Economic Activity and its Impact on the Environmental Boundary

Session 2: New developments in business and trade statistics
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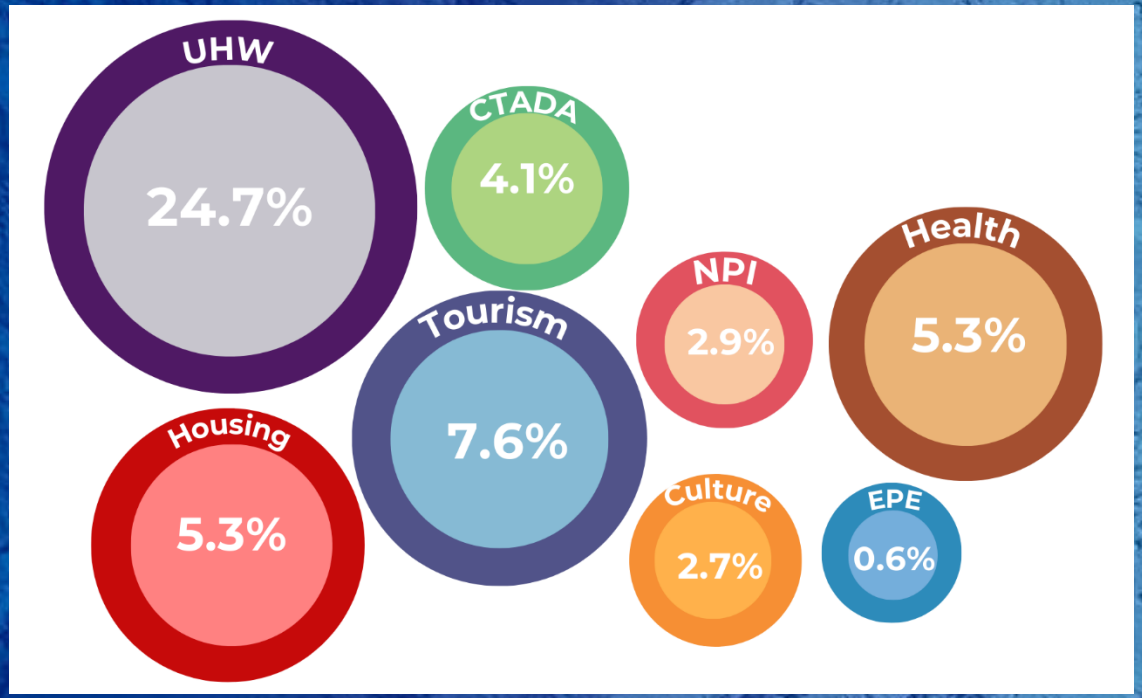
The Program of Thematic or Satellite Accounts in Mexico

Satellite Accounts provide an opportunity to take the analysis beyond GDP in sectoral issues, as they show additional measurements to the central framework that allow contextualizing the development of a country.

The **thematic accounts that are developed in Mexico are**:

- Unpaid Household Work (UHW)
- Tourism
- Housing
- Health
- Culture
- Non-Profit Institutions (NPI)
- Economic and ecological
- Ecosystems

GDP of Satellite Accounts in Mexico, 2021 (Percentage share with respect to GDP)



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Environmental Accounting is an opportunity to show the relationship between the economic activity and the environment

Central Framework

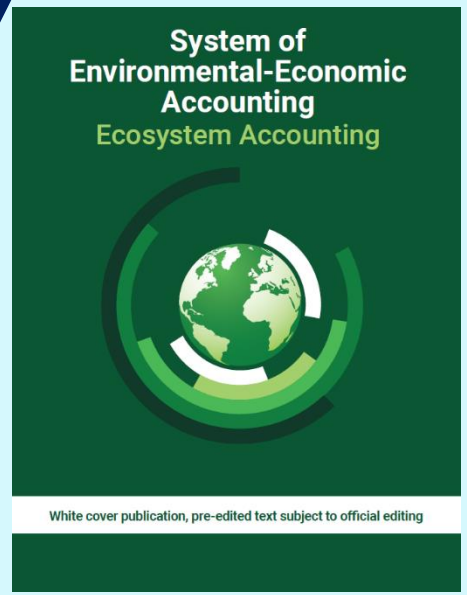
Starts with the economy and measures environmental assets and resources

Wood

Water

Fish

Ecosystem Accounting



Starts with ecosystems and links their services to the economy and human activities

Forests

Rivers

Corals

Services

Environmental Accounting in our Country

The **Environmental Accounts quantify two important aspects of the economy-environment relationship**:

- Environmental impact in terms of the depletion of natural resources:
  - Hydrocarbons
  - Underground water
  - Forest resources
- And the degradation of the environment:
  - Air emissions
  - Soil degradation
  - Urban solid waste
  - Wastewater discharges

On the other hand, **Ecosystem Accounts measure the services that they provide to the economy and society**:

- Provision: to agricultural production, pollination, water.
- Regulation: carbon sequestration and storage.
- Cultural: sustainable and nature tourism.

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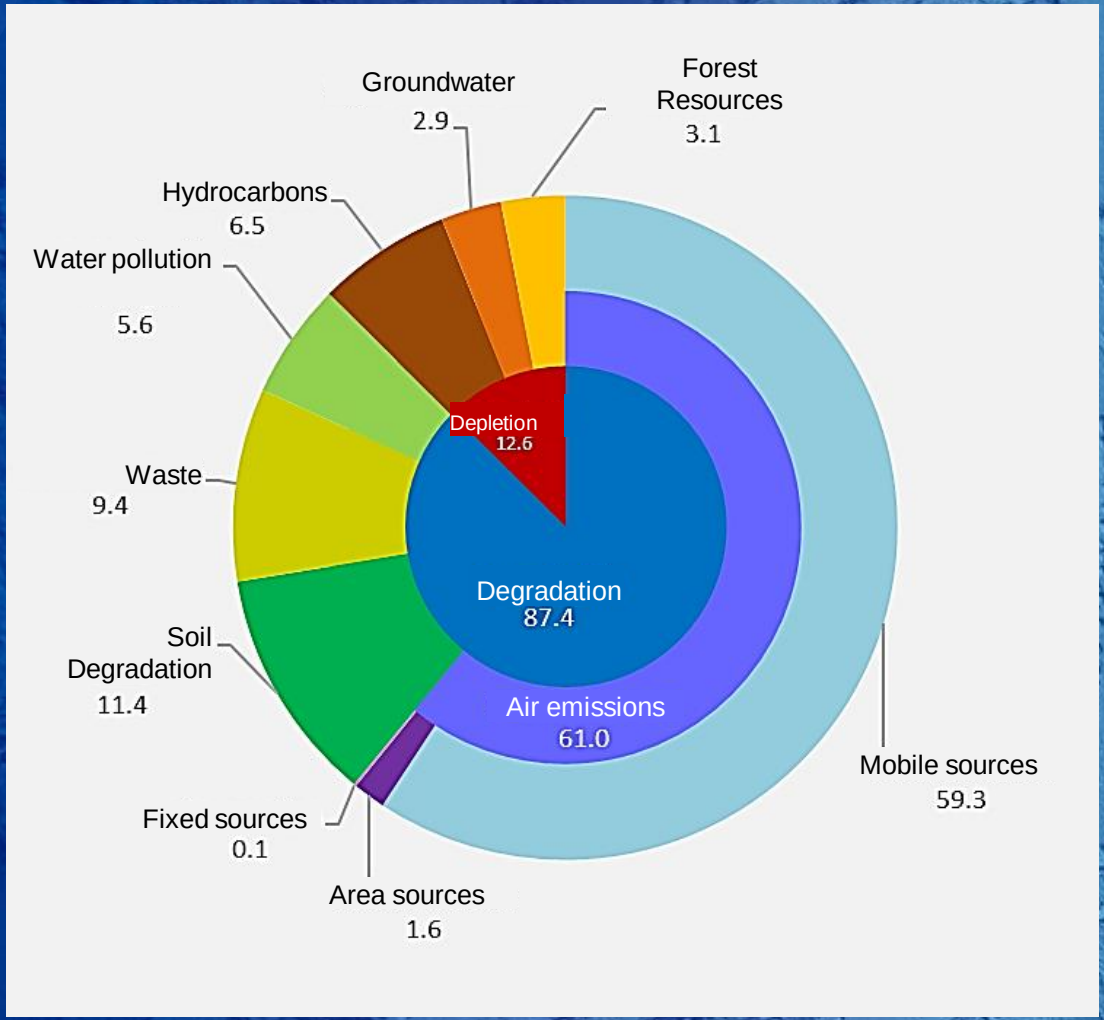
The impact of the economy on the environmental boundary

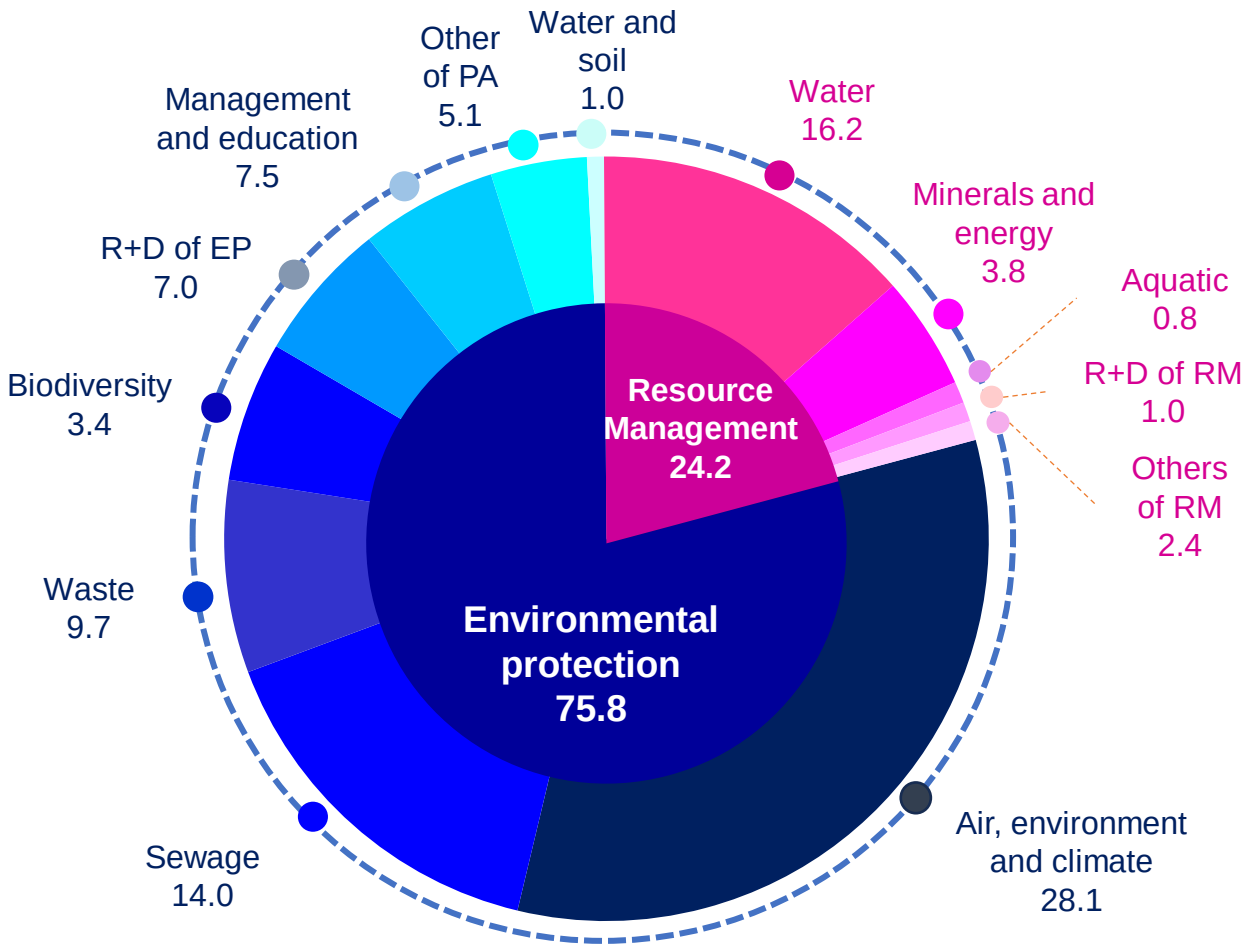
Activities such as manufacturing, services or transport generate negative externalities to the environment, in the form of emissions to air, water and soil.

Measuring the environmental impact of economic activity includes environmental degradation and depletion of natural resources, e.g. air pollutant emissions from energy consumption.

Total environmental cost as a share of GDP, 2021: 4.1%, of which:

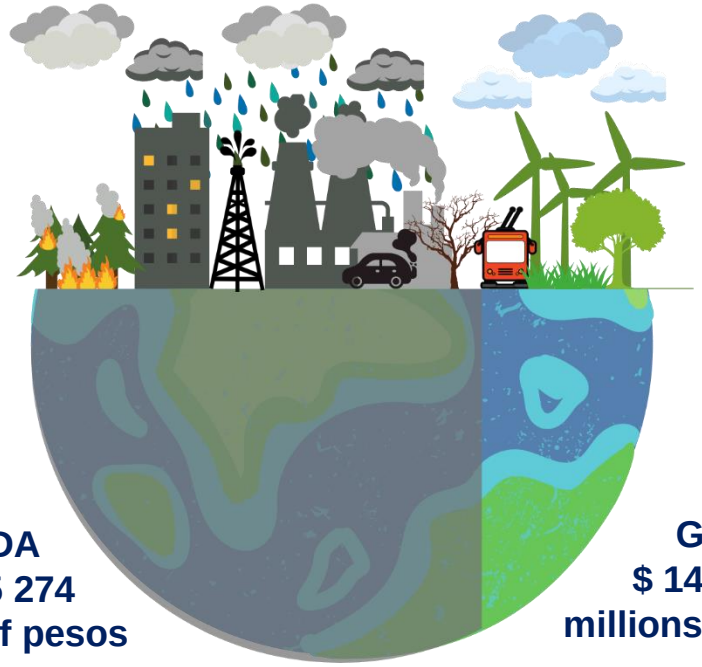


Total Environmental Protection Expenditure as a proportion of GDP, 2021: 0.6%, of which:



Environmental deficit, 2021:

$940,677 millions of pesos



CTADA
$ 1 085 274 millions of pesos

GPA
$ 144 597 millions of pesos

CTADA. Total Costs of Environmental Depletion and Degradation
GPA. Total Environmental Protection Expenditure

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ECONOMIC VALUATION METHODS

Theme	Method	Description
Depletion of Hydrocarbons	**Net rent**	Considers the **net income** derived from the economic use of the resource through the discount of **production costs** associated with extractive activity to **gross income**.
Depletion of forest resources	**Replacement c**osts	Consider **reforestation costs** for replacement of lost trees.
Groundwater Depletion	**Shadow** prices	A water market is **simulated** to estimate an economic value of the resource, through the calculation of a **shadow price** based on the gross income of the water operating agencies and their operating costs.
Air emissions	**Abatement** costs	It refers to the costs of **implementing technologies** that reduce the amount of emissions into the atmosphere.
Municipal Solid Waste Generation	**Management and treatment** costs	A **treatment cost** is calculated for organic and inorganic solid waste.
Soil degradation	**Remediation** costs	It quantifies the minimum amount of actions that should be carried out to **repair the damage** caused to the soil during economic activities.
Untreated wastewater	**Treatment** costs	A **treatment cost** is calculated for untreated wastewater.

Example: Air emissions from economic activity

Information sources

-Statistics of Registered Motor Vehicles in Circulation (VMRC), INEGI

-Mexican Association of the Automotive Industry
-Secretariat of Energy, PEMEX

-National Forestry Commission

-Federal Electricity Commission

-Agri-food Information System of Consultation

-Among others

Air emissions have three main origins within the economy: mobile, stationary and area sources.

Information

- Motor vehicles in circulation
- Domestic sales of cars and trucks
- Fuel consumption
- Forest fires
- Electricity production by fossil fuels
- Agricultural and livestock activity
- Among others

Air emissions1/. Main results to the year 2021. Million tons (MT)

Mobile sources: 11.2 MT

Cargo trucks: 47.7%

Private and public vehicles: 35.7%

Passenger trucks*: 6.0%

Other mobile sources**: 10.6%

Area sources: 5.1 MT

Municipal waste: 30.7%

Use of solvents: 13.8%

Agriculture and Livestock: 22.8%

Other area sources: 32.7%

Stationary sources: 1.3 MT

Electricity generation by burning fossil fuels: 55.0%

Oil and gas extraction: 22.6%

Manufactures: 22.4%

* Includes: Passenger trucks and Metrobus
** Includes: Motorcycles, maritime boats and locomotives

1/ Includes so-called "criterion gases"

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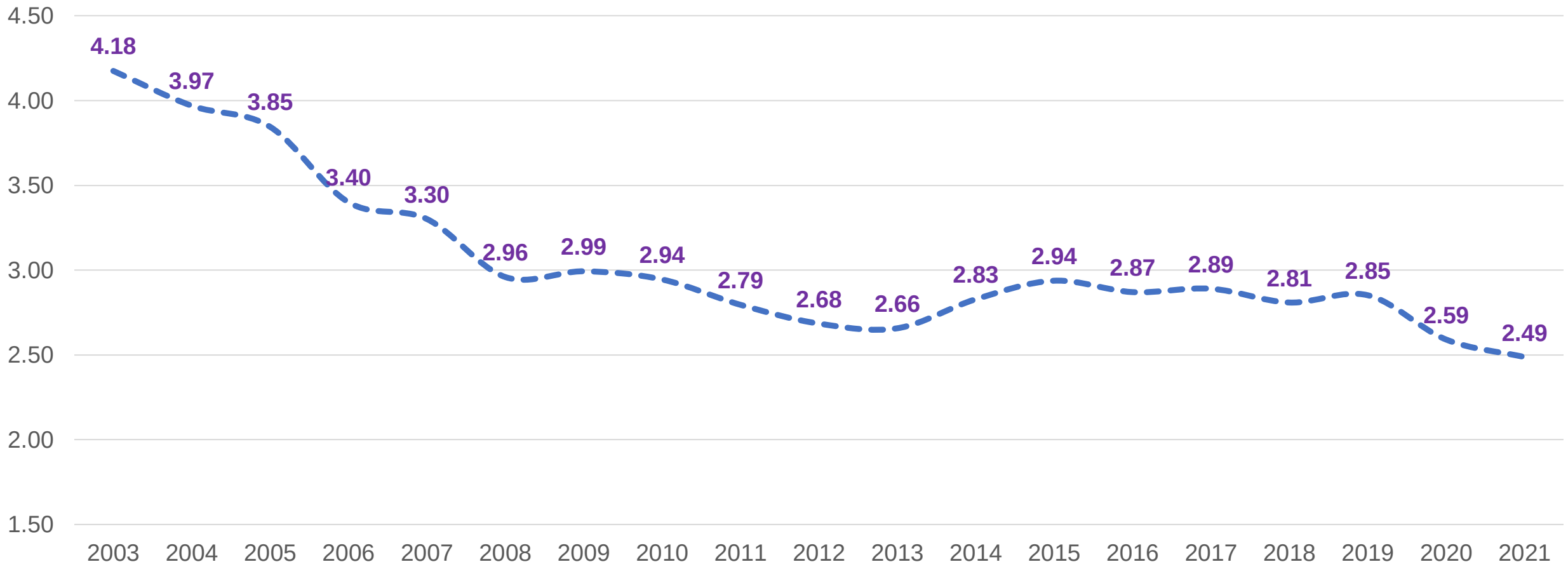
Abatement cost of air emissions as a proportion of GDP (Percentage) 2003-2021



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Ecosystem accounts

They quantify ecosystems and the services they provide to the economy and society, **as an extension of the Economic and Environmental Accounts**.

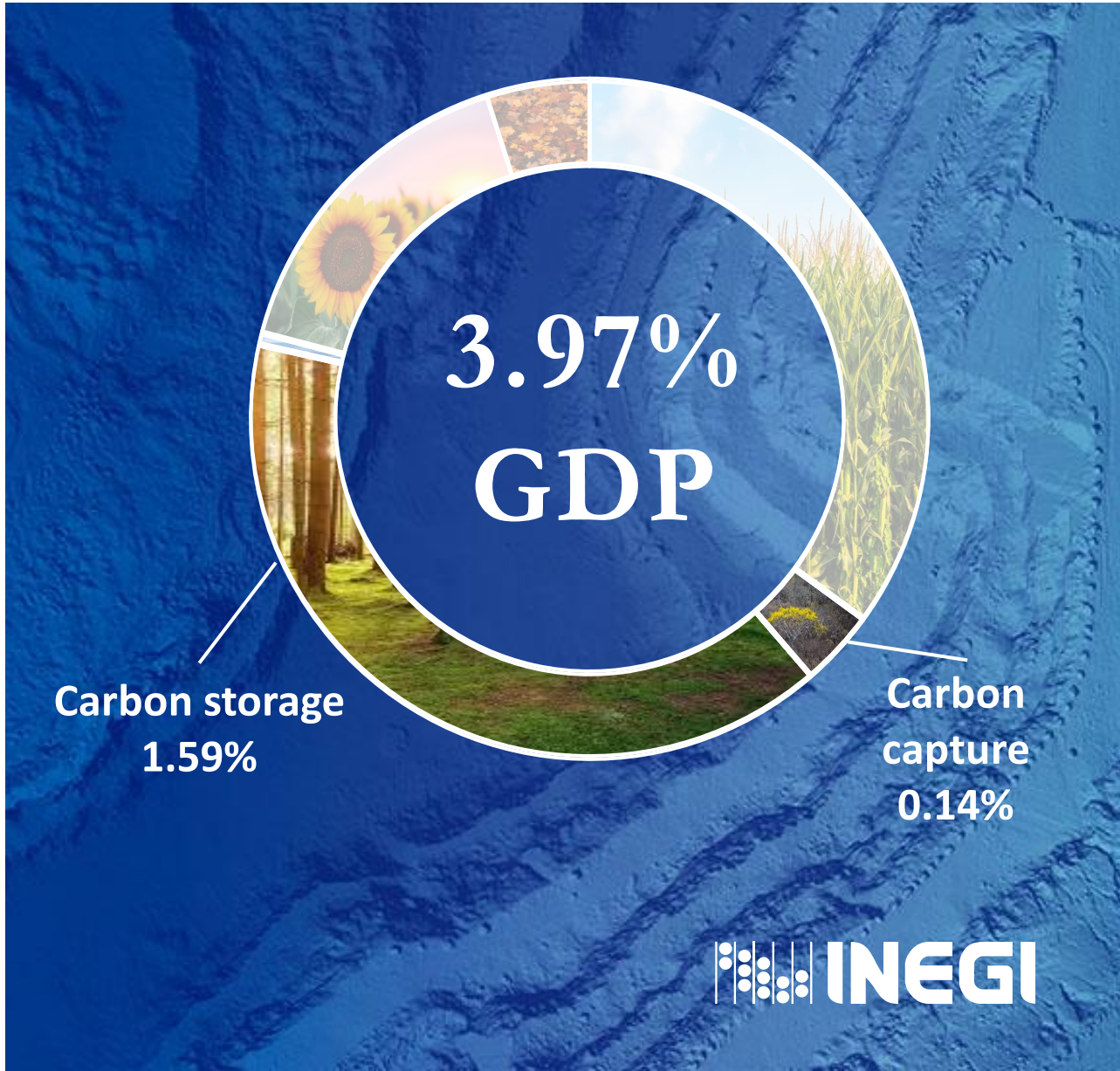
Ecosystem services are recorded as:

- **Provision**: to agricultural production, pollination, water.
- **Regulation**: carbon sequestration and storage.
- **Cultural**: sustainable and nature tourism.

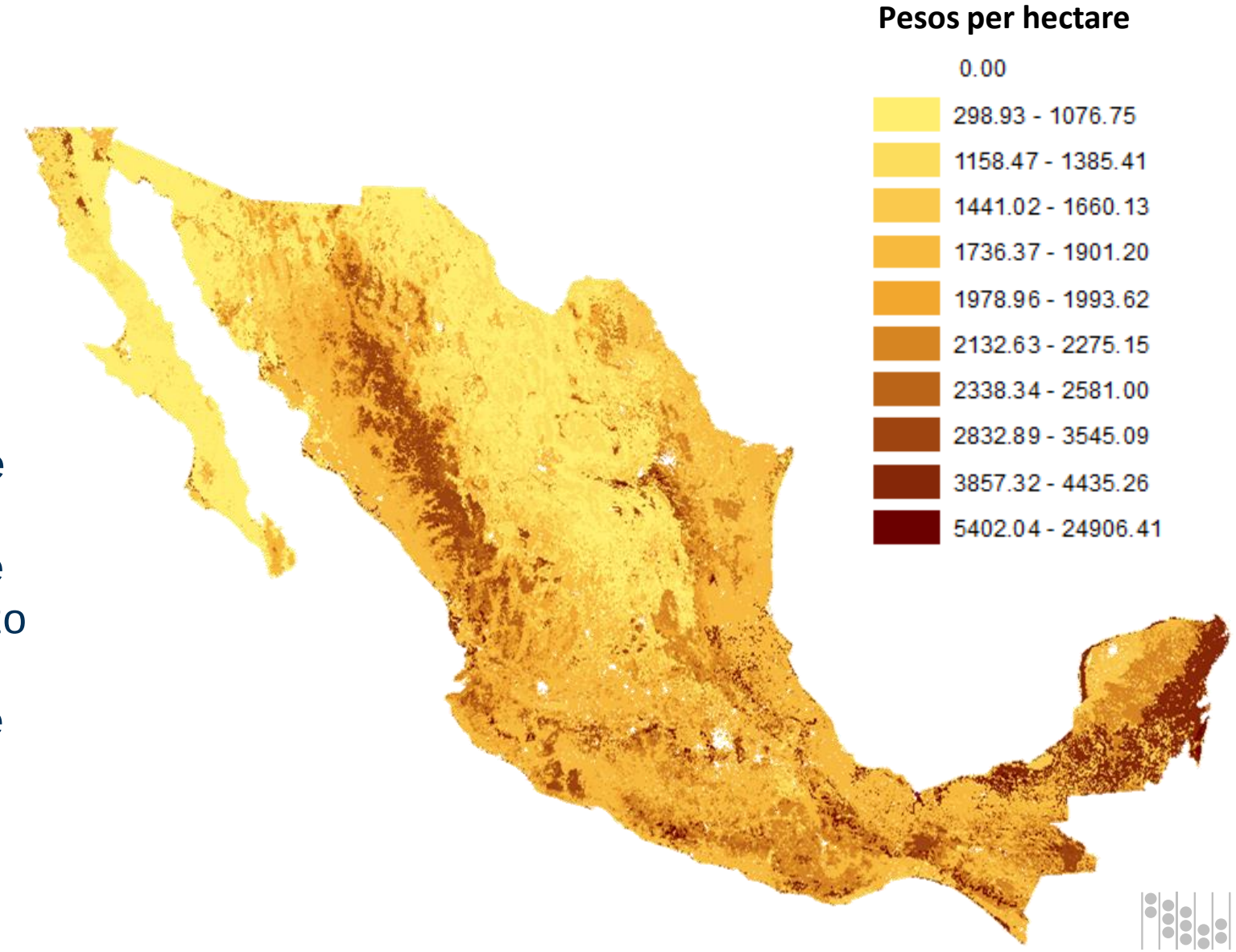
Ecosystem services: CO_2 capture and storage

Estimate the economic value of net accumulation (capture) and stock (storage) of carbon in biomass and soils.

Together, the total value of carbon **storage and capture** in biomass and soil is equivalent to 1.73% of the National GDP, which corresponds to 422,440 million pesos and 38,563 million pesos respectively.



Monetary value of soil carbon capture and storage service, 2021



The monetary value of the CO_2 capture and storage service in soil is equivalent to

1.39% of the National GDP.

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Monetary value of the biomass carbon capture and storage service, 2021

The monetary value of the CO_2 capture and storage service in biomass is equivalent to

0.34% of the National GDP.

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Thank you!

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