mitigation.”

Comment:

“I believe that it's right for us to get into that, into mitigation. But, more out of interest in receiving a discount in the financing, mitigation should be part of the internal policy. As part of the internal policy it is in our interest to have the classification, to get into alternative sources, etc. whether or not there are outside funds.”

Question:

“For the mitigation group in the sector energy, it catches my attention that they include the term of "learned lessons", and I would like to know if they are referring to the documentation of case studies or how they would like that judgment of “learned lessons” to be reflected.”

Answer:

“Basically the idea of the group was to see which are beyond the results in numbers, how other lessons have been learned from previous studies and projects, for example from AIJ (Activities Implemented Jointly), to give continuity to those studies for future mitigation projects.”

Comment:

“Also to observe the barriers that were presented in those implementation projects.”

Comment:

“It is very important to see the mitigation context in the context of the restructuring or not of the Mexican electric sector. It could be a help on the fringe of politics that there are mechanisms and things that are happening on the planet that may or may not indicate that it is necessary to promote a certain type of policy in terms of energy in the country or not. It is very important so that we don't get lost in activities.”

Group: Energy Mitigation

Additional topics:

- 5) Methodological and thematic continuity
- 6) Products (results) should include policy recommendations
- 7) Evaluation of economic-social impacts of possible scenarios obligations mitigation
- 8) Learned lessons (recommendations feedback) of projects

-
- Make up group of sectoral mitigation (co-ordinated by SENER) – A – (public, private, social) (3 levels of government)
 - Evaluation of potential for [...] technologies [...]

Figure 7: Conclusions in topic Mitigation in the area of energy

- Appendix with collection of barriers found and proposals for sol of projects (implementation)
- A – Working groups should make up a collection of programs and what steps or procedures employed
- Appendix of state of mitigation policies to 2005 (tendencies)
- Appendix with relevant information for the use of baseline methodologies for CDM projects in Mexico
- p. 14, l. 45 (eliminate “already done”) ~~to include new ones~~
- p. 13, l. 33 (doesn't have USAID funds)

Figure 8: Conclusions in topic Mitigation in the area of energy (2)

Forestry mitigation

In regard to forestry mitigation, the working team emphasized the need to define what would be meant by forestry mitigation: if it would refer particularly to CDM projects, or if there is another type of project, speaking of national strategy on forestry research. The team considered that it should be both, and that it should be very clear whether both exist or how they will be implemented. Concern was expressed in the sense that all forestry mitigation focuses solely on the sale of carbon bonds.

As a second point, as a consequence of this, mention was made of the need to define the scale for the implementation of these projects. It is suggested 2 levels be defined in the reduction market: mitigation projects with internal or community actors, focused on the national market; and mitigation projects that are certifiable under the CDM at the international level. In the words of the speaker,

“It is not the same thing to define a scale of a project in which carbon bonds are going to be sold; perhaps we are speaking of a parcel scale, and therefore, the type of definition and of data resolution is different from a regional, municipal, or state study. It is very important for the definition of scales for this type of project to be very clear.”

The next two points, the third and fourth, are related to the needs for information, “which in a way the first panel has already outlined.”

The third point mentions that, in order to be speaking of mitigation proposals, it would be necessary to speak of the needs for basic information and of a system of continuous monitoring so as to have up to date information and to be able to propose mitigation

projects. This includes the creating of criteria and methodologies for the preparation of baselines (by area, by medium: soil, biomass, water).

Another point is the incorporation of socio-economic information in order to see the viability of mitigation projects. It is considered essential to analyze both the biophysical or ecological viability in implementing a project of forestry mitigation and the socio-economic conditions of the place where the project is carried out:

“You could say that, biophysically or ecologically, there is a high capacity for carbon sequestration, but the socio-economic conditions may not exist for that project to really be implemented. Basically I am thinking more of community projects. We consider it very important to have basic socio-economic information to see if there really is implementation viability or not for these mitigation projects.”

The fifth point gives methodological solutions. This point was divided into two parts: the development of methodologies and the validation of methodologies. The argument begins with the premise that many of the international methodologies are very broad and simplified so that they can be applied to all cases. They need to be particularized for the country's regional conditions: “And here we're speaking of two main points: the beginning of the projects which would be the definition of the baseline; how much I will begin with in order to know how much I will end up with.”

In the second part, the validation of methodologies for the evaluation of the mitigation projects is considered: “how much carbon did I really capture with this mitigation project”. This position focuses on the question of the certification of projects in order to obtain reduction certificates. “It is not the same thing to be in a very variable system such as the Pacific coast or a system as variable as Chiapas, in spite of having the same types of vegetation. So it is very important to validate these methodologies.”

And lastly, it is suggested that a map of the country's carbon capture potential be made.

Forestry Mitigation Group

- 5a. Criteria and methodologies for the preparation of [...b...] lines (part area, soils, and underground biomass)
- 5b. Preparation of maps with C capture potential
- 2. Definition of scales for implementing mitigation projects (multi-scalar problem)

Figure 9: Conclusions in the topic Forestry mitigation

- 4. Put together socio-economic information for the viability of mitigation projects S. forestry [...]
- 3. Need for basic information (INF) - Syst. periodic updating – Uniformization methodologies
- 5b. Validation national C capture methodology (Mexico)
 - 1. Define 2 market levels
 - Reductions -> National (internal actors, community)
 - > International CDM

Figure 10: Conclusions in the topic Forestry mitigation (2)

Vulnerability and adaptation

Regarding vulnerability, the following conclusions were mentioned:

- To include the studies and research work carried out in the country in the area of vulnerability. Some examples are Mexico's projects with AIAC, with 8 countries, Mexico, Central America and Cuba, etc.
- Given the vast quantity of interests and postures in the area of vulnerability, it is necessary to prioritize the actions in this topic. In this regard, it is suggested that work be done on uncertainty and that the level of confidence in the country's present and future vulnerability be ascertained. The handling of uncertainty is fundamental.
- To revise political intentions among the different organisms and government levels. Also, these intentions should be made evident in the public speeches of government officials.
- An important point is the consideration of the part played by Mexico's heritage oceans and seas in the country's vulnerability. Up until now, information and analysis has been handled as though Mexico had no coasts or access to the sea. Do not forget the cross-sectoral approach inherent in the topic of climate change.
- Any diagnosis of vulnerability should include quantitative and qualitative aspects, so that it may be possible to evaluate (quantitatively) present and future vulnerability, and to communicate this vulnerability (qualitatively and) easily to the population
- The analysis and evaluation of vulnerability should produce the definition of critical zones or areas, both in geographical (territorial) terms and in sectoral. This is essential
- There was questioning concerning the need to revise or qualify the databases and models used in the vulnerability evaluation. Concern was mentioned as to the availability and updating of information.
- The elements that are included in the adaptation policies were pointed out. This includes reviewing where the country's concerns and priorities are, in order to define later on the fundamental problems to be addressed in the area of climate change.
- To include the country's few existing examples and relate Mexico's adaptation policies to them. It is known that there are few examples in the world of policies oriented toward climate change adaptation. To review Mexico's situation with regard to the Adaptation Policy Framework (APF).

- To define the high-priority zones for adaptation; to contemplate risk management as a fundamental point in adaptation.

VULNERABILITY

*National Communication and not Strategy

*Exercise of priorities contexts

Uncertainty

*Revision – political intentions – SEMARNAT – business – Internal revenue – in speeches (under secretariats)

* Include oceans [...] –

* HUMAN DIMENSION – Atmosph... -

Financing – SOCIAL FACTOR –

* Diagnosis – QUANTITATIVE –

Identification – critical areas –

[...] topics – H2O

* Data base

Forecasting models

Figure 11: Conclusions in the topic Vulnerability

ADAPTATION

– determining of adaptation capacity

Characterization of socio-economic conditions

Decisions already made in this regard or related

– take framework of adaptation policies (APF)

– record the few adaptation actions existing in the country

– high-priority adaptation areas

Tourist

Production

Natural

– risk management estimation – communication of risk

Figure 12: Conclusions in the topic Adaptation

Comment:

“In order to corroborate that the topic really is on the political agenda, everything related to climate change that is produced in Mexican politics must be collected. If the topic really is on the agenda, then it should be translated into funding and specific actions.”

Comment:

“Adaptation should begin with adaptation to the present variability and climate. Adapting to the present climate variability does not guarantee adaptation to climate change. The first signs of good adaptation are found in the adaptation to the country's climate conditions and variabilities.”

Comment:

“The Third NC should also have a political objective. It should be an instrument of dissemination to the public and to the decision makers. In this respect, variability should be emphasized for decision makers. In the Third NC, Mexico's natural climate variability should be given particular importance. The UNFCCC regulates only anthropogenic climate change. Probably for Mexico the anthropogenic aspect has a relative importance with respect to natural climate variability. Therefore, the topic of vulnerability and the communication vision should be focused on our priorities. The priorities should be sectoral and at the same time regional, in accordance with the critical areas. Inside the critical geographical areas, a revision of the critical sectors.”

Comment:

“It is necessary to add the study of extreme events to give a correct interpretation of vulnerability; to find out how extreme they are, how frequent they are, how intense, in order to learn finally how much the population's vulnerability is growing. To find out if vulnerability is growing because of the events or because of deficiencies in the efforts towards development.”

Comment:

“For vulnerability to present climate variability, people are more aware of this than of climate change vulnerability. People's intuition is not mistaken, but it is essential to communicate vulnerability correctly.”

Research and systematic observation

- Design of an agenda for necessary sectoral research into climate change (coordinate it with existing CONACYT sectoral funds)
- To generate permanent climate monitoring systems in order to analyze natural variability.
- Revision of the databases and simulation models in order to make climatological and climate change forecasts.

Research

- * [...]
 - Vulnerable area
- * Mex AC [...] UNDP/GEG
- * 1st and 2nd Communications
- * Sectoral notifications
- * On CDM and other mechanisms
- * Adaptation
- * Data bases – prediction models
- * Key actors participat.
- * Ecosystems' vulnerability to change

Figure 13: Conclusions in the topic Research and systematic observation

Dissemination and communication

- The design of a clearinghouse with websites with necessary, useful information and metadata. To include vulnerability under human health.
- To include climate change indicators in order to analyze tendencies. To take other aspects in order to know which things are a result of climate change and which are not. Communication strategy.
- To think of climate change is to think of uncertainty. This determines the risk. To include the uncertainty level at which the country is functioning, in order to know what to do in the area of adaptation. Vulnerability is something dynamic and may vary (increase or decrease).
- To link up with the National Civil Protection System

Communication

Clearing-house

Inform decision-makers and population

People are not informing

That the [...] has CC in mind

Mex govt's concern in CC

IPCC – 4th Report evaluation

Communication of uncertainty

SINPROC/CENAPRED

Indicators – [...] other factors ≠ CC

Figure 14: Conclusions in the topic Dissemination and Communication

IV. Conclusions and recommendations

Based on the proposals made by the working groups, the following recommendations are summarized in order to be adopted and kept in mind in the preparation of the Third NC:

GHG EMISSIONS INVENTORIES

1. To use the present IPCC methodology and recalculation of emissions.

To use the same IPCC methodology to recalculate the 1990, 1994, 1996 and 1998 emissions in such a way that they are consistent with the methodology to be used for the GHG inventory, base year 2002, to be included in the Third NC.

2. To draw up an inventory of emissions, natural sources and sinks (terrestrial and aquatic).

The importance of considering emissions inventories of natural processes is emphasized, both sources and sinks, especially in aquatic and marine systems. Although it is clear that, in the inventory, emissions produced by human activities are what must be included in the Third National Communication, the importance of knowing about the various balances related to the country's natural carbon cycle is recognized. It is indeed pertinent to determine the recapture of CO₂ that is emitted to the atmosphere by degraded areas, growing forests, etc. since here we are dealing with emissions in which there was human intervention. Regarding the study and characterization of the natural sources and sinks, the need to consolidate the recently formalized network of scientific research into carbon was reiterated.

3. To allocate funds to improving emissions estimation methodologies for activities that are most polluting (high-priority)

Since a very high level of uncertainty exists in the quality of the activity data and in the emissions factors used in their absence, it is necessary to allocate funds to institutions to conduct research and to obtain their own emissions factors, in order to improve the quality of the databases and to fill in information gaps. Because this can be expensive, it is necessary to concentrate on those that have been identified as key sources and that, as the most polluting, are high-priority.

4. To improve the collection of base data for GHG emissions estimation

Methodologies must be uniformized and collection process, processing, recording and dissemination of critical information should be streamlined in order to obtain reliable, updatable inventories. This involves a greater inter-institutional coordination and the carrying out of joint studies. Similarly it is suggested that the need for information be specified in order to consider natural sources and sinks, for which

systematic observations in natural, oceanographic, terrestrial, atmospheric atmospheres will be carried out with a view to having long term measurements. In this context, the use of coupled numerical models should be considered for making predictions where natural atmospheric, oceanographic, terrestrial, and socioeconomic processes are incorporated.

5. To improve the institutional capacities for handling GHG inventories

To support the institutions that generate and manage emissions inventories so that they can function efficiently, and to try to reduce the margins of uncertainty associated with inventory data. The uncertainty of the inventories should be weighted according to the comparison of the data and models and methodologies used.

MITIGATION ENERGY

1. To ensure methodological and thematic continuity with respect to mitigation strategies in energy

In order to ensure methodological and thematic continuity with respect to the area of energy mitigation, recommendations in policies and analyses of possible scenarios, evaluation of economic and social impacts, and lessons learned should be included. In relation to this last point, recommendations that are useful for project feedback should be established. One possible mechanism for developing these topics is to make up a working group coordinated by SENER or other sectoral heads that is inclusive and includes the public sector with its three levels of government, and the private sector and social organizations. With respect to the CDM, it has been suggested that technology packages, financing sources be identified and that the potential of model projects be pointed out. Similarly, it is recommended that appendices such as the collection of barriers found and proposals for solutions, the state of mitigation policies to the year 2005, and information relevant for the development of CDM projects in Mexico, be included. Specifically in regard to the rough draft of the Third NC, it is suggested that on p.14, line 45, the expression "already done" should be eliminated, since projects in the planning phase should also be considered, and not only those that have already been developed; and on p. 13, line 33, that what has been commented be considered, namely that USAID has no funds contemplated under the heading in question.

2. Record of programs of the energy sector that contain measures for climate change mitigation

Based on collaborative work, as proposed in the previous point, a summary of energy sector programs should be drawn up containing climate change mitigation measures. Similarly, an appendix on the state of mitigation policies to 2005 could be included, which could be complemented with an analysis of trends, in order to identify possible scenarios that Mexico as a country will have to face. Mitigation policies that will have to be developed to improve efficiency in energy use, and to reduce potential emissions in the energy sector, should be placed in the context of the restructuring of the Mexican electrical sector.

3. Information on the incorporation of climate change considerations into social, economic and environmental policies and actions

Given the cross-sectoral approach of the topic of CC, it is necessary to identify the strategies now in progress that will affect mitigation. For example, the relative prices of fuels and their demand follow economic policies and variables that should be recognized and evaluated.

4. Evaluation of social and economic impacts

More work as a whole is required in order to be able to evaluate the economic and social impacts of possible mitigation commitments. From the point of view of the opportunities that exist in relation to mitigation, it is necessary to recognize the fact that Mexico is inserted as a country with mitigation opportunities that can be attractive to Annex 1 countries committed to crediting the emissions reduction indicated in the Kyoto Protocol. But beyond these opportunities, in any case, mitigation should be part of internal policy, so that the social and economic benefits and impacts related to mitigation strategies should be known.

5. Identification of financial resources and technical support from various sources and the relationship of projects proposed for financing or in preparation for technical/financial support.

The CDM is beginning to operate in Mexico and has generated important expectations as to its potential for offering financial and technological opportunities in mitigation measures such as the reduction of GHG emissions. In order to record the sources of financial resources and technical support available, and the extent of their application, it is necessary to identify them and to report lists of projects proposed for financing or in preparation for technical/financial support. In the same way, the need to compile both the barriers that have prevented a greater development of the market of carbon bonds and the implementation of mitigation projects has been pointed out.

FORESTRY MITIGATION

1. Consolidation of bonds markets for reduction to scales at a National (internal actors as community organizations) and International (projects of an international scope through the CDM) level

It is necessary to recognize the different scales that exist in forestry mitigation. It is suggested that forestry mitigation be categorized at the level of CDM projects or of international scope, and of projects or activities of national scope but with an important influence on the communities that can manage forestry resources. Not only should the projects oriented toward the sale of carbon bonds be recorded and reported, but also long-range programs with small landowners, communal land and rural communities, since each one has its peculiarities.

2. Need for basic information and periodic updating of indicators related to forestry mitigation

As in the recording of programs in the energy sector, work with inter-institutional collaboration is required to identify the different programs that contain forestry mitigation measures. In this context it would be relevant to recognize, in addition to the conservation programs for natural resources (for example for Natural Protected Areas – NPA – or Wildlife Management Units (WMU), the programs and incentives that affect the management of forestry areas and natural ecosystems. The basic information necessary will have to be identified and the relevant indicators will have to be systematically updated.

3. To integrate socio-economic information about the viability of the forestry mitigation projects and to prepare maps of the carbon capture potential

Socio-economic variables could play a central part in the viability of mitigation projects, so that this information should be reflected in the discussion of conditions referring to forestry mitigation. The case of projects and areas with potential for forestry mitigation that maintain biophysical conditions for carbon sequestration has been mentioned; but if favourable socioeconomic conditions do not exist, it is difficult for this to be implemented effectively. It would be desirable to reflect this information through maps that would consider both the forestry mitigation potential and the relevant socio-economic indicators.

4. To update and publish approaches and methodologies on carbon capture estimation

It is considered necessary to develop and validate methodologies on carbon capture estimation, not only for projects that can be included under the CDM but in general related to the strategies and activities of forestry mitigation, since the achieving of a reliable estimate of carbon capture at the national level depends on it. It has been pointed out that some methodologies proposed at the international level are very broad and it is difficult to simplify them for all cases, so that it would be ideal to have methods that would take into consideration the country's regional conditions. For example, the importance has been mentioned of having indicators related to plant communities of the dry tropic - characteristic of the Pacific coast - as well as of the medium semi-evergreen rainforest predominant in the humid tropic. These methodological tools will play a relevant part in the accounting of inventories and mitigation measures since they will make it possible to estimate with certainty the initial base line for projects and mitigation activities and their contribution once their implementation has been completed. The certification of projects of forestry mitigation will depend on being able to have these methodological tools available and on their application being recognized by the relevant actors at the international and national levels.

VULNERABILITY

1. To systematize information and diagnoses, and definition of critical areas

The vulnerability information should be systematized and should consider both information from climate observation and even the occurrence of disasters and events recorded in programs such as FONDEN (Mexico's Fund for Natural Disasters). In the case of climate observation, they should be considered oceanographic phenomena and should take advantage of the scientific capacity of areas such as the Mexican Pacific and

the Gulf of California that have been studied by regional institutions of higher research and education. On the other hand, they should incorporate regional studies and records of change of land use. For this reason, it is suggested a database be implemented coinciding with the base year of the emissions inventory and its validation in the field be supported. This information will make it possible to develop scenarios for different bio-geographical areas; for example, the need to characterize the climate change vulnerability of forests and rainforests and actions of change in land use, has been recognized. On the other hand, it has been proposed that the concept of social vulnerability be presupposed and research methodologies in social sciences be applied in order to characterize the possible effects of climate change on society. Adaptation also requires studying society's habits in its environment and recognizing the regional differences that exist in this respect.

2. To identify critical events and areas

There are biological systems with greater vulnerability which must be identified (for example, effects on fisheries or the occurrence of problems of forest health). Similarly it is important to recognize negative synergies between natural phenomena and urban planning problems. It has been acknowledged that certain phenomena associated with climate change, such as coastal erosion in urban and tourist areas, are intensifying, which could increase the risks of natural disasters. It is likewise important to understand the possible response of terrestrial ecosystems regulated by temperature (e.g. temperate forests) to expected changes in temperature associated with climate change, and the possible response of other terrestrial ecosystems whose operation is regulated by the availability of water (e.g. wetlands, dry tropic and humid tropic). The effects due to the increase in sea level caused by ocean warming will also have to be characterized; here, the most vulnerable areas are the populations living near the coasts and established in low areas, as well as the changes in marine populations in coastal areas (mangrove swamps, reefs). An ideal tool for illustrating vulnerability is maps, so that vulnerability maps of the biomes and socio-economic areas of Mexico are recommended.

3. Climate characterization and identification of effects

The need to systematize climate characterization and to develop analyses of regional climate variability has been recognized. Regional climate modelling can take advantage of the results of research into the topic of vulnerability. Here it is important that the probabilistic character of (present and future) vulnerability be made clear. Some of the climatic phenomena and effects that are mentioned as an area of study are: the tropical storm regime in the region of the Mexican tropical and subtropical Pacific, Caribbean Sea and Gulf of Mexico, the droughts, the coastal processes in low-relief coastal areas and the effect on areas with urban and tourist infrastructure as well as the effects on human health.

ADAPTATION

1. Records of adaptation policies

It is considered necessary to systematize the information on adaptation policies and possible future scenarios. Similarly, specific geographical areas should be identified

for carrying out pilot adaptation studies. The NC should reflect the situation maintained by adaptation policies and mention some cases of effective implementation that make it possible to enhance the benefits of preventive and remedial actions related to climate change.

2. Barriers to the implementation of adaptation measures

It is considered convenient to list the barriers to the implementation of adaptation measures and to identify how these are related to political situations, social organization and traditions as well as national and local public policies.

3. Prioritization of the adaptation measures based on vulnerability information

Evaluating the vulnerability of different economic sectors and geographical regions is a necessary condition for determining why, when and how we should adapt, even with the uncertainty inherent in climate change projections. Adaptation policies should recognize priority criteria based on this type of evaluation, which is important to document at the level of the NC. In this context, it is necessary to have a global vision of vulnerability and to identify the possible adaptation strategies in critical areas

4. To document the evaluation of environmental services, case studies, and adaptation indicators:

The supplying of environmental services can be recognized as part of the adaptation measures, especially in areas where the ecosystems also act as elements of effect mitigation (as is the case of mangrove swamps, which besides carbon capture can mitigate the effects of hurricanes and floods). Similarly, the need to motivate adaptation studies applied to real problems, and to systematize possible adaptation indicators that will make it possible to give follow-up in time to the different strategies and measures, has been detected.

EDUCATION

1. To evaluate the degree of recognition of the topic of climate change in school educational programs and to promote the inclusion of the topic in different grades, jointly with the SEP

The topic of climate change should be emphasized in educational programs, so that a greater commitment is required from the SEP inasmuch as the priority of the topic is recognized and due to the fact that it could receive greater attention in the educational programs. A practical example of the development of educational activities is the GLOBE ("Global Learning and Observations to Benefit the Atmosphere") program now being promoted by the CECADESU of the SEMARNAT in different schools in order to promote the participation of children and young people in the recording of data from climate and atmospheric observation.

2. To promote campaigns and activities of non-formal education

Since climate change is even an emerging topic, there is a broad demand for information and non-formal instruction that can interest wide sectors of the population

and that can respond to general concerns such as: What is Climate Change? What is being done to recognize and to mitigate its effects? How does it affect me and in what can I contribute?

COMMUNICATION

1. To design a clearing-house of climate change for Mexico and to popularize scientific information to explain the problem of climate change in Mexico:

This initiative will be able to systematize statistical and documentary information on CC that has been generated in the country. This initiative could take the form of a portal or Web site where there are links to the databases of emissions inventories and mitigation projects as well as scientific documentation and information for popularization. Although popularization implies activities with the media and means considering different media (printed, electronic media, Internet) a clearinghouse or portal on Climate Change can offer a broad access to relevant information continuously, both for the public in general and for a specialized audience. The INE's page on climate change can offer a starting point to supplement the information that is considered opportune and for different audience levels.

2. Research and dissemination of CC effects and mitigation projects:

In order to heighten social recognition of the problem of CC, research and dissemination of studies on CC effects could be promoted. For example, it should be emphasized that in CC the incidence of hydro-meteorological risks can increase, which should be reflected in the characterization of this type of risk through instruments of prevention such as the CENAPRED Atlas of Risks and the programs of the National System of Civil Protection - SINAPROC. Similarly, it is considered necessary to document these effects so that they can be recognized by the public in general and so that a greater social culture regarding climate change and the need to develop mitigation and adaptation strategies can be developed. Apart from this, it is also important to extend the dissemination of pilot demonstration projects on mitigation, where it can be recognized that it is possible to act at different levels to contribute to climate action.

3. Activities and communication campaigns for the various "stakeholders" (public, industry, media, federal agencies)

The communication strategies should recognize different sectors and send clear messages, with solid bases that can stress the risks and opportunities that exist for the different sectors.

In conclusion, it has been permitted to formulate different proposals, both methodological and thematic, for the preparation of the Third NC. As a result of the workshop the following has been achieved:

- the content of the draft can be improved, overcoming deficiencies of the previous communications
- the Third National Communication adheres to the UNFCCC guidelines, including aspects of participation and consultation.

- the process for preparing the National Communication should be representative, inclusive (with the participation of academic institutions and of research, international agencies, civil and corporate society) and the high expectations in the Third NC should offer an atmosphere of collaboration and development of consensus that should contribute to maintaining a posture and a national policy on climate change in Mexico

Methodological recommendations toward the Third National Communication

Considering the ideas, proposals, results and conclusions recorded as a result of the workshop, it may be concluded that the methodology applied in the workshop was successful. The exercise as such represents a watershed with respect to the preparation of the previous National Communications. It is therefore judged necessary to issue methodological recommendations toward the Third National Communication.

1. To emphasize participative planning and citizen consultation as a tool for generating information.

There exists a growing tendency at the world level to "citizenize" the planning processes. In this regard, given the cross-sectoral nature of the topic of climate change and the growing interest of the society in this area, a structure for planning and preparing the Third NC should be adopted as its own, with the participation of society. Thus, in each preparation of a National Communication, the INE will program activities and workshops focused on compiling the doubts, opinions and priorities of the country's different regions and sectors. This involves defining and executing a program of activities to take place all year, and to be repeated year after year.

2. To hold similar workshops in several locations in the Mexican Republic.

The presence of participants from different parts of the country demonstrates the growing interest in the topic of climate change. Given the difficulty involved in generating and providing funds to bring specialists and representatives of academic, productive and social sectors to the City of Mexico, it is considered necessary to hold similar workshops in at least 5 or 6 cities throughout the country. It is possible to take advantage of the regionalisation strategy of the present federal administration to identify and define a location for the workshops. The effort can be supported by federal offices in the region and by academic institutions or corporate organisations. Therefore in the course of next year, it is suggested that at least one workshop be held per region.

3. To adopt and standardize the use of the technique of brainstorming for workshops and later sessions.

The use of a specific technique in future workshops will make it possible to dominate the technique and to speed up the time for each workshop. It will thus be possible to achieve standardization in running the workshops. With standardization, the participants in future workshops will know the dynamic to follow and it will be possible to still take even more advantage of workshop time. The result hoped for is a summary of proposals, opinions and priorities in less time and more effectively.

4. To standardize public consultation workshops as a tool in preparing the National Communications.

Documenting the planning process and carrying out of the workshop held is recommended in order to generate a standard in the execution of later workshops, on this basis. The standard shall consider the agenda to follow, necessary services and infrastructure, identification of the participants, the capture and recording of the result, budgeting of the workshop cost, and the covering of the expenses.

Appendices

- Workshop agenda Second draft of Mexico's Third National Communication to the UNFCCC (October 13, 2004, version)
- Documents guidelines of the exercise in Stocktaking and Stakeholder Consultation
- Methodology of the workshop
- Directory of participants