**Richard Huber**

**Department of Sustainable Development**

**Montreal, 8-10 July 2009**

# Convention on Biological Diversity SOUTH-SOUTH-EXCHANGE MEETING ON THE CONSERVATION AND SUSTAINABLE USE OF FOREST BIODIVERSITY

Organization of American States

ODSMA
OSDE

Department
For Sustainable
Development

# Overview of forest-related Payments for Ecosystem Services (PES)

## Best Defense

## is a Good Offence.

## Protect Diverse Ecosystems.

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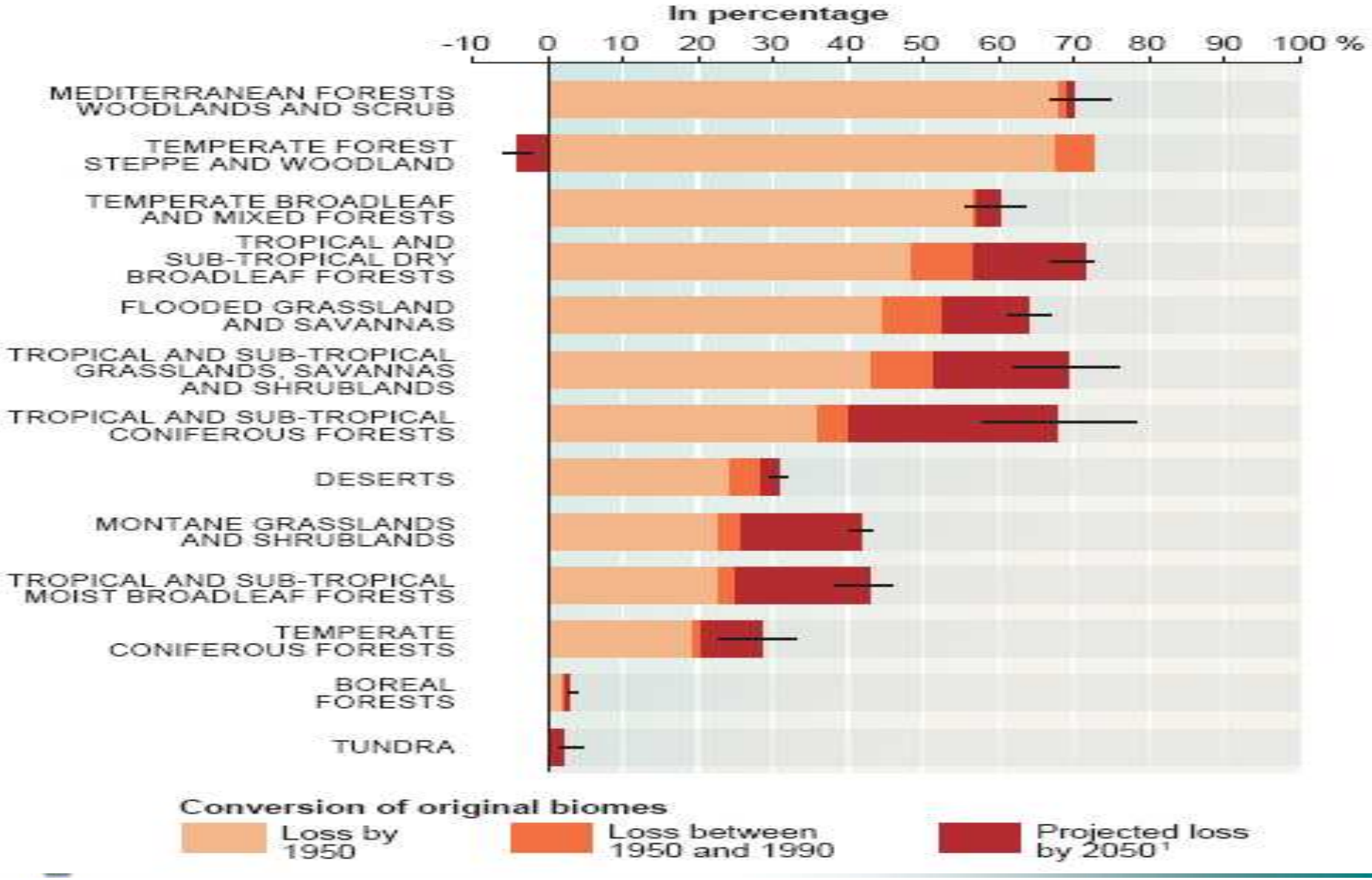
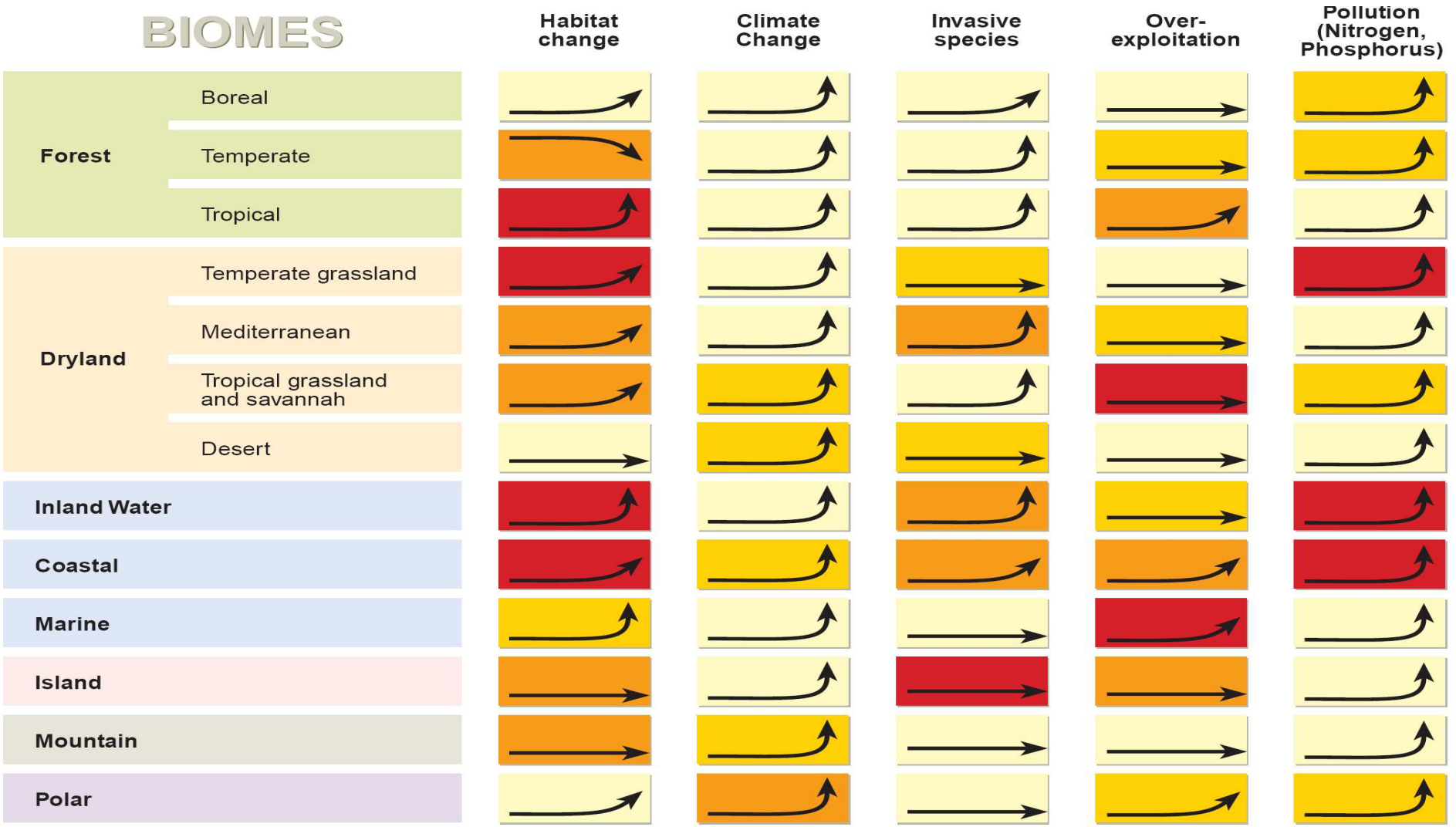
# Ecosystem Change




BIOMES
Habitat change
Climate Change
Invasive species
Over-exploitation
Pollution (Nitrogen, Phosphorus)
Forest
Boreal
Temperate
Tropical
Dryland
Temperate grassland
Mediterranean
Tropical grassland and savannah
Desert
Inland Water
Coastal
Marine
Island
Mountain
Polar
RESULT OF PAST EVOLUTION
Driver's impact on biodiversity over the last century
Low
Moderate
High
Very high
WHAT HAPPENS TODAY
Driver's actual trends
Decreasing impact
Stabilizing impact
Increasing impact
Very rapid increase of the impact

# Conversion of forests to farmlands in Santa Cruz, Bolivia


- 1975: Forested landscape

- 2003: Large corporate agricultural fields transform the landscape

# Shrimp farms replacing mangroves in Gulf of Fonseca, Honduras


1987-1999: shrimp farms and ponds have mushroomed, carpeting the landscape around the Gulf of Fonseca, Honduras, in blocks of blue and black shapes

# Changes in Ecuador's largest sea port: Gulf of Guayaquil, Ecuador


Ecuador's primary city and largest sea port

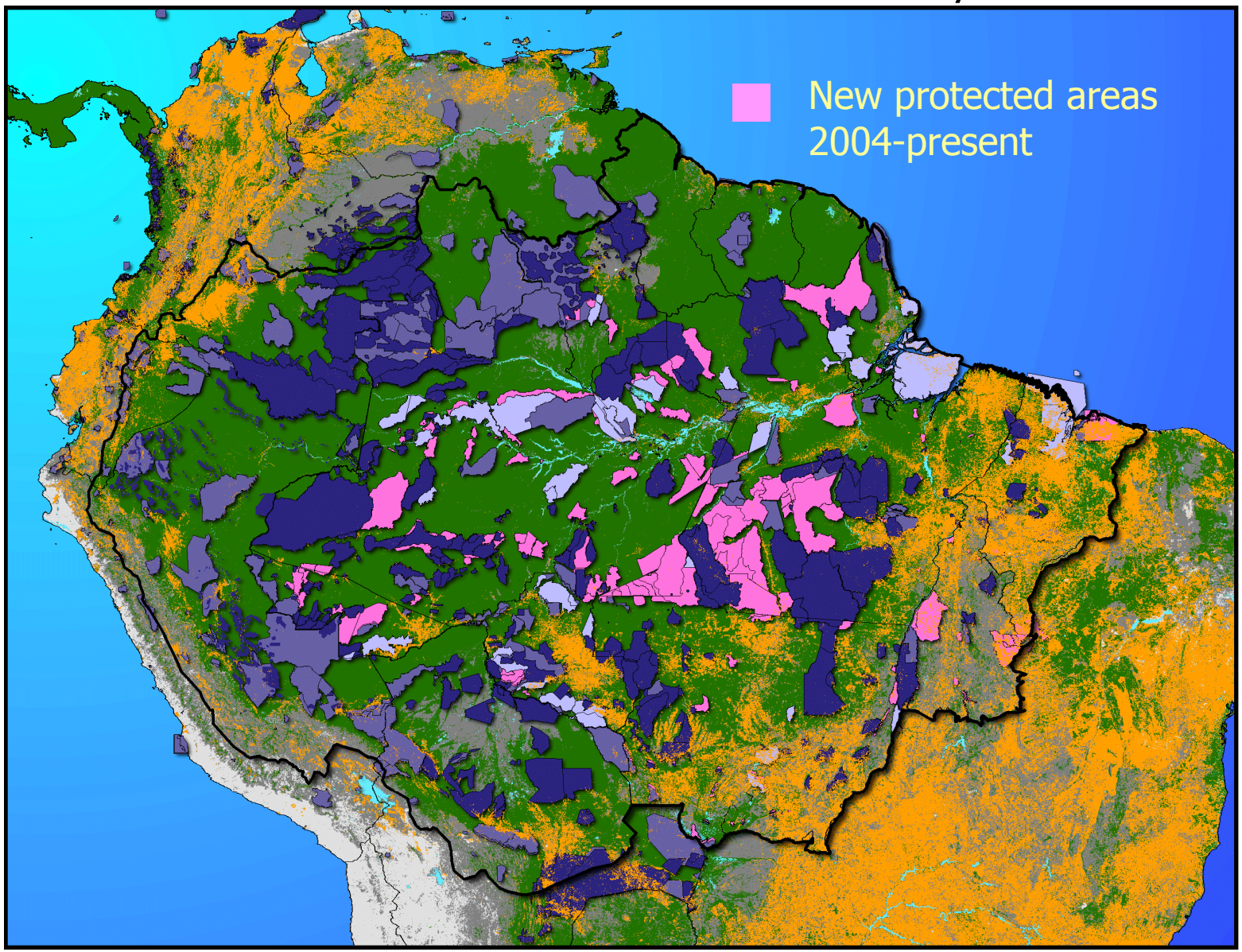
1985-2000: Loss of mangrove and growth of aquaculture can be seen

# Visible changes in Iguazú National Park South America


- 1973: Forest cover is extensive throughout the region

- 2003: Extensive deforestation in Paraguay

2004 and 2005:  24 million hectares of new protected areas:
one billion tons of reduced carbon emissions by 2015



# Changes in tropical forests of Rondonia Brazil


ONE PLANET MANY PEOPLE Atlas of Our Changing Environment

- 1975 -Healthy natural vegetation
- 1989 -“Fishbone” pattern on the landscape indicate agriculture fields
- 2001 -Agriculture continues to replace forest cover

UNEP

# Mexico's largest natural lake – Lake Chapala, Mexico


- 1983: Level of the lake has declines; noticeable decreases in wetlands

- 2001: Alteration in the contours of the shoreline is clearly visible

# Urban encroachment on Florida's Everglades, United States


- 1973: Rapid urban expansion has converted farmlands to cityscapes

- 2002: Existence of vast wetlands "Everglades" threatened by urban encroachment

## Classification of Policy Instruments Based on Decentralization and Flexibility in Individual Decisionmaking

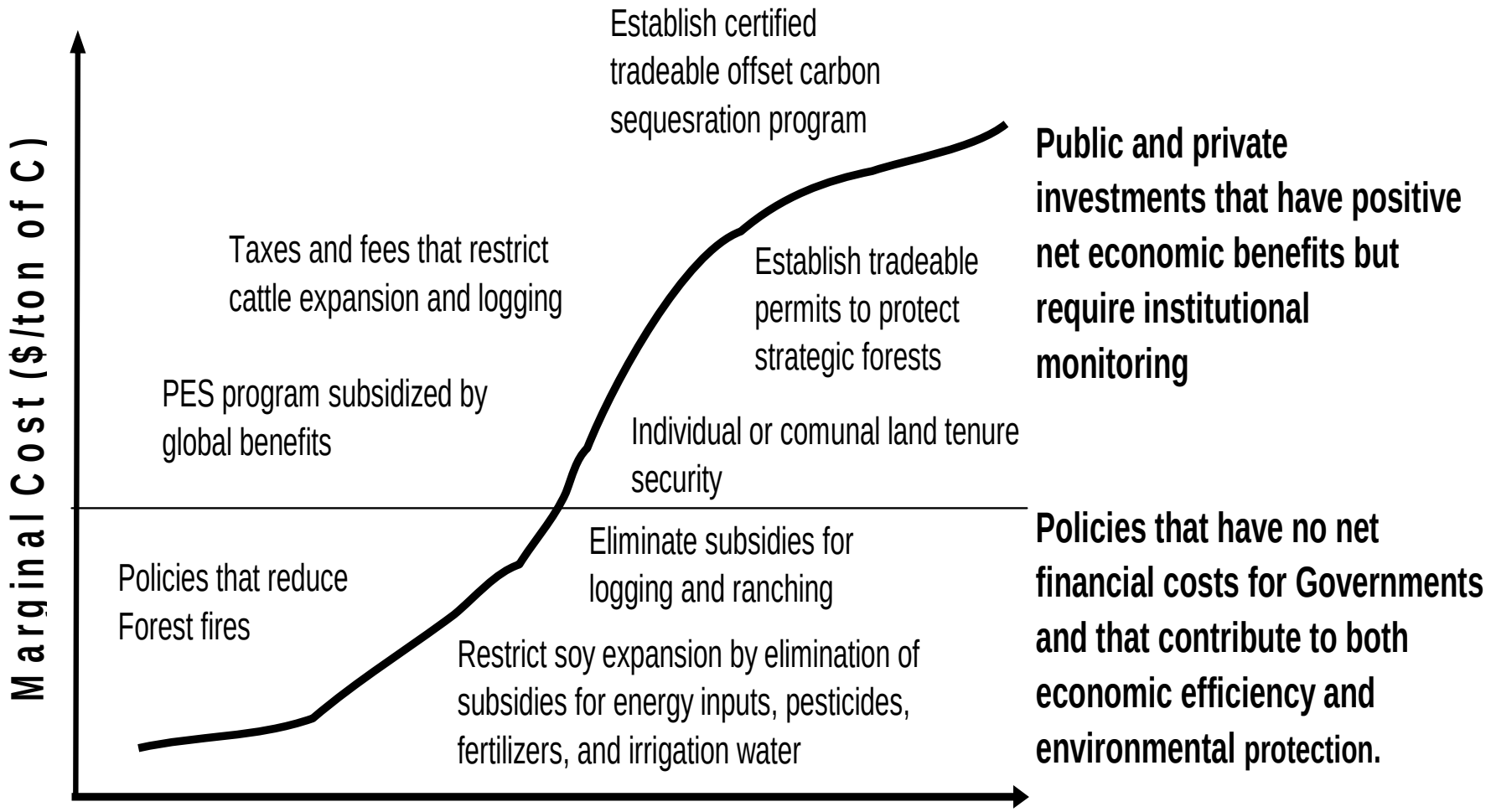
<–––-Minimum Flexibility-––––> <–––– Moderate Flexibility ––––> <––––- Maximum Flexibility -–––––>

<–- Maximum Government Involvement –-> <–- Increased Private Initiative –->

<-Control-Oriented-> <–––––––––––––Market-Oriented–––––––––––––––> <-Litigation-Oriented->

| ***Regulations and Sanctions*** | ***Charges, Taxes, and Fees*** | ***Market Creation*** | ***Final Demand Intervention*** | ***Liability Legislation*** |
|---|---|---|---|---|
| **General Examples** | | | | |
| Standards: Government restricts nature and amount of pollution or resource use for individual polluters or resource users. Compliance is monitored and sanctions imposed (fines, closure, jail terms) for noncompliance. | Effluent or User Charges: Government charges fee to individual polluters or resource users based on amount of pollution or resource use and nature of receiving medium. Fee is high enough to create incentive to reduce impacts. | Tradable Permits: Government establishes a system of tradable permits for pollution or resource use, auctions or distributes permits, and monitors compliance. Polluters or resource users trade permits at unregulated market prices. | Performance Rating: Government supports a labeling or performance rating program that requires disclosure of environmental information on the final end-use product. Performance based on adoption of ISO 14000 voluntary guidelines (for example, zero discharge of pollutants, | Strict Liability Legislation: The polluter or resource user is required by law to pay any damages to those affected. Damaged parties collect settlements through litigation and the court system. |

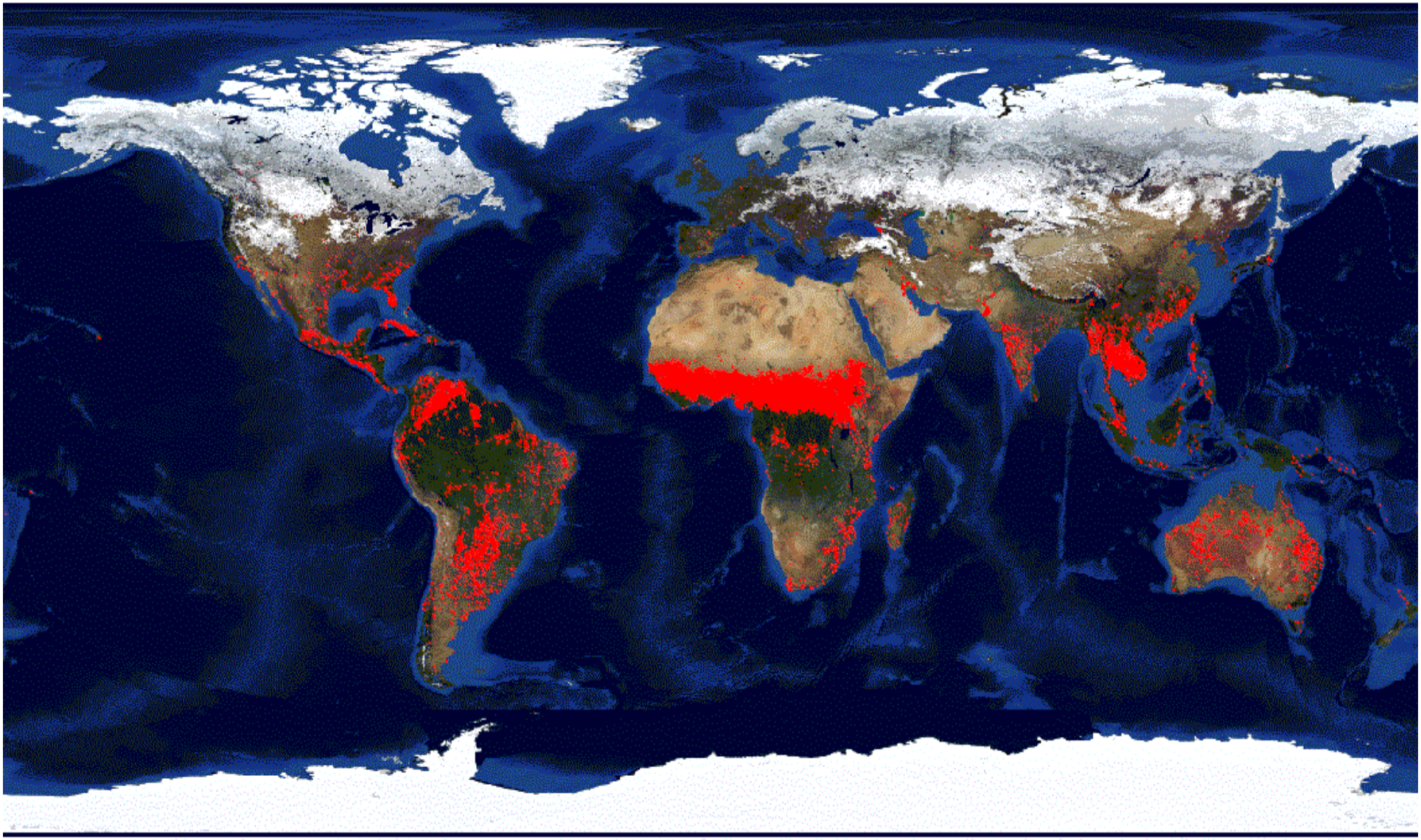
# Marginal Cost Policies for Reducing Forest Carbon Emissions




**Public and private investments that have positive net economic benefits but require institutional monitoring**

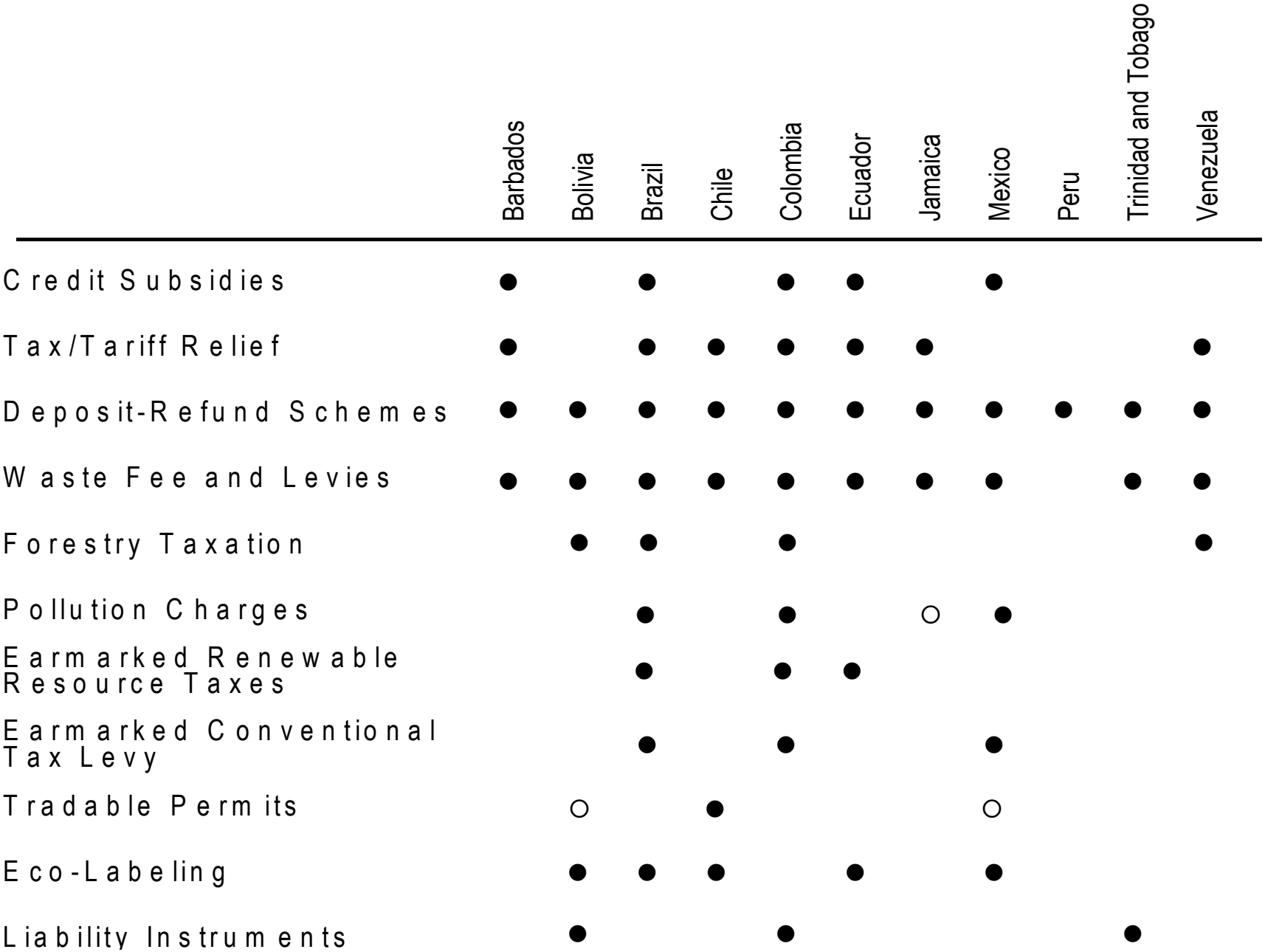
**Policies that have no net financial costs for Governments and that contribute to both economic efficiency and environmental protection.**

# MODIS Rapid Response Fire Detections for 2004



Forest fires in dry years cause tree mortality and carbon emissions with no economic benefit

# Market-Based Instruments Are Gaining Wider Application



# Payments for Ecological Services

**Carbon markets** the absorption of carbon dioxide from the atmosphere.

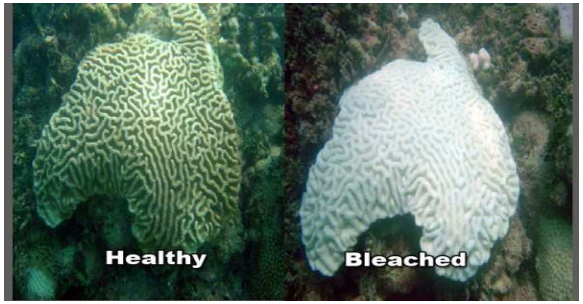
**Water markets** (Mexico) provide payments for nature's hydrological services  filtering of water through wetlands, creation from cloud forest.

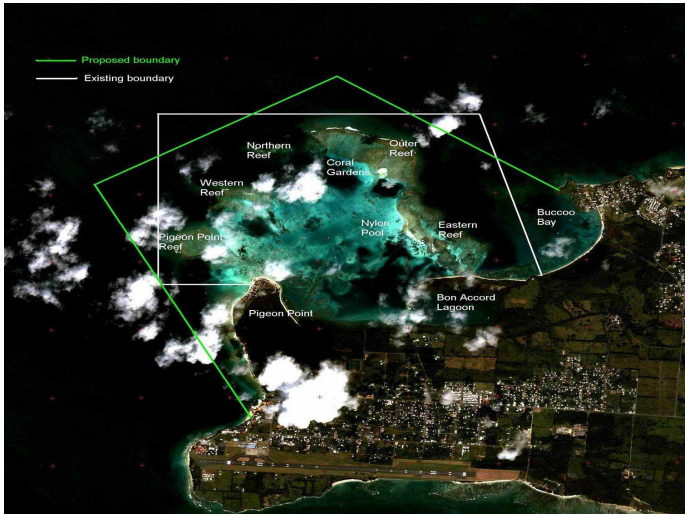
**Biodiversity markets** (Costa Rica) pay annual fee e.g. $40/ha/yr for the management and preservation biological processes as well as habitat and species.

**Bundled payments** (Caribbean?) secure all or a combination of carbon, water, and biodiversity services. Bundled payments also include certified timber or certified agricultural produce.

# Ecosystems under threat from Climate Change

Coral Reef bleaching/ Marine Parks with no take zones




Deforestation/Smartwood

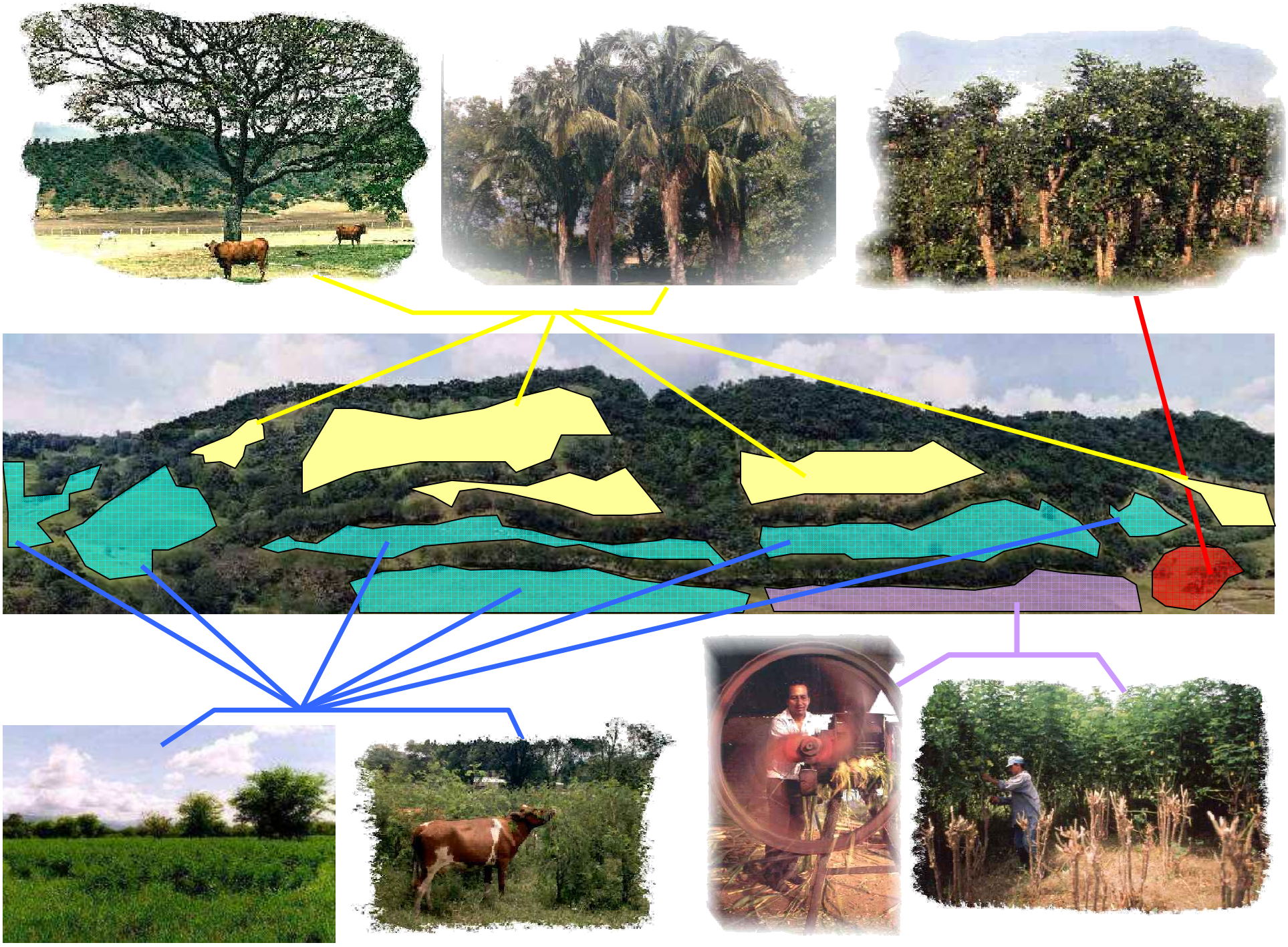
Integrated coastal zone management/Ecotourism

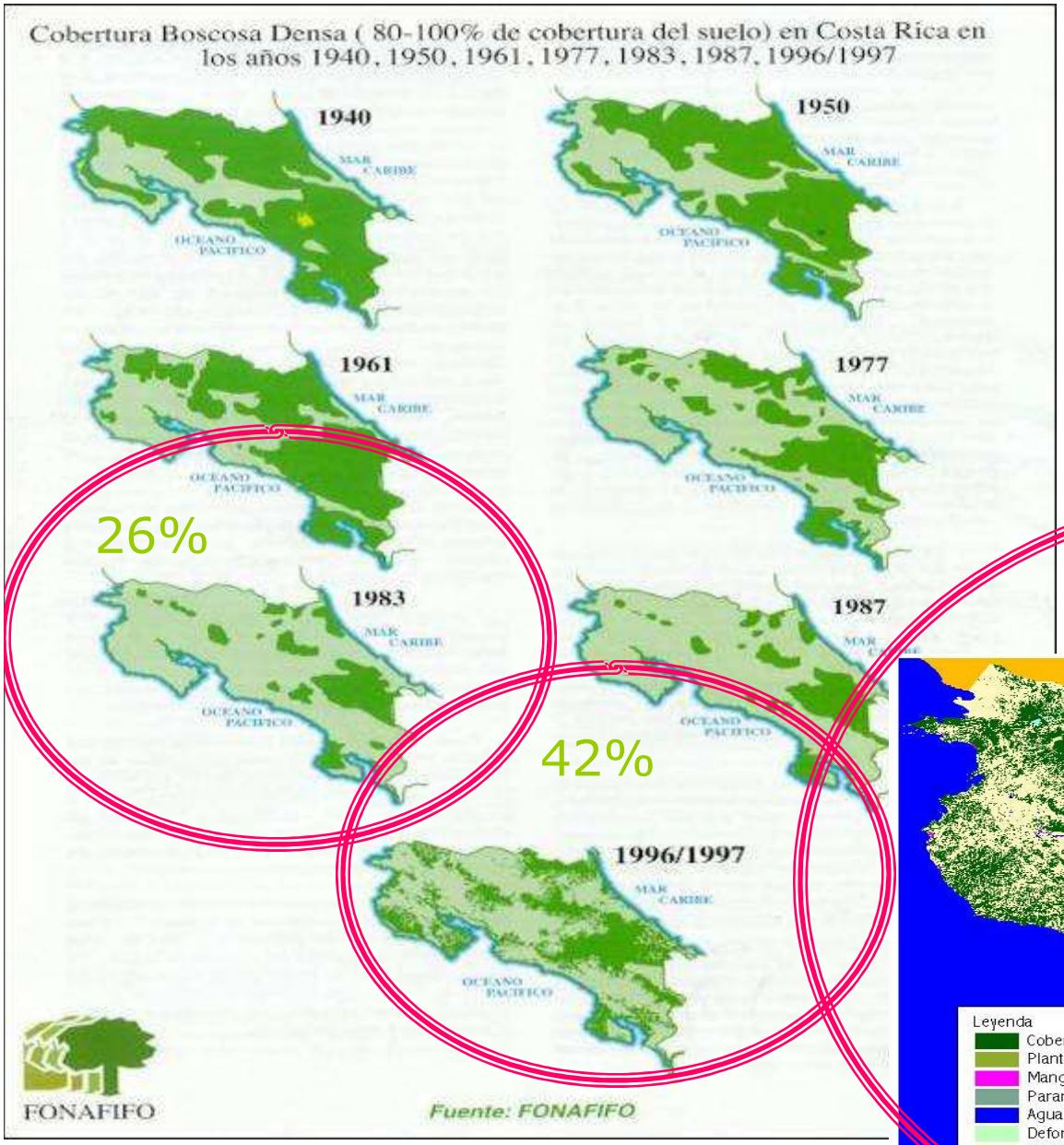
Forest/wetlands

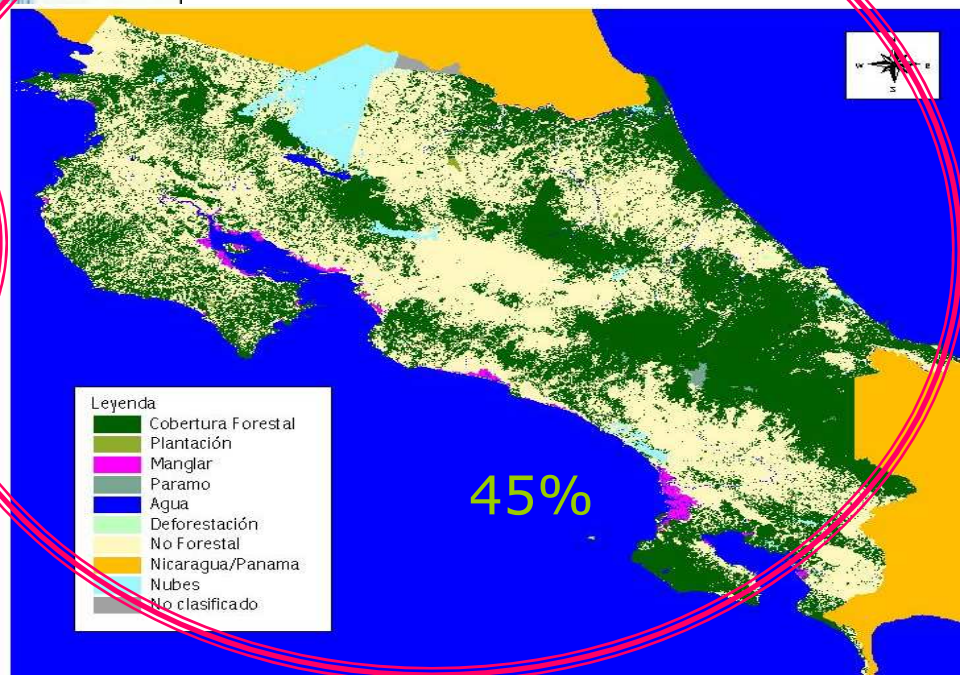
Payments eco services

Monoculture/Shade coffee alternative

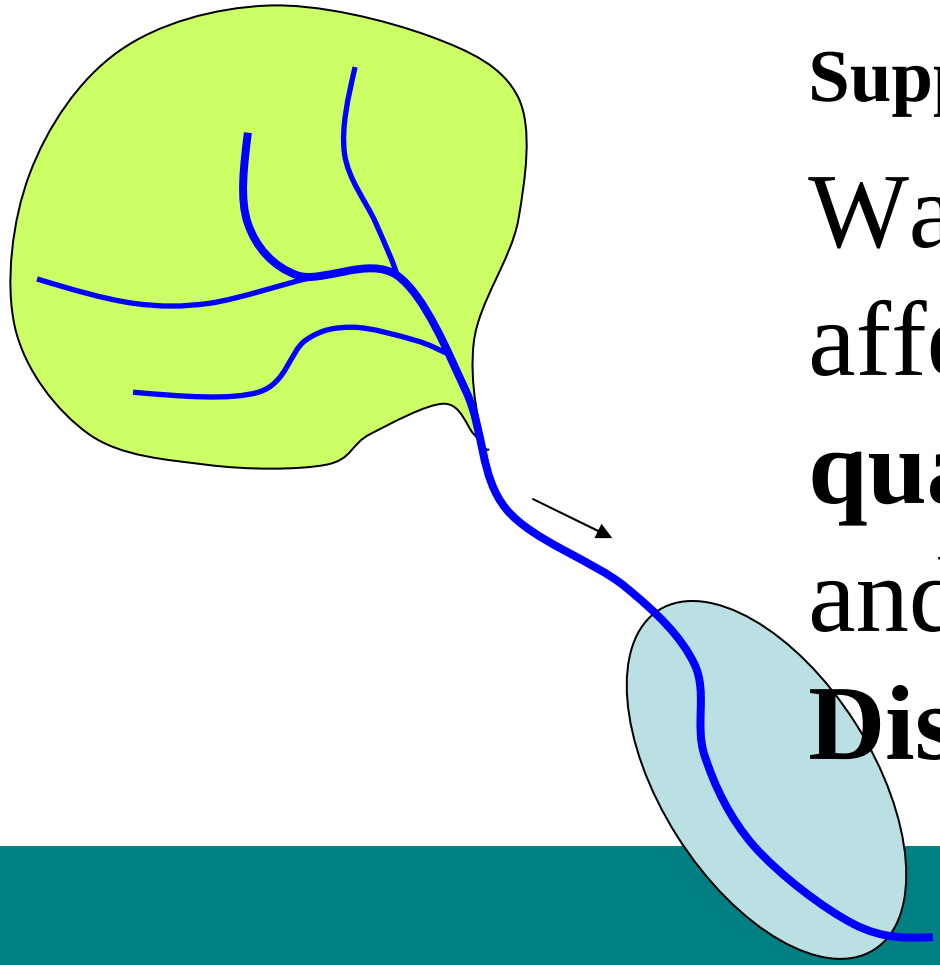
**<u>Areas of work</u>: policy strengthening – technology transfer/data – capacity building - strategic alliances – adaptation measures –**




Cobertura Boscosa Densa ( 80-100% de cobertura del suelo) en Costa Rica en los años 1940, 1950, 1961, 1977, 1983, 1987, 1996/1997
1940
1950
1961
1977
1983
1987
1996/1997
MAR CARIBE
OCEANO PACIFICO
26%
42%
FONAFIFO
Fuente: FONAFIFO


Year 2000
Leyenda
Cobertura Forestal
Plantación
Manglar
Paramo
Agua
Deforestación
No Forestal
Nicaragua/Panama
Nubes
No clasificado
45%

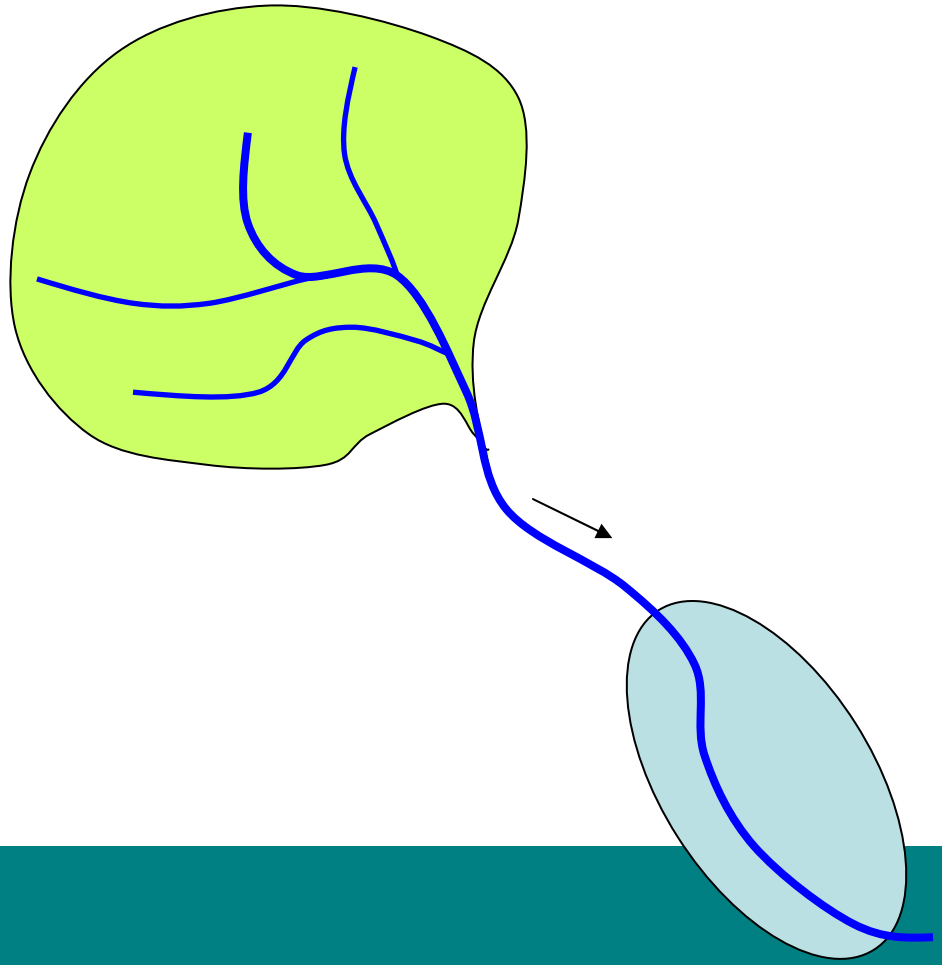
# Water



**Supply:**

Watershed uses affect water **quality** and **supply** and temporal **Distribution**

# Water



**Demand:**

Beneficiaries:

- Municipal water
- Irrigation
- Hydroelectric
- Fisheries
- Recreation
- Marine ecosystems

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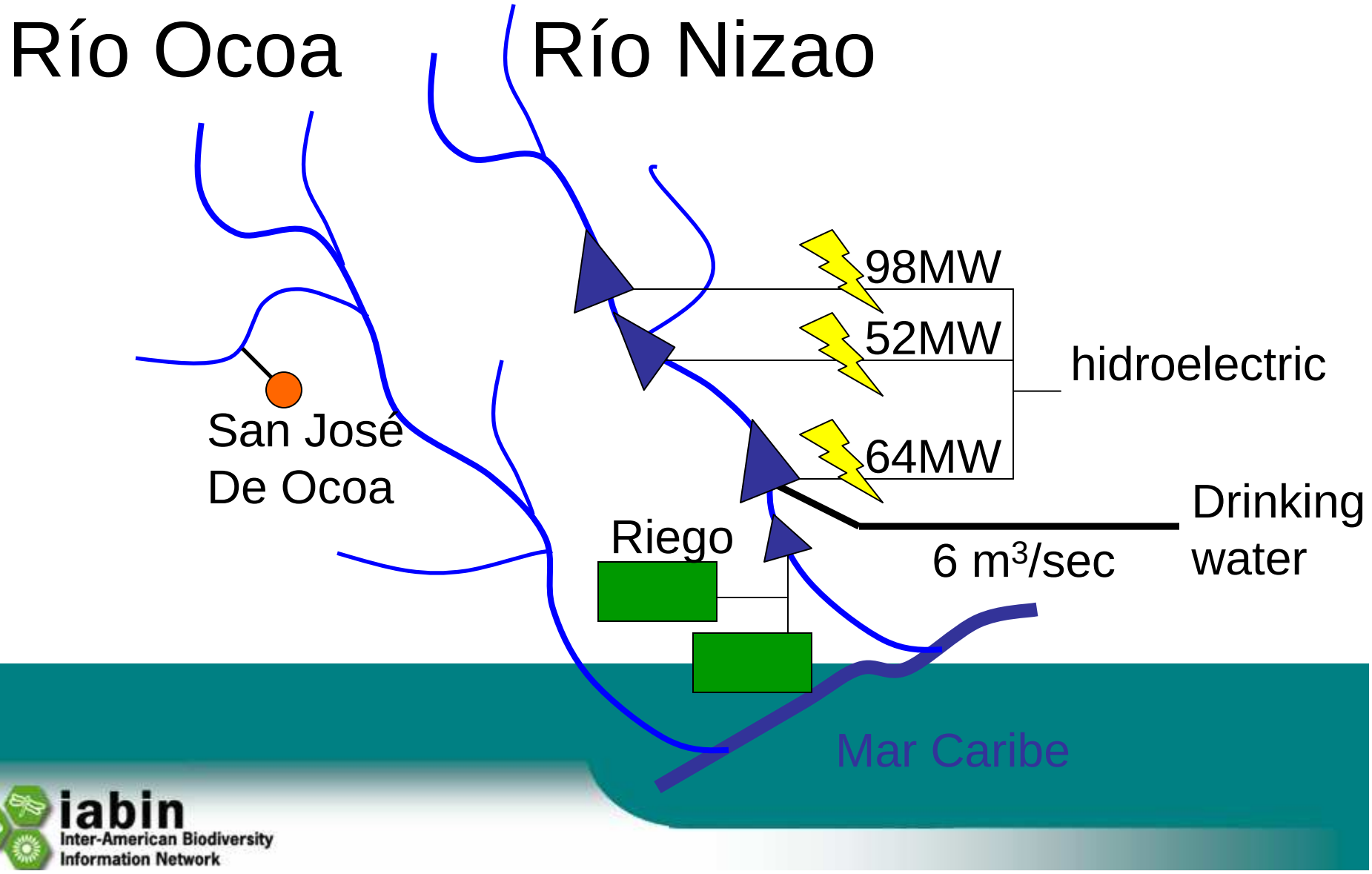
# Different demands

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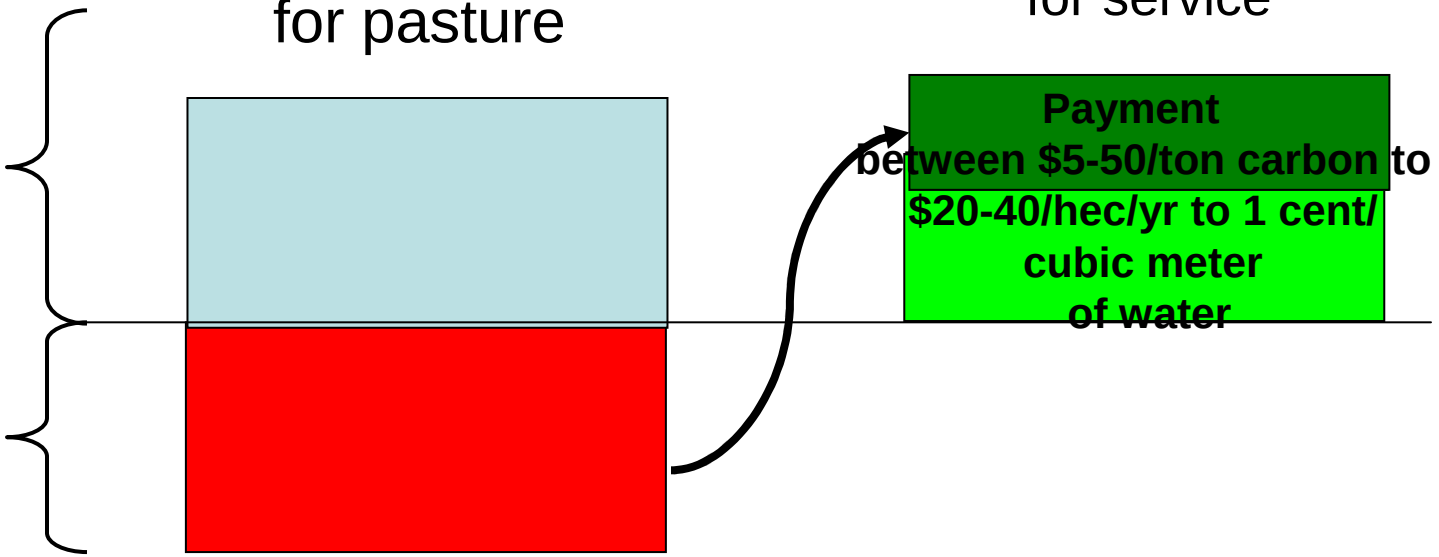
# The logic of Payments for Environmental Services (PES)

Upland farmers cut forests reducing downstream benefits

Sediment & drought costs to downstream populations

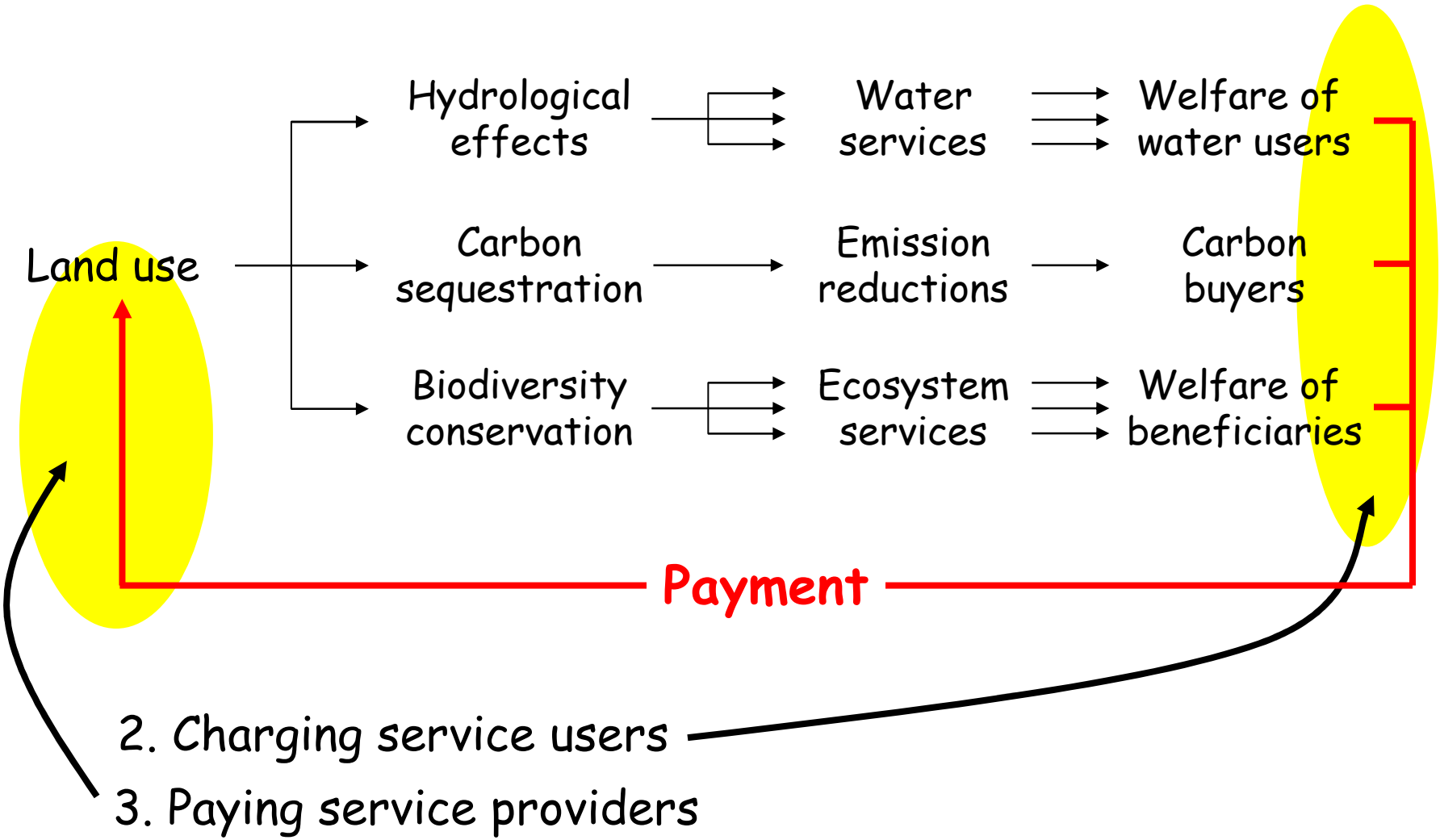
Deforestation fire, and use for pasture

Conservation with payment for service




- Voluntary Participation – Private Partnership

# From theory to practice
# Trade in Carbon Credits

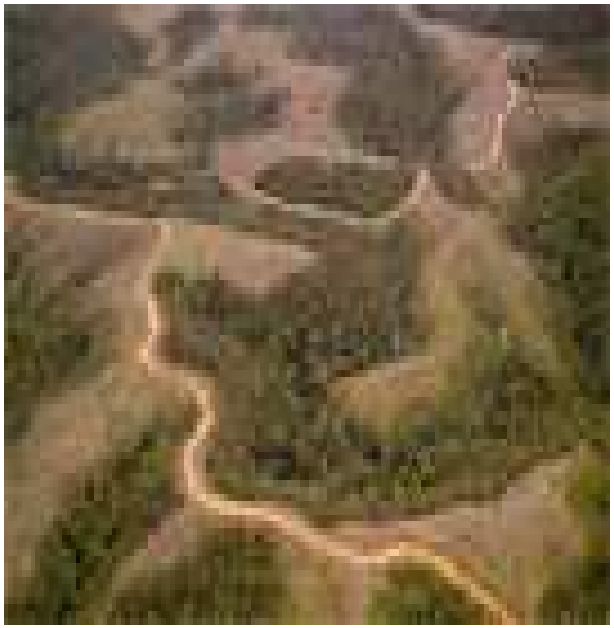


# Financial Incentives

**Integrated coastal zone management/Ecotourism**

**Forest/wetlands**

**Payments eco services**



**Deforestation/Smartwood**

**Monoculture/Shade coffee alternative**

**<u>Areas of work</u>: Private-Public strategic alliances – adaptation measures –**

# …Mexico Payment for Water services: How much to pay

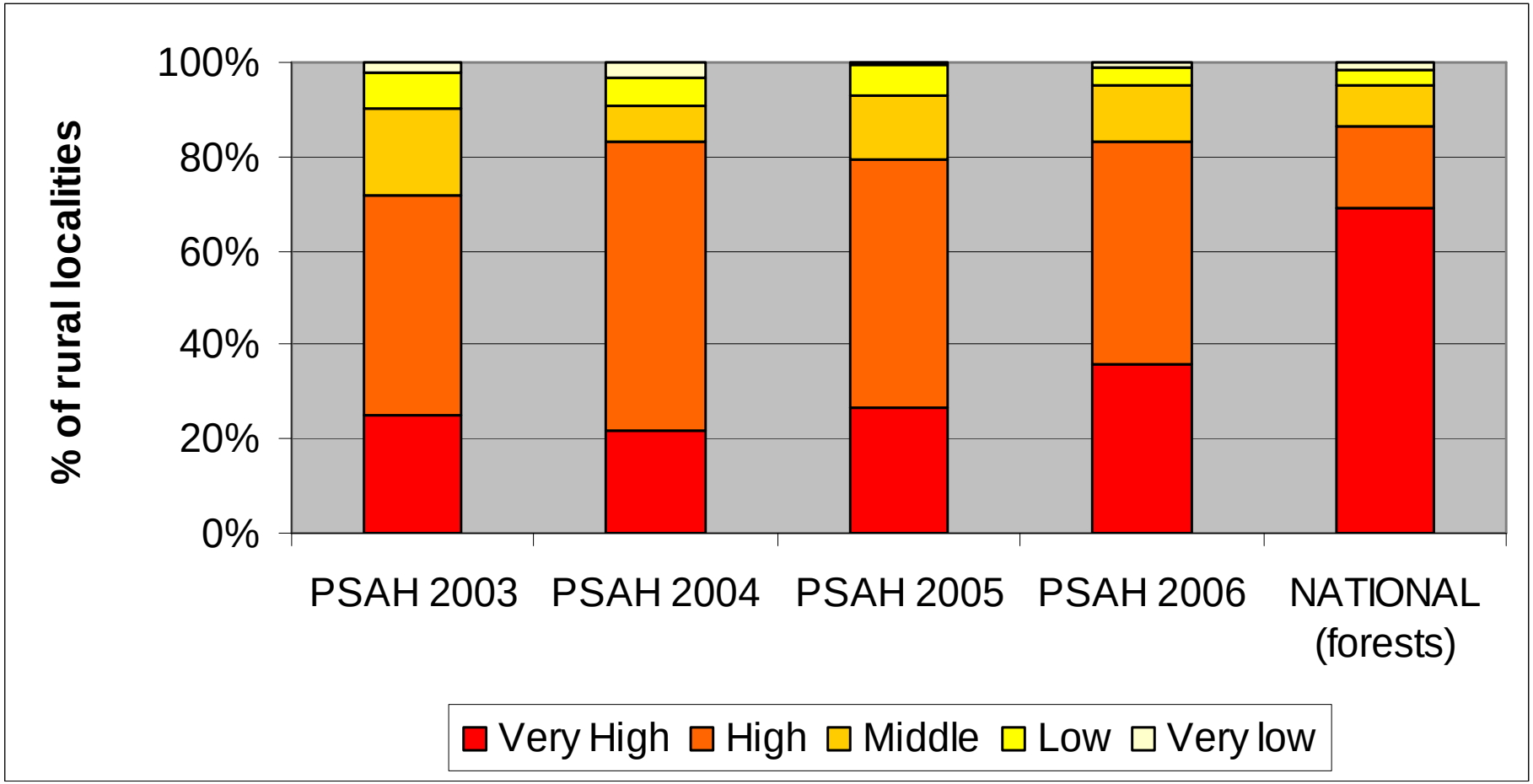
1. Cloud forests: US$37 per hectare per year
2. Rest of temperate and tropical forests:

   US$28 per hec/yr

Corn production at $37 USD per hectare per year, while livestock production yielded $66 USD per hectare annually

**Source: Paying for the Hydrological Services of Mexico's Forests**
**Carlos Muñoz, Alejandro Guevara, José Manuel Bulas, Juan Manuel Torres and Josefina Braña**

# …Target Poverty, Women, Indigenous Communities




**Source: Paying for the Hydrological Services of Mexico's Forests**
Carlos Muñoz, Alejandro Guevara, José Manuel Bulas, Juan Manuel Torres and Josefina Braña

# Challenge: Minimizing Deforestation Risk

| Risk of deforestation (quintiles) | Forests at National Level % | Eligible area CONAFOR % | PSAH 2003 % | PSAH 2004 % | PSAH 2005 % | PSAH 2006 % |
|---|---|---|---|---|---|---|
| Very high | 20 | 12 | 4 | 11 | 7 | 6 |
| High | 20 | 6 | 7 | 17 | 13 | 10 |
| Medium | 20 | 18 | 17 | 20 | 21 | 16 |
| Low | 20 | 25 | 30 | 30 | 27 | 25 |
| Very Low | 20 | 39 | 42 | 22 | 33 | 43 |
| Total | 100 | 100 | 100 | 100 | 100 | 100 |

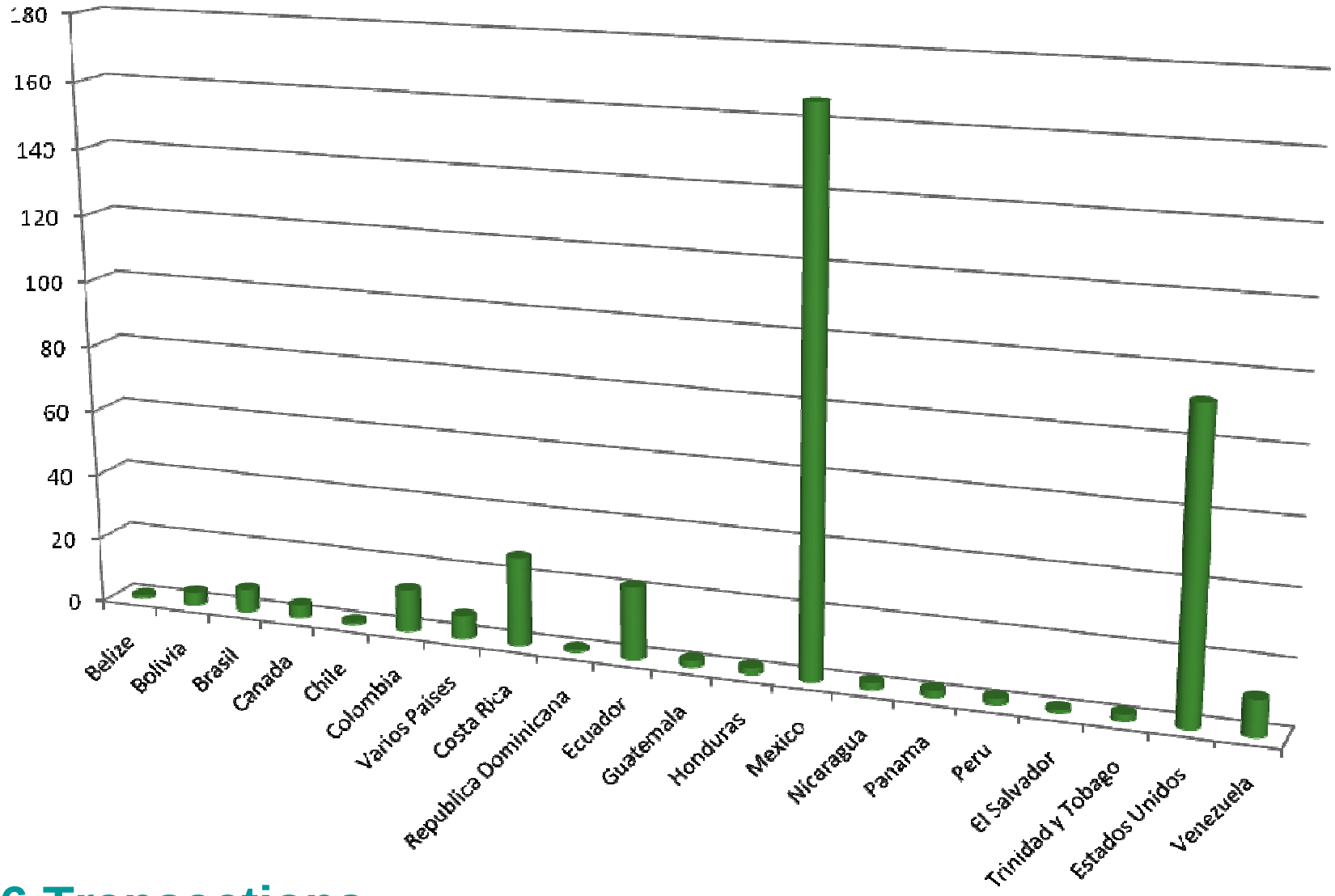
# **Payments for Ecosystem Services:** Trends in the Americas

- Database compiled from Rainforest Alliance Eco-Index, Katoomba's Ecosystems Marketplace, Environmental Authorities in the Americas and Published documents

- Original Transaction sources like FONAFIFO (Costa Rica) and PSA-H (Mexico), Chicago Carbon Exchange.
  - Tries to assess PES trends in the marketplace –
    - Price paid/HA/year, price/ton/yr
    - # projects/country/year,
    - type of project,
    - area # of projects country.

www.apps.oas.org/pes

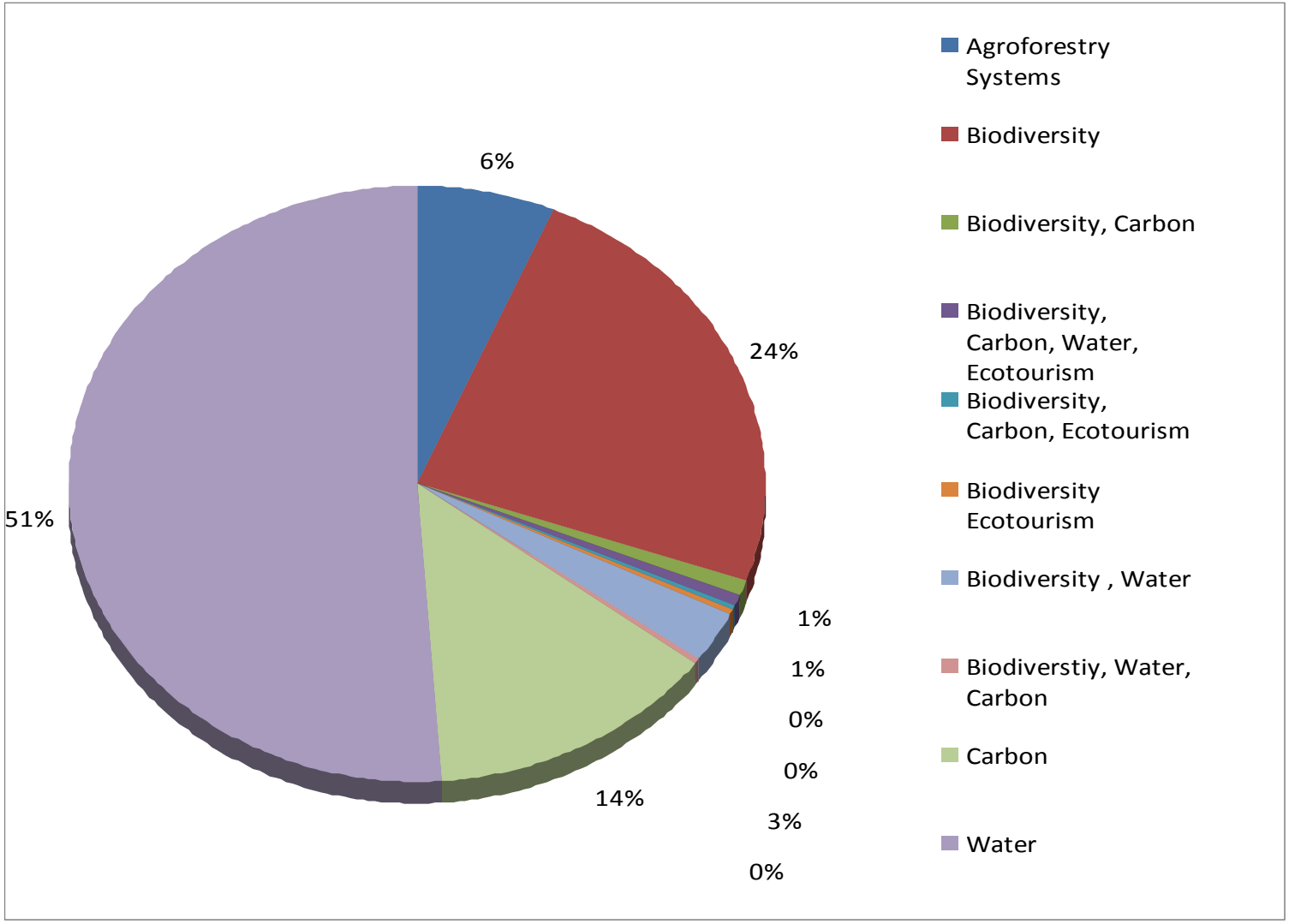
# PES Transactions by Country



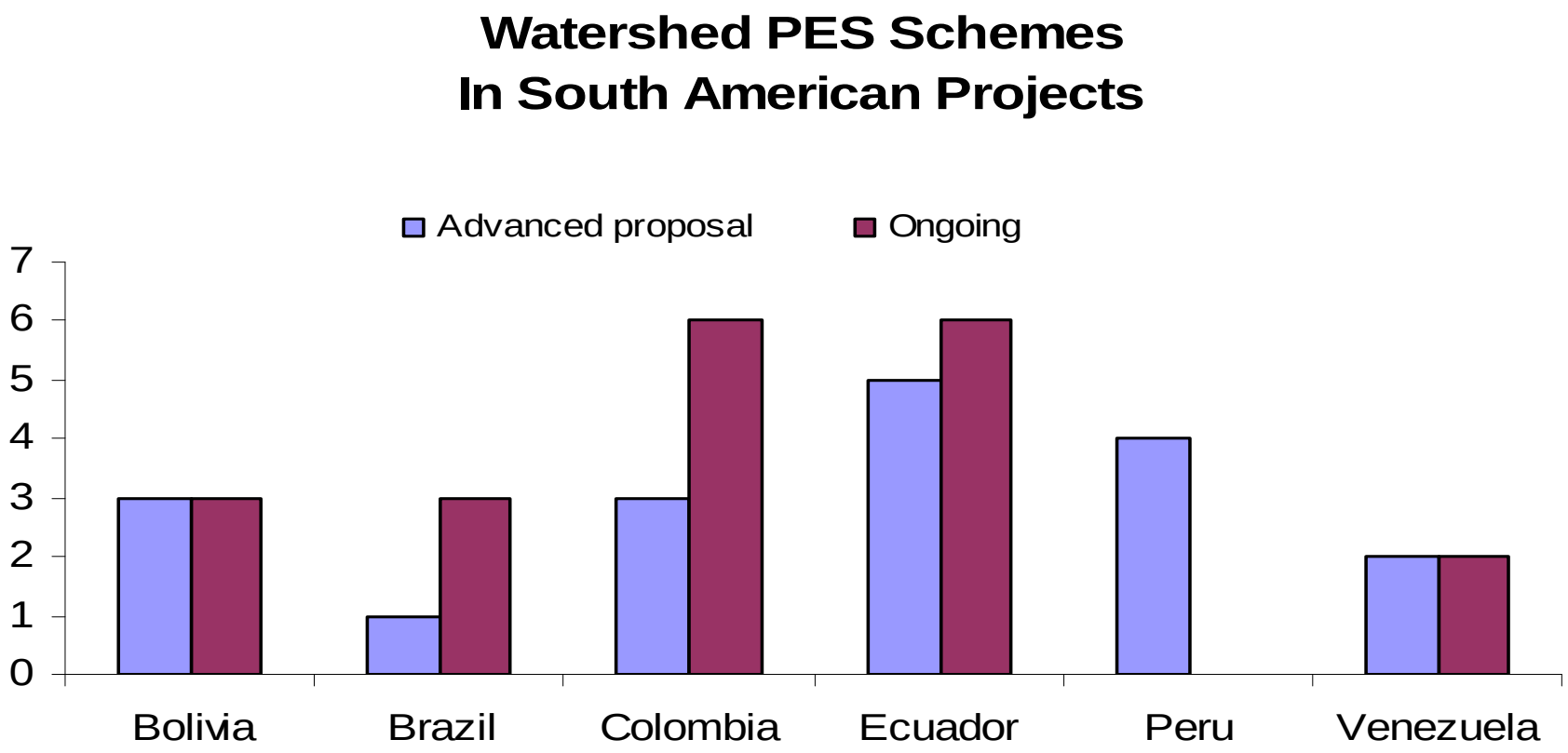

**366 Transactions**

# Transacciones PSA en las Américas

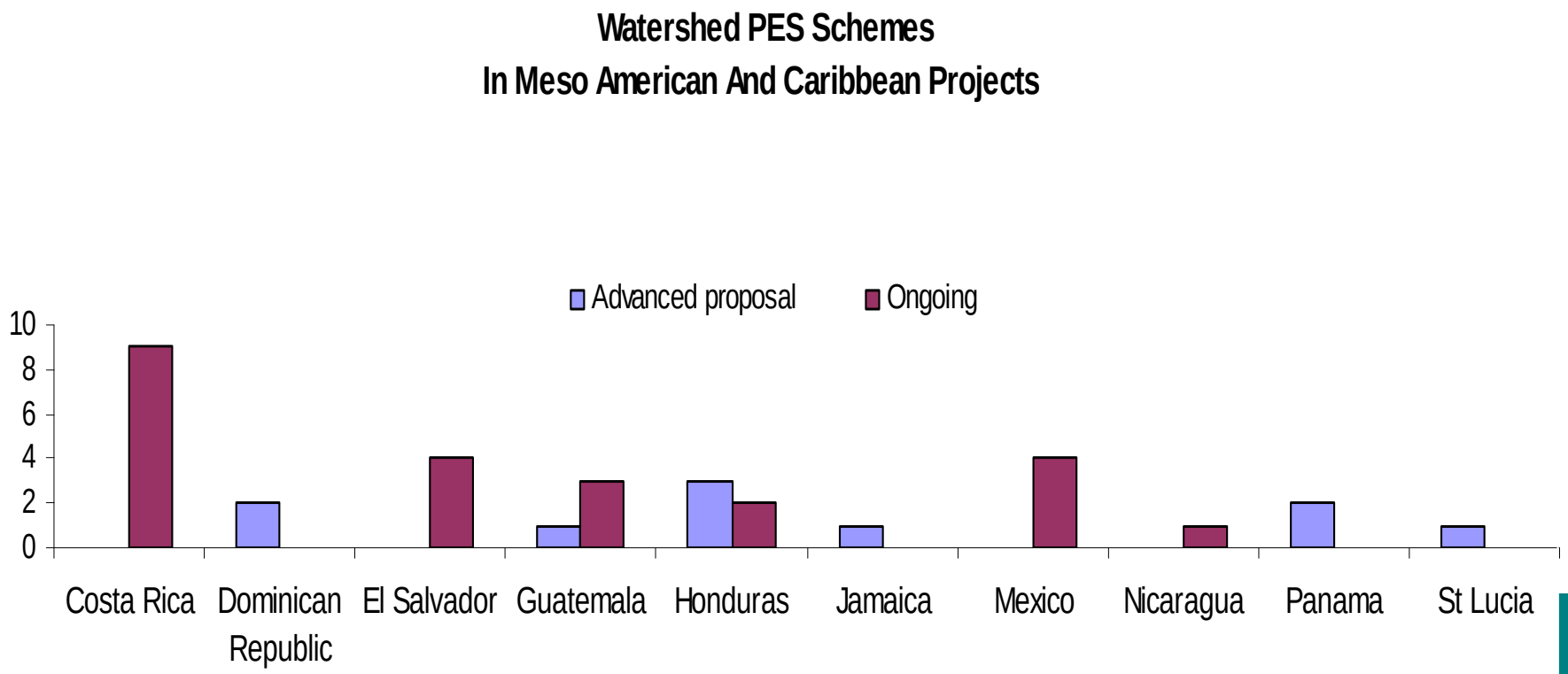
**US$ 745,922,468**



# Momentum or stagnation?



# 4 Countries have more proposals than ongoing.

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# STAKEHOLDERS

- GOVERNMENT- GOVERNMENT (US-Costa Rica Debt for Nature Swap)
- Government-Private (Most transactions and projects)
- Private-Private (Chaina Watershed in Colombia)

# Are governments creating the right conditions for PES adoption?

- **Countries included in the report**
  - Bolivia
  - Chile
  - Costa Rica
  - Colombia
  - DR
  - Ecuador
  - Panamá
  - Perú

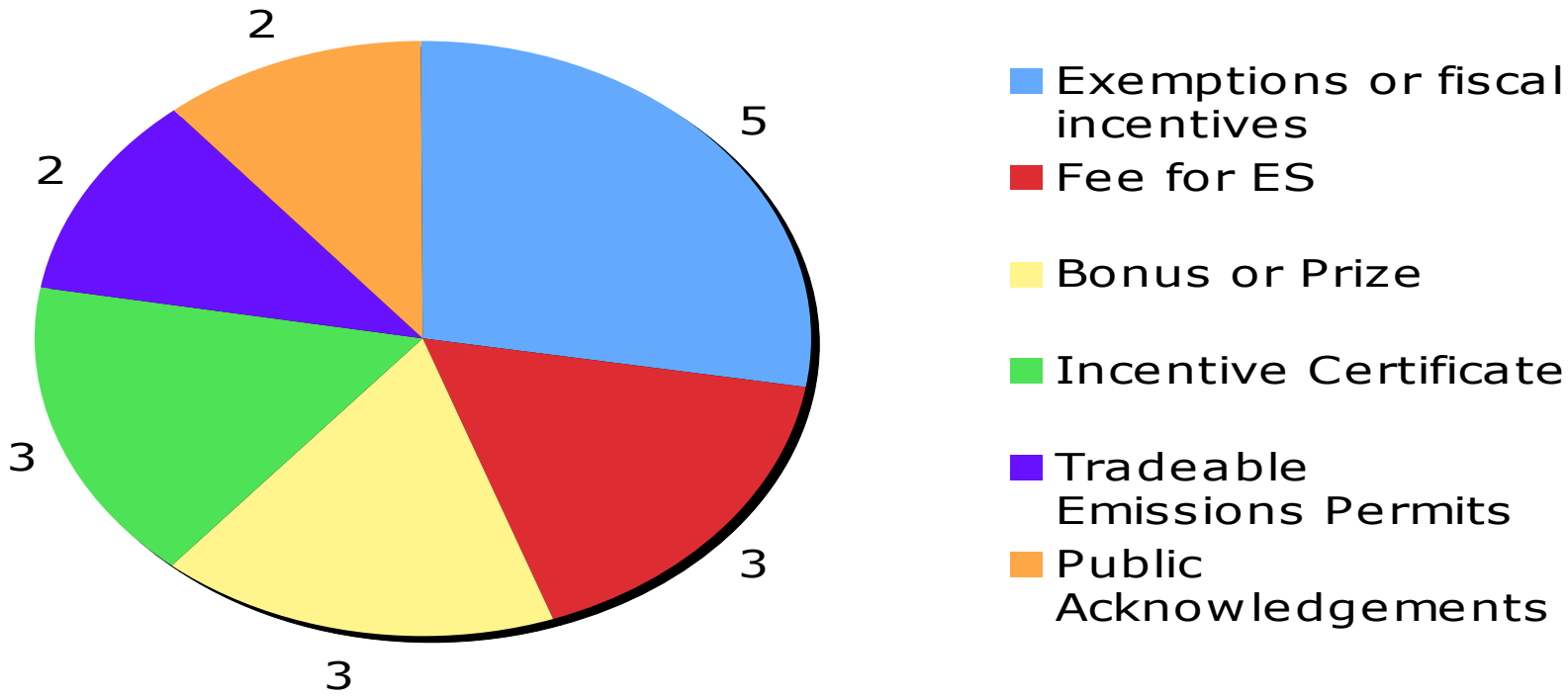
**More than 40 norms related to PES were reviewed in LAC:**

- Constitution
- Forestry Laws,
- Tax statutes,
- Land Tenure,
- Water,
- Biodiversity and Protected Areas
- Climate Change
- Multilateral Agreements



OAS Data Base. Information Publicly Available

# Incentives for PES in Environment Legal Frameworks

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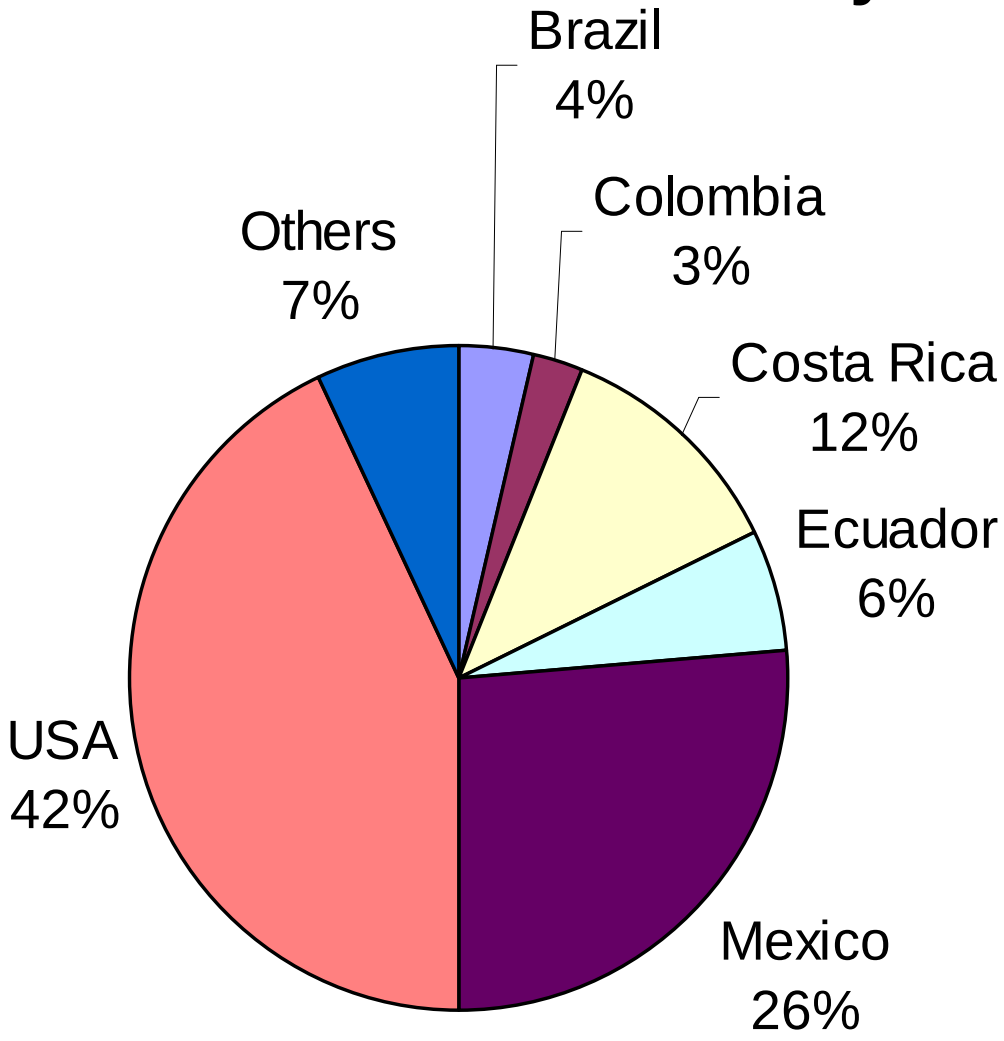
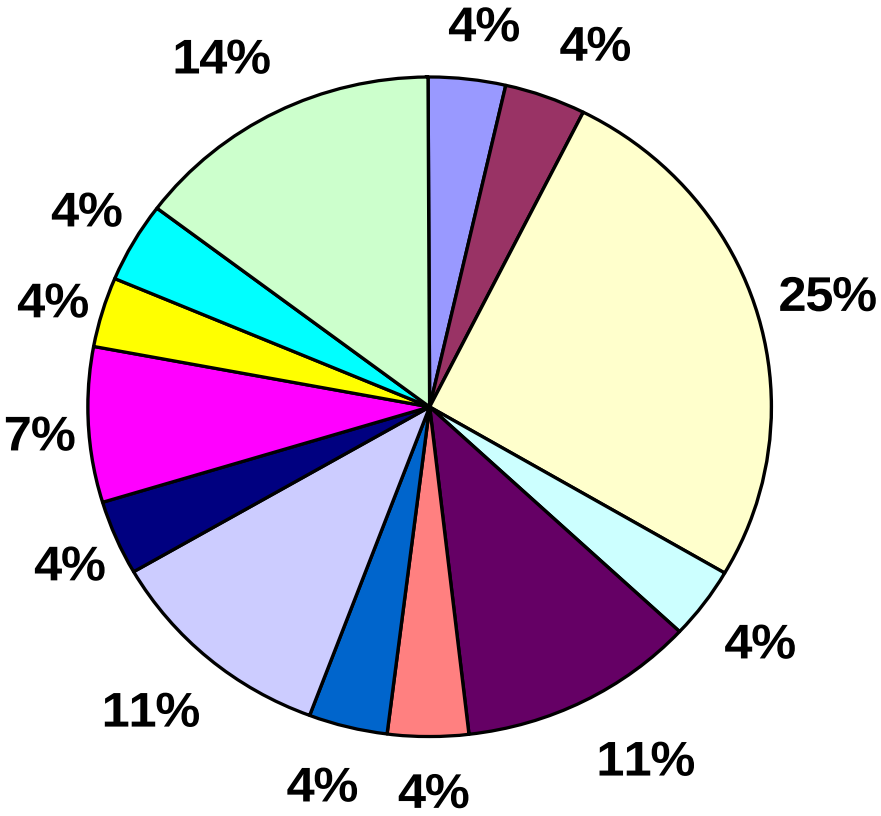
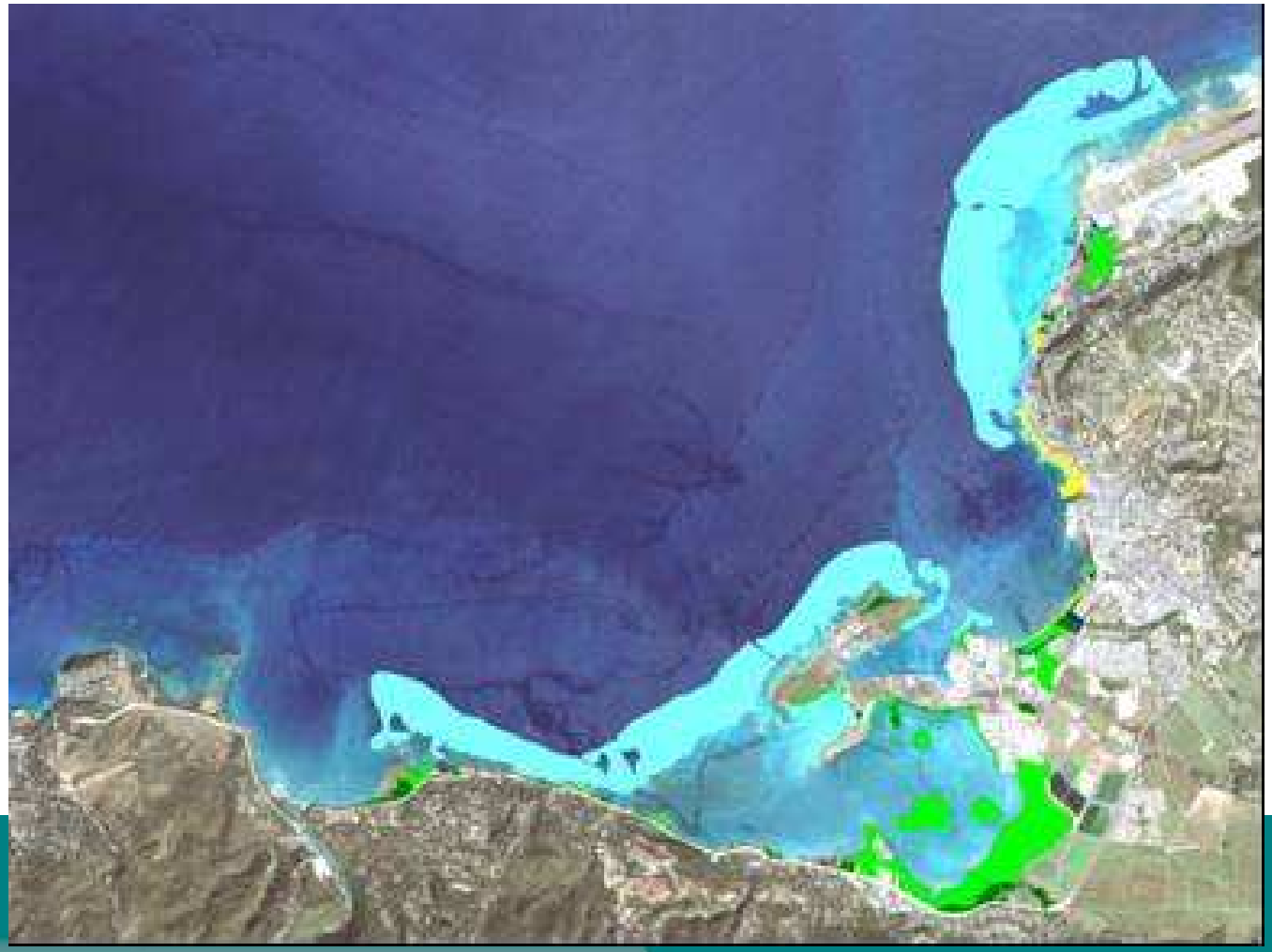
# No. PES Schemes in Database by Country



# No. Carbon Sequestration Projects by Country



# Montego Bay Marine Park - Jamaica



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## Ecosystem Service Values by Cover Type for Marine Parks and Environs in the Caribbean

| Land Cover | Ave.$/ha/ yr | Lower Boun d | Upper Boun d | Area (ha) |
|---|---|---|---|---|
| **Disturbed and Urban Beach** | | | | |
| **Beach** | 88,000 | 77,000 | 99,000 | |
| **Beach near dwelling** | 117000 | 140,000 | 94000 | |
| **Coastal & Riperian Forest** | 1826 | 5542 | 13,000 | |
| **Freshwater Stream** | 1595 | 1231 | 939 | |
| **Freshawater Herbacious Swamp** | 72,787 | 32000 | 96000 | |
| **Greassland/pasture** | 118 | 118 | 118 | |
| **Nearshore aquatic habitat** | 16, 283 | 4630 | 27935 | |
| **Coral Reef environ** | 100,000 | | | |
| **Mangrove** | 37,500 | | | |
| **Mangrove** | 500,000 | 200,000 | 900,000 | |
| **Mangrove restoration** | | 225 | 216,000 | |

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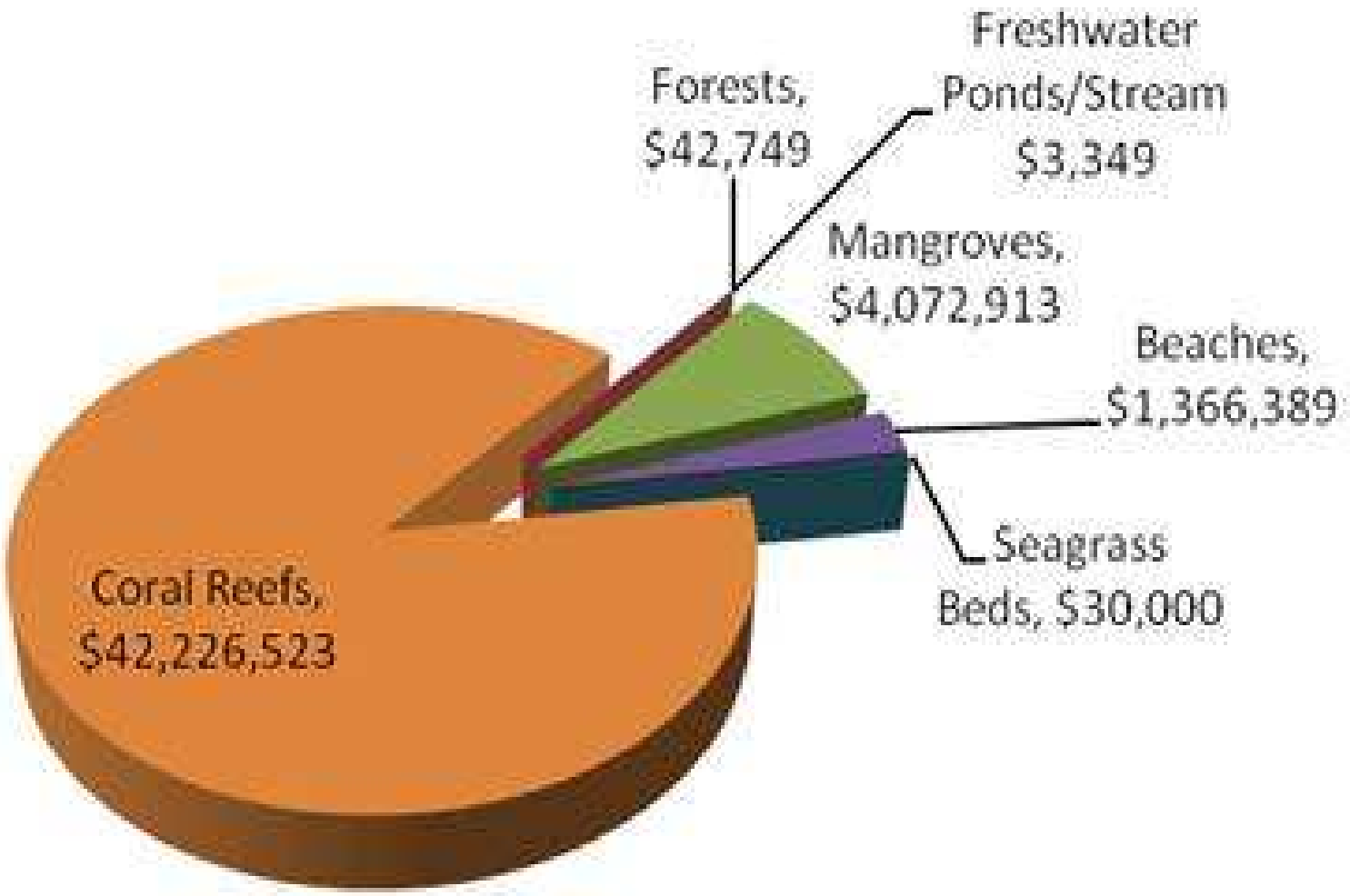
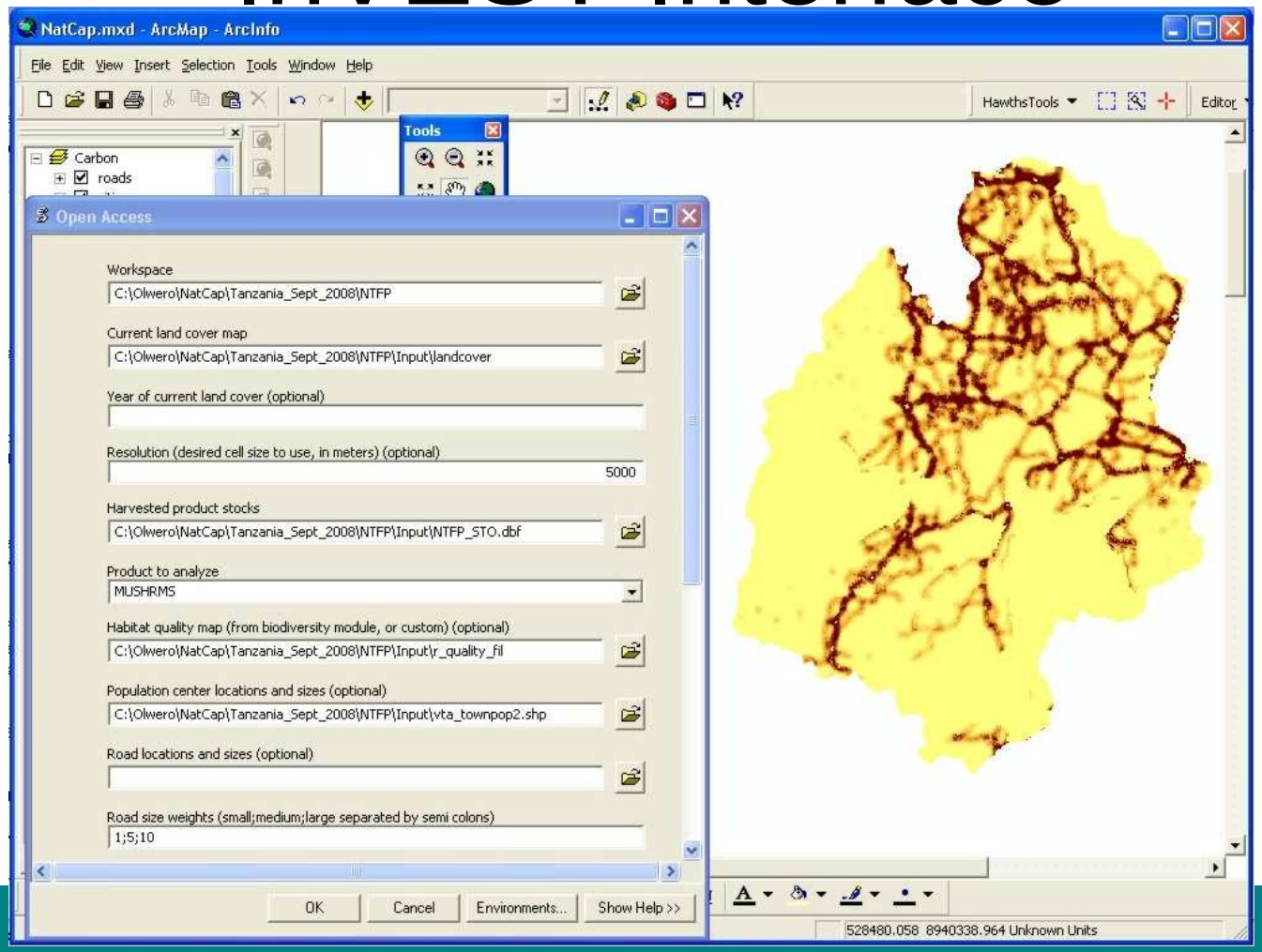
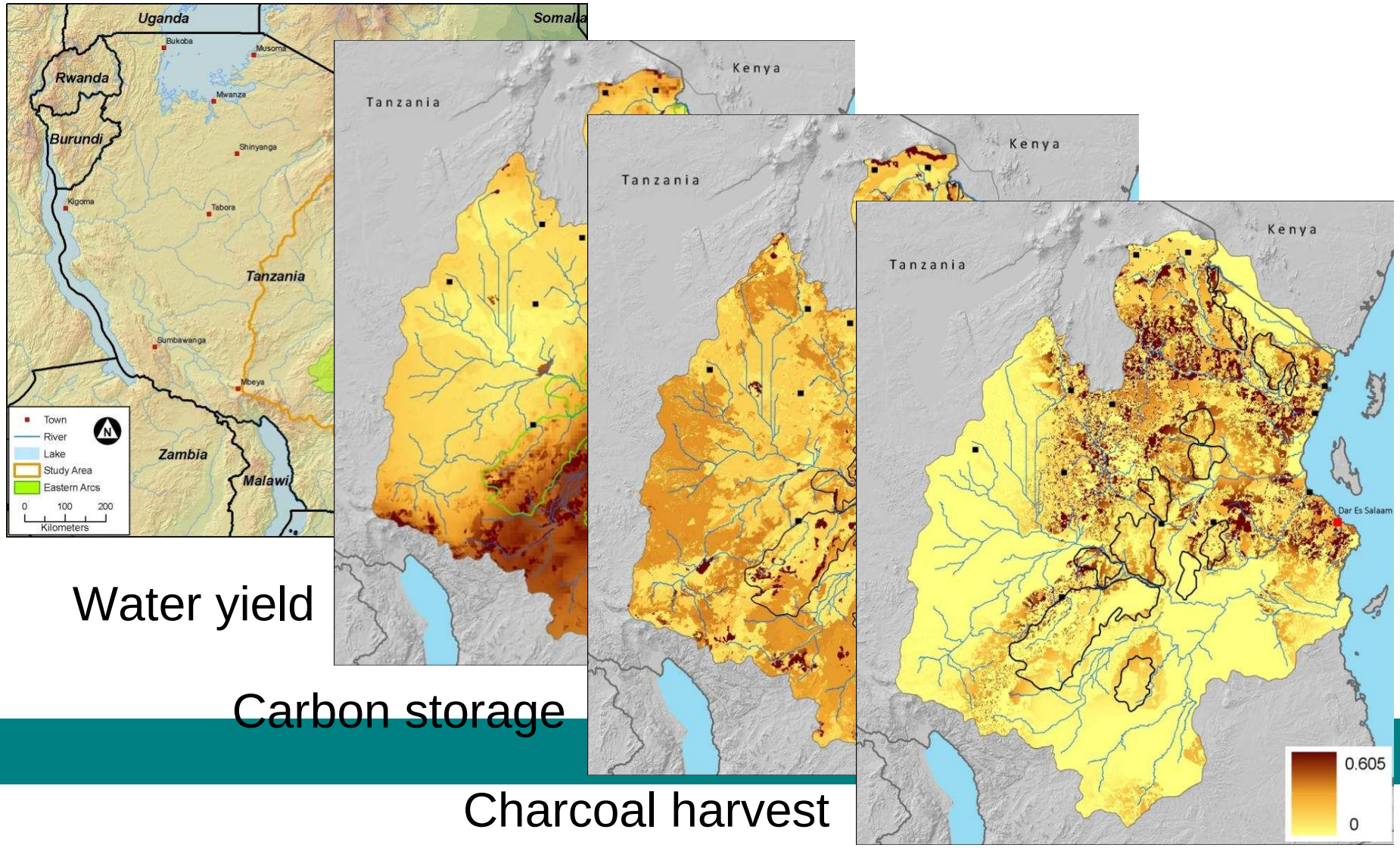
# MBMP - Value Transfer



# InVEST Interface



# Early results




Water yield

Carbon storage

Charcoal harvest