



Natural Capital Accounting and Valuation of Ecosystem Services | Mexico's Experience

Enrique Ordaz, February 2020

Why we conduct the pilot NCAVES

- **Experience:**
 - 1991 Green GDP in National Accounts.
 - Advancing Natural Capital Accounting Project, 2014.
 - Production of geospatial information.
 - Pilot study from 2017: India, China, Brasil, South Africa.
- **Statistical considerations:**
 - Test methodological aspects and alternative data sources.
 - Advance the adoption of SEEA.
 - Measurement of ecosystem's assets and services, and its economic value.

Why we conduct the pilot NCAVES

- **Political considerations:**
 - Increasing relevance and concern around environmental and sustainability matters.
 - Involve academia, research centers and government agencies.
 - To bring awareness about the ecosystems conditions, value and services.
 - Impact economic/social/environmental policies.
 - Complement well-being measurements.

Funding and technical support by the European Commission
Support by UNSD

Capacity assessment

Data availability to develop ecosystem accounts

Mexico's System of National Accounts



SEEA-Central Framework in Mexico



Geospatial Information



Maps

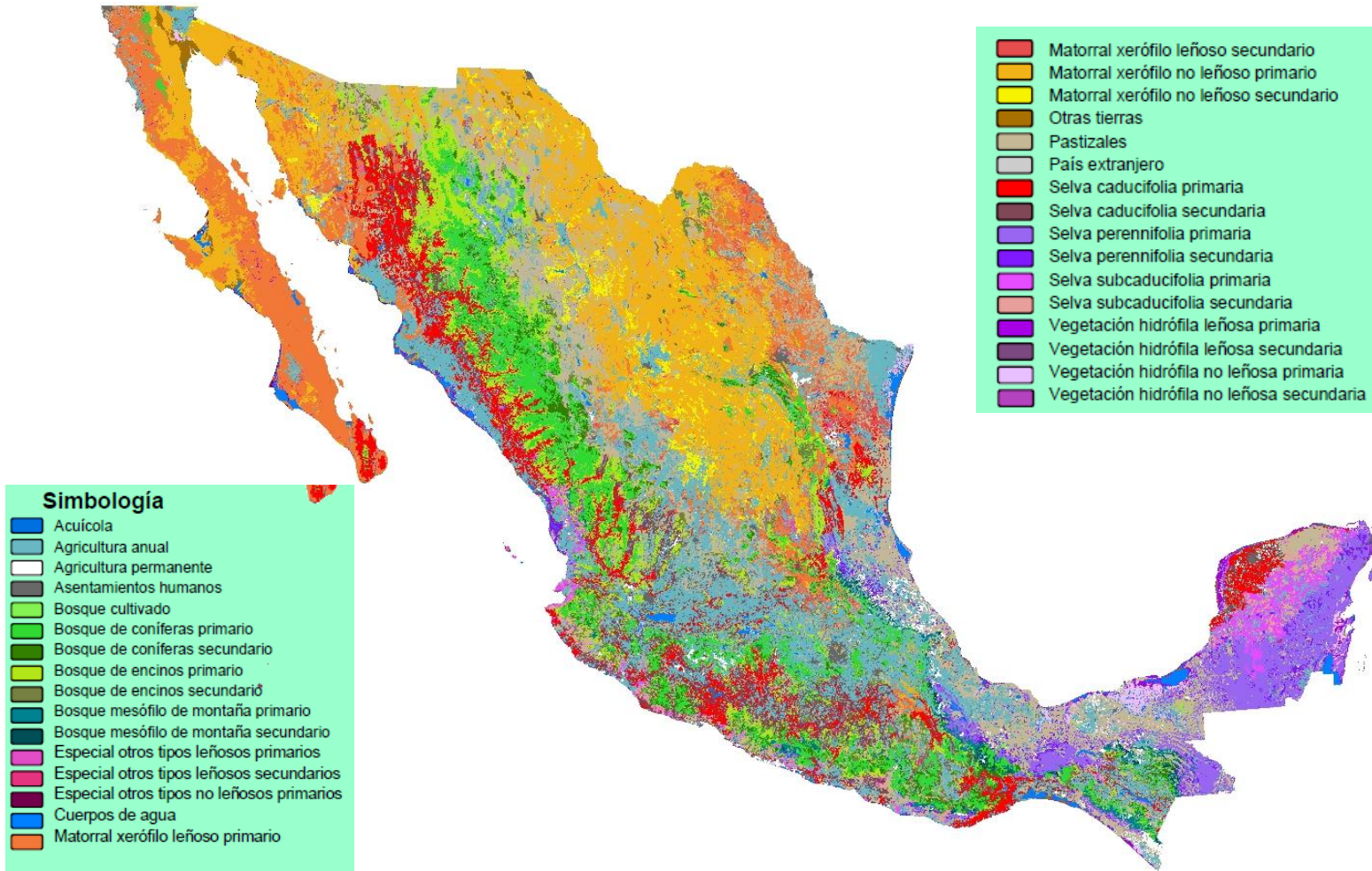
Environmental data from several agencies



Some initial challenges

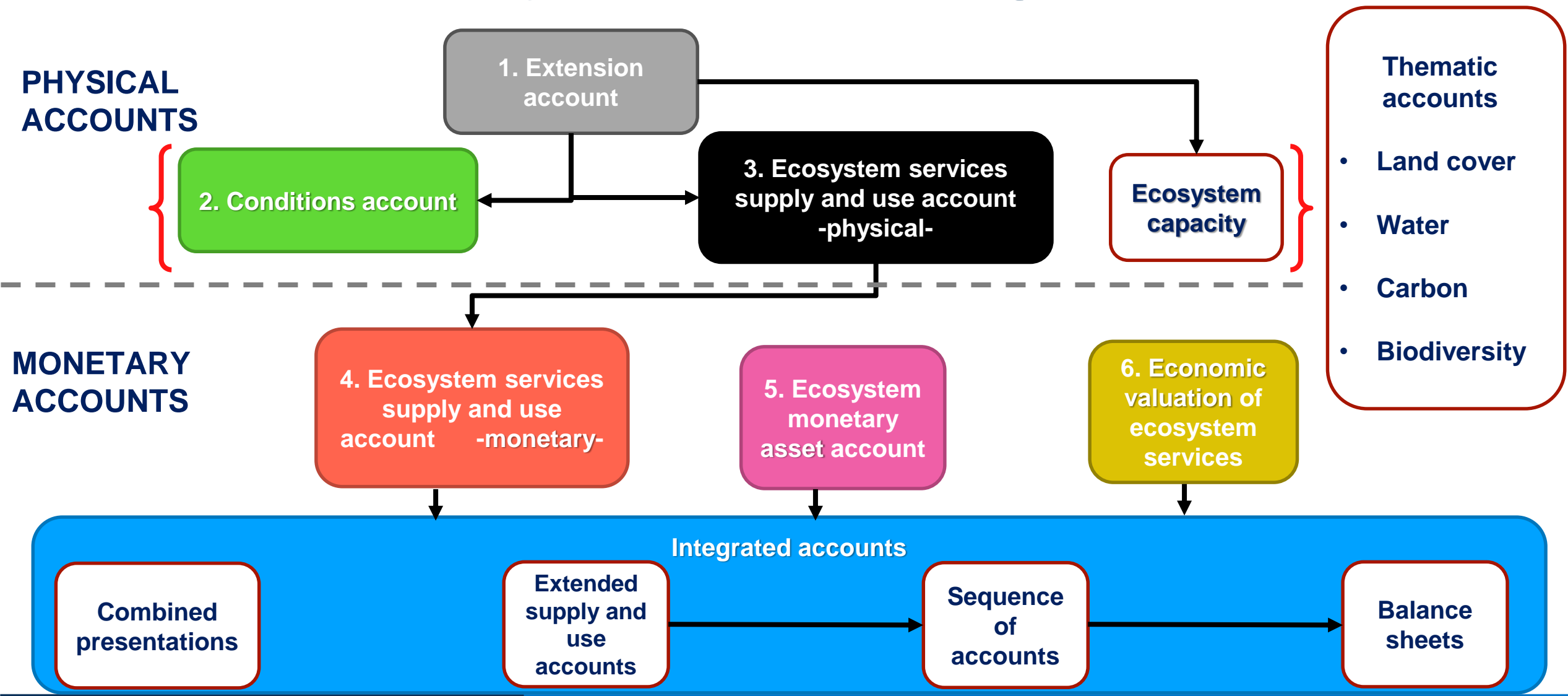
- **Multidisciplinary learning:** economists, environmental experts, geographers.
- **Bringing together** the country's statistical, geospatial and environmental communities.
- **Coordinating the Interinstitutional Working Group**, within the national statistical system (SNIEG):
 - INEGI
 - SEMARNAT
 - CONAGUA
 - INECC
 - CONANP
 - CONAFOR
 - CONABIO
 - Academia
 - INECOL
 - SHCP
 - GIZ
 - BIOFIN

What are we doing?



- Geospatial information
- Land cover and land use maps (2002, 2007, 2011, 2014)
- Ecosystems classification by CONAFOR

Sequence of Ecosystem Accounting



Progress so far

Extension accounts

There is a Geo-statistical Framework compatible with the Maps of Land Cover and Use Cover (MLCU) series III, IV, V and VI

Extension accounts



1

2

Balances and Matrices of Changes



Balances and Change Matrices

- **BALANCES:** They have been prepared for each of the MLCU series
- **EXCHANGE MATRICES:** Actual changes in land use are recorded in each MLCV series

Valuation

- Unit Income Method
- Exercises for six selected agricultural products (corn, beans, sorghum, soybeans, rice, wheat)
- Use the information of the System of National Accounts of Mexico and of the Environmental Accounts

Valuation:
Food supply



3

Subnational case

Pilot study for the state of Aguascalientes

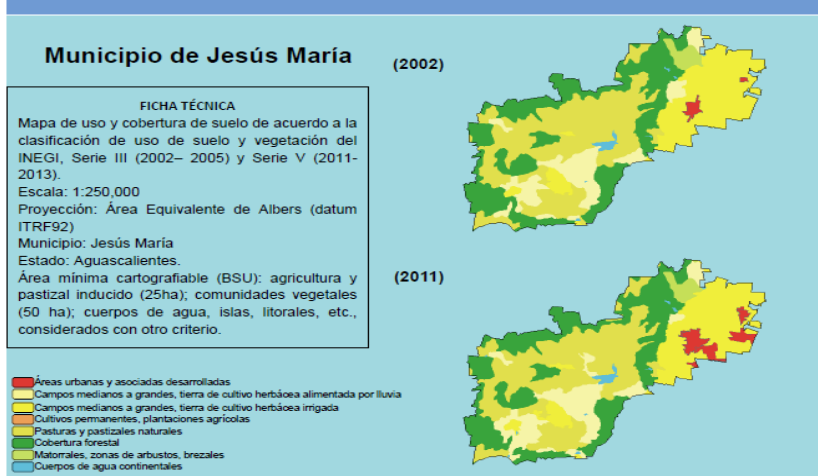
Cuadro 6. Matriz de cambios de cobertura de suelo y vegetación estatal 2002-2011 (Km²).

| Matriz de cambios de cobertura de la tierra para el estado de Aguascalientes 2002-2011 (Km ²) | | | | | | | | | | |
|---|---|---|--|--|---------------------------------|--------------------|---|----------------|-------------------------------|----------|
| Serie V | Áreas urbanas y asociadas desarrolladas | Campos medianos a grandes, tierra de cultivo herbácea alimentada por lluvia | Campos medianos a grandes, tierra de cultivo herbácea irrigada | Cultivos permanentes, plantaciones agrícolas | Pasturas y pastizales naturales | Cobertura forestal | Matorrales, zonas de arbustos, brezales | Tierra estéril | Cuerpos de agua continentales | Total |
| Serie III | | | | | | | | | | |
| Áreas urbanas y asociadas desarrolladas | 111.41 | NS | NS | NA | NS | NA | NS | NA | 0.10 | 111.52 |
| Campos medianos a grandes, tierra de cultivo herbácea alimentada por lluvia | 10.18 | 1,097.02 | 44.65 | NA | 14.25 | 2.85 | 10.19 | NA | 0.76 | 1,179.90 |
| Campos medianos a grandes, tierra de cultivo herbácea irrigada | 40.44 | 6.55 | 1,169.52 | NA | 4.36 | 1.77 | 3.48 | NA | 0.67 | 1,226.79 |
| Cultivos permanentes, plantaciones agrícolas | NA | NA | | | | | | | | |
| Pasturas y pastizales naturales | 8.79 | 78.62 | | | | | | | | |
| Cobertura forestal | 0.10 | 17.45 | | | | | | | | |
| Matorrales, zonas de arbustos | 4.11 | 19.90 | | | | | | | | |
| Tierra estéril | NA | NA | | | | | | | | |
| Cuerpos de agua continentales | 0.11 | NS | | | | | | | | |
| Total | 175.14 | 1,219.55 | | | | | | | | |

Cuadro 4. Cuadro Municipal de Balance de Cambios de Cobertura de Suelo y Vegetación. 2002 y 2011. (Km²).

| Balance de cambios de cobertura de suelo (Km ²) | | | | | | | |
|---|---------------------------|----------|------------|--------------------|------------|----------------|-----------------------------|
| | Áreas urbanas y asociadas | Cultivos | Pastizales | Cobertura forestal | Matorrales | Tierra estéril | Cuerpos de agua continental |
| Stock de apertura de recursos (serie III) | 3.87 | 164.85 | 171.71 | 150.88 | 10.06 | 0.00 | 3.62 |
| Adiciones a stock | | | | | | | |
| Expansión controlada | 12.42 | NS | NA | NA | NA | NA | NA |
| Expansión natural | NA | NA | NA | NA | NA | NA | NA |
| Revaluación a la alta | NA | NA | NA | NA | NA | NA | 0.39 |
| Adiciones totales a stock | 12.42 | NS | NA | NA | NA | NA | 0.39 |
| Reducciones en stock | | | | | | | |
| | NA | NA | NA | NA | NA | NA | NA |
| | NA | NA | NA | NA | NA | NA | NA |
| | NA | NA | NA | NA | NA | NA | NA |
| | NA | 7.12 | 4.75 | 0.94 | NA | NA | NA |
| 9 | 164.86 | 164.58 | 146.13 | 9.12 | 0.00 | 4.01 | |

Figura 3. Mapas municipales de Cobertura de Suelo y Vegetación. Unidades de análisis



- Extension accounts
- Condition accounts
- Supply and use tables
- Economic valuation

Next Steps

- A training workshop is planned with the environmental community in May 2020, so that they are informed about the progress.
- A complete report is expected by September 2020. We will conclude the national study with the extension accounts, condition accounts, supply and use table, physical and monetary assessment, and the analysis of use for public policies.
- The national high-level National Forum is scheduled to take place in early October 2020 to present the results.
- The NCAVES project ends in October 2020 with the presentation of the results at the 2020 UN Biodiversity Conference (COP 15 Biodiversity) in China.

CONCLUSIONS

- The availability of geographic and statistical information supports the development of Ecosystem Accounts.
- The SNIEG through its coordination mechanisms involves the country's environmental community.
- In this context, the project is being developed at national and subnational levels.
- The valuation of ecosystem services is essential to recognize their importance in economic activities.

- Thank you!