THIRD NATIONAL COMMUNICATION TO THE UNFCCC

Dr. Adrián Fernández

President, National Institute of Ecology (INE)

Nairobi, Kenya. November 17, 2006

SECRETARÍA DE MEDIO AMBIENTE Y RECURSOS NATURALES | SEMARNAT

Instituto Nacional de Ecología

Fondo para el Medio Ambiente Mundial

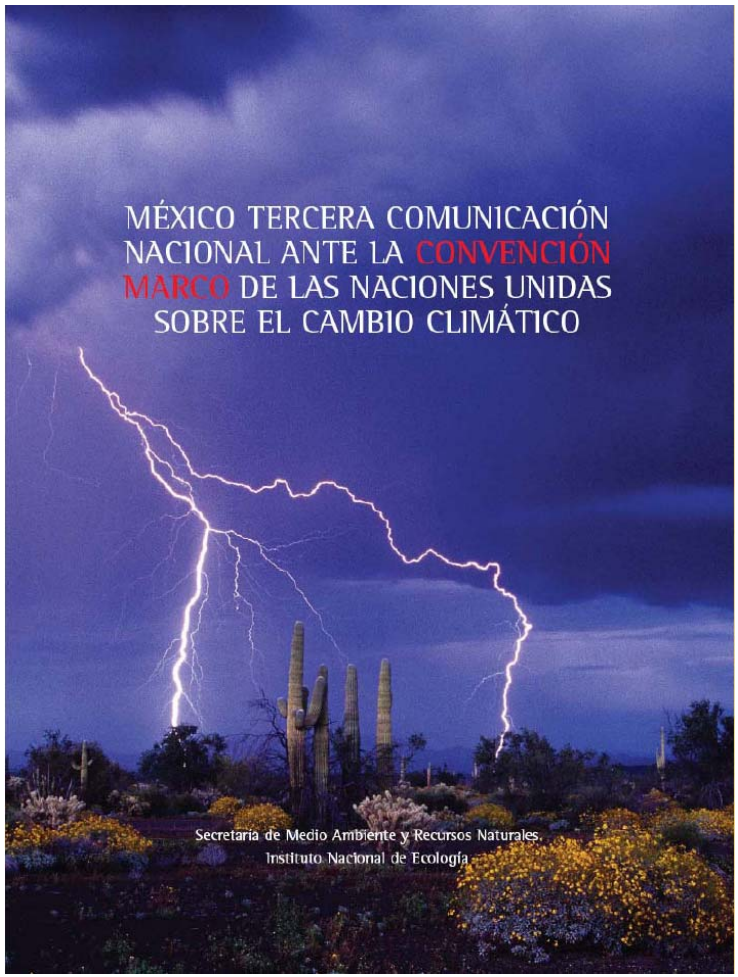
PNUD México

INE coordinates preparation of Mexico's greenhouse gases inventories and national communications

As a Non-Annex I party, Mexico shall comply with UNFCCC Article 4, including 4.1 paragraphs (a), (b) and (i) :

- Develop, periodically update, publish and make available to the COP, in accordance with Article 12, national inventories of anthropogenic emissions by sources and removals by sinks of all GHG not controlled by the Montreal Procotol.
- Formulate, implement, publish and regularly update national, and where appropriate, regional programmes containing measures to mitigate climate change… and measures to facilitate adequate adaptation to climate change.
- Communicate to the COP information related to implementation

Mexico: Third National Communication to the UNFCCC. Content



Introduction,
Executive summary (Spanish and English)

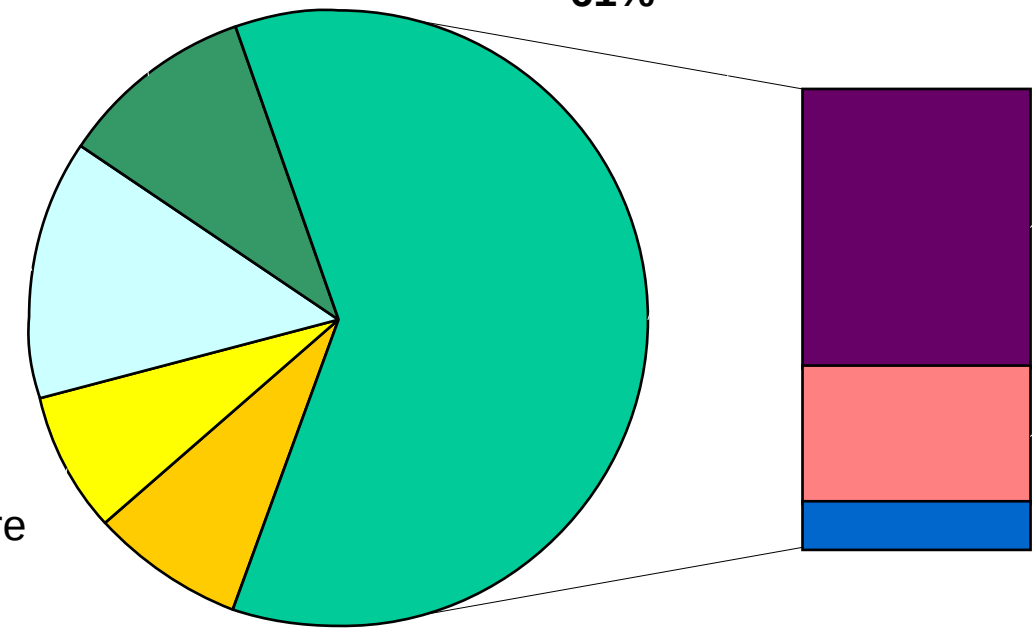
I. National circumstances.
II. National GHG Emission Inventory (1990-2002).
III. Institutional arrangements to implement the Convention.
IV. Programmes and measures to facilitate adequate adaptation to climate change.
V. Programmes and measures to mitigate climate change.
VI. Other relevant information: Research, systematic observation, education and public awareness, capacity building and technology transfer, international cooperation.
VII. Constrains and gaps, and related financial, technical and capacity needs.
VIII. Bibliography.

SECRETARÍA DE MEDIO AMBIENTE Y RECURSOS NATURALES | SEMARNAT
Instituto Nacional de Ecología
Fondo para el Medio Ambiente Mundial
PNUD México

National GHG Emission Inventory (INEGEI) 1990- 2002

- The INEGEI is the third national GHG emissions inventory prepared by Mexico since the Convention entered into force in 1994.
- The INEGEI 1990-2002 recalculated the emission estimates for 1990-1998 and estimated the emissions for 2000 and 2002.
- In addition, the INEGEI:
  - Includes gases and sources not estimated in previous inventories.
  - Identifies source categories.
  - Incorporates a trend analysis
  - identifies contribution by source and gas.

Emissions by source, in CO_2 eq.



Waste
10%

Energy
61%

LULUCF
14%

Agriculture
7%

Industrial
processes
8%

Fixed and area
sources
37%

Transport
18%

Fugitive
emissions
6%

643,183 tons CO_2 eq.

National GHG Emission Inventory (INEGEI) 1990- 2002

- GHG emissions to 2002 are 30% higher than those estimated for 1990.
- Mexico emissions grew at an annual average rate of 2.2%.

Vulnerability and adaptation (V&A)

- As part of the Third National Communication, a number of V&A studies were developed.

- The sectors and Mexican states studied include:
  - Tourism in Quintana Roo (Cancun)
  - Agriculture, forest and water in Tlaxcala
  - Water availability in Mexico (at the national level)
  - Water and agriculture in Morelos
  - Public health in Mexico (at the national level)
  - Water availability in Hermosillo, Sonora (north of Mexico)
  - Biodiversity in Mexico (at the national level)
  - Impacts en national energy sector (at the national level)

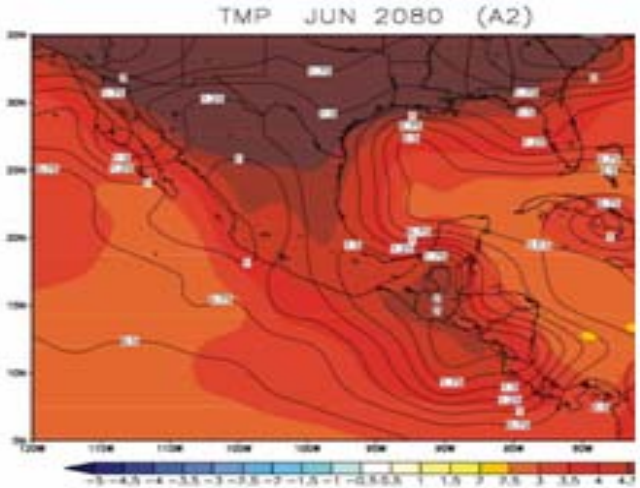
- Climate scenarios were also prepared.

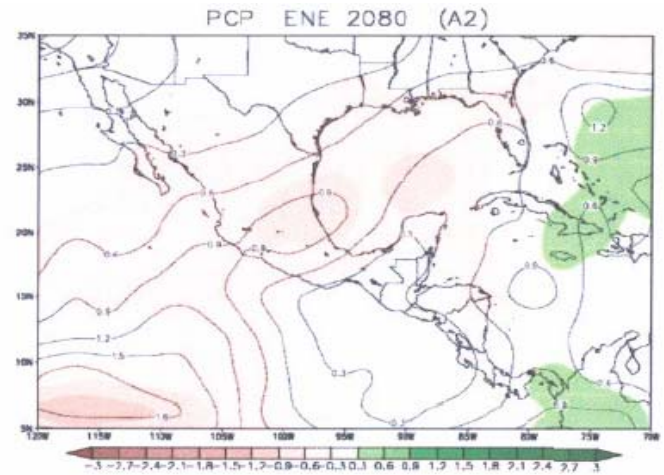
Climate change scenarios for Mexico:
Expected changes in temperature and precipitation

- Very likely that mean temperature in Mexico will increase by 2 to 4°C by 2050.

- In the Winter, it is likely that precipitation will decrease by 15% in the central part of the country, and by 5% in the region around the Gulf of Mexico. In the Summer, precipitation may decrease by 5% in the central part of Mexico.

- Delays on the beginning of the rain season are expected, and the season will likely extend to the Autumn in many parts of the country.

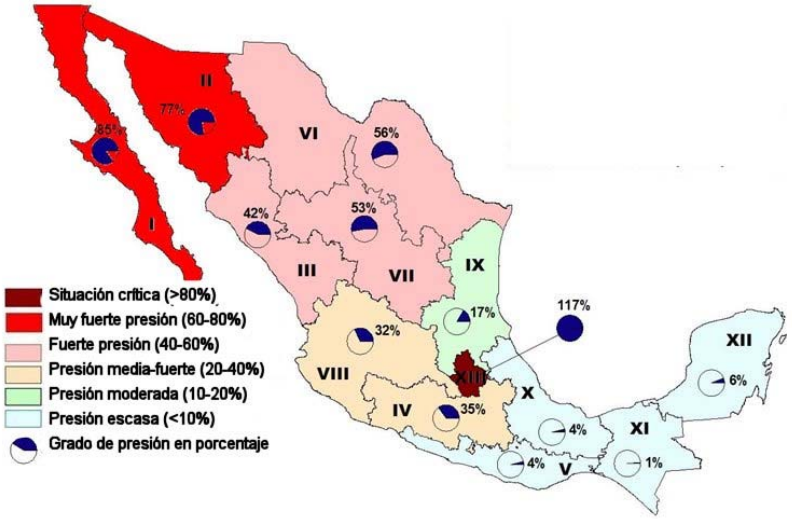




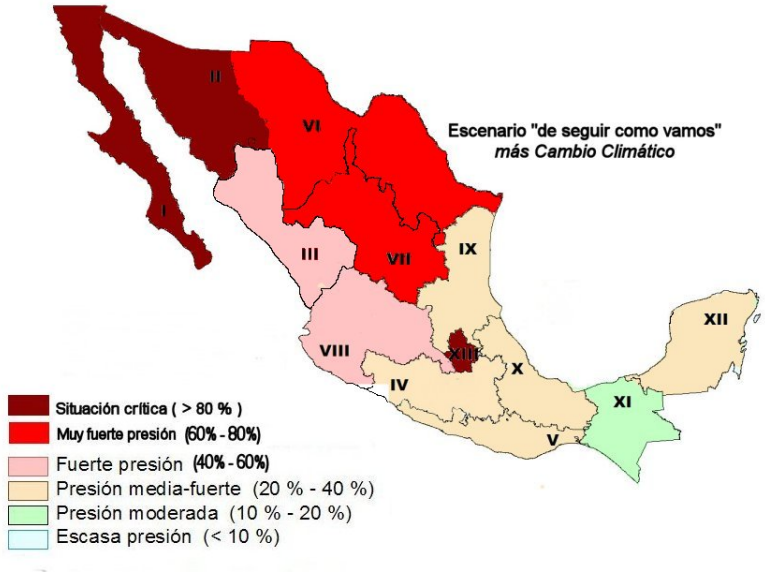
Vulnerability and Adaptation

Water availability: Projections to 2030

Stress on water as a resource- present day



Stress by 2030

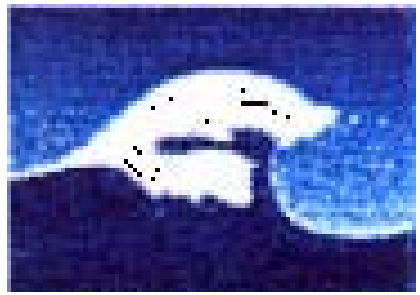


- In the next four decades, an increased stress on water availability is expected due to the impacts of climate change, situation that may worsen by the pressure already imposed by economic development and population growth.

- At the national level, a 10% decrease on water availability is expected by 2030, compared to 2000, according to scenarios

Expected impacts of climate change in Mexico

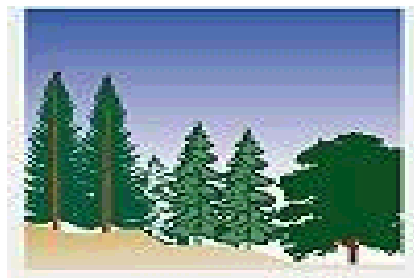
- Sea surface temperature in the Caribbean, the Gulf of Mexico and the Pacific Ocean may increase by 1 to 2°C in the next 30 years, which will increase the probability of stronger hurricanes.



- The hydrological cycle will intensify, with an increase on heavy rains and storms, and longer and more frequent drought episodes. This is also suggested by recent climate observations.

- Forest fires will increase in number.

- By 2050, more than 50% of all vegetation cover will be exposed to different climate conditions as compared to the current ones.



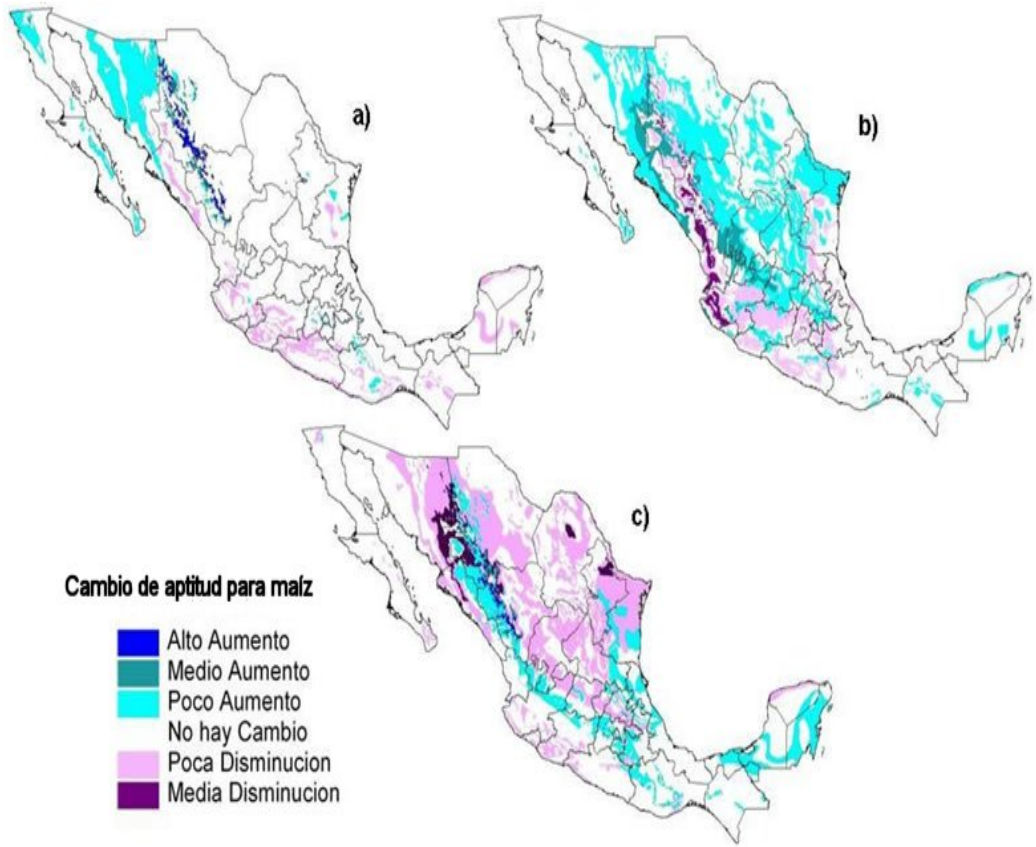
Expected impacts of climate change in Mexico

Changes on Mexican soil aptitude for rain-dependant maize cultivation under climate change scenario A2

Climate scenarios for 2020 project a moderate **reduction on the soil aptitude for rain-dependant maize cultivation**.

An additional 4.2% of surface will not be adequate for maize cultivation.

Most of rain dependant crops will be severely affected.



Expected impacts of climate change in Mexico

• Vulnerable groups will be directly affected by **heat waves** or indirectly by alterations on the life span of insects and parasites that may cause dengue or **diarrheic diseases**.

•**Electricity demand** will increase due to higher temperature (more use of refrigeration and air conditioning)

• Energy infrastructure including oil platforms in the Gulf of Mexico, will be affected by extreme hydro meteorological events such as hurricanes.

• Beach tourism will face more intense extreme events and sea level rise.

•The central part of Mexico (the most intensive and productive agricultural area) will be threatened by climate change, with expected **impacts on ecosystems** and changes in vertebrates distribution.

Policies needed for Adaptation to CC in Mexico

✓Water: administrative and financial reforms; changes in water management policies. Foster rain water capture for aquifers recharge. Better control on water demand.

✓Agriculture: use more resistant maize varieties; optimize fertilizers application; intensive use of greenhouse facilities for rain-dependant crops.

✓Forests: implementation of aggressive strategies and programmes for forest conservation and forest land use control and enforcement.

✓Tourism: modifications to tourism infrastructure design and construction, including building codes, coast proximity to coast, etc.

Other relevant information for the implementation of the Convention

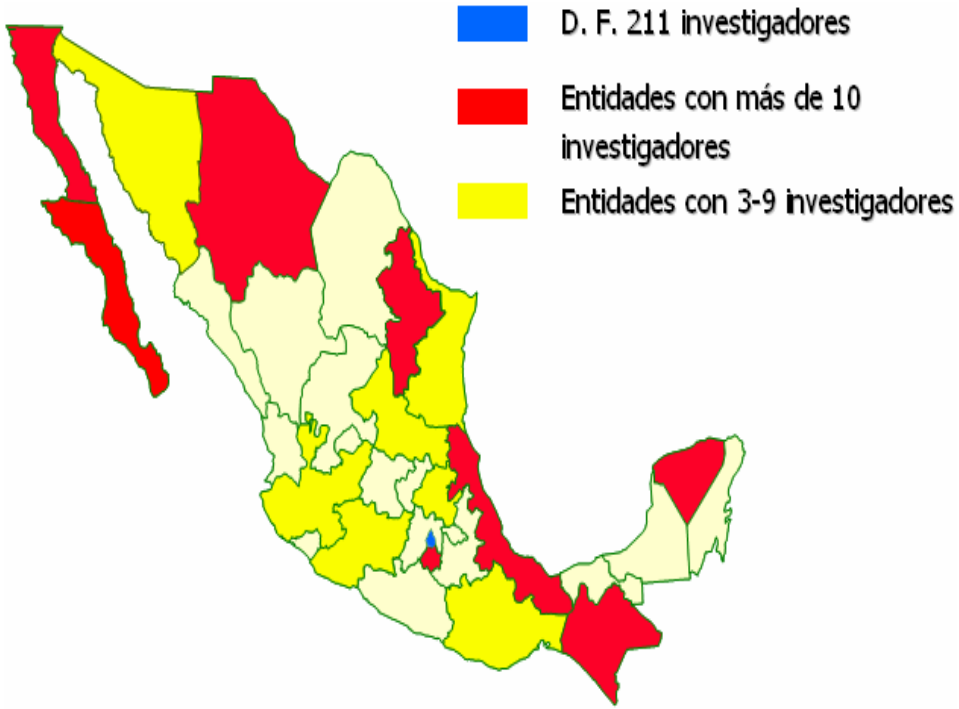
Climate change research potential in México, 2005

An inventory of climate change research capacity was completed in 2005.

New research on impacts and vulnerability at the state level, and on climate observation, including studies on El Niño/La Niña, the carbon cycle, etc.

Research on the social and economic dimensions of climate change in Mexico including studies on risks generated by climate variability.

International cooperation: IAI, EU, USA, UK, Central America.



Education, training and public awareness

Climate change clearinghouse

Mexican Carbon Programme

SECRETARÍA DE MEDIO AMBIENTE Y RECURSOS NATURALES | SEMARNAT

Instituto Nacional de Ecología

Fondo para el Medio Ambiente Mundial

PNUD México

Education, training and public awareness

- Story book for children 10-12 years old on climate change.
- Publications: a number of books, articles, and book chapters on climate change have been written in Mexico in the last 5 years.
- Workshops, seminars and forums: in average, at least one public seminar or forum has been held every month in Mexico during the last 5 years.
- Media: a workshop on “Environmental journalism” recently took place emphasizing climate change.

¡¡ Thank you for your attention and time !!

Please visit the website of the National Institute of Ecology! There are more than 100 publications in pdf for free. From December 2006 fully bilingual.

http://www.ine.gob.mx/dgicurg/cclimatico/index.html

http://cambio_climatico.ine.gob.mx/