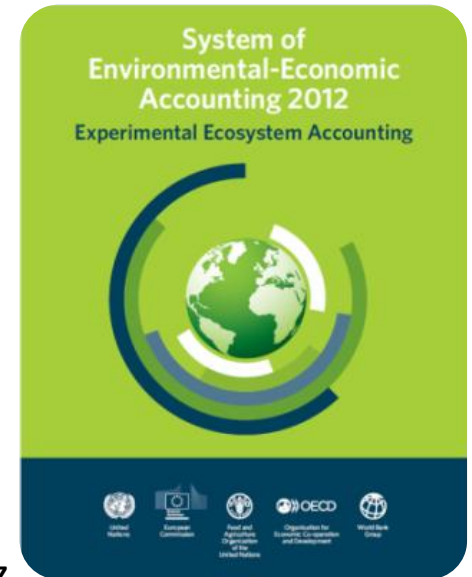




Experimental Ecosystem Accounting (SEEA-EEA) – Mexico Pilot project

Presented by: Raúl Figueroa Díaz



Background



- **Invitation** by **UNSD** and **UNEP** to participate in the implementation of the **SEEA-EEA**.



- **Mexico** participates as a **pilot country** together with Bhutan, Chile, Indonesia, Vietnam, South Africa and Mauritius.

- Project financed by the **Norwegian Government**.

- **INEGI** was appointed as the **focal point in Mexico**.



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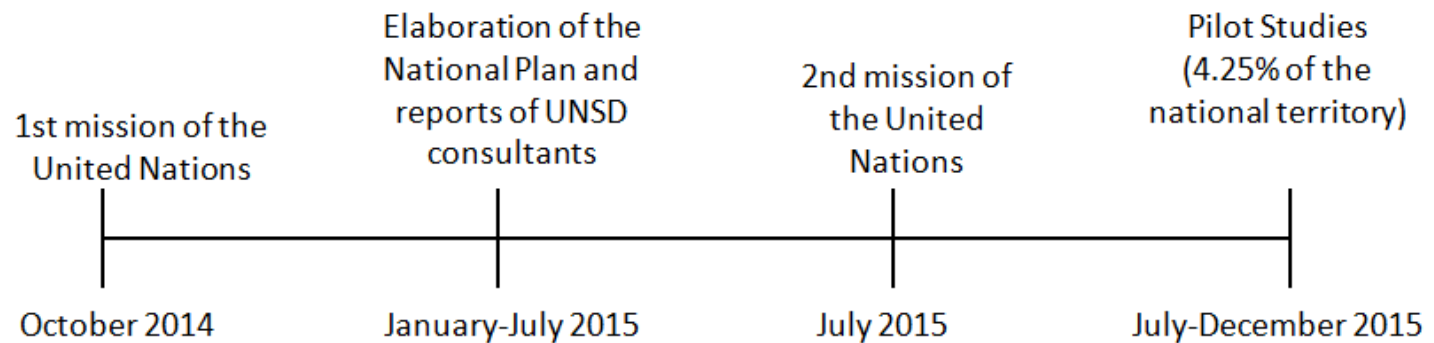
Background



- **First Mission by UNSD**, October 2014:
 1. Formation of a core **working group** at a national level
 2. Call for a **National Workshop**
 3. Preparation of a **National Plan**



- **Second Mission by UNSD**, July 2015:
 1. **High level meetings** with representatives of the environmental sector
 2. **Technical Workshop** by UNSD
 3. Presentation of the **National Plan for Mexico**



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National Plan

- **UNSD** and **INEGI** developed the **National Plan**, containing an evaluation of the viability to produce this type of accounts in the country.
- Identified **Priorities** :
 - **Water** accounts;
 - **Land** accounts;
 - **Biodiversity** accounts;
 - Feasibility studies for developing **carbon, ecosystem condition** and **ecosystem services supply and use accounts**.
- It is expected to have **results** during the **second half of 2016**.



Inter-institutional Technical Working Group

- In order to meet the commitments, an **inter-institutional technical working group** was formed.
- Participant **Institutions from the Environmental Sector in Mexico**: SEMARNAT, CONABIO, CONANP, CONAGUA, INECC;
- As well as **international organizations** with projects in Mexico: German Agency for International Cooperation (GIZ) and the Biodiversity Finance Initiative (BIOFIN).
- Development of a **sharing website**, in which the technical meetings and progress achieved are recorded; it works as repository of all material produced: <https://extranet.inegi.org.mx/sitios/ceem>



Case studies

- In order to determine the **viability** of SEEA-EEA's **implementation** in Mexico, it was decided to do some **pilot exercises**: Aguascalientes, Colima and Veracruz.
- As framework for the **EAU (Ecosystem Accounting Units)**, the **political municipal division** was selected.
- According to **SEEA-EEA Technical Guidance**: “**The most obvious choices of delineation for EAUs relate to administrative boundaries.** These boundaries correspond best to the level of coverage of government decision making and hence to a range of other socio-economic data.” (Paragraph 3.22)
- Each **LCEU (Land Cover Ecosystem Unit)** classification is set from **INEGI's land use and vegetation charts** applied to each of the municipalities of the case studies.



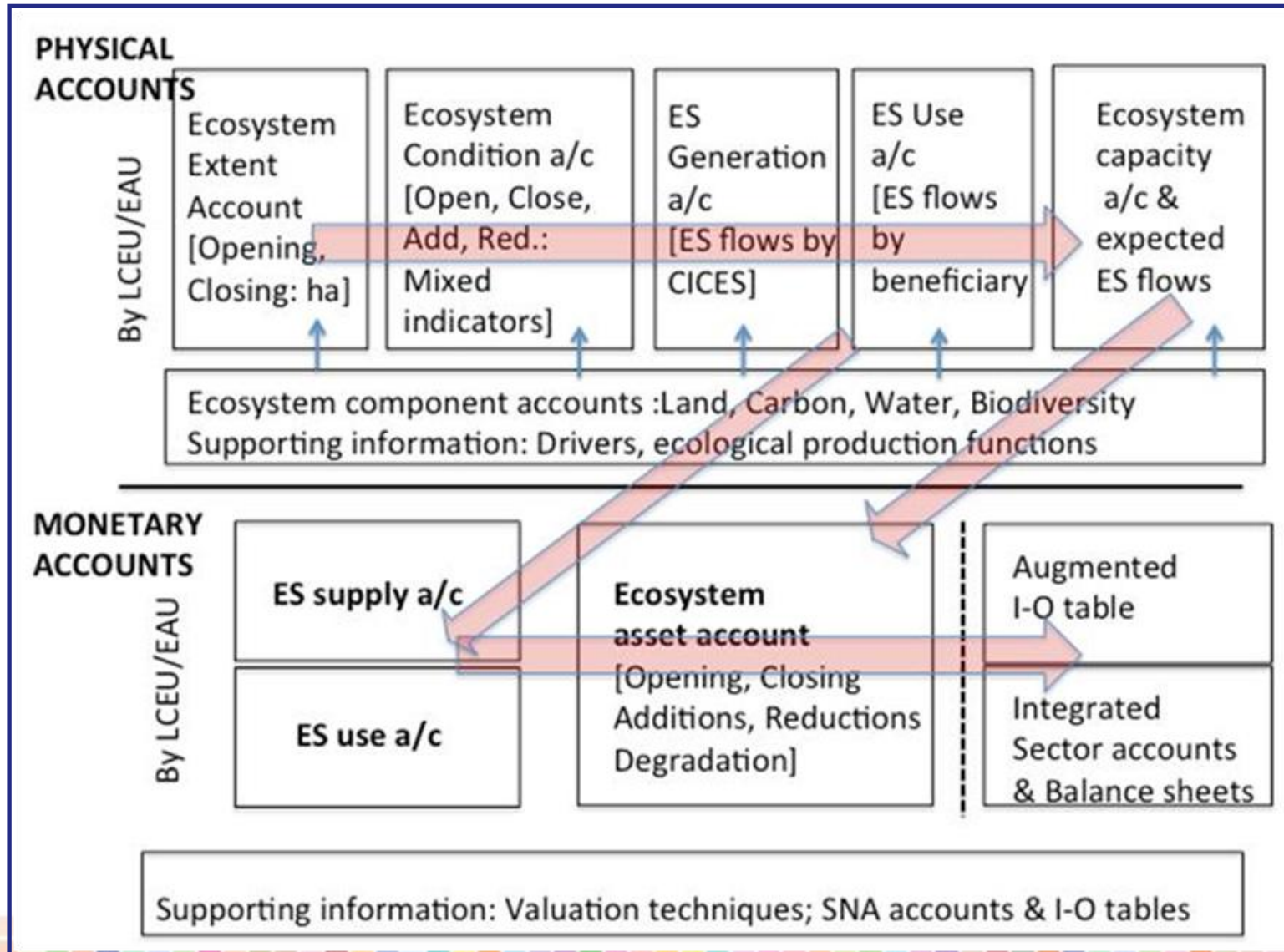
Sources of information

- **INEGI** produces enough **statistical and geographical information** to start compiling some accounts in **physical units**.
- Most of the data is available at **1:250,000 scale** (minimum mappable area of 25 hectares).
- Maps in **shape** files are available for: land use and vegetation, edaphology, soil erosion, hydrology, water bodies, among others.
- For the remaining information **contact with institutions of the environmental sector** has been vital: (e.g. CONAGUA has provided information on surface and groundwater abstraction).
- **Inter-institutional cooperation** is being **focused** depending on the account to be compiled: CONAGUA for water accounts; CONABIO for biodiversity accounts, etcetera.

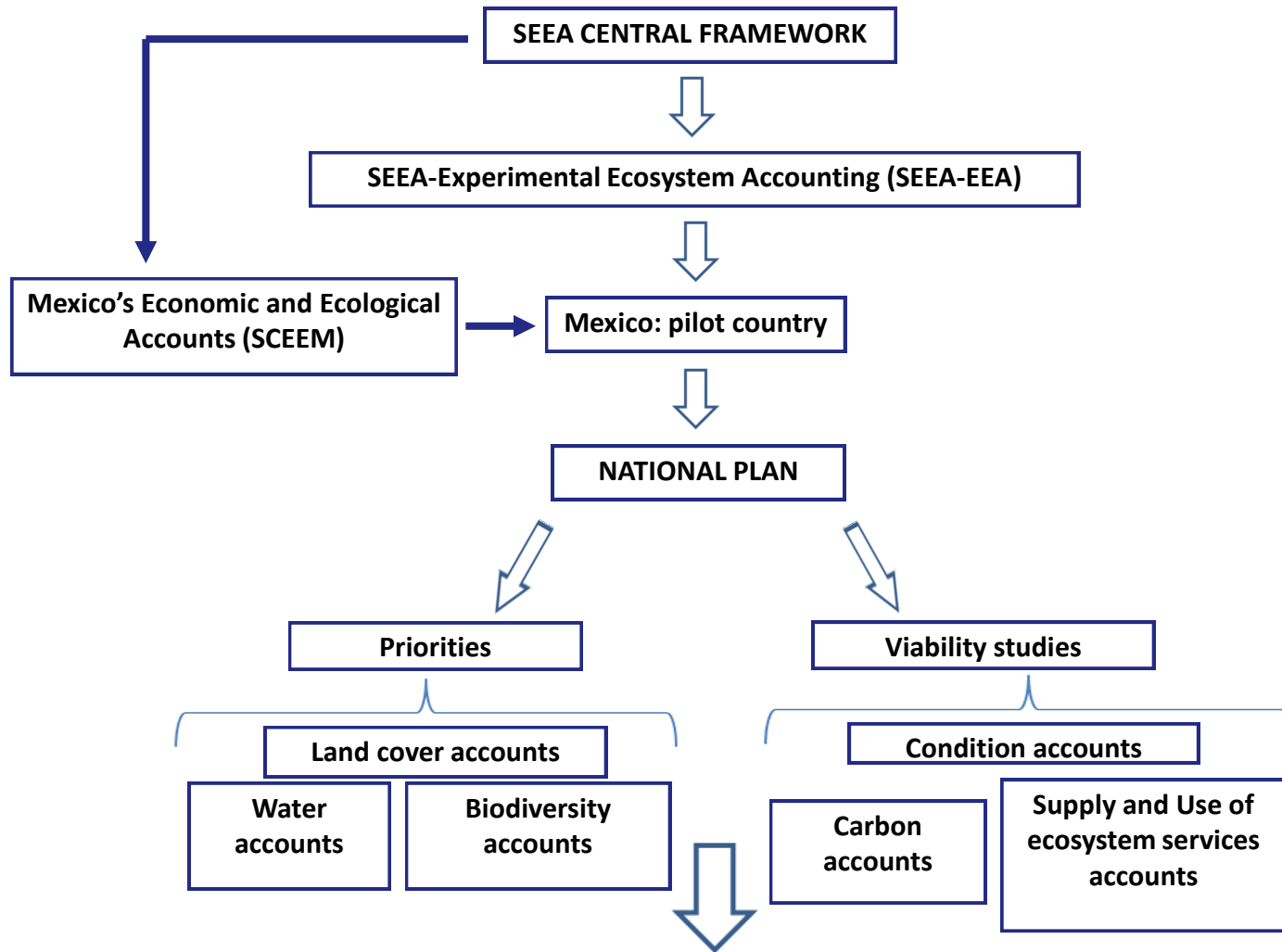


Account production sequence

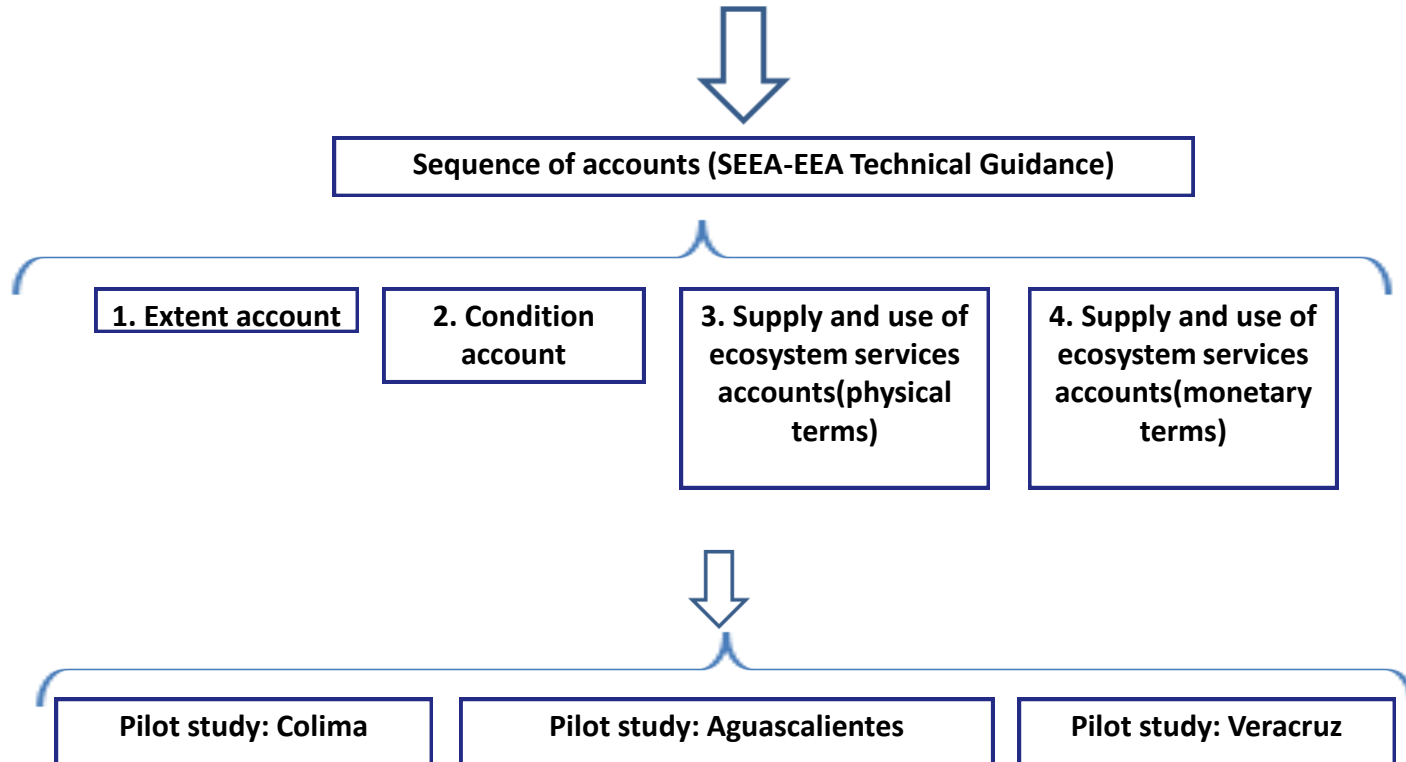
Steps in the compilation of ecosystem accounts according to the SEEA-EEA Technical Guidance



Pilot studies framework



Pilot studies framework



Working papers

AGUASCALIENTES

Extent account

Condition account

Supply and use accounts
in physical units

EXPERIMENTAL ECOSYSTEM
ACCOUNTING



ECOSYSTEM EXTENT ACCOUNT
PILOT STUDY: AGUASCALIENTES

EXPERIMENTAL
ECOSYSTEM ACCOUNTING



ECOSYSTEM CONDITION ACCOUNT

PILOT STUDY: AGUASCALIENTES

EXPERIMENTAL ECOSYSTEM
ACCOUNTING

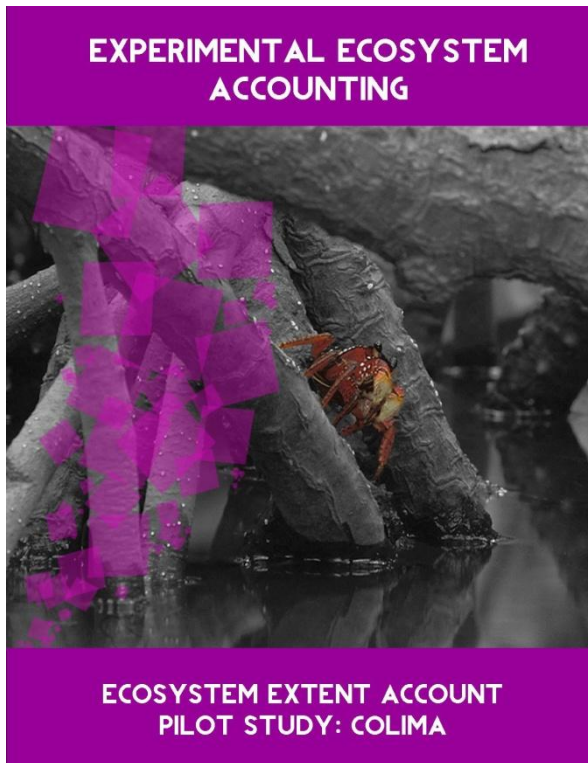


Physical Accounts of Supply and Use of
Ecosystem Services

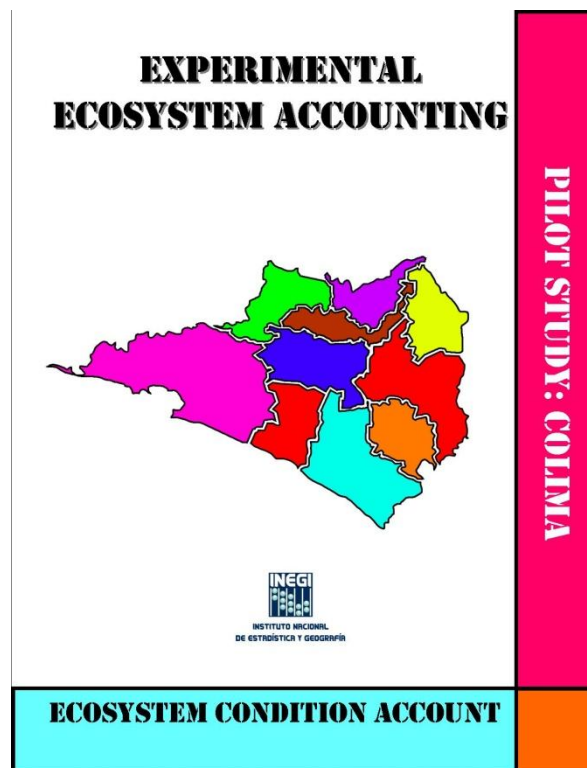
Working papers

COLIMA

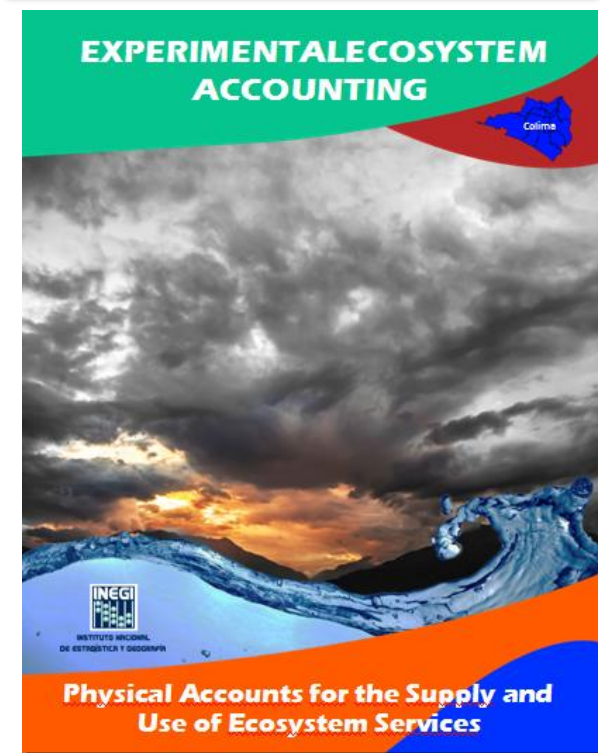
Extent account



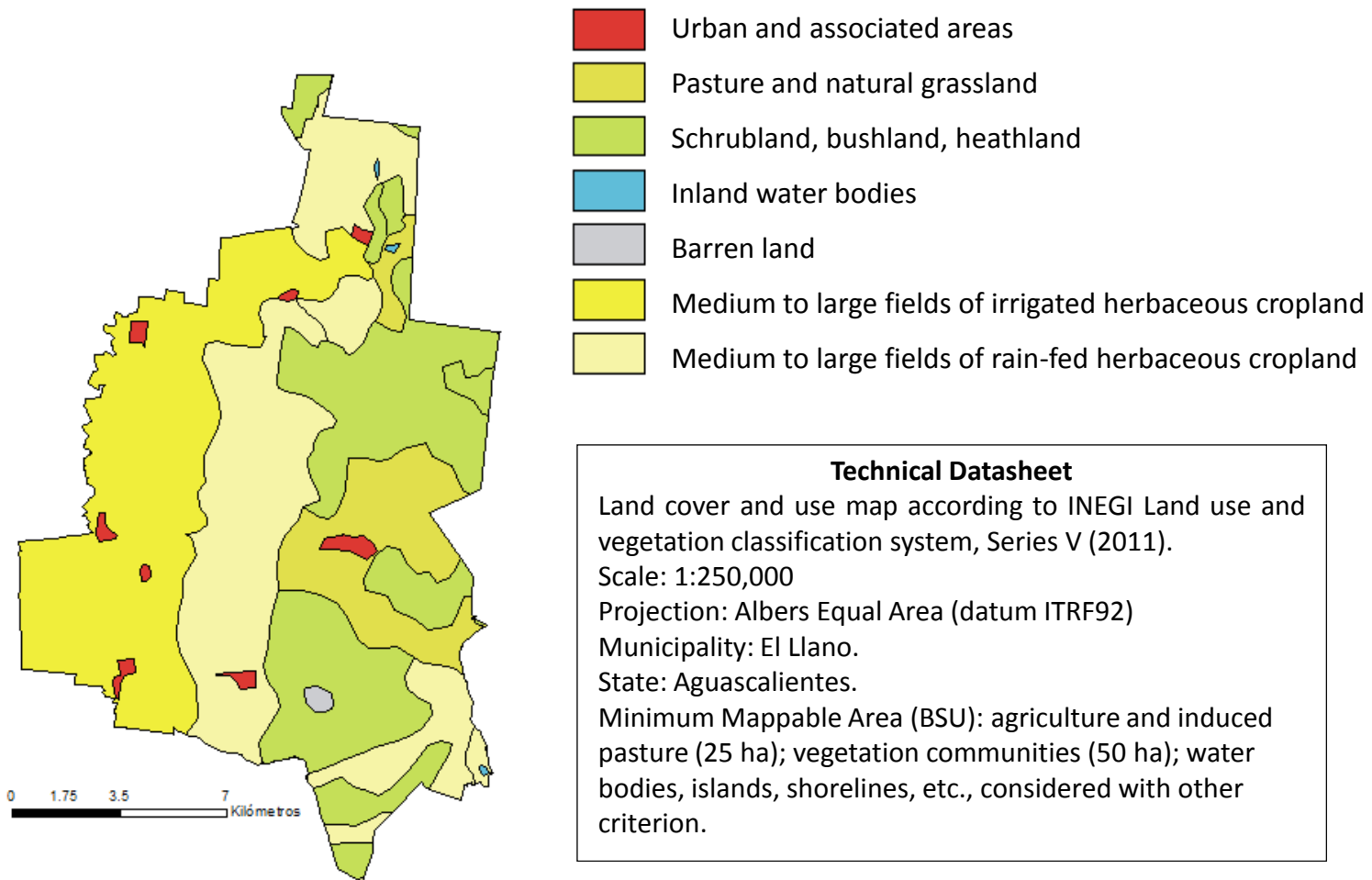
Condition account



Supply and use accounts in physical units



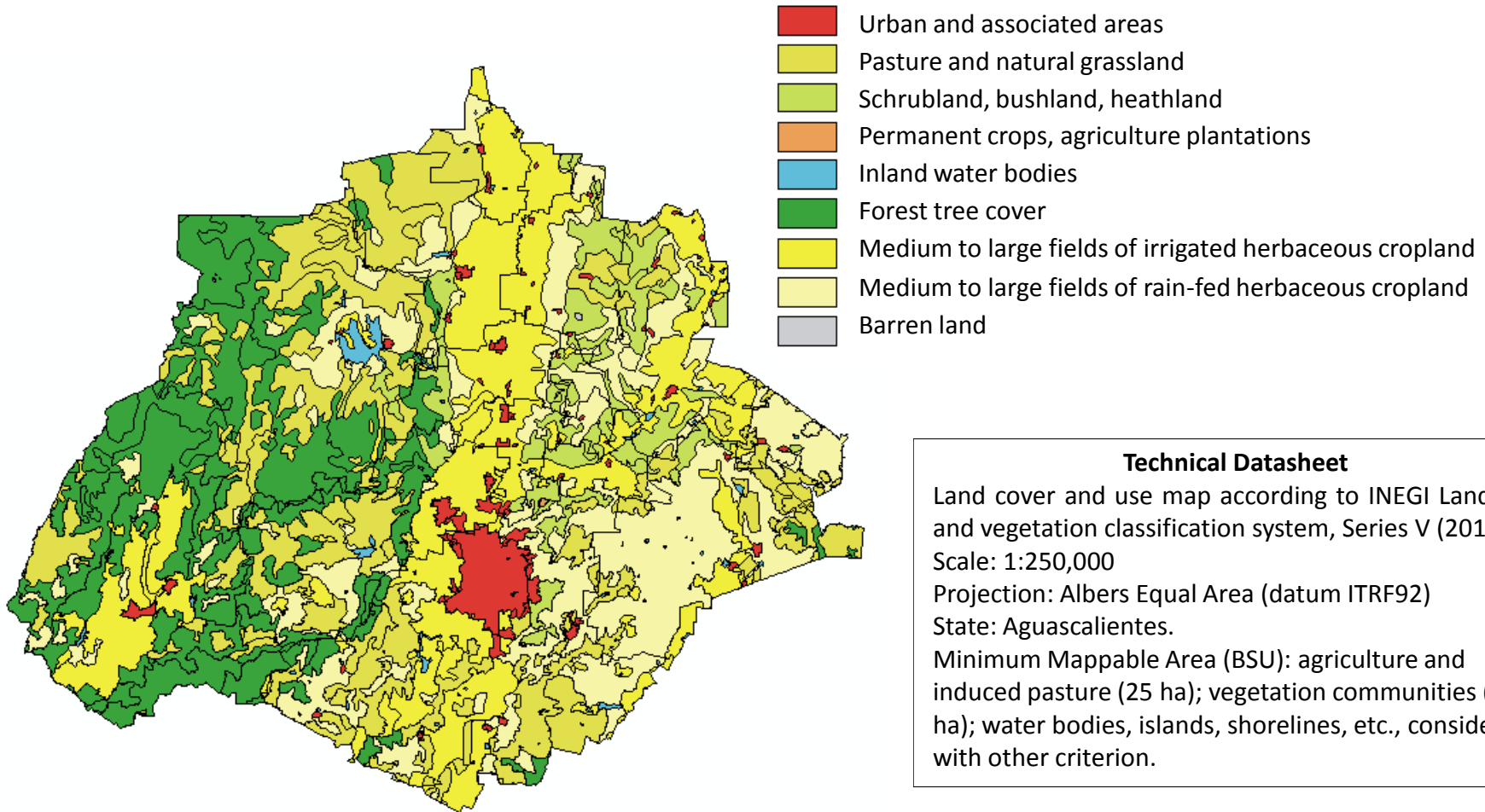
Example: municipal level (extent)



Example: municipal level (extent)

SEEA classification	Km ² per LCEU
Urban and associated developed areas	3.06
Medium to large fields of rain-fed herbaceous cropland	68.61
Medium to large fields of irrigated herbaceous cropland	68.31
Permanent crops, agriculture plantations	0
Agriculture associations and mosaics	0
Pasture and natural grassland	26.02
Forest tree cover	0
Shrubland, bushland, heathland	65.25
Sparsely vegetated areas	0
Natural vegetation associations and mosaics	0
Barren land	0.62
Permanent snow and glaciers	0
Open wetlands	0
Inland water bodies	0.2
Coastal water bodies	0
Sea	0
Total	232.07

Example: state level (extent)



Technical Datasheet

Land cover and use map according to INEGI Land use and vegetation classification system, Series V (2011).

Scale: 1:250,000

Projection: Albers Equal Area (datum ITRF92)

State: Aguascalientes.

Minimum Mappable Area (BSU): agriculture and induced pasture (25 ha); vegetation communities (50 ha); water bodies, islands, shorelines, etc., considered with other criterion.



Example: state level (extent)

SEEA classification	Km ² per LCEU
Urban and associated developed areas	175.14
Medium to large fields of rain-fed herbaceous cropland	1,219.56
Medium to large fields of irrigated herbaceous cropland	1,256.51
Permanent crops, agriculture plantations	0.99
Agriculture associations and mosaics	0
Pasture and natural grassland	1,321.4
Forest tree cover	1,221.35
Shrubland, bushland, heathland	373.73
Sparsely vegetated areas	0
Natural vegetation associations and mosaics	0
Barren land	0.62
Permanent snow and glaciers	0
Open wetlands	0
Inland water bodies	46.39
Coastal water bodies	0
Sea	0
Total	5,615.69
Prior measurement area	5,615.67
Total margin of error	0.02

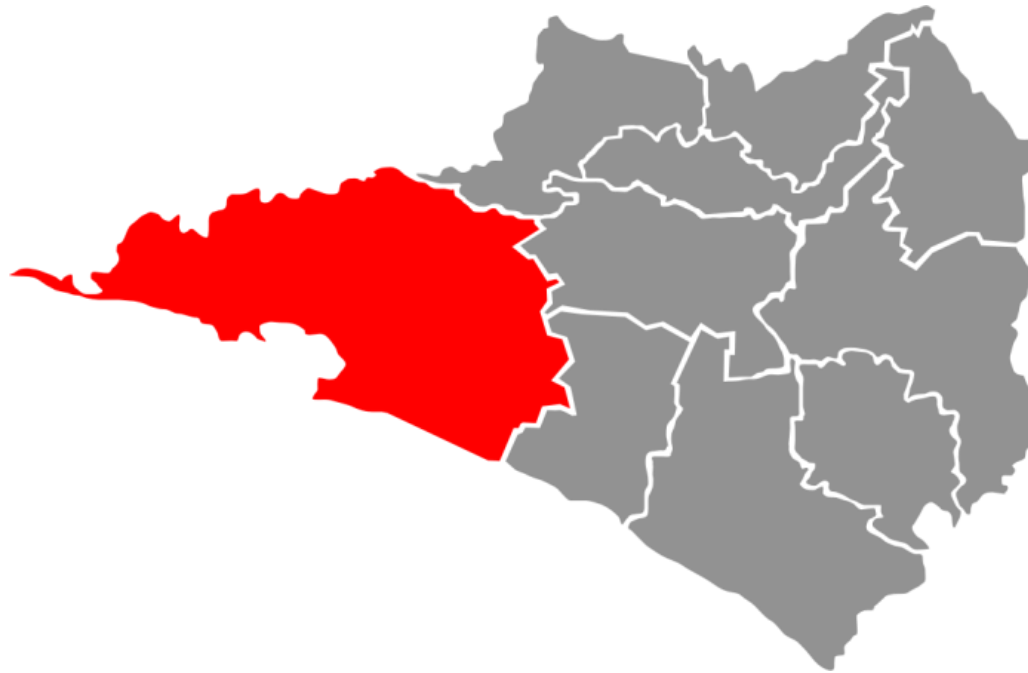
Example: land cover change

Area (km ²)	Urban and associated areas		Tree covered area	Shrub covered area	Barren land	Inland water bodies	
	Crops	Grassland					
Opening stock of resources (series III)	111.52	2,407.7	1,405.02	1,254.41	393.36	0	43.68
Additions to stock							
Managed expansion	63.61	69.35				0.62	
Natural expansion							
Upward reappraisals							
<i>Total additions to stock</i>	63.61	69.35				0.62	2.7
Reductions in stock							
Managed regression							
Natural regression							
Downward reappraisals							
<i>Total reductions in stock</i>			83.62	33.06	19.63		
Closing stock of resources (series V)	175.14	2,477.06	1,321.4	1,221.35	373.73	0.62	46.39



Example: condition indicators (erosion)

MANZANILLO (COLIMA)



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Example: condition indicators (types of soils)

MANZANILLO (COLIMA)

MANZANILLO Types of LCEU	Ecosystem extent	TYPES OF SOILS (%)														
	Area Km ²	AN	AR	CH	CL	CM	FL	GL	KS	LP	LV	PH	RG	SC	UM	VR
Rain-fed cropland	74	--	6.08	--	--	7.5	24.42	3.45	--	0.97	--	13.86	36.71	4.57	--	2.43
Irrigated cropland	160.99	--	0.01	--	--	1.23	38.06	0.94	--	3.25	--	33.15	16.5	5.79	--	1.06
Permanent crops	167.8	--	--	--	--	4.53	5.37	--	--	4.83	--	8.79	76.48	--	--	0.01
Pastures and natural grassland	0.57	--	--	--	--	--	9.26	--	--	--	--	--	90.74	--	--	--
Forest tree cover	801.6	--	--	--	--	4.31	1.99	--	--	7.14	--	2.92	83.24	0.32	--	--
Shrubland, bushland, heathland	1.43	--	--	--	--	--	--	--	--	100	--	--	--	--	--	--
Sparsely vegetated areas	3.78	--	--	--	--	--	--	--	--	90.09	--	--	--	--	--	--
Natural vegetation associations and mosaics	12.27	--	54.61	--	--	--	--	--	--	--	--	--	--	--	--	--
Wetlands	44.84	--	0.69	--	--	--	--	--	--	0.81	--	-0.22	1	98.83	--	--



Example: condition indicators (types of soils)

MANZANILLO (COLIMA)

MANZANILLO Types of LCEU	Ecosystem extent	TYPES OF SOILS (%)													
	Area Km ²	AN	AR	CH	CL	CM	FL	GL	KS	LP	LV	PH	RG	SC	UM

Code	Name	Code	Name	Code	Name
AC	ACRISOL	DU	DURISOL	NT	NITISOL
AB	ALBELUVISOL	FR	FERRALSOL	PH	PHAEOZEM
AL	ALISOL	FL	FLUVISOL	PL	PLANOSOL
AN	ANDOSOL	GL	GLEYSOL	PT	PLINTOSOL
AT	ANTROSOL	GY	GIPSISOL	PZ	PODZOL
AR	ARENOSOL	HS	HISTOSOL	RG	REGOSOL
CL	CALCISOL	KS	KASTAÑOZEM	SC	SOLONCHAK
CM	CAMBISOL	LP	LEPTOSOL	SN	SOLONETZ
CH	CHERNOZEM	LX	LIXISOL	UM	UMBRISOL
CR	CRIOSOL	LV	LUVISOL	VR	VERTISOL

Example: biodiveristy condition (abundance)

AGUASCALIENTES

SPECIES		ABUNDANCE				ECOGEOGRAPHIC ZONE
SCIENTIFIC NAME	COMMON NAME IN SPANISH	RARE	UNCOMMON	COMMON	ABUNDANT	
<i>Didelphis virginiana</i>	Tlacuache o zarigüeya				X	ALL
<i>Cryptotis parva</i>	Musaraña	X				FRÍA
<i>Notiosorex crawfordi</i>	Musaraña	X				FRÍA
<i>Sorex saussurei</i>	Musaraña	X				FRÍA
<i>Dasyus novemcinctus</i>	Armadillo	X				MUE, VAG, SAB
<i>Balantiopteryx plicata</i>	Murciélago sacóptero		X			VAG
<i>Mormoops megalophylla</i>	Murciélago bigotudo de cara plegada		X			HUA, CAL
<i>Desmodus rotundus</i>	Murciélago vampiro			X		FRÍA, PINA, MONT LAU, HUA
<i>Choeronycteris mexicana</i>	Murciélago nectarívoro	X				VAG, HUA

Example: biodiversity condition (threatened species)

AGUASCALIENTES

TAXA	SPECIES	COMMON NAME (SPANISH)	NOM-059	ENDEMIC	CITES	IUCN
Fish	<i>Allotoca dugesii</i>	Tiro	A	Yes	-	-
Amphibians	<i>Ambystoma tigrinum</i>	Salamandra o ajolote tigre	Pr	No	-	LR
Amphibians	<i>Pseudoeurycea bellii</i>	Tlaconete pinto	A	Yes	-	-
Amphibians	<i>Lithobates montezumae</i>	Rana de Moctezuma	Pr	Yes	-	LR
Amphibians	<i>Lithobates neovolcanicus</i>	Rana neovolcánica	A	Yes	-	NT
Amphibians	<i>Smilisca dentata</i>	Rana de madriguera	A	Yes	-	EN
Reptiles	<i>Barisia ciliaris</i>	Escorpión	Pr	Yes	-	-

Example: biodiversity condition (threatened species)

AGUASCALIENTES

TAXA	SPECIES	COMMON NAME (SPANISH)	NOM-059	ENDEMIC	CITES	IUCN
Fish	<i>Allotoca dugesii</i>	Tiro	A	Yes	-	-
Amphibians	<i>Ambystoma tigrinum</i>	Salamandra o ajolote tigre	Pr		International Union for Conservation of Nature (IUCN) LR= lower risk NT= not threatened EN= endangered	LR
Amphibians	<i>Pseudoeurycea bellii</i>	Tlaconete pinto	A			-
Amphibians	<i>Lithobates montezumae</i>	Rana de Moctezuma	Pr			LR
Amphibians	<i>Lithobates neovolcanicus</i>	Rana neovolcánica	A	Y		SEMARNAT A= threatened Pr= subject to special protection
Amphibians	<i>Smilisca dentata</i>	Rana de madriguera	A	Y		EN
Reptiles	<i>Barisia ciliaris</i>	Escorpión	Pr	Yes	-	-

Example: supply and use (water)

AGUASCALIENTES (MUNICIPALITY)



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Example: supply and use (water)

AGUASCALIENTES (MUNICIPALITY)

AGUASCALIENTES (USES)	Groundwater use		Surface water use	
	2011 (m ³)	2014 (m ³)	2011 (m ³)	2014 (m ³)
Agricultural	53,099,040	49,028,510	31,346,921	31,368,084
Agroindustrial	0	0	0	0
Households	297,000	297,000	0	0
Aquaculture	0	0	0	0
Services	2,593,455	3,597,655	1,892,160	1,892,160
Industrial	6,203,624	6,716,379	0	0
Animal breeding and production	327,852	327,852	1,428,689	1,428,689
Urban public	95,705,599	98,919,452	0	0
Multiple	20,456,603	21,414,430	2,168,754	1,968,754
Hydroelectric developments	0	0	0	0
Trade	0	0	0	0
Others	0	0	0	0
Thermoelectric plants	0	0	0	0
TOTAL	178,683,173	180,301,278	36,836,524	36,657,687
Number of abstraction points	1,257	1,301	313	315

What's next?

- A work plan, linking the **National Plan's** goals to **SEEA-EEA** and to the **Technical Guides** produced by UNSD, has been created.
- It is expected to have the **three pilot studies** in physical units finished by the **end of 2015**.
- To produce the complete series of accounts for all pilot studies with the aim of studying the possibility of **applying the methodology to the whole country**.
- To finish the **pilot studies in monetary units in 2016**.



Progress control

Physical units Monetary units

SEQUENCE OF ACCOUNTS COMPILATION

Ecosystem extent account			
Land cover		X	n/a
Ecosystem condition account			
Water	Surface		n/a
	Groundwater		n/a
Carbon	Living biomass		n/a
	Dead biomass		n/a
	Soil		n/a
Soil		X	n/a
Biodiversity	Habitat extent/condition	X	n/a
	Species richness/abundance	X	n/a
	Threatened species	X	n/a
	Genetic diversity		n/a
Supply and use of ecosystem services accounts			
Water	Surface	X	
	Groundwater	X	
Carbon	Living biomass		
	Dead biomass		
	Soil		
Soil			
Biodiversity	Habitat extent/condition		
	Species richness/abundance		
	Threatened species		
	Genetic diversity		

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Cuentas experimentales de los ecosistemas (SEEA-EEA) - México

* Inicio Contenido



Cuentas experimentales de los ecosistemas (SEA-EEA) - México

Presentación

La División de Estadística de las Naciones Unidas (UNSD), ha seleccionado a México para participar como país piloto junto con Bután, Chile, Indonesia, Vietnam, Sudáfrica y República de Mauricio, en la implementación del System of Environmental-Economic Accounting. Experimental Ecosystem Accounting. (SEEA-EEA).

Los objetivos principales del proyecto son: la medición en unidades físicas y monetarias de los servicios y los activos de los ecosistemas que contribuyen con el bienestar de la sociedad, integrados en el esquema actual de la contabilidad nacional y ambiental.

En este sentido el INEGI, como punto focal, junto con SEMARNAT y a la par con diversas instituciones del sector ambiental de México, ha iniciado desde el año 2014 los trabajos relacionados con el proyecto. Con el propósito de revisar los avances alcanzados, así como para planear los siguientes pasos, se llevó a cabo una Primera Misión de UNSD a México (octubre, 2014); una Segunda Misión se ha programado para la semana del **13 al 17 de julio** del año en curso.

En este contexto y como parte de los acuerdos del grupo de trabajo, se construyó la presente plataforma virtual, la cual constituye una herramienta de comunicación y coordinación entre los participantes del proyecto, con la finalidad de compartir en tiempo real todo tipo de materiales relacionados, incluyendo presentaciones, documentos, archivos de cálculo, información de foros internacionales relacionados, un directorio de contactos, entre otros elementos.

Se invita a los miembros del equipo a incrementar este acervo documental, además de dar sugerencias para mejorar este sitio de intercambio.

Próximos eventos

Segunda Misión de Naciones Unidas a México Implementación de las Cuentas Experimentales de Ecosistemas



- Reuniones bilaterales entre representantes de UNSD, el sector ambiental en México y otros organismos nacionales e internacionales.
- Taller técnico para la construcción de las cuentas de