Natural Solutions:
Making the Connection

Protected Areas:

Meeting Human Aspirations and Addressing Global Challenges

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IUCN-World Commission on Protected Areas

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CBD Strategic Plan: Target 11

Globally at least

17 % of terrestrial and inland water, and

10 % of coastal and marine areas

especially areas of particular importance for biodiversity and ecosystem services, are conserved through

- **ecologically representative, effectively and equitably managed and well-connected systems of protected areas**
- **other effective area-based conservation measures**
- **integrated into the wider landscape and seascape.**





PA´s and Aichi Targets (1)

- Target 1 - *Build Awareness* PA´s have millions of visitors, with Tourism Sector can make a difference
- Target 2 - *BD values integrated planning* PA´s in spatial development planning
- Target 5 – *Halve rate of loss of natural habitats* PA´s in unrepresented areas
- Target 6 – *Marine resource management* MPA´s role is critical for sustainable fishery





PA´s and Aichi Targets (2)

- Target 7 – *Managing for BD (Agr. Aqua. and Forestry)* connectivity corridors, source-sinks, buffer zones
- Target 8 - *Pollution incl. Nutrients levels* – Protected wetlands and watersheds reduce nutrient loads and downstream and offshore sedimentation
- Target 9 - *Invasive aliens and pathways* – priority threat for PA management (esp. islands)





PA´s and Aichi Targets (3)

- Target 10 - *pressures on coral reefs – MPA´s*
- Target 12 – *prevent species extinction* – PA´s are a fundamental tool
- Target 13 – *genetic diversity* – wild relatives in PA´s addressing food security
- Target 14 – *essential ecosystem services maintained* Arguments for Protection series, Healthy Parks, Healthy People (HPHP).





PA´s and Aichi Targets (4)

- Target 15 – *BD re carbon via conservation and 15% restoration* – PAs role in mitigation and adaptation
- Target 16 – *ABS genetic resource* - Governance of PA management.
- Target 17 – *NBSAPs by2015* – Systems of PA´s are a cornerstone
- Target 18 – *Indigenous and TEK* – CCIAs and co-management governance models

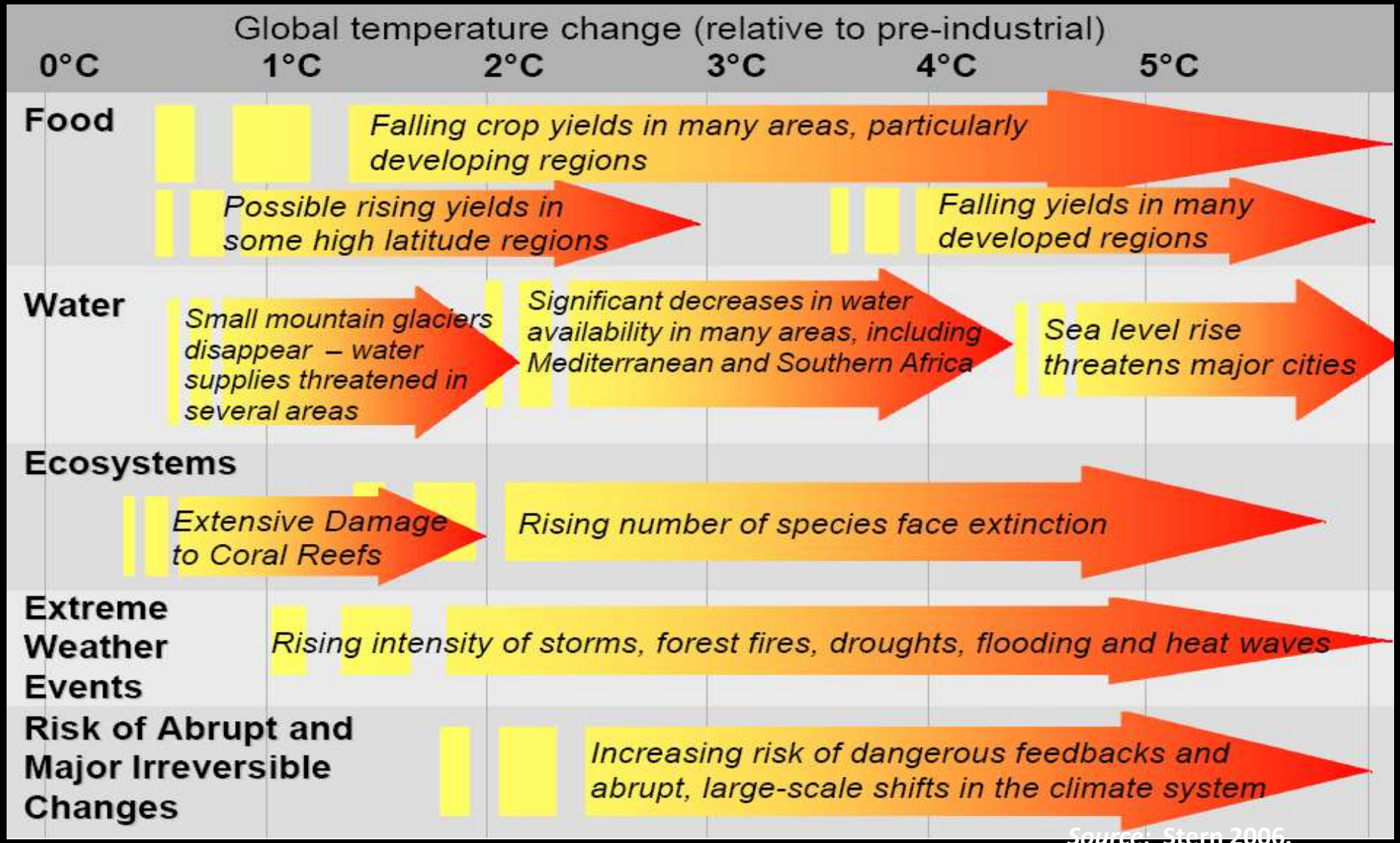
PA´s and Aichi Targets (5)

- Target 19 – *Knowledge BD values transfer* – PA´s as centres of research monitoring and knowledge dissemination
- Target 20 – *Financial resource mobilisation* – Sustainable financing for PA´s and business planning.

Making the Case

- What does this imply for the establishment, management and governance of protected areas
- Protected areas - social and economic values

Climate Change - Likely Impacts



Source: Stern 2006.





Drylands and Desertification

- **Drylands - 41% of Earth's land area**
- **Home to > two billion people**
- 70% drylands already degraded
- 250 million people directly affected
- One billion more are at risk
- New strategies to address desertification

Likely Regional Impacts of Climate Change on Human Communities and Livelihoods

Africa

- Two thirds desert or drylands. 75% agricultural drylands degraded.
- By 2020, 75-250 m people suffering water shortages
- Some countries - 50% reduction yield from rain-fed agriculture
- Strong links to poverty, migration and food security

Asia

- By 2050, freshwater availability projected to decrease.
- Coastal areas, esp. heavily populated delta regions, flooding risk
- Increased pressure on natural resources from agriculture expansion
- Endemic morbidity and mortality due to diarrhea/disease rise.

Islands

- Sea level rise -inundation, storm surge, erosion, other coastal hazards.
- By 2050, reduced water resources and shortages
- With higher temperatures, increased invasion by non-native species.

Ecosystems As Part of the Solution – Mitigation

- Store C & Capture CO2 from atmosphere
  Forests 35% of land, 50% terrestrial C
  - Remove 2.4 b tons C/yr (=1/3 fossil fuel emissions)
  - Wetlands, seagrass beds, mangroves, kelp forests some of the most efficient C sinks.

BUT Land Conversion, Deforestation and Degradation 20% global emissions

Globally 15% terrestrial C stored in PAs

ARPA C stock estimated 4.5 bn tons. Reduced emissions estimated at 1.8 bn tons of carbon.





Ecosystems as Part of the Solution - Adaptation

- Protect : maintain ecosystem integrity, buffer climate, reduce risks and impacts of extreme events (droughts, floods, storms, sea level rise)
- Provide: maintain essential ecosystem services: water supplies, fisheries, agricultural productivity
- Maintain nursery, feeding and breeding grounds for fisheries and wildlife – food security
- Protect reservoirs of wild crop relatives, pollinators, pest control - genetic diversity and resilience.
- Healthy ecosystems restrict spread of invasive alien species (IAS) and disease vectors.
- Protected Areas -Proven, cost-effective and sustainable solutions – reducing the impact of CC





Protected areas Madagascar

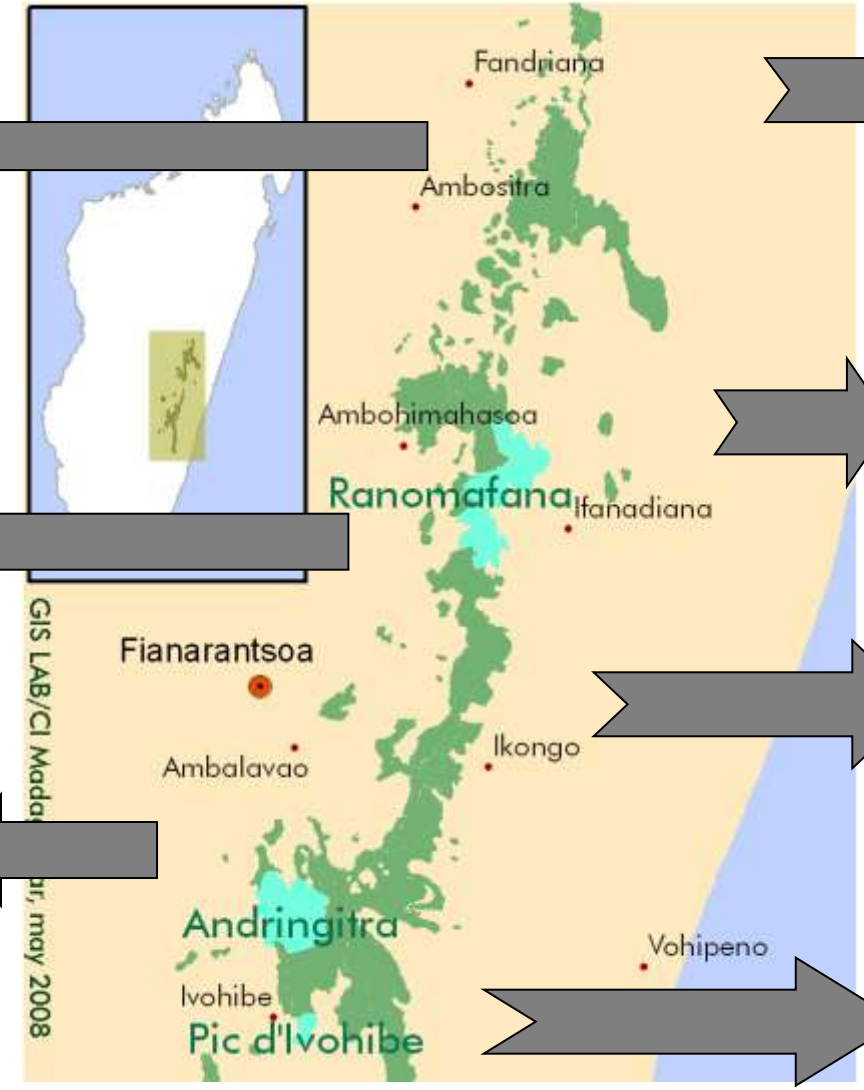
- 6 million ha terrestrial & freshwater protected areas being created
- 4m ha natural forest, i.e. 35% of the total remaining in the country
- Deforestation rate (2005 data):
  - Unprotected forests: 0.65% per year
  - Inside protected areas : 0.11% per year

❖ *When fully operational, the new System of Protected Areas could reduce CO_2 emissions by approximately 9 million tons per year*

Ambositra-Vondrozo Forest Corridor (COFAV)
A New Protected Area

Carbon storage

Health security



Food security

Fresh water

Hydro-electric energy

Species value

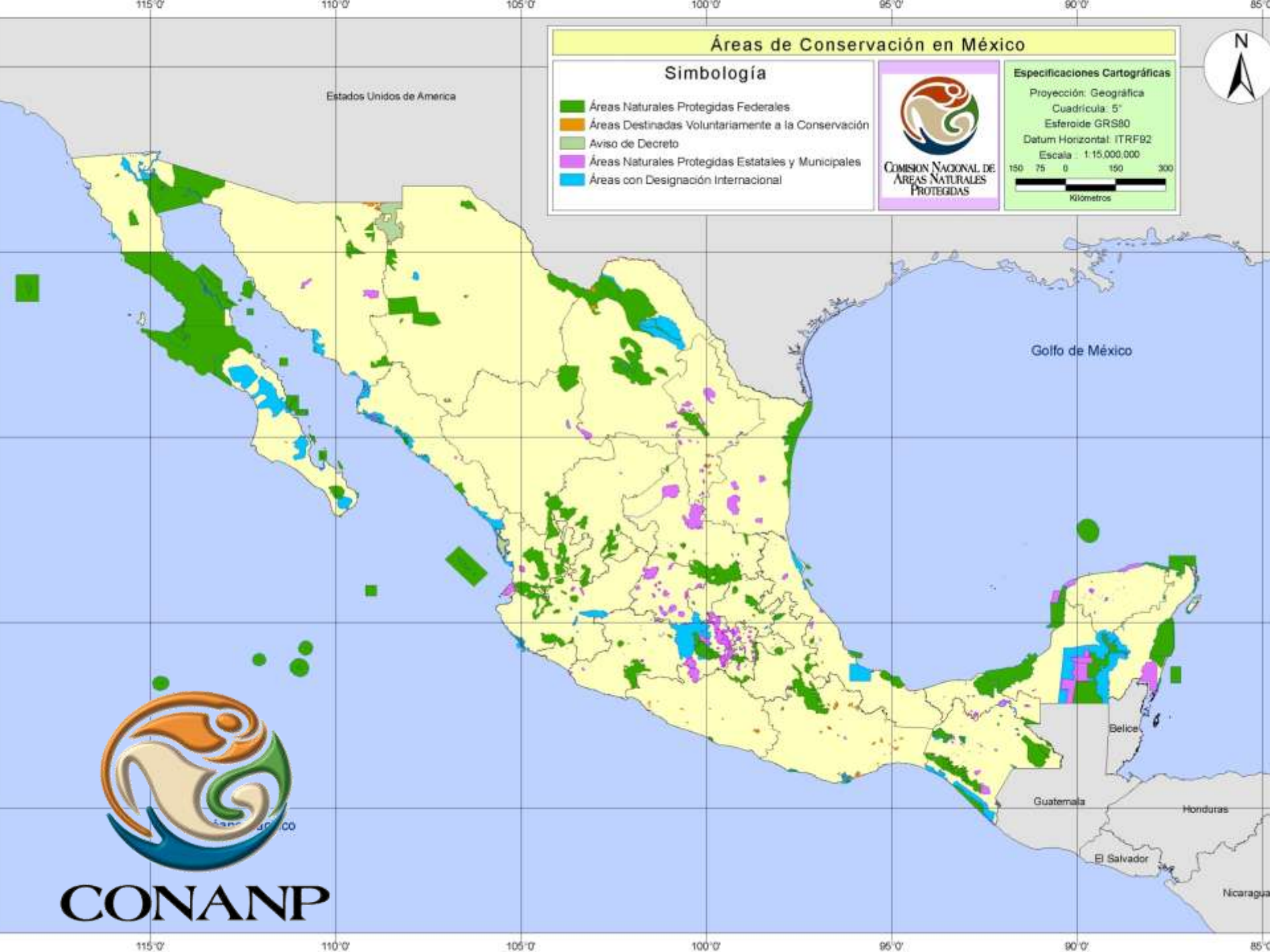
Cultural services

sapm

Protected areas Mexico

- **50% growth in protected areas 2001-2010 (8.5 million hectares)**
- **2008 study demonstrated most cost effective legal measure for climate change adaptation/mitigation**
- **2010 first country**
- **Deforestation rate (2010 data):**
  - **Outside Protected areas: 0.55% per year**
  - **Inside protected areas : 0.06% per year**

❖ *In 2010 Mexico became the first country to formalize a Protected Areas Climate Change Program.*


Áreas de Conservación en México
Simbología
Áreas Naturales Protegidas Federales
Áreas Destinadas Voluntariamente a la Conservación
Aviso de Decreto
Áreas Naturales Protegidas Estatales y Municipales
Áreas con Designación Internacional
Comisión Nacional de Áreas Naturales Protegidas
Especificaciones Cartográficas
Proyección: Geográfica
Cuadrícula: 5°
Esferoide GRS80
Datum Horizontal: ITRF92
Escala : 1:15,000,000
150 75 0 150 300
Kilómetros
N
Estados Unidos de America
Golfo de México
Belice
Guatemala
Honduras
El Salvador
Nicaragua
115°0'
110°0'
105°0'
100°0'
95°0'
90°0'
85°0'
CONANP





What investment returns 52 for every 1?

Concepto	Mx$ millones	US$ millones t.c. 15 x 1
Turismo	8,345	556.3
Agua adicional para consumo municipal	2,034	135.6
Agua adicional para la agricultura de riego	889	59.3
Agua adicional para la generación de energía hidroeléctrica	1,032	68.8
Agua para generación de energía termoeléctrica	10	0.7
Agua para la industria autoabastecida	674	44.9
Carbono (valor mínimo al 10% del valor teórico máximo)	42,168	2,530.1
Costos de elevación nivel del mar	?	?
Biodiversidad	?	?
Otros bienes y servicios	?	?
Valor total	50,935	3,395.7
Presupuesto federal modificado destinado a las ANP 2008	984	65.6
Relación: valor total / inversión presupuesto federal	**Mx$ 52/ 1**	

Anualmente las áreas naturales protegidas aportan a la economía cuando menos $ 51 mil millones de pesos (US$ 3.4 billones), lo que representa

52 pesos por cada peso del presupuesto federal invertido.

PROTECTED AREAS!!!

TECNOLÓGICO DE MONTERREY.

IUCN WCPA WORLD COMMISSION ON PROTECTED AREAS

Efectividad de las Áreas Protegidas: Montes Azules, Chiapas





Forests and Water Security

- Quantity: cloud forests increase water flow
- Quality: 33/105 major cities depend on PAs for domestic water – Jakarta, Quito, New York
- Another 10%:water from protected watersheds
- Forests reduce sedimentation - irrigation canals and reservoirs e.g. Bogani Nani Wartabone NP
- Value to downstream agriculture – Madagascar - 6m hectares of PAs





Protecting against hazards

- Coral reefs & mangroves – coastal protection, fisheries & food security.
- Mangroves $300,000/km coastal defences Malaysia.
- Vietnam: Investment US$1.1m saved est.US$7.3 m/year sea dyke maintenance & reduced damage from Typhoon Wukong 2000.
- Switzerland 17% forests - stop avalanches, landslides & flooding, valued at US$2-3.5 billion per year
- Green Infrastructure – Argentina, Parana flood control
- Mali - role of national parks in desertification control. PA reservoirs of drought-resistant species





Contributing to a Greener Economy

- **PROTECT**: More & larger protected areas: marine; areas high C & BD; watersheds, peat, lowland, FW
- **CONNECT** Protected areas in landscapes/seascapes
- Full range of PA governance (state to communities)
- Improve protection & management for C, BD & ES
- **RESTORE** - degraded habitats within & around PAs.
- Incorporate PAs into CC/Adaptation/Disaster Reduction Strategies and Spatial Planning
- Mainstreaming PAs & Green Infrastructure–flood control, watersheds.

Cost-Effective Solutions

- COST $23b/yr (4x current)
- Better assessment of real needs and PA values –financial sustainability
- GEF funds ($700m GEF 5)
- Support for PAs in Climate Funds & REDD+ mechanisms

Advocacy to Action

NATURAL SOLUTIONS

Protected areas helping people cope with climate change

Protected areas are an essential part of the global response to climate change. They are helping address the cause of climate change by protecting natural ecosystems and reducing greenhouse gas emissions through carbon storage and sequestration. They can also help society cope with climate change impacts by maintaining the essential ecosystem services upon which people depend. They are proven, "green" and cost-effective natural solutions to help address the climate crisis.

Protected areas can contribute to two main responses to climate change through:

Mitigation

Terrestrial and oceanic ecosystems play a significant role in the global carbon cycle, serving as major carbon stores and sinks, mitigating and reducing greenhouse gas (GHG) emissions from energy production and land use change.

Store: Protected areas conserve forests and other natural habitats, preventing the loss of carbon that is already present in vegetation and soils. At least 15% of the world's terrestrial carbon stock is stored in protected areas globally.

Capture: Natural ecosystems capture more than 4.7gigatonnes of carbon (GtC) annually, mitigating and reducing GHG emissions from energy production, transport and land conversion. In many regions protected areas contain the only remaining large areas of natural habitats; many are important carbon sinks, sequestering carbon dioxide from the atmosphere.

Adaptation

Protect: Protected areas maintain ecosystem integrity, buffer local climate, and reduce risks and impacts from extreme events such as storms, droughts and sea level rise.

Provide: Protected areas also maintain essential ecosystem services that help people cope with changes in water supplies, fisheries, disease and agricultural productivity caused by climate change.

Protected areas are efficient and cost effective tools for ecosystem management, with associated laws and policies, management and governance institutions. Increased coverage and connectivity at the landscape level and more effective management will enhance the resilience of ecosystems to

Protected areas help to reduce the impacts of climate change on vulnerable communities.

climate change and safeguard vital ecosystem services. Most countries have a protected area network but few value protected areas as integral parts of national and local climate response strategies, even though both the Convention on Biological Diversity (CBD) and the UN Framework Convention on Climate Change (UNFCCC) now recognize the importance of ecosystem-based approaches to climate change.

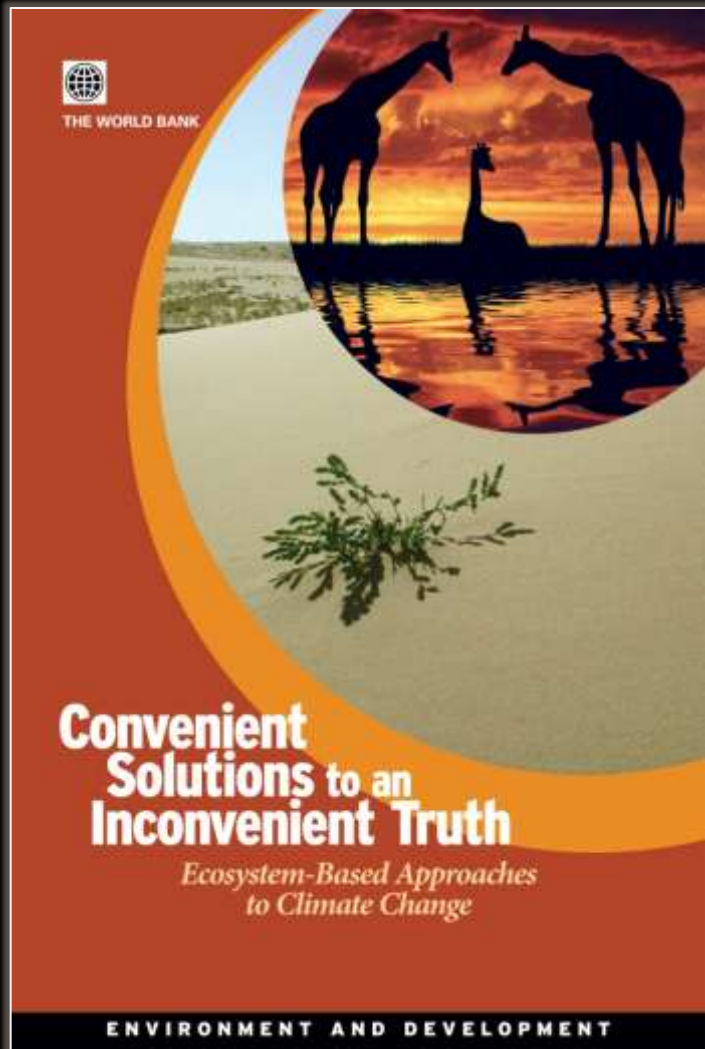
How protected areas can help to respond to the climate change challenge

Mitigation: Carbon Storage

Protected areas prevent the loss of carbon that is already present in vegetation and soils.

Challenge: Ecosystem loss and degradation are major causes of GHG emissions. The Intergovernmental Panel on Climate Change (IPCC) estimates that 30% of GHG emissions come from deforestation and other forms of land use change.

Role of protected areas: Protected areas cover a wide range of habitats with high carbon storage potential including forests,



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