Food Security and Agricultural Mitigation

Barcelona, November 2009

Climate Change and Food Security

Temp rise (°C)	Water	Food	Health	Land	Environment
1°C	Small glaciers in the Andes disappear completely, threatening water supplies for 50 million people	Modest increases in cereal yields in temperate regions	At least 300,000 people each year die from climate-related diseases (predominantly diarrhoea, malaria, and malnutrition) Reduction in winter mortality in higher latitudes (Northern Europe, USA)	Permafrost thawing damages buildings and roads in parts of Canada and Russia	At least 10% of lan species facing extinction (according to one estimate) 80% bleaching of coral reefs, including Great Barrier Reef
2°C	Potentially 20 - 30% decrease in water availability in some vulnerable regions, e.g. Southern Africa and Mediterranean	Sharp declines in crop yield in tropical regions (5 - 10% in Africa)	40 - 60 million more people exposed to malaria in Africa	Up to 10 million more people affected by coastal flooding each year	15 – 40% of specie facing extinction (according to one estimate) High risk of extinction of Arctic species, including polar bear and caribou
3°C	In Southern Europe, serious droughts occur once every 10 years 1 - 4 billion more people suffer water shortages, while 1 – 5 billion gain water, which may increase flood risk	150 - 550 additional millions at risk of hunger (if carbon fertilisation weak) Agricultural yields in higher latitudes likely to peak	1 – 3 million more people die from malnutrition (if carbon fertilisation weak)	1 – 170 million more people affected by coastal flooding each year	20 – 50% of specie facing extinction (according to one estimate), including 25 – 60% mammal 30 – 40% birds and 15 – 70% butterflie in South Africa Onset of Amazon forest collapse (some models only
4°C	Potentially 30 – 50% decrease in water availability in Southern Africa and Mediterranean	Agricultural yields decline by 15 – 35% in Africa, and entire regions out of production (e.g. parts of Australia)	Up to 80 million more people exposed to malaria in Africa	7 – 300 million more people affected by coastal flooding each year	Loss of around half Arctic tundra Around half of all the world's nature reserves cannot fulfill objectives
5°C	Possible disappearance of large glaciers in Himalayas, affecting one-quarter of China's population and hundreds of millions in India	Continued increase in ocean acidity seriously disrupting marine ecosystems and possibly fish stocks		Sea level rise threatens small islands, low-lying coastal areas (Florida) and major world cities such as New York, London, and Tokyo	
More than 5°C	The latest science suggests that the Earth's average temperature will rise by even more than 5 or 6°C if emissions positive feedbacks amplify the warming effect of greenhouse gases (e.g. release of carbon dioxide from soils or m This level of global temperature rise would be equivalent to the amount of warming that occurred between the last likely to lead to major disruption and large-scale movement of population. Such "socially contingent" effects could t currently very hard to capture with current models as temperatures would be so far outside human experience				

Increase in Temp. (°C)	Agriculture
1 °C	Modest increases in cereal yields in temperature regions
2 °C	Sharp declines in crop yield in Tropical Regions
3 °C	150-550 additional million people at risk of hunger
4 °C	Agricultural yields decline by 15-35% in Africa, and entire regions out of production(parts of Australia)
5 °C	Continued increase in ocean adicity seriously disrupting marine ecosiystems and possibly fish stocks

How agriculture contributes to GHG emissions?

- Agriculture is an important source of greenhouse gas (GHG) emissions, representing 14 percent of the global total.
- Developing countries are the source of 74 percent of these emissions.
- From 1990 to 2005, emissions from agriculture in developing countries increased 32 percent, and are expected to continue to rise, driven by population increases, 9.1 billion in 2050, and changes in diet.
- Agricultural productivity may suffer a decline for 2100 of between 35 billion dollars to 120 billion dollars(0.056 of GDP).

Sustainable Livestock Production Program and Management Livestock and Apiculture (PROGAN)

Amended to include provisions to prevent soil erosion:

- Practice of rehabilitation, improvement and conservation in 65 million hectares.

- Commitment of reforestation or landscaping producers with 30 plants per animal unit supported and carried out every two years at least a piece of soil and water conservation (culture and ageing).

- Water Tecnification and REDD (Forest and Agriculture)

Financing

- Synergies between mitigation and food security for farmers often involve short-term investment:
- (investment in fixed costs such as soil improvement, equipment, machinery, seeds, training, reserch)

- The need to develop new financial mechanisms to support national or international level, since there is currently no specific support lines for these synergies between mitigation and food security.

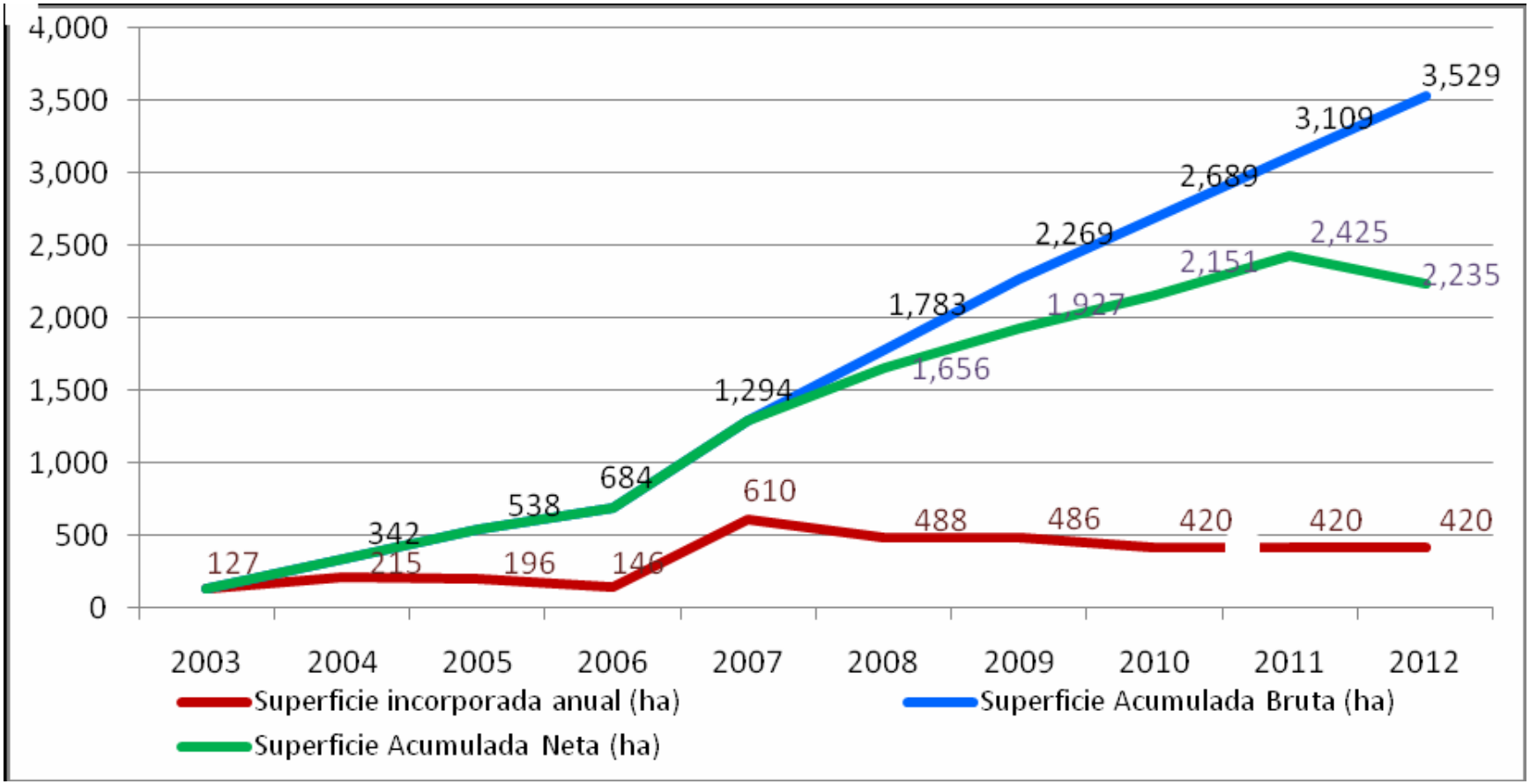
- Mexican Forest Fund:
- Current financing scheme to “make water” and protecting forests

Synergies Mitigation and Food Security

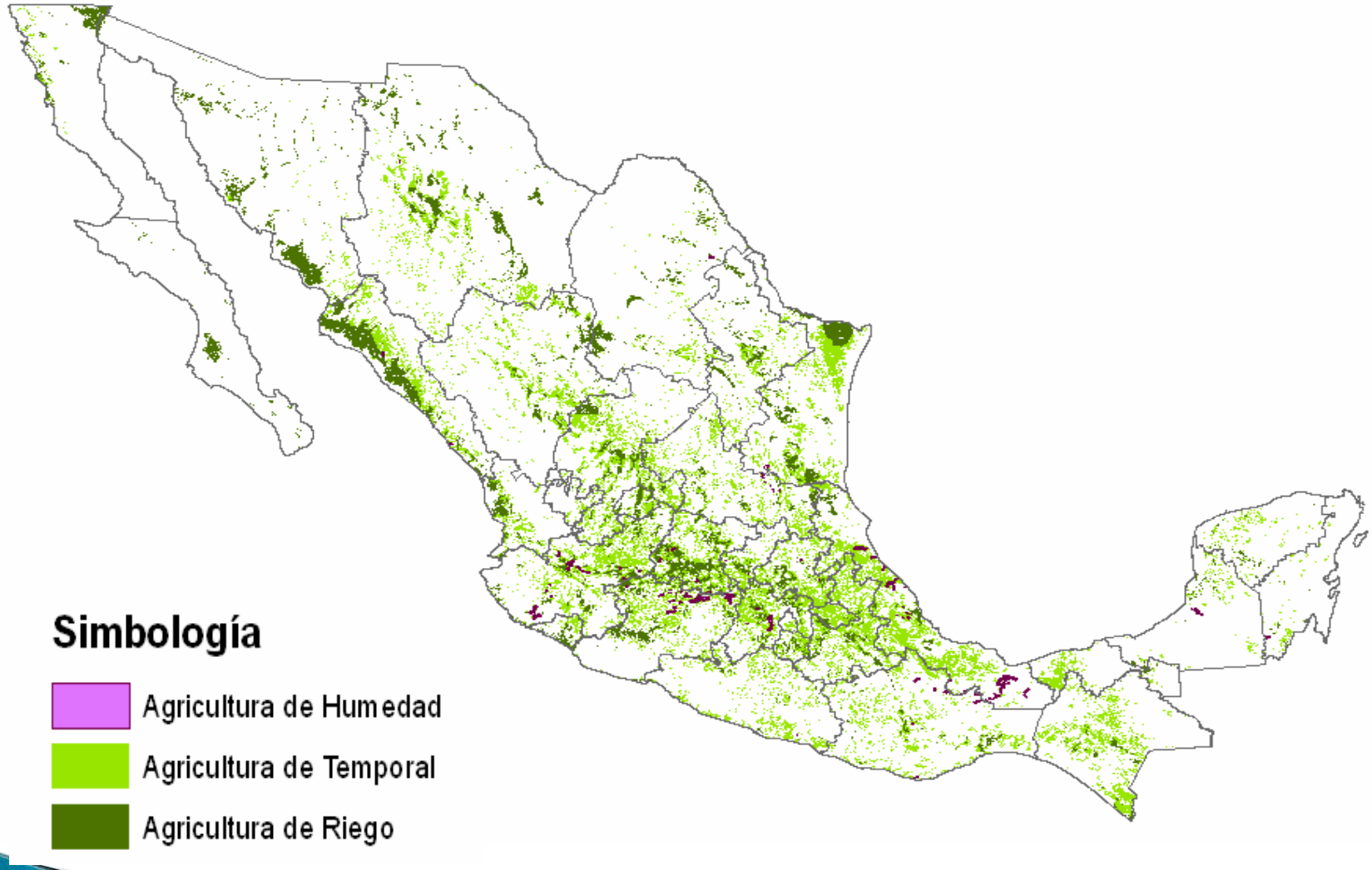
Mexican Forest Fund

- 3,000 millions of dollars have been paid
- Beneficiaries 1,9 millions of hectares
- For 2009, 500,000 has
- 1.75 million of forest owners
- Contracts x 5 years, $40 per hectare.

Payments for Environmental Services in Mexico



Types of Agriculture



Climate Change Global Fund (Green Fund)

Proposal

Constitution Green Fund as the financial mechanism to ensure the full implementation, sustained and effective implementation of UNFCCC.

Specific Objetives

- Increase the mitigation scale
- Support efforts to adapt
- Provide technical assistance and promote the transfer and diffusion of clean technologies.

Contributions

- All countries should contribute to and benefit from the Fund may, under the principle of common but differentiated responsabilities.
- Contribution in terms of emissions, populations and GDP.
- Scalable, with an initial amount of at least 10 billion dollars

Administration

- Operation under the aegis and guidance of the Confernce of the Parties with the participation of all contributing countries.
- Administration by an existing multilateral agency, without additional bureaucracy
- Expeditious evaluation of projetcs.
- Mechanisms for measuring, reporting and verification.

Resource Allocation

- Developing countries receive more resources than those that provide.
- Projects eligible Scale: isolated activities, programs, sub-entire sectors
- Reducing emissions from the use of agriculturual land, access to clean technology, management of methane

MRV Mechanisms Development in Mexico

Some examples of scientific developments and policy measures to build capacity in the country in terms of MRV include:

- Federal Government: Special Climate Change Program
- State Governments: State Plans Climate Change
- CONACYT: Carbon Project
- BANCOMEXT: Mexican Carbon Fund

El Cambio Climático en México
Información por Estado y Sector

Cambio Climático | Información por Estado | Información por Sector | Enlaces

1. Aguascalientes
2. Baja California
3. Baja California Sur
4. Campeche
5. Chiapas
6. Chihuahua
7. Coahuila
8. Colima
9. Distrito Federal
10. Durango
11. Guanajuato
12. Guerrero
13. Hidalgo
14. Jalisco
15. México
16. Michoacán
17. Morelos
18. Nayarit
19. Nuevo León
20. Oaxaca
21. Puebla
22. Querétaro
23. Quintana Roo
24. San Luis Potosí
25. Sinaloa
26. Sonora
27. Tabasco
28. Tamaulipas
29. Tlaxcala
30. Veracruz
31. Yucatán
32. Zacatecas

Para más información, presione sobre el nombre del estado que desea consultar.

Inicio

El Cambio Climático en México
Información por Estado y Sector

SECTORES

AGUA 

AGRICULTURA 

BOSQUES 

ENERGÍA 

BIODIVERSIDAD 

SALUD 

PROTECCIÓN CIVIL 

TURISMO 

COMUNICACIONES Y TRANSPORTES 

SOCIAL 

Inicio

Information by State

Tabasco

La ubicación de la entidad en la zona tropical, su escasa elevación con respecto al nivel del mar y su cercanía al Golfo de México determinan el desarrollo de climas cálidos con influencia marítima, en los que la variación de la temperatura es moderada.

Escenarios Climáticos

Clima Actual

Proyecciones de Clima a Futuro:

Temperatura
Precipitación

Amenaza

- Inundaciones

- Huracanes

Más información

Vulnerabilidad

Agua
El Estado tiene una disponibilidad alta y el grado de presión es escaso (2%)

Zonas Costeras
La zona es considerada de alta vulnerabilidad al aumento del nivel del mar en la zona deltaica en donde las modificaciones son profundas y drásticas al cambiar aceleradamente la línea de costa por erosión e inundación de las tierras bajas y al alterarse el uso de suelo. Las zonas más vulnerables son el complejo deltaico Grijalva-Mazcapala-Usumacinta.

Acciones y Proyectos

- Monitoreo de quema de biomasa y su efecto en el clima

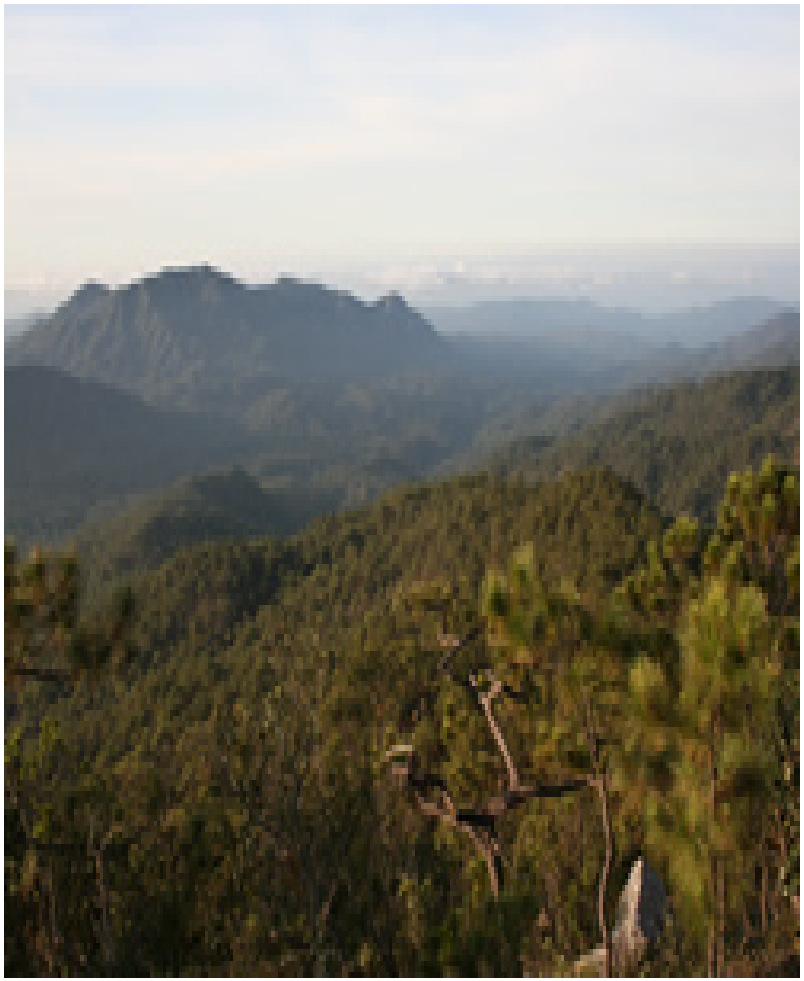
- Posible Impacto del Cambio Climático y Global en los Ecosistemas de Tabasco

- El Cambio Climático y su Evaluación a través de Parámetros Agroclimáticos.

Más información

Conclusions

- A more holistic vision of food security, agricultural mitigation, adaptation and development is needed if synergies are to be maximized and trade-offs minimized.
- Synergies between Ministeries of Environment, Water, Agriculture, Finances, state and local goverments and stakeholders.
- Important to create a new culture for agriculture production link to climate change.
- Payments for ecosystem services are one potential source of operation finance as shown by the Mexican model.
- Explore viable pilot projects and disseminate their results.



MUCHAS GRACIAS!!

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