System of Environmental Economic Accounting

SESSION 9: OPPORTUNITIES FOR ADVANCING SEEA ACCOUNTS AUSTRALIA

2019 Forum of Experts on SEEA Experimental Ecosystem Accounting

Glen Cove, NY, 26-27 June 2019

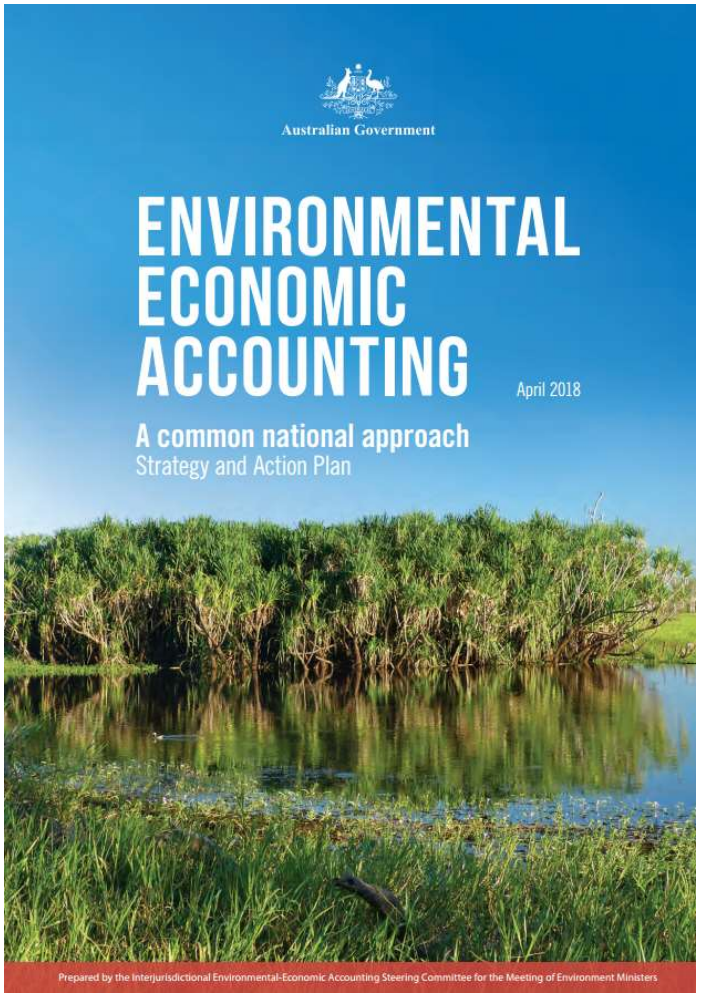
United Nations

Australia - Update

Account - Completed example (Owner)	Asset	Condition	Service	Benefit
Regional environmental accounts trial (Wentworth Group)	√	√		
Central Highlands Victoria (Australian National University)	√	√	√	√
Great Barrier Reef (Australian Bureau Statistics)	√	√	√	√
Account – In progress example (Owner)	**Asset**	**Condition**	**Service**	**Benefit**
Land and Ecosystems Accounting Project (Federal)	√	√	√	√
Mitchell Catchment (QLD/Griffith University)	√	√	√	√
Box Gum Grassy Woodland (Australian National University)	√	√	√	√

Australia – Next Steps

- Application of 'demand-led' principle.
- User needs assessment: accounting is not an intuitive concept in the environmental policy community.
- Testing partnership approach between statistical, scientific and policy agencies.



System of Environmental Economic Accounting

SESSION 9: OPPORTUNITIES FOR ADVANCING SEEA ACCOUNTS - BRAZIL BRAZIL

2019 Forum of Experts on SEEA Experimental Ecosystem Accounting

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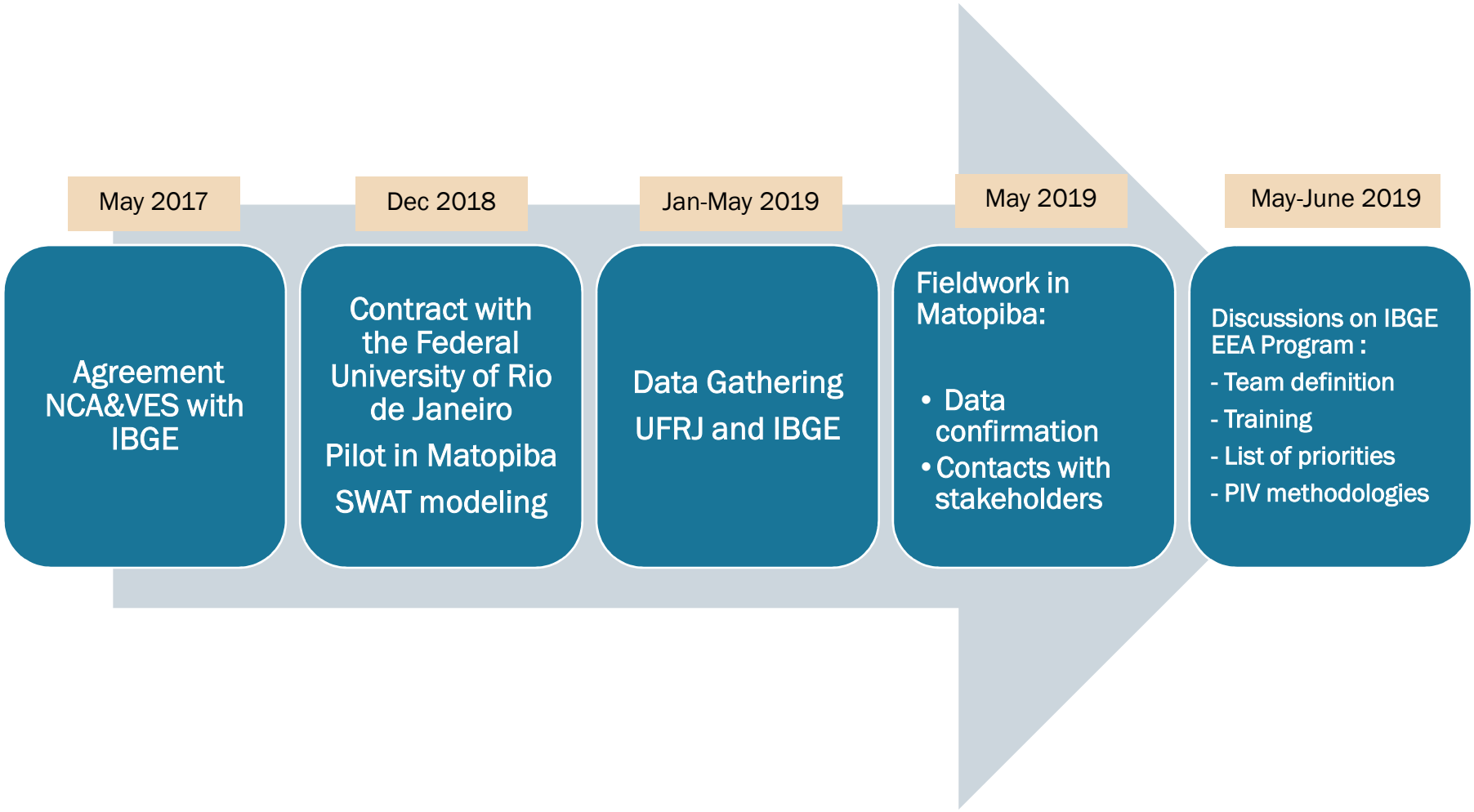
Timeline – Ecosystem Accounts Brazil



Achievements and Lessons Learned

- A balance between UN necessities for studies and frameworks development and country specific needs is very important for effective results achievement;
- Training before scope definition is desirable, since we are dealing with a new subject worldwide;
- Matopiba pilot is on the way
- Development of Biodiversity and Ecosystem accounts are under analysis by IBGE and will probably start soon

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SESSION 9: OPPORTUNITIES FOR ADVANCING SEEA ACCOUNTS

Statistics Canada

2019 Forum of Experts on SEEA Experimental Ecosystem Accounting

Glen Cove, NY, 26-27 June 2019

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Description of recent / current work

1. **Ecosystem accounts development:**
   - Compiled and published data and analysis on ecosystem extent and condition (e.g.) agricultural, metropolitan, freshwater and forest ecosystems, aligned with the fundamentals of SEEA EEA
2. **Oceans accounts development:**
   - Compiling data to support extent, condition and services accounts for marine and coastal ecosystems, but also looking into developing SEEA CF-type accounts, as well as a marine satellite account.
3. **Urban ecosystem accounts:**
   - Integrating earth observation data with socio-economic data to improve delineation and characterization of built-up areas; mapping block-level urban area population density change 1971 to 2016
4. **International cooperation**
   - Reviewing and assisting in the development of ecosystem accounting principles and promoting ecosystem accounting including through reporting on SDGs and other national and international indicators.

Achievements and lessons learned

1. Our current work builds on earlier efforts including the Canadian inter-departmental project Measuring ecosystem goods and services (2013) and the ongoing work to refine ecosystem accounting principles
2. Developed and implemented a new ecosystem accounting tabular and spatial database (internal infrastructure) to support the production of accounting tables and statistics
3. Currently, the characteristics of data (coverage, granularity, time scales, etc) are not harmonized, making accounting difficult
4. Accounts data is collected by multiple agencies in Canada. Compiling accounts requires increased collaboration, including to the point where we need to influence the production of these external data

System of Environmental Economic Accounting

SESSION 9: OPPORTUNITIES FOR ADVANCING SEEA ACCOUNTS *CHINA*

2019 Forum of Experts on SEEA Experimental Ecosystem Accounting

Glen Cove, NY, 26-27 June 2019

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Description

- Guide the compilation of work plans in pilot areas.
- Organized the Projects Seminar of Guangxi and Guizhou, and Beijing Technical Work Conference.
- Guide the compilation of pilot guidelines in Guangxi and Guizhou.
- Guide pilot areas to conduct research on mainstreaming SEEA EEA.

Seminar in Guilin, Guangxi

Beijing Technical Work Conference

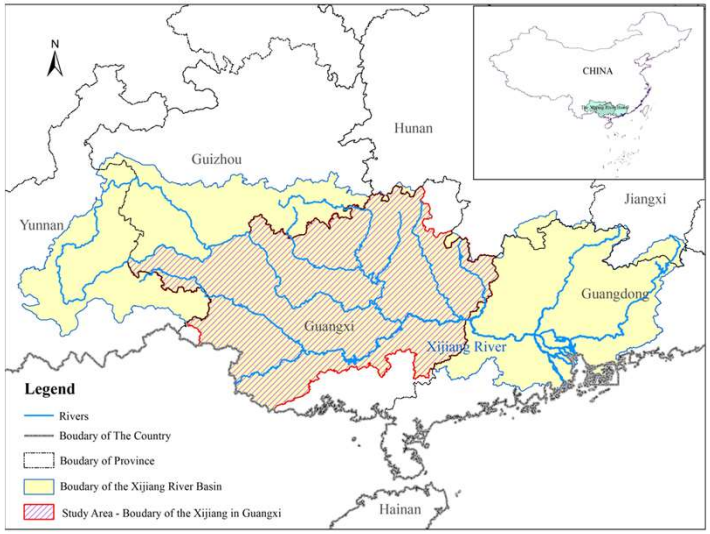
SEEA

Achievements

- The basic revision of the Guidelines for the Pilot of Natural Capital Accounting and Valuation of Ecosystem Services project was completed in Guangxi.
- a preliminary plan for the Research on Ecological Compensation Standards for the Xijiang River Basin in Guangxi Based on Scenario Analysis was compiled .


Guidelines for the Pilot of Natural Capital Accounting and Valuation of Ecosystem Services Project
(Revised)
Guangxi Zhuang Autonomous Region Bureau of Statistics
May 2019

The basic revision of the Guidelines



The Xijiang River Basin

SEEA

System of Environmental Economic Accounting

SESSION 9: OPPORTUNITIES FOR ADVANCING SEEA ACCOUNTS COSTA RICA

2019 Forum of Experts on SEEA Experimental Ecosystem Accounting

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Description

ES	Physical Unit	GIS	Valuation Method	Things to Improve
Carbon Stock	Ton/Ha/Type of forest	Images from NFI (RapidEye)	Market prices:7.5, 11, 36 and 50 dollars per ton	• Time series • A real domestic price for carbon stock
Crops: pineapple	Farms-Ha	Image from PRIAS (LANDSAT)	Resource Rent	Gross Operating Surplus
Crops: coffee	Farms-Ha	Image from ICAFE (LANDSAT)	Resource Rent	Gross Operating Surplus
Nature-based tourism	Overnights per Hotel	Survey-coordinates Buffers	Average spending	Average spending by area o region

Achievements

- Not yet implemented (learn from the process).
- Integration of GIS expertise in AEA.
- Integration of stakeholders in the analyzes.
- Moving forward for a better estimation of Natural Capital of Costa Rica.

About ecosystem knowledge in France

Photo : A. Bouissou/Terra

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MINISTÈRE
DE LA TRANSITION
ÉCOLOGIQUE
ET SOLIDAIRE

MTES / CGDD / SDES

06/27/2019

In France

No formal exhaustive integrated ecosystem accounts

but some pilot exercises and studies

→ **Forest accounts** annually reported to Eurostat

→ **Water** data compilation (resources, conditions)

→ An inquiry about **continental wetlands** (extent, conditions ...)

→ **Partnerships** between the French **ministry** for an Ecological and Solidary Transition and **researchers** on **ecosystem assessment**

- **EFESE**, the French **national ecosystem assessment** program (*French evaluation on ecosystems and ecosystem services*)
- a French **contribution to the MAIA research project** (*Mapping and Assessment for Integrated ecosystem Accounting*) on marine ecosystem extent and condition, valuation methods ...

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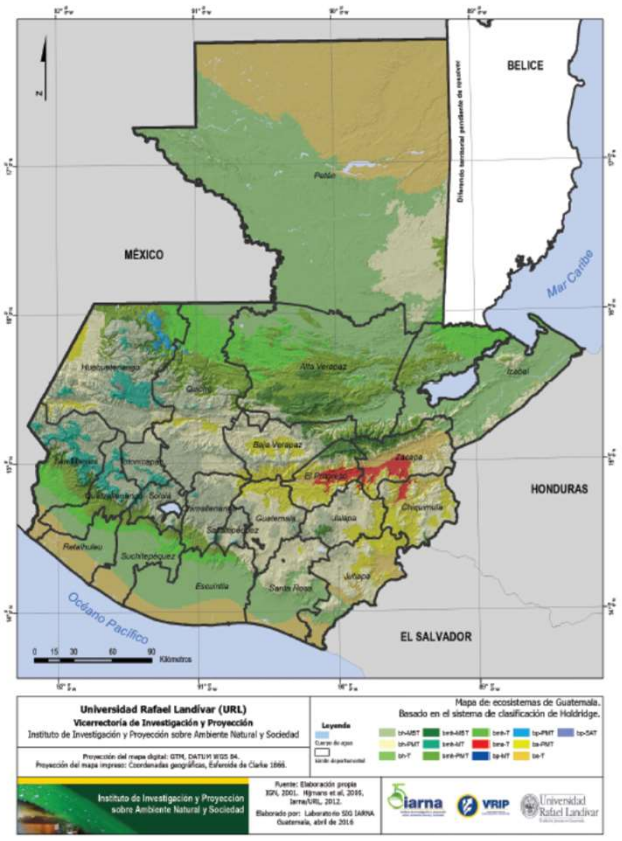
Universidad Rafael Landívar
Tradición Jesuita en Guatemala

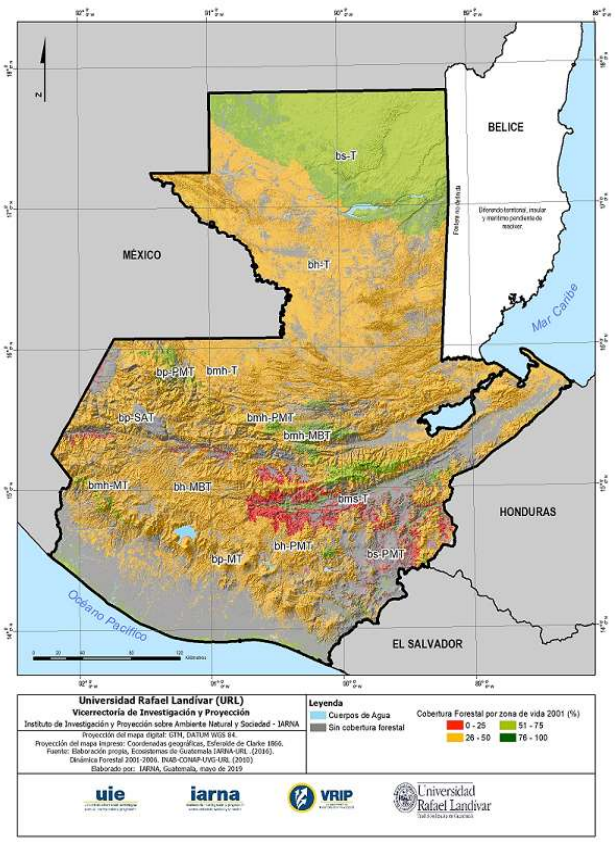
SESSION 9: OPPORTUNITIES FOR ADVANCING SEEA ACCOUNTS

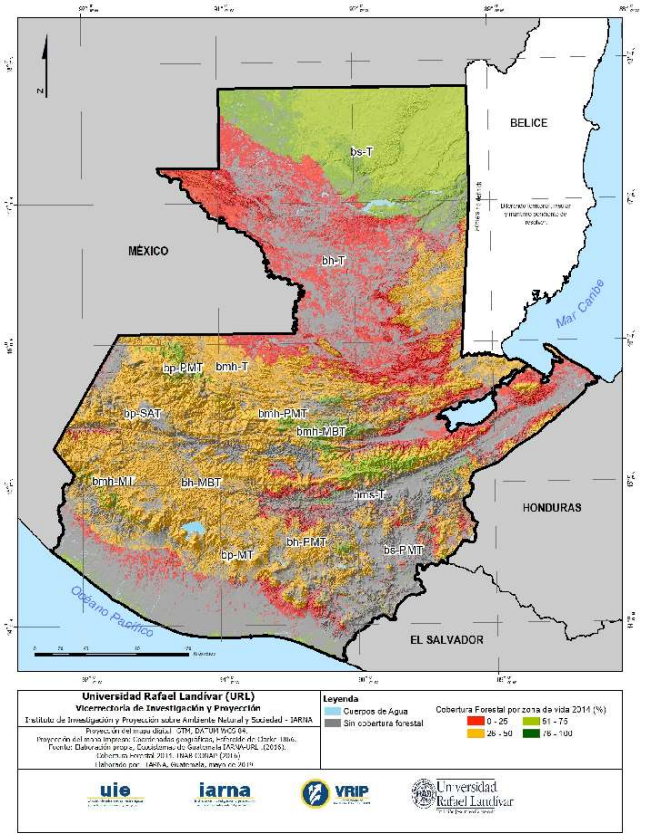
GUATEMALA

Universidad Rafael Landívar
Tradición Jesuita en Guatemala

Experimental Ecosystem Account of Guatemala



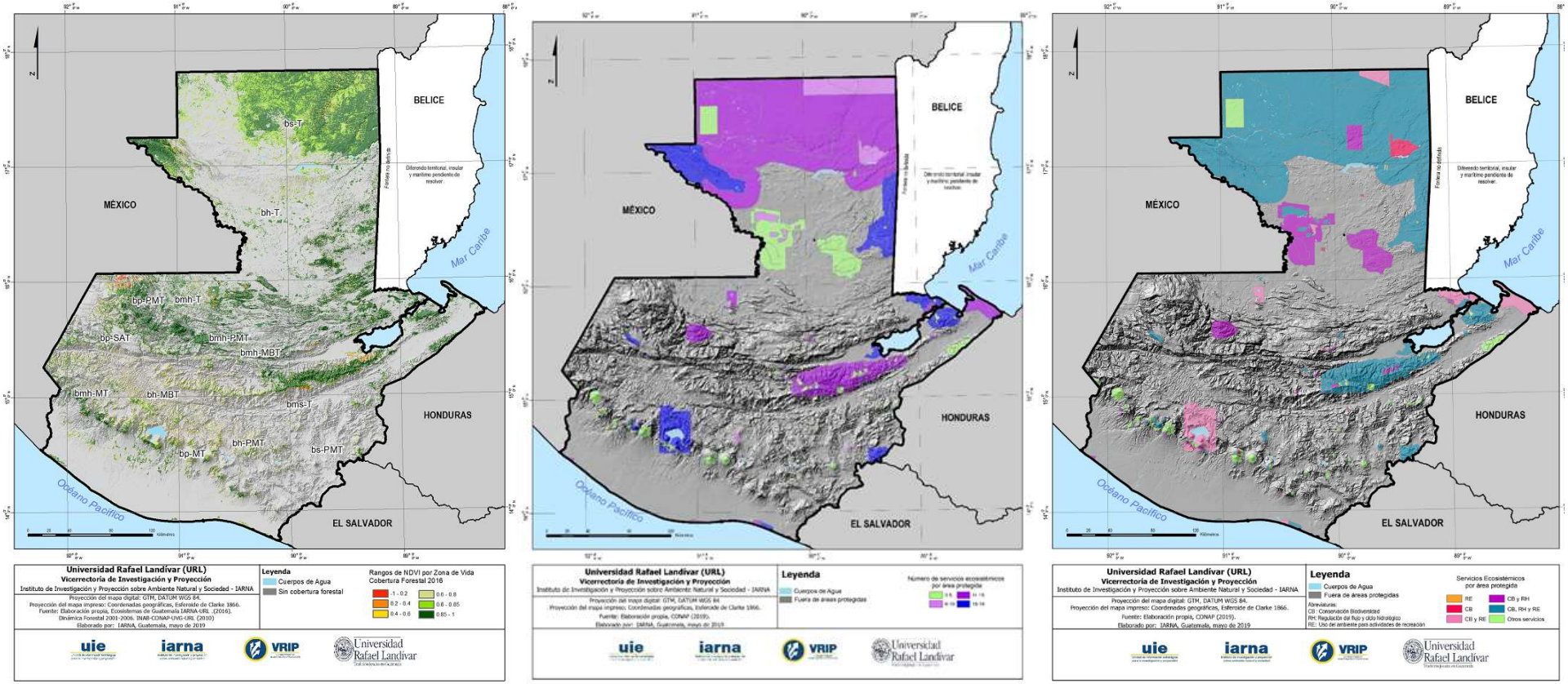




Extension and Condition Accounts-national level

iarna
Instituto de investigación y proyección sobre ambiente natural y sociedad

VRIP
VICERRECTORÍA DE INVESTIGACIÓN Y PROYECCIÓN



Condition and Ecosystem Services Supply Accounts-national level

BADAN PUSAT STATISTIK

Pelopor
Data Statistik
Terpercaya
Untuk Semua

SEEA EEA IMPLEMENTATION IN INDONESIA

Setianto and Etjih Tasriah

(BPS- Statistics Indonesia)

Presented at 2019 Forum of Experts on SEEA Experimental Ecosystem Accounting

BADAN PUSAT STATISTIK

WAVES

WORLD BANK GROUP

Supported by World Bank –WAVES Partnership

Pelopor Data Statistik Terpercaya Untuk Semua

Main Achievements from the SEEA EEA Implementation in Indonesia

Upgraded SISNERLING to International Standard and Supporting implementation of SEEA

Training for BPS officers

Improved access and availability of high quality data to policy makers

Integration of Macroeconomic Indicators in Policy Frameworks

Reflecting Environment variables and externalities for Midterm Development Plan (RPJMN) and Fiscal Outlook reporting

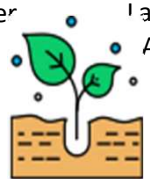
One step closer to science based policy making

Production of policy relevant high quality data and accounts

Land Cover Accounts

Land Extent Accounts

Water Account



Peat Account

Wealth Account

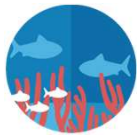
Helps to deliver some powerful messages

Exhibit A: *Land conversion not fully reflected in official data*

Valuing The Invisible

Peat in Indonesia

Carbon emissions from peat oxidation



Biodiversity- protected habitat

Timber Biomass

Paddy

Plantations

The First Time that Environmental Degradation and Ecosystem Services is Reflected in GDP Estimation

(~1.5% reduction)

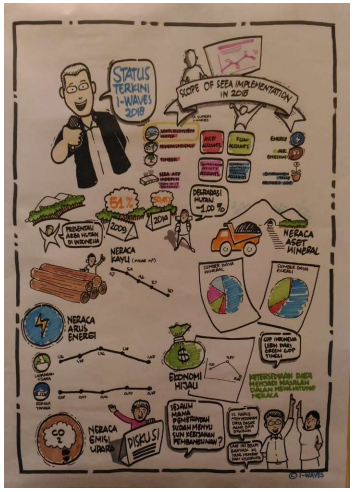
Way Forward:

Systematic development of NCA has helped strengthen institutional foundations and processes to deliver across national and regional initiatives and mandates

Government Regulation No. 46/2017 on
Environmental Economic Instruments for Environmental Management

Green GDP

Payment for Ecosystem Services on National/Subnational level



Focus Group Discussion on Assistance with the development of Roadmap for Natural Capital Accounting
(3 September 2018)

BADAN PUSAT STATISTIK

Pelopor
Data Statistik
Terpercaya
Untuk Semua

TERIMA KASIH
Thank You



System of Environmental Economic Accounting

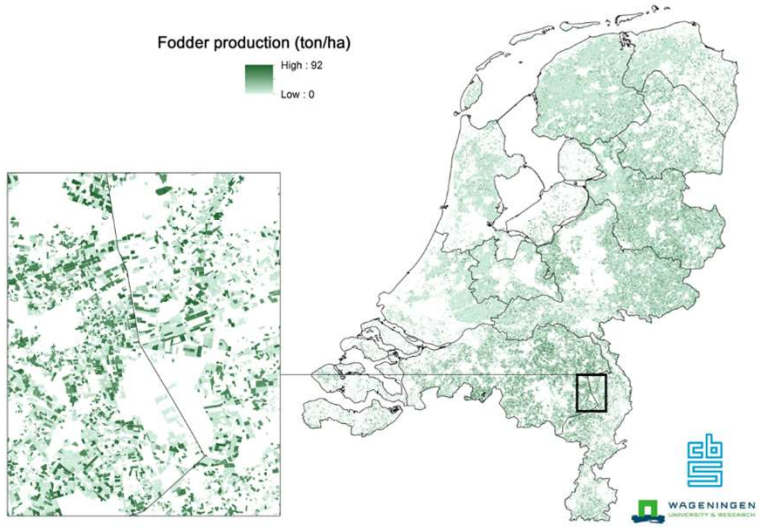
SEEA ecosystem accounting in the Netherlands

Statistics Netherlands
Wageningen University

United Nations

Description: work done so far

- **Ecosystem accounts for the terrestrial environment**
  - > Extent account
  - > Condition account
  - > Physical supply and use tables ecosystem services
  - > Monetary supply and use tables ecosystem services
  - > Asset account
  - > Carbon account and biodiversity account
- Pilot for **marine accounts** (North Sea area)
  - > Only physical accounts
- Pilot NCA for **business**
- Pilots **for specific areas**



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Key challenges

- Conceptual / technical
  - > Revise ecosystem types map
  - > Integrate terrestrial and marine accounting
  - > Improve physical models for ecosystem services
  - > Application of various valuation techniques
- Implementation/ practical
  - > Update all the accounts
  - > Data availability
- Institutionalization/ communication
  - > Monetary valuation: communication
  - > Implement results for monitoring national SDGs and policy uses
  - > National cooperation with data providers, data modelers and users of the accounts

System of Environmental Economic Accounting

SESSION 9: OPPORTUNITIES FOR ADVANCING SEEA ACCOUNTS *NORWAY*

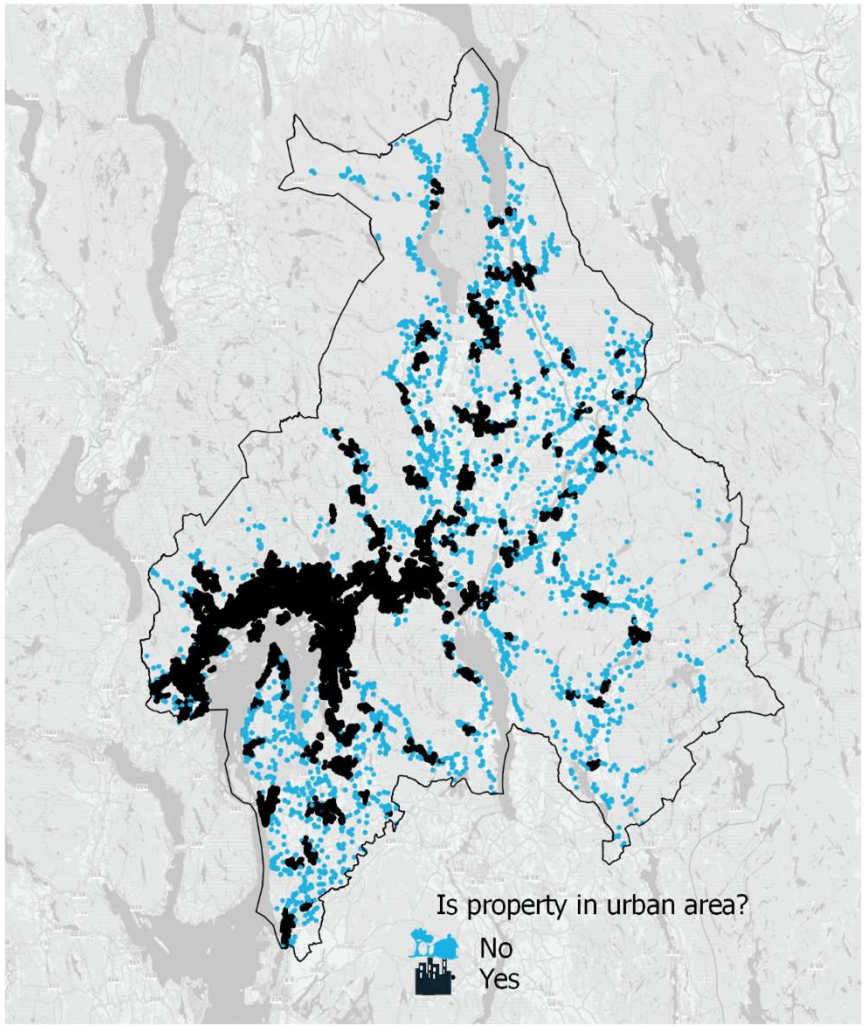
2019 Forum of Experts on SEEA Experimental Ecosystem Accounting

Glen Cove, NY, 26-27 June 2019

United Nations

Hedonic pricing for accounting

- URBAN EEA Oslo region
- Spatial hierarchy of green
  - > on property
  - > on street
  - > in neighborhood
  - > beyond neighborhood
- Urban-rural transect dummies
- Westside dummy
- First stage HPM: Price models for detached, semidetached, apartments
- Use results to estimate accounting value of urban green



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Asset value of urban green space

	Density	Proximity
Explanation	Total area of parks within radius	Distance to nearest park
Insensitive to	Location of park	Size of park
	Private/public if satellite data	Other parks nearby
Number of properties	Greater	Smaller
Asset value of park determined by	Greater number of properties	Smaller number of properties
	with smaller valuation	with greater valuation
Distributional effects	Harder to see	Clearer to see
Identification of demand parameters	Easier	Harder

Figure 2: The two measures for park supply - proximity (left) figure 2a and park density (right) figure 2b. The (red) spot indicates the property and for the distance measure the arrow indicates the bee line distance to the nearest green area (< 300 m). On the left, the circle indicates the 1,000 m radius around the same property; a circle spanning slightly more than 314 ha.

Source: Panduro et al 2016

Figure 4: The proximity catchment area (small circle) and density catchment area (larger circle) around the Horticultural Garden of University of Copenhagen.

SEEA

System of Environmental Economic Accounting

SESSION 9: OPPORTUNITIES FOR ADVANCING SEEA EEA ACCOUNTS

VIVIAN R. ILARINA
PHILIPPINE STATISTICS AUTHORITY

2019 Forum of Experts on SEEA Experimental Ecosystem Accounting

Glen Cove, NY, 26-27 June 2019

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COMPILATION OF EEA FOR MANGROVE ACCOUNTS

1. Pilot compilation by the Philippine Statistics Authority(PSA) under the WAVES of the World Bank

a) Mangrove Forest Inventory and Estimation of Carbon Storage and Sedimentation in Pagbilao, Quezon , Philippines

b) Valuation of Selected Ecosystem Goods and Services in the Pagbilao Mangrove Forest

2. Task Force on Ecosystem Accounts on Mangrove

a) inter-agency group - PSA as lead; data producers and data users;

b) inventory of available data vis-à-vis required data;

c) defined/recommended how to address data problems e.g. data gaps, quality

3. Dissemination Forum, Training, Global Consultations

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ACHIEVEMENTS, LESSONS LEARNED

1. Inventory of diversity of mangrove species, (81% of total species); provided baseline information on ecosystem services in the pilot areas; confirmed the significant roles of mangrove ecosystem in changing climatic patterns;

2. Paved the way for the Department of ENR for: (a) value based information of the ecosystem; (b) comprehensive assessment of the country's mangrove ecosystem; (c) formulate specific plans for conservation & protection.

3. Created awareness and advocacy on EEA and the need to compile them.

4. LESSONS LEARNED for PSA as compiler of EEA
- participation of stakeholders is important;
- improve administrative based reporting especially of non-statistical agencies;
- continuous training of EEA compilers and regular fora among stakeholders

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SESSION 9: OPPORTUNITIES FOR ADVANCING SEEA ACCOUNTS
South Africa

2019 Forum of Experts on SEEA Experimental Ecosystem Accounting

Glen Cove, NY, 26-27 June 2019

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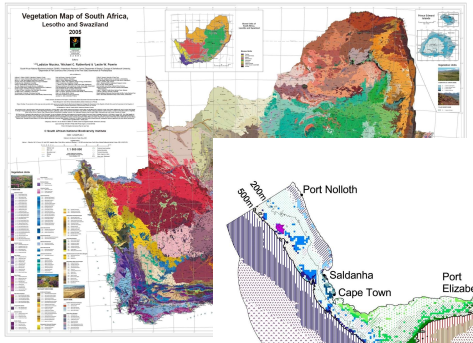
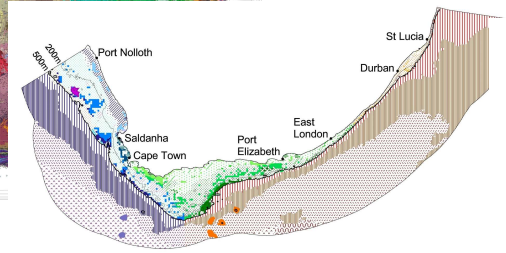
Description

Accounts to be produced in NCA&VES Project

National

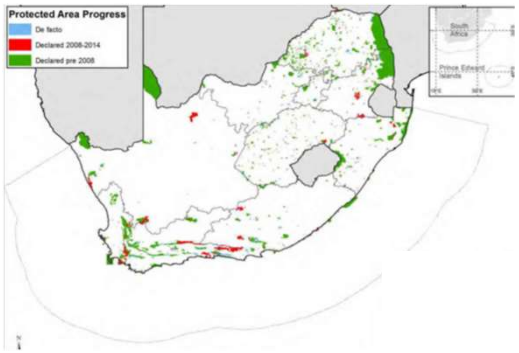
National **land & ecosystem asset** accounts – terrestrial & marine, extent & condition



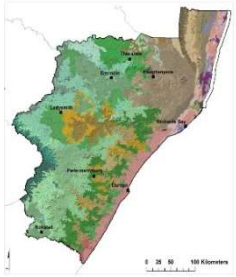


Species accounts – rhino, cycads

Protected area accounts – terrestrial & marine

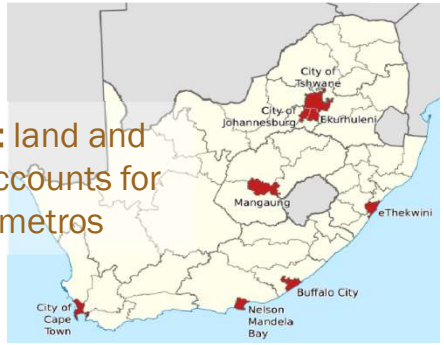


Sub-national



KZN: Full suite of **ecosystem asset and ecosystem service** accounts

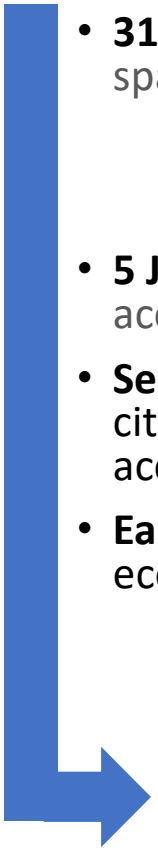
City-regions: land and ecosystem accounts for selected metros



SEEA

Overview of upcoming events & development of accounts

- **15-18 April**: Visit by technical expert in Ensym.
- **27-30 May**: National Training
- **10-11 July**: National NCA Forum
- **Feb 2020**: National Stakeholder Engagement around national strategy



- **31 Mar**: Draft species accounts & improved spatial data
- **5 July**: draft National land and ecosystem accounts & draft city-region accounts
- **Sept-Dec**: National land and ecosystem accounts, city-region accounts, species accounts and PA accounts
- **Early 2020**: All accounts finalized with socio-economic links & recommendations made

NCA&VES Project end: Mar 2020

System of Environmental Economic Accounting

SESSION 9: OPPORTUNITIES FOR ADVANCING SEEA ACCOUNTS *UNITED KINGDOM*

2019 Forum of Experts on SEEA Experimental Ecosystem Accounting

Glen Cove, NY, 26-27 June 2019

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Description of activities in the UK

- The focus in the UK has been on national level accounts for a range of different habitat types, with an emphasis on the monetary valuation of the widest possible range of ecosystem services.
- The national accounts are supported by modelling of some ecosystem service flows at a detailed spatial level. These have generated widespread interest.
- The work on ecosystem accounts for urban areas has included some hedonics work.
- The project on accounts for marine ecosystems is nearing completion and will be published later in the summer.

Achievements and lessons

- There is increasing awareness of the value of using an accounting framework, at UK country, municipality, protected area and business levels. The national level accounts are helping to support these initiatives.
- The accounts for urban areas are widely referenced in a policy context, as they demonstrate the importance of a wide range of different services, some of which are not particularly significant outside of urban areas.
- The marine ecosystem accounts may prove to equally important in policy terms, potentially contributing to our understanding of the 'Blue economy', the social characteristics of the beneficiaries and the relative importance of services from within and outside protected areas.

System of Environmental Economic Accounting

SESSION 9: OPPORTUNITIES FOR ADVANCING SEEA ACCOUNTS UNITED STATES

2019 Forum of Experts on SEEA Experimental Ecosystem Accounting

Glen Cove, NY, 26-27 June 2019

United Nations

Description

- **Accounting for US Ecosystem Services at National and Subnational Scales**– co led by United States Geologic Survey and The National Socio-Environmental Synthesis Center
  - https://www.sesync.org/project/propose-a-pursuit/accounting-for-us-ecosystem-services-at-national-and-subnational-scales
- Application of SEEA EEA in the US as demonstration of:
  - What type of biophysical metrics go in condition, supply and use tables
    - Condition – Metrics that don't incorporate human use
    - Supply and Use – Metrics that do incorporate human use
  - The final ecosystem services approach, including identification of ecological end-products supplied by ecosystem assets from a use/user point of view
  - What data layers are available for accounting and what geographic scales of spatial summation are appropriate for different services

Achievements – 2018-present

- Completed regional (ten state area) analysis for several example condition, supply and use tables for selected years from 2001 to 2015 including:
  - Condition – Air pollution removal rates, diversity of birds, area and % of flow path of purifying land cover types between nonpoint-source pollutant sources and waterways, and area and ratio of wild pollinator habitat near pollinator-dependent crops
  - Supply and Use – Recreational birding days and concentrations of air pollutants
  - Carbon storage was also included even though it is not considered an ecosystem service in the NESCS framework
- Using an example from Atlanta, Georgia USA we also show how ecosystem accounts can be considered alongside other SEEA accounts, such as land and water accounts
- The process by which we determined where to place metrics within the accounting framework, which was strongly informed by the National Ecosystem Services Classification System (NESCS), can provide practical guidance for future ecosystem accounts in the U.S. and other countries, and for expanding the scope of U.S. ecosystem accounts (Warnell et al. Submitted 2019)