



ACCELERATING IMPLEMENTATION; **ACHIEVING** **RESILIENCE**

GEOSPATIAL INFORMATION AS A KEY PILLAR TO ACCELERATE SUSTAINABLE DEVELOPMENT: A JOURNEY WITH A REGIONAL AND NATIONAL PERSPECTIVE

H.E. Ms. Alicia Bárcena Ibarra
Ministry of the Environment and Natural
Resources, Mexico



UN-GGIM
UNITED NATIONS
COMMITTEE OF EXPERTS ON
GLOBAL GEOSPATIAL
INFORMATION MANAGEMENT



Multilateral context & roadmap



UN-GGIM
UNITED NATIONS
COMMITTEE OF EXPERTS ON
GLOBAL GEOSPATIAL
INFORMATION MANAGEMENT




the future we want →



The future we want (Rio+20, 2012)

VI. Means of implementation

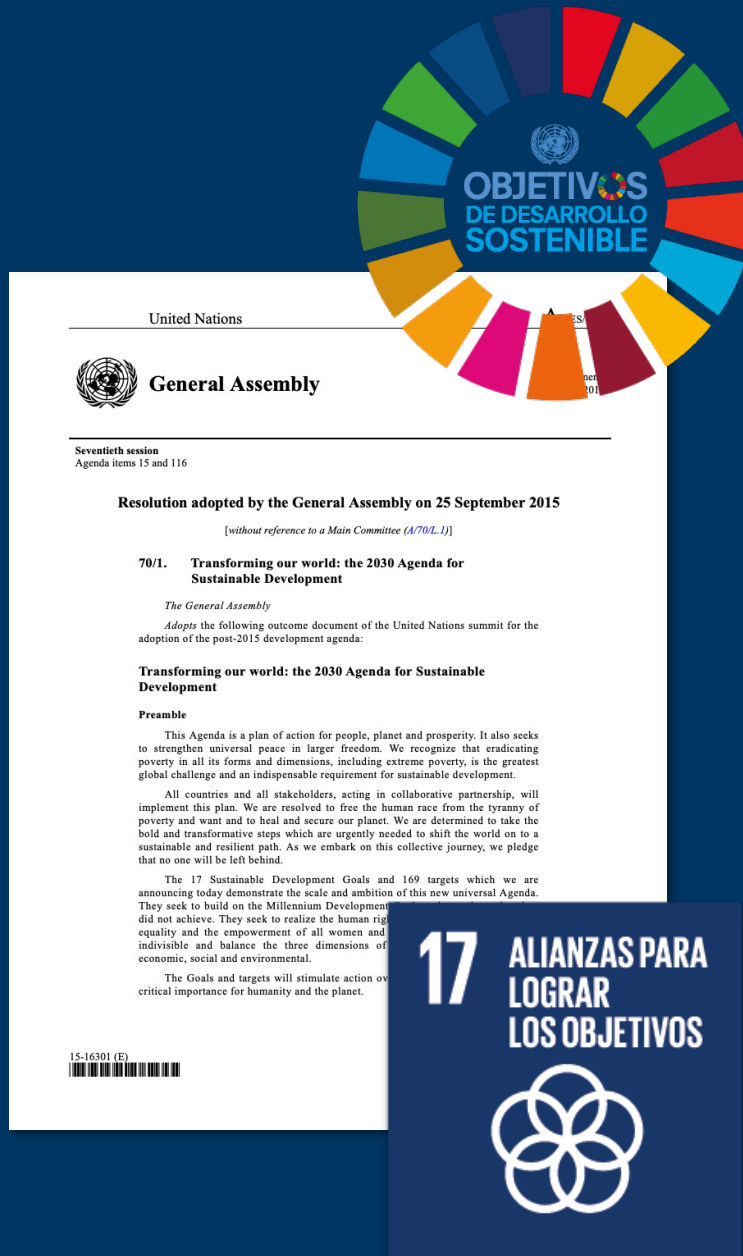
B. Technology



“274. We recognize the importance of space-technology-based data, *in situ* monitoring and reliable geospatial information for sustainable development policymaking, programming and project operations.

...we note the relevance of global mapping, and recognize the efforts in developing global environmental observing systems, including by the Eye on Earth network and through the Global Earth Observation System of Systems..”

Transforming our world: the 2030 Agenda for Sustainable Development (2015)



“76. ...We will promote transparent and accountable scaling-up of appropriate public-private cooperation to exploit the contribution to be made by a wide range of data, including earth observation and geospatial information, while ensuring national ownership in supporting and tracking progress.”

“17.18. By 2020, enhance capacity-building support ...to increase significantly the availability of high-quality, timely and reliable data disaggregated by income, gender, age, race, ethnicity, migratory status, disability, geographic location and other characteristics relevant in national contexts.

Pact for the Future: Digital Compact (September 2024)

Data for the SDGs and for development



WE COMMIT BY 2030 TO:



Increase financing... and enhance efforts to build capacity in data and related skills, as well as responsible data use, particularly in developing countries (SDG 17);



Strengthen efforts to collect, analyze and disseminate relevant, accurate, reliable and disaggregated data for better monitoring and policymaking to accelerate the achievement of the 2030 Agenda, while respecting privacy and data protection.

We will aim for a 50% increase in the data available to monitor the SDGs, disaggregated by income, sex, age, race, ethnicity, migration status, disability **and geographic location** and other characteristics relevant in national contexts (All SDGs);

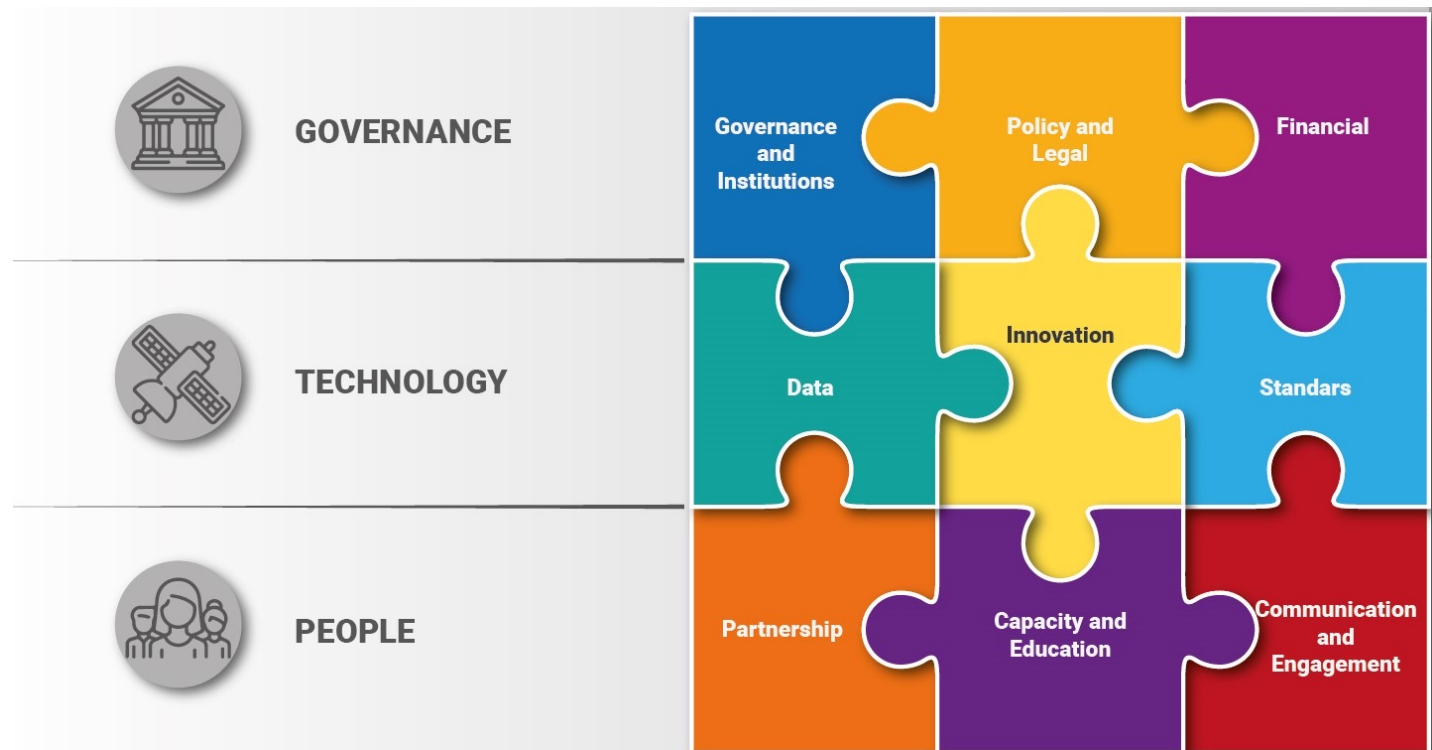


Develop open and accessible data systems to support **effective disaster early-warning, early action and crisis response** (SDG 3 & 11).

Supporting the implementation of the United Nations Integrated Geospatial Information Framework (2018 onwards)



UN-GGIM
UNITED NATIONS
COMMITTEE OF EXPERTS ON
GLOBAL GEOSPATIAL
INFORMATION MANAGEMENT



Regional perspective

UN-ECLAC



UN-GGIM
UNITED NATIONS
COMMITTEE OF EXPERTS ON
GLOBAL GEOSPATIAL
INFORMATION MANAGEMENT



ECLAC: Incorporating geospatial information

Joint bureaux meeting:
Statistical Conference of the
Americas (SCA) &
UN-GGIM: Americas
ECLAC HQ

2016

Technical assistance to
disseminate UN global
guidelines in LAC Member
States

2018

Formulation of geospatial
projects at ECLAC:
- Statistical geoportals
- Strengthening capabilities
for integration

2020

2017

Joint meeting between the SCA &
UN-GGIM: Americas (ECLAC)
Incorporation of Regional Expert
in Geospatial Information
Management in the Statistics
Division of ECLAC.

2019

Joint Declaration between the
SCA and UN-GGIM: Americas
for the Integration of
Geospatial and Statistical
Information at the 10th SCA-
ECLAC Meeting.

2021

ECLAC as Technical Secretariat of
UN-GGIM: Americas.
Launch of the CEPALSTAT
geoportal.

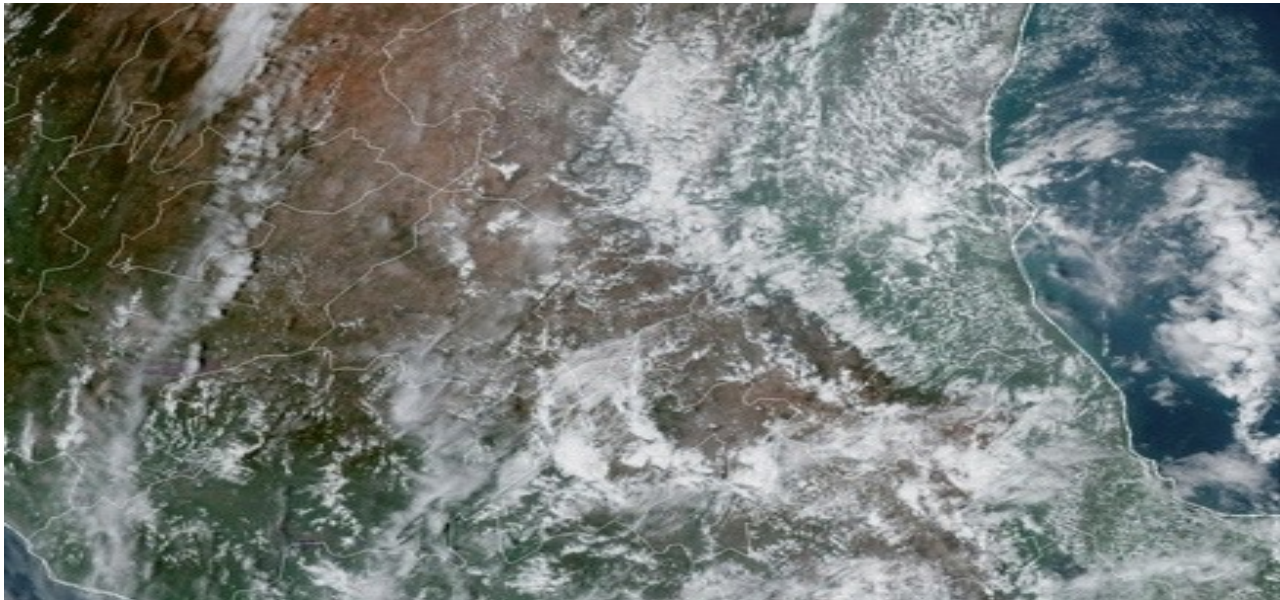
Caribbean Project (2014-2018)

Cooperation to build a regional Spatial Data Infrastructure (SDI)



Features & deliverables:

- Infrastructure (antennas to receive satellite data & other equipment).
- Technical capacity (courses & workshops)
- Participation in the global conversation (UNGGIM meetings)
- Regional interoperable geospatial network
- Updated land cover maps for all countries from satellite imagery.
- Geodetic infrastructure installed in all 17 countries



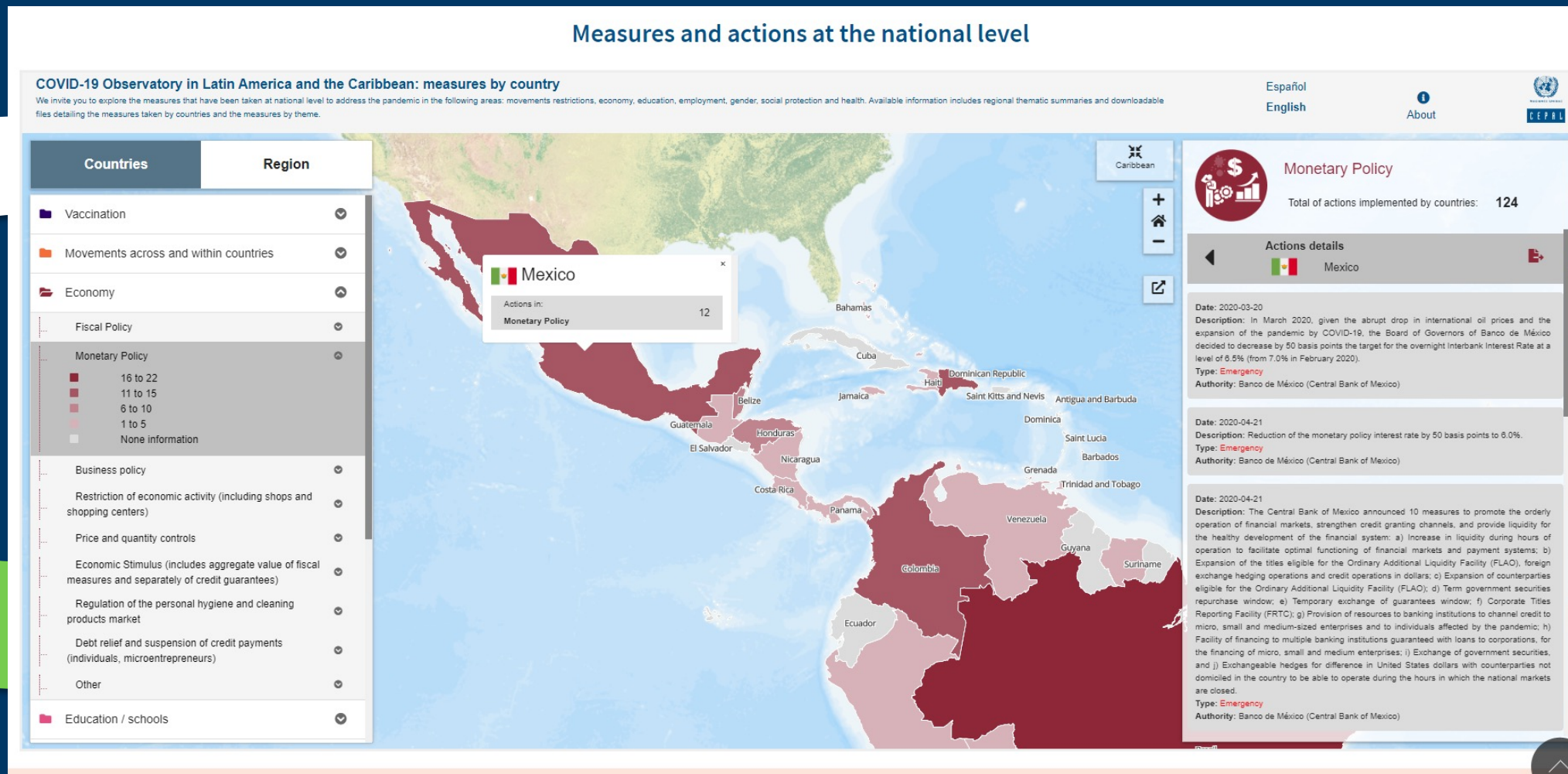
CLIMATE CHANGE



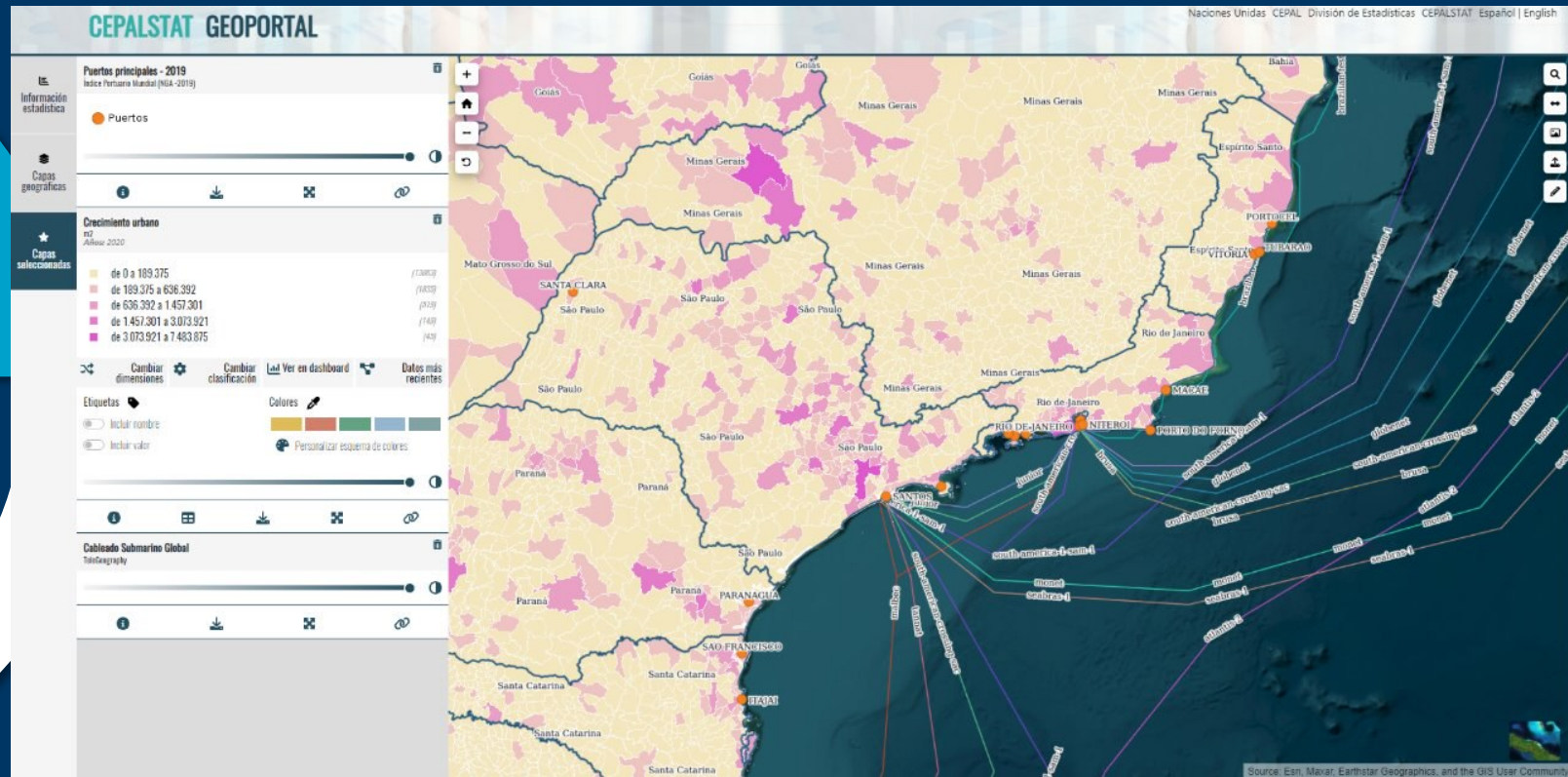
BIODIVERSITY CRISIS

COVID-19 Observatory (2020)

Tracks implemented public policies for 33 countries of the LAC region to limit the impact of the COVID-19. Offers analyses of the economic and social impacts that these policies will have at the national and sectoral levels.



CEPALSTAT Geoportal (2021)



<https://statistics.cepal.org/geo/geo-cepalstat/?lang=es>

Deploys georeferenced information produced by the official national organizations and international agencies, as well as relevant indicators to describe the regional situation. Interoperable between statistical and geospatial information.

Project for the implementation of statistical geoportals supported by the European Union and EUROSTAT (2021 – 2023)

MAIN ACHIEVEMENTS:

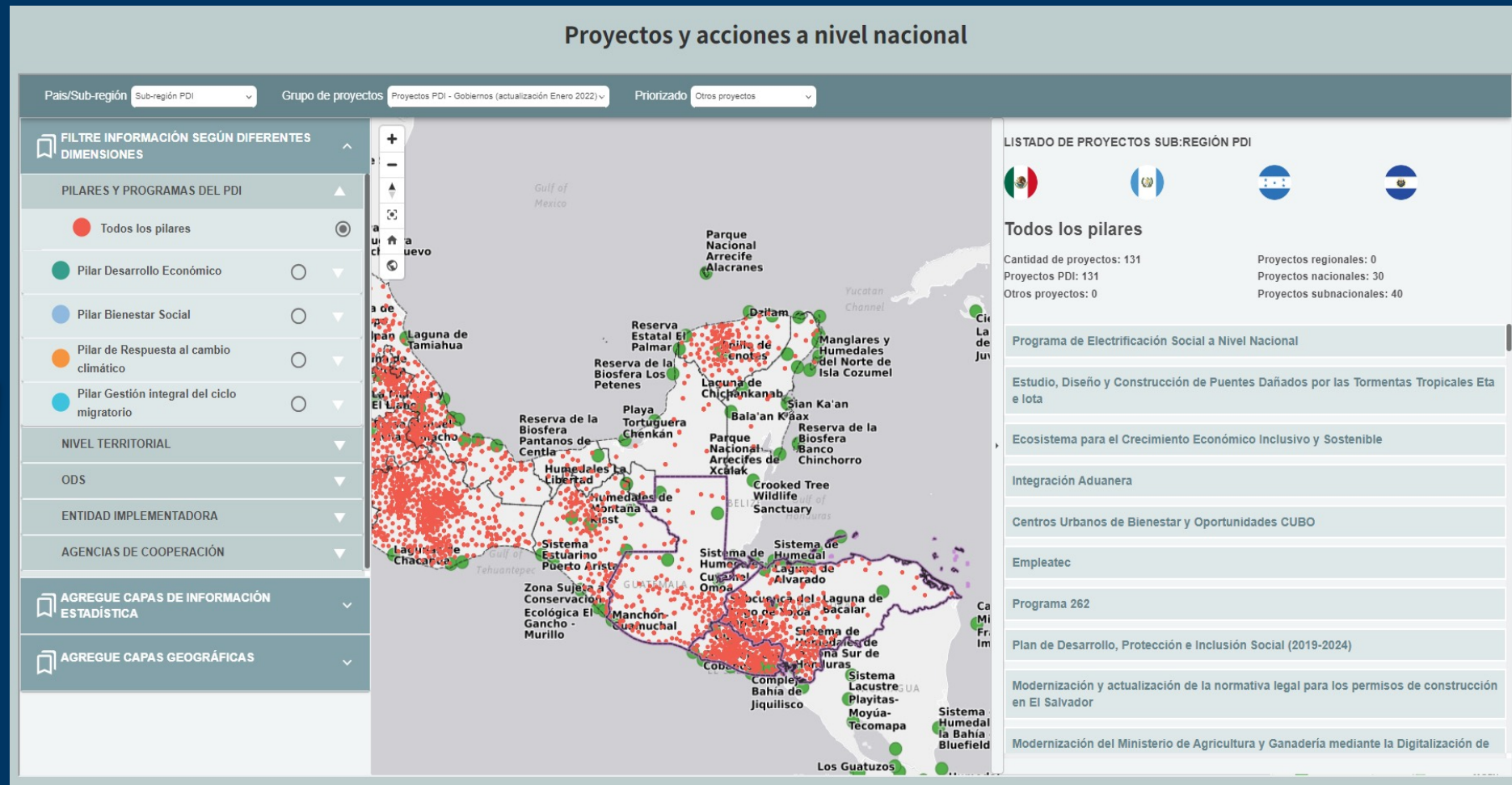


Improved access to geostatistical data produced by the NSO in seven countries of Latin America.



Facilitates its integration with geospatial information generated by public actors and non-governmental sectors at the country level.

“Plan de Desarrollo Integral” - Geoportal (2021)



<https://www.cepal.org/es/subtemas/plan-desarrollo-integral>

Tool for governments and UN System for monitoring projects and actions to address the structural causes of migration in Central America and Mexico

Mexico: a national perspective

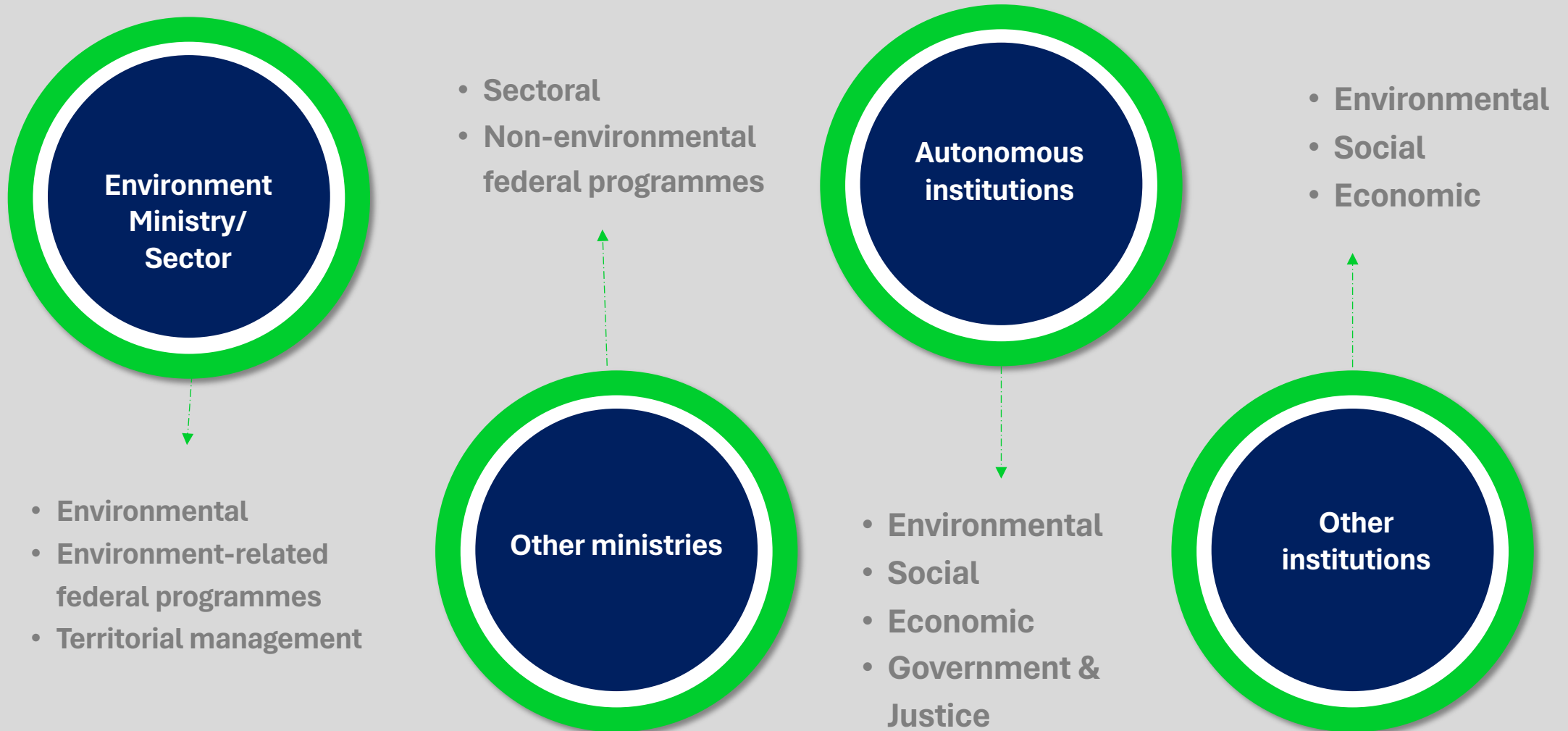


UN-GGIM
UNITED NATIONS
COMMITTEE OF EXPERTS ON
GLOBAL GEOSPATIAL
INFORMATION MANAGEMENT



MEDIO AMBIENTE
SECRETARÍA DE MEDIO AMBIENTE Y RECURSOS NATURALES

Geospatial data in Mexico: State & Federal Government



Mexico's environmental sector: a **key source of geospatial information**



NATIONAL

INTERNATIONAL

- Diagnosis
- Policy making
- Monitoring
- Accountability
- Education



USES

Geospatial platforms in Mexico: use in public policy

Land use & land cover



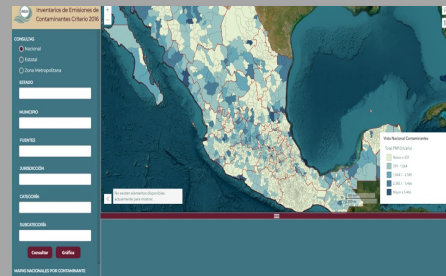
- Land planning
- Environmental impact assessment (EIA)
- GHG inventories
- Environmental reporting

Air quality monitoring (SINAICA)



- Air quality policy
- Early warnings for human health protection

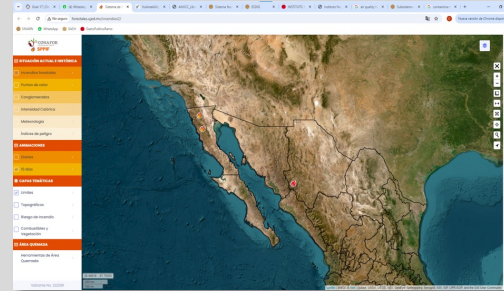
Inventory of National Emissions (INEM)



- Air quality policy & forecast
- Health protection policy

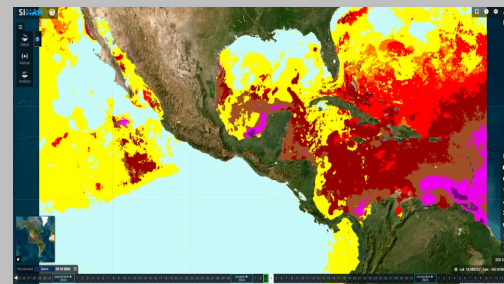
Geospatial data platforms in Mexico and their use in public policy

Wildfires



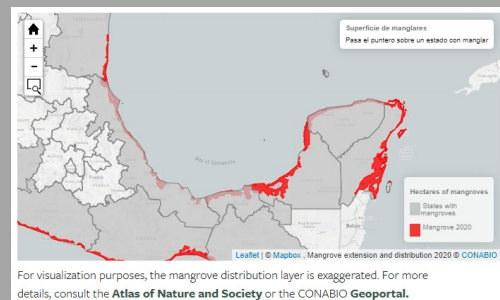
- Preparing and prevention plans
- Combat actions
- Restoration/reforestation programmes
- International cooperation (e.g, Chile)

Marine-Coastal Information and Analysis System (SIMAR)



- Marine-costal protection
- Human health protection
- Early warning for coral bleaching, sargassum arrival and red tides

Mangrove Monitoring System (SMMM)



- Marine-costal protection and natural protected areas policies
- GHG inventories

The unavoidable challenge:
a **new socio-environmental agenda**, and how
geospatial information can support its achievement

Towards a humanist and ecological agenda

Ensure shared prosperity and the right to a healthy environment for current and future generations, by decoupling sustainable development from unequal and extractivist policies.

**Adaptation to
climate change**

Reduce vulnerability of human settlements to extreme climate events.

**Ecosystem
protection and
restoration**

Measure, protect and restore natural ecosystems, including mangroves and river basins.

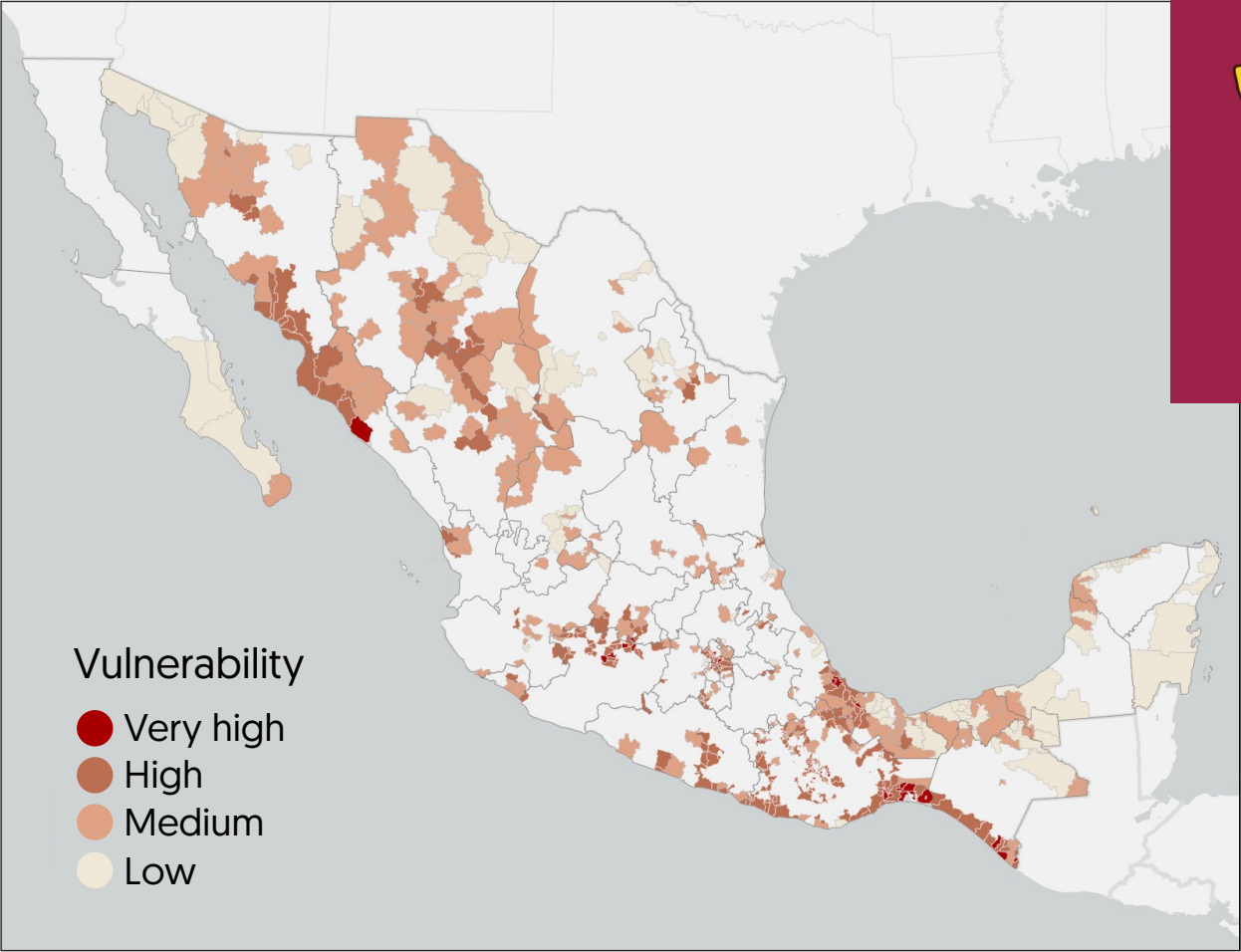
Adaptation to climate change: geospatial information to assess vulnerability of human settlements to **extreme climate events**



Acapulco, Mexico
September 2024



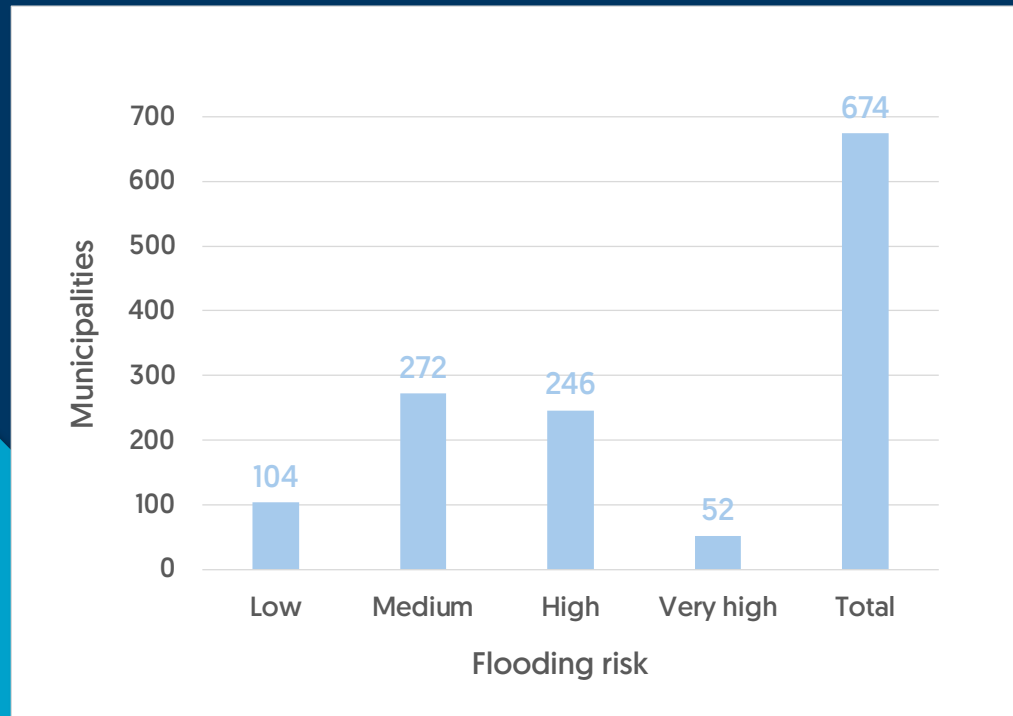
Geospatial information to assess climate change vulnerability



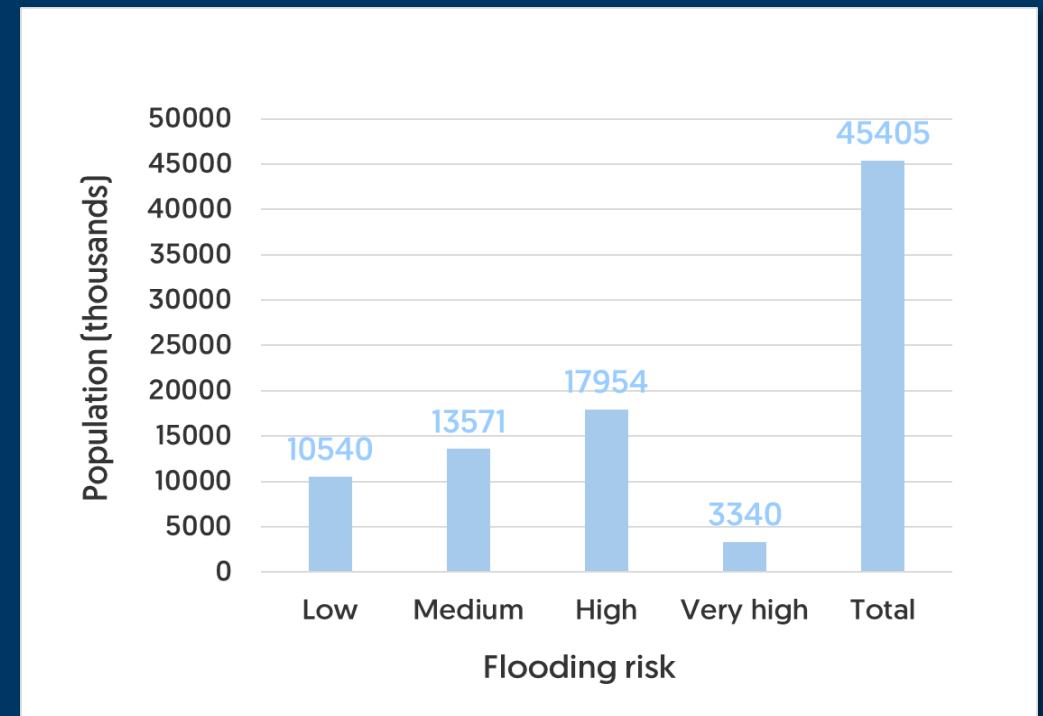
Vulnerability of human
settlements to flood risk

INECC. 2019. *Atlas Nacional de Vulnerabilidad al Cambio Climático*. Mexico.

Geospatial data as a primary source for integration and analysis



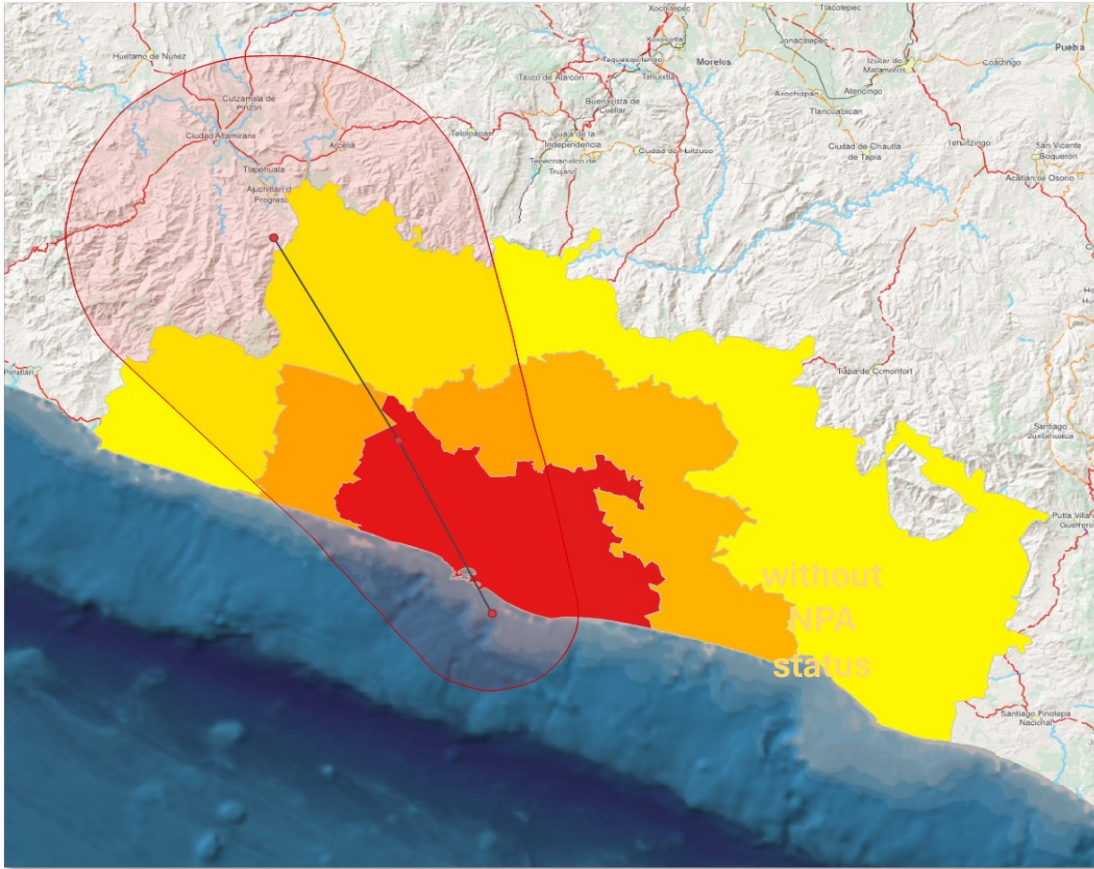
674 municipalities



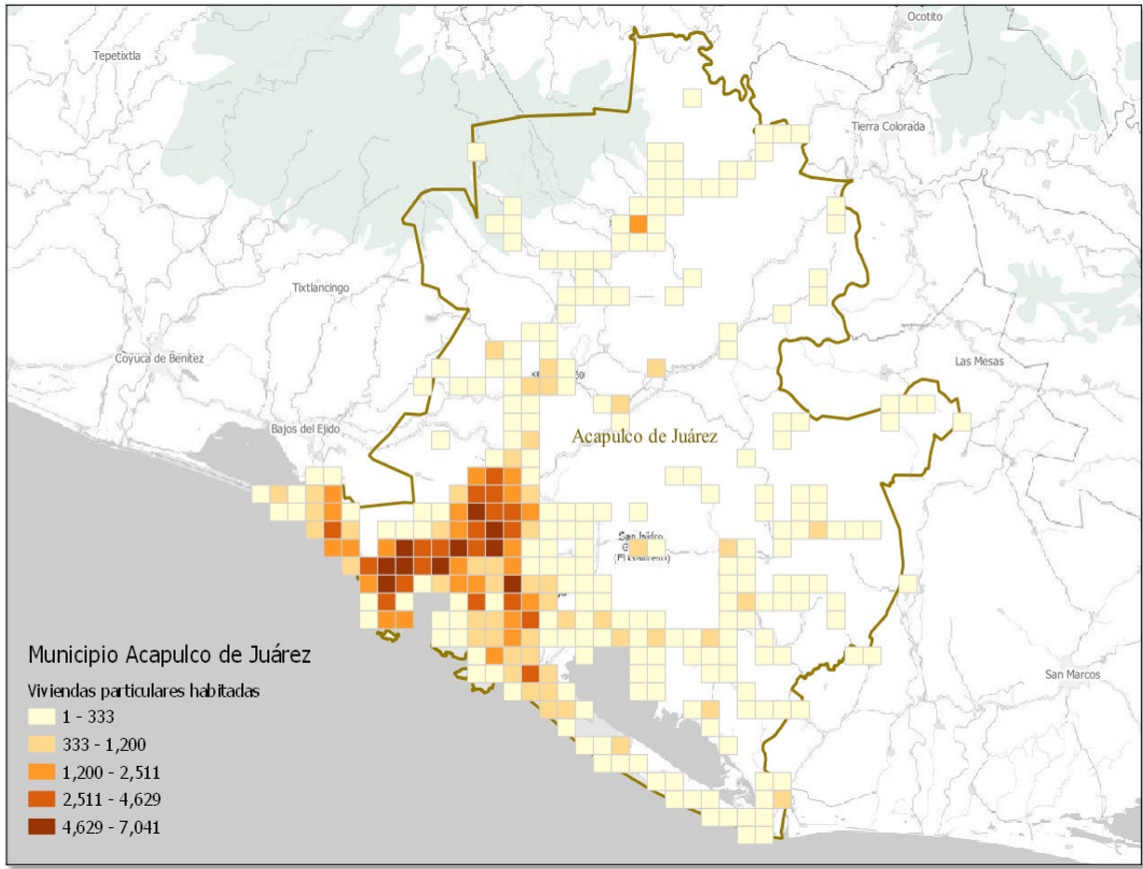
45.5 million people are at risk of
flooding in México

Vulnerability Atlas + Population & Housing Census (INEGI, 2020)

Risk, damage and cost assessment before & after extreme climate events



Areas exceeding rainfall thresholds



+ Households & businesses in affected areas

Zempoala, Puebla

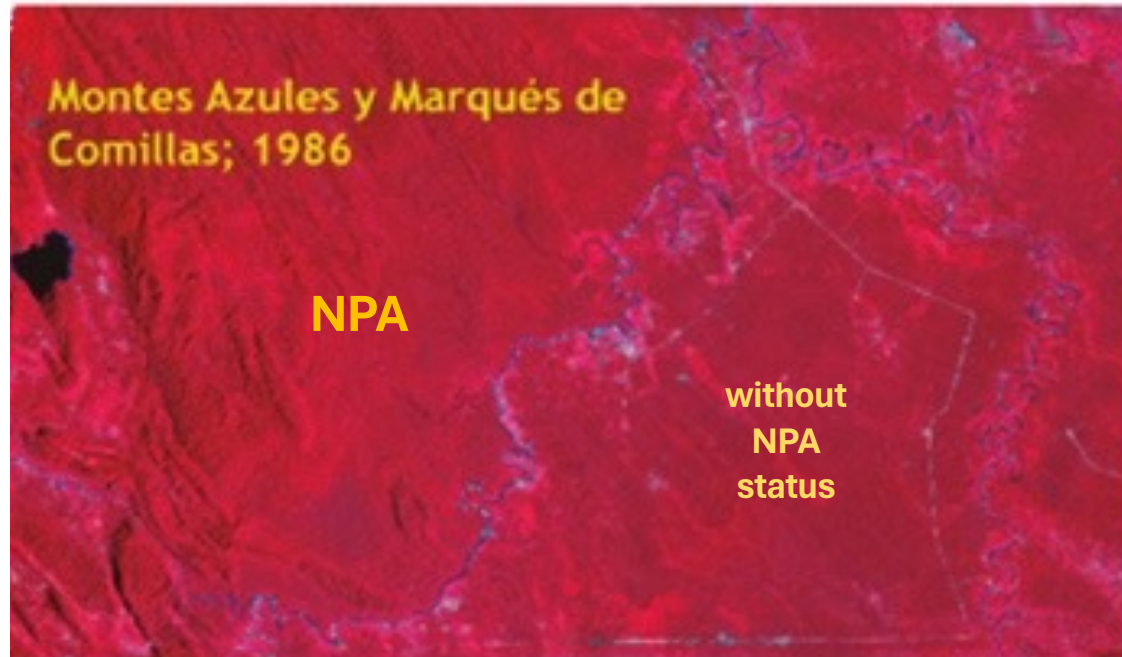
15 LIFE
ON LAND



**Ecosystem protection & restoration:
remote sensing to monitor illegal logging**

Earth Observations to monitor environmental policies

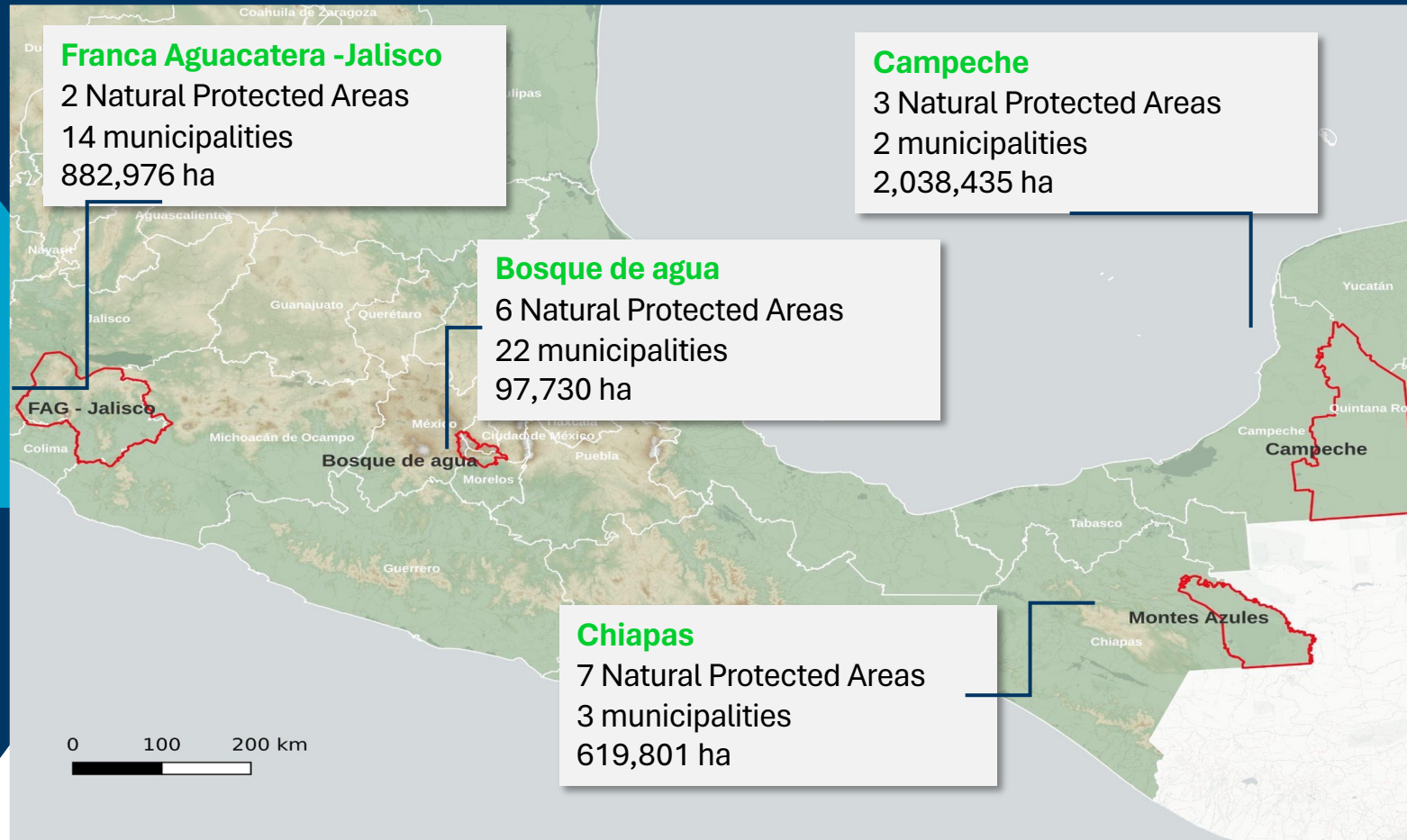
Montes Azules Natural Protected Area (NPA) in Chiapas, Mexico



Comparison of land use & vegetation cover over time
using Mexico's **Geospatial Data Cube**

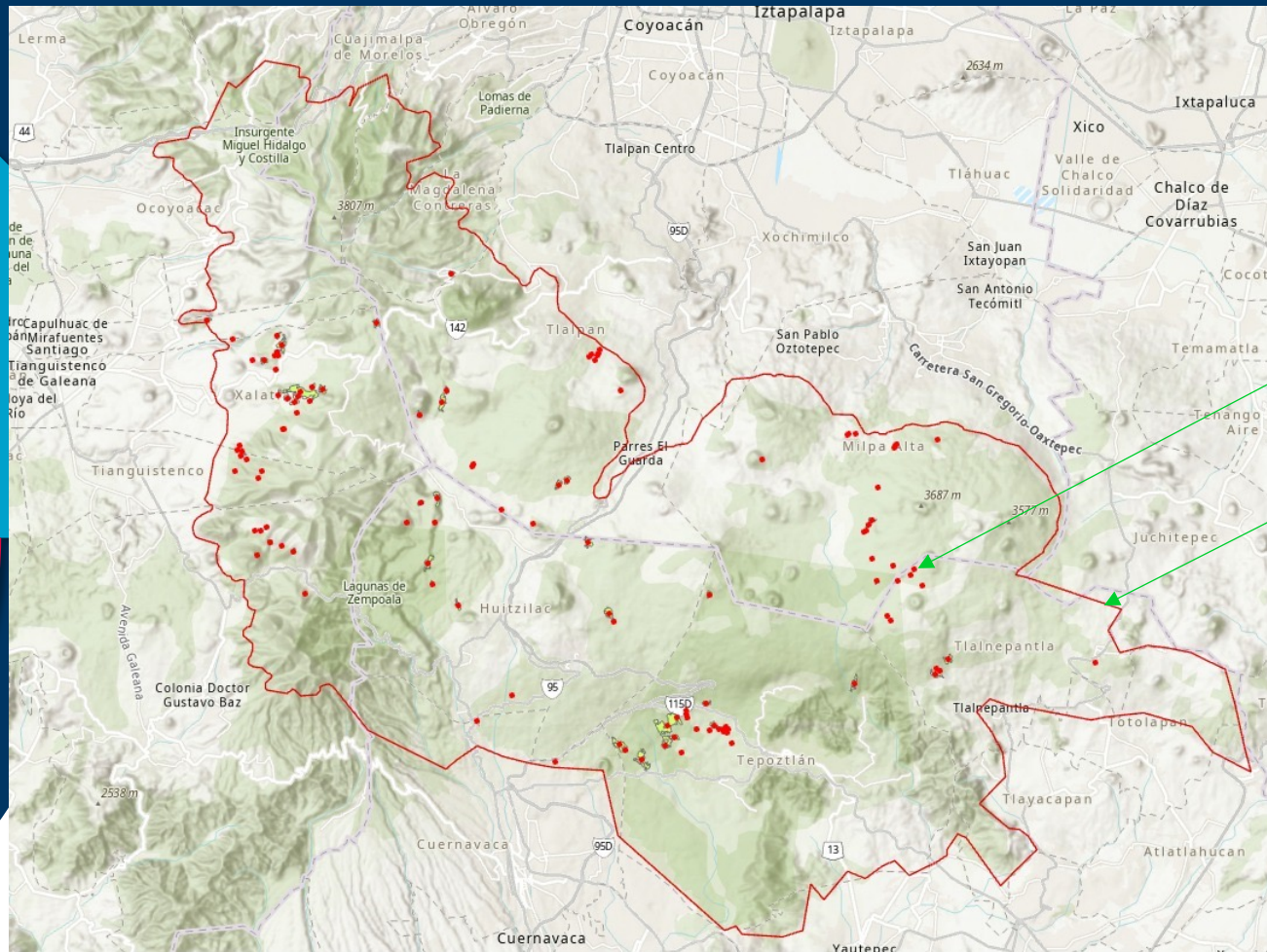
Illegal logging in Mexico:

Early Warning System for Deforestation (2022-ongoing)



Tracking changes over time in forest cover with satellite data

Illegal logging in Mexico: Early Warning **System for Deforestation**



**Deforested
areas**

**Surveillance
area**

**3.64 million
hectares of forests
under surveillance**

Assessing ecosystem integrity to provide goods & services to society and the economy



Coast of Jalisco, Mexico

Accounting and Valuation of Ecosystem Services (NCAVES, 2017-21)



- UN/EU pilot project to include an ecosystem perspective, and a geographic lens, into the UN System of Environmental Economic Accounting (SEEA).

- Included five biodiverse countries: Brazil, China, India, Mexico & South Africa

- Physical & economic accounts – to measure ecosystem extent & condition, provision of essential services & their contribution to the economy and GDP.

Mexico's contribution index of ecosystem integrity.



System of
Environmental
Economic
Accounting



Medio Ambiente
Secretaría de Medio Ambiente y Recursos Naturales



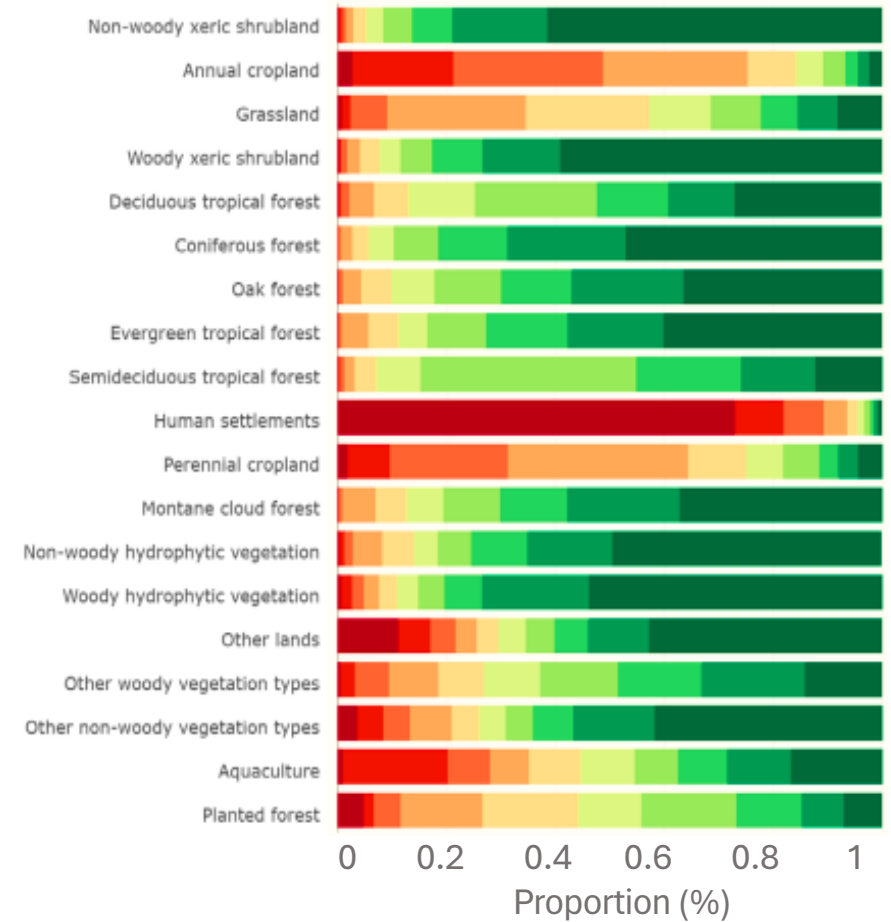
Ecosystem Condition (physical accounts)

Ecosystem Integrity Index

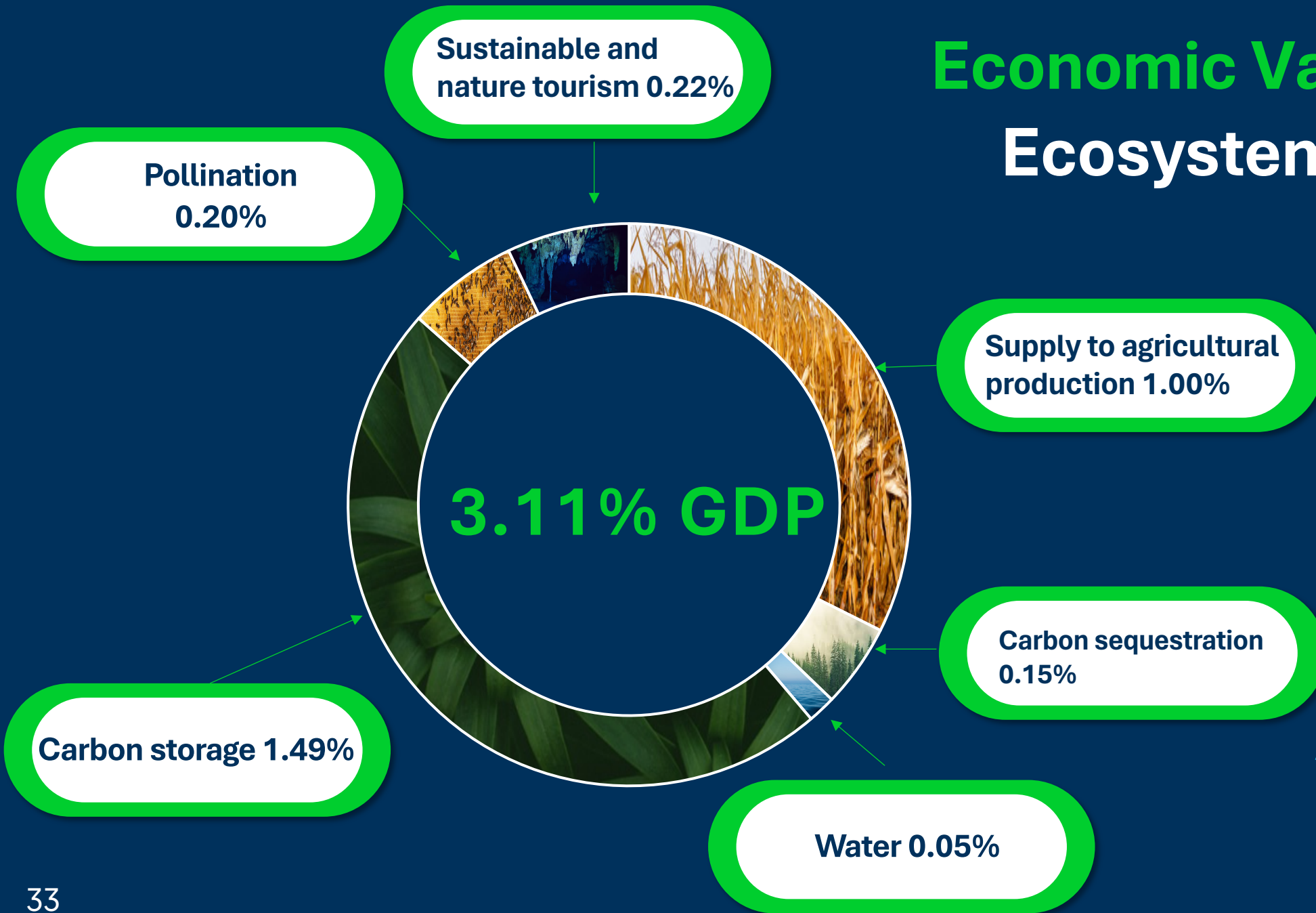


Lower ← Higher

By ecosystem type



Economic Valuation of Ecosystem Services



AS % OF
MEXICO'S GDP
(2013)

How can geospatial information support governments to **accelerate progress of the SDGs?**



Information



Technology



**Strategic
alliances**



UN-GGIM
UNITED NATIONS
COMMITTEE OF EXPERTS ON
GLOBAL GEOSPATIAL
INFORMATION MANAGEMENT



MEDIO AMBIENTE
SECRETARÍA DE MEDIO AMBIENTE Y RECURSOS NATURALES

Final thoughts



Collective commitments & emerging challenges require quality, timely & integrated data.



The geospatial dimension is a powerful tool to generate, integrate and analyze data to design and monitor public policy and sustainable development.



Alliances, public, private & with all stakeholders are key to expand access, skills and uses of geospatial data to achieve its full potential.



UN-GGIM exemplifies successful multilateral cooperation and technical guidance, as the UN strives to achieve collective goals and renew trust towards the future.



Mexico and ECLAC have built important tools, platforms & contributions to conceptual frameworks based on geospatial data.



Mexico's current administration & priorities present an opportunity to integrate and apply all the geospatial tools, work & potential built jointly over time, in partnership with UN-GGIM.



UN-GGIM
UNITED NATIONS
COMMITTEE OF EXPERTS ON
GLOBAL GEOSPATIAL
INFORMATION MANAGEMENT



Medio Ambiente
Secretaría de Medio Ambiente y Recursos Naturales



¡GRACIAS!
THANK YOU!



UN-GGIM
UNITED NATIONS
COMMITTEE OF EXPERTS ON
GLOBAL GEOSPATIAL
INFORMATION MANAGEMENT



Medio Ambiente
Secretaría de Medio Ambiente y Recursos Naturales