Measuring Climate Change Adaptation through the National Atlas of Vulnerability to Climate Change of Mexico, and M&E Schemes for Adaptation

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Direction of Climate Change Vulnerability
Direction of Green Growth for Adaptation
• The ANVCC is an on-line platform that shows the vulnerability of the territory to different impacts of climate change.
Vulnerability analysis (ANVCC)

Problem identification to start the vulnerability to climate change diagnostics

What causes the problem?
- Temperature rise
- Sea level rise
- Precipitation changes

Who or what is impacted by the hazard?
- Coastal municipalities
- Mountain ecosystems
- Endorheic basis
- ... (multiple entries)

Where?
- Productive activities
- Natural systems
- Infrastructure
- Human communities

When? Current or future vulnerability

Climate change scenarios
Definition of a temporal horizon
VULNERABILITY TO CLIMATE CHANGE

Vulnerability: Inability of a system to cope with the adverse effects of climate change, climate variability and extreme events.

Vulnerability = f (Exposure + Sensitivity – Adaptive Capacity)

- **EXPOSURE.** Is the character, magnitude and speed of change and variation affecting a system under current climate conditions and with climate change.
- **SENSITIVITY.** Is the degree to which a system is affected by climate change and variability due to the characteristics that define it.
- **ADAPTIVE CAPACITY.** Institutional capacities to reduce the potential impacts of climate-related threats.

CGACC, based on IPCC, 2007
Temáticas

Vulnerabilidad de la producción ganadera extensiva ante estrés hídrico
Vulnerabilidad de la producción forrajera ante estrés hídrico
Vulnerabilidad de la producción ganadera extensiva a inundaciones
VULNERABILITY OF HUMAN SETTLEMENTS TO FLOODS

Vulnerability of human settlements to floods is a critical issue that requires careful consideration and mitigation strategies. The diagram illustrates the exposure, sensitivity, and adaptive capacity of different regions, highlighting the areas most at risk.

- **Exposure:**
  - IE: Indices of exposure.
  - PPI: Potential of flooding.

- **Sensitivity:**
  - RHC: Runoff Hydrological Capacity.
  - PSS: Population Susceptible to Inundations.

- **Adaptive Capacity:**
  - IGR: Instruments for the management of risks.
  - SR: Systems for the regulation of vulnerabilities.

The map and graphs provide a comprehensive view of the current and future vulnerability of human settlements to flooding, emphasizing the need for targeted interventions and proactive planning.
The ANVCC is designed to show explicit recommendations to increase adaptive capacity and decrease sensitivity to specific threats.

- Installation and dissemination of early warning systems, preparation of contingency plans and risk atlas
  - Promover la capacitación del personal de protección civil para poder obtener los recursos de FONDEN.
  - Difusión a la población del peligro de inundaciones.
  - Difusión de los refugios temporales y aumentar el número de los mismos.

- Incrementar la cobertura vegetal en las partes medias y altas de las cuencas, ya sea por medio de áreas naturales protegidas (Federales o Municipales); incrementar el acceso a pago por servicios ambientales (CONAFOR); Incrementar los planes de manejo forestal.
- Comunicación intermunicipal para la conservación de las partes altas de la cuenca.
- Incrementar la infraestructura de regulación de avenidas. Rehabilitar los sistemas riparios para disminuir la velocidad de las avenidas.
- Comunicación intermunicipal para la conservación de las partes altas de la cuenca.
VULNERABILITIES – specific questions/problems

- Human settlements to floods
- Human settlements to landslides
- Population to the increase in the distribution of dengue
- Beef production to floods
- Beef production to water stress
- Forage production to water stress
- Change in the potential distribution of priority species and at risk of extinction
First Tool Focused on Specific Problems

Contributes to decision making for adaptation

Shows the Disaggregation of each Component
Promote measures to reduce vulnerability

Identifies the Current and Future Major Vulnerabilities
Municipalities, States and Regions
Monitoring and Evaluation of Climate Change Adaptation

**The Climate Change Adaptation Process** is an iterative four-stage process that seeks.

It is important to consider **M&E** in a holistic way, to obtain a broad view that analyzes the process, but also the impacts of adaptation. Ideally, the results derived from M&E feed into and enhance the iterative climate planning process.

**An adaptation measure** generates adjustments to respond to the impacts of climate change by reducing vulnerability of population, productive systems, strategic infrastructure and/or improving ecosystems resilience, in order to address or prevent damage, or to take advantage of beneficial opportunities.

INECC, 2020a
M&E tools for climate change adaptation

Criteria for designing adaptation measures:
- Climate
- Systemic
- Viability
- Governance and Gender
- Alignment
- Sustainability
- Flexibility and No-regret

Typology of climate change adaptation measures:
- Capacity building
- Coordination of actors
- Normative and planning instruments
- Information and dissemination
- Research and studies
- Climate technologies
- Finance mechanisms
- Monitoring and Evaluation
- Territorial actions
- Resilient infrastructure

And voluntary actions

INECC, 2020a
M&E tools for climate change adaptation

4 territorial tools for M&E of adaptation

Tools built from the territory and with the implementers, which can incorporate the different perspectives and visions of the Adaptation Process.

77 Indicators for M&E of climate change adaptation

- **Context indicators** that have already been developed by different government institutions in Mexico with a municipal scale, and that refer to whether an adaptation measure is appropriate to the circumstances of the site.

- **Management indicators** for monitoring the administrative progress, processes and programmatic activities of the implementation of an adaptation measure.

- **Impact indicators** to determine the main results of the adaptation measure in terms of reducing the conditions of vulnerability and the changes generated.
M&E tools for climate change adaptation

Methodological proposal for measurement, reporting and verification (MRV) of climate change adaptation finance

INECC developed a guide for the MRV of financing for adaptation to monitor national and international financing flows. Important for strengthening transparency among stakeholders.

*Using a digital form, information is collected aligned to the 3 phases of an MRV (INECC, 2019b).*

Methodologies for social perceptions of climate change adaptation measures

It is a guide to support implementers in assessing and analysing the social perception of adaptation measures.

*It makes it possible to identify: the perceived impacts of climate change, acceptance of adaptation measures by beneficiaries, the needs for participation, information, training and organization, in order to improve adaptation measures, among others (INECC, 2020d).*

Catalogue of economic methodologies for adaptation measures

Based on the literature review, 8 economic analysis methodologies were evaluated for their potential use in economic evaluation of adaptation measures, based on their:

- Transparency and traceability
- Possibility to analyze sensitivity and uncertainty
- Make costs and benefits visible
- Ability to represent timescales
- Flexibility
- Complexity and intensity of resources
¡GRACIAS POR SU ATENCIÓN!

THANK YOU FOR YOUR ATTENTION!

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