Introduction to Ecosystem Accounting

Presented by: Michael Vardon, ANU

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What is ecosystem accounting and why is it important?

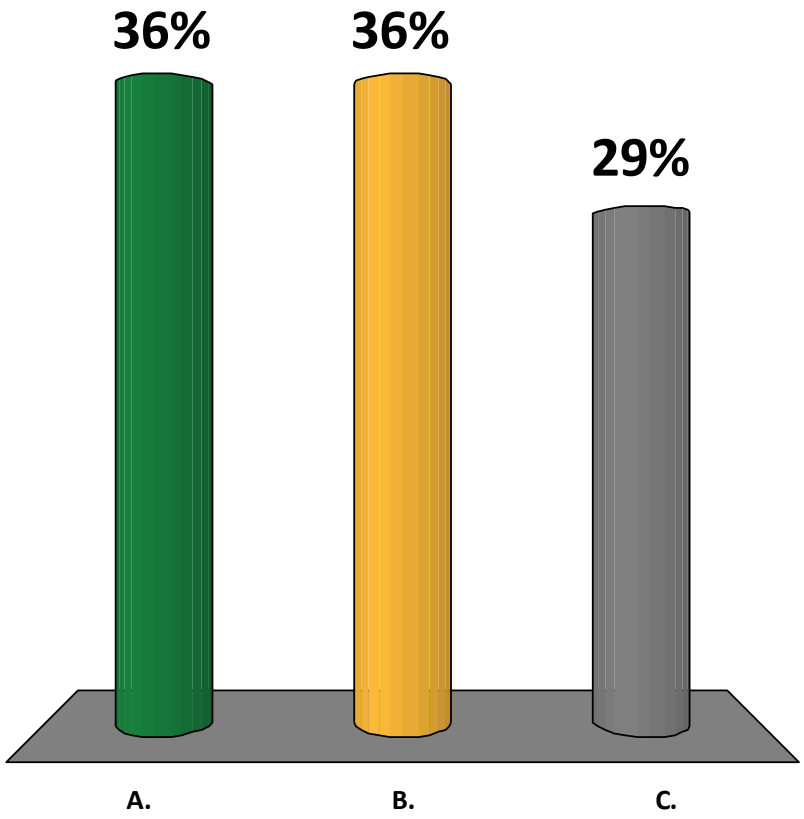
Why do we need ecosystem accounting?

Which of the following statement is true?

A. *We are experiencing great and growing pressure on the environment*

B. *Contributions of ecosystems to human-wellbeing are usually accounted for in decision-making*

C. *GDP can well capture the interactions and dependencies between the environment and the economy*

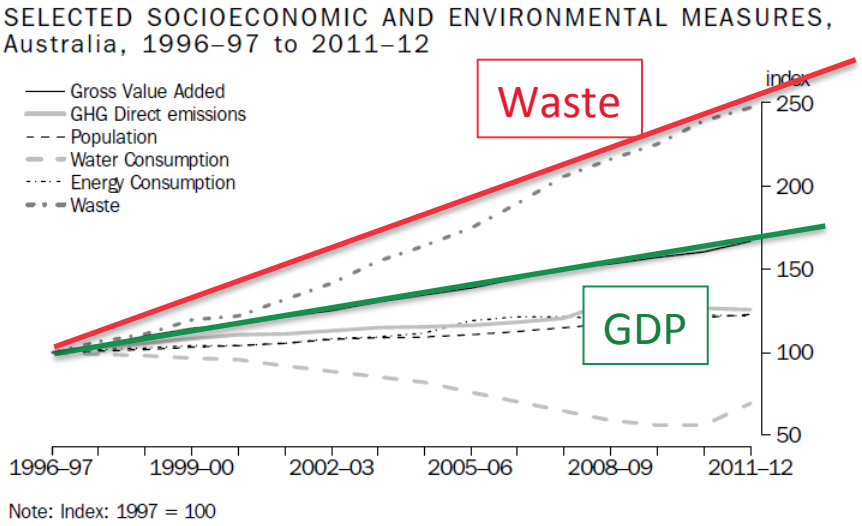


Why do we need ecosystem accounting?

What is wrong with GDP?

Robert F. Kennedy at the University of Kansas

18 March 1968



- *How much progress have we made since 1968?*
- *How can measurement of things "GDP and Beyond " help?*
- *What needs to be done?*

What is ecosystem accounting?

What it is?

- Spatial
- Covering all ecosystems
- Combination of ecology and national accounting

How did it happen?

- Evolved over many years in academic and government agencies
- A rapidly evolving field

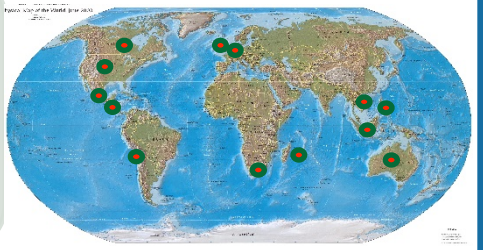
1953
1968
1993
2008

1993
2003
2012

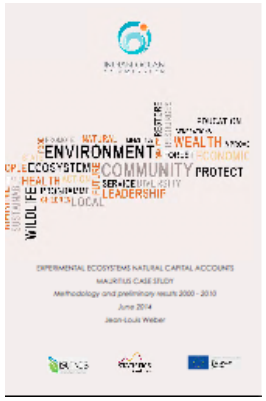
2013

Where is it happening

- Several countries are developing ecosystem accounts

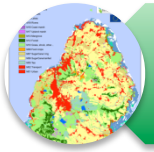


Example: Mauritius – Experimental Ecosystems Natural Capital Accounts 2014



Key points

- A suite of accounts with land cover as a starting point
- It is complex but it can be done!
- Focuses on assets (e.g. natural capital) rather than services
- Learning by doing


Land cover


Water


Biomass/Carbon

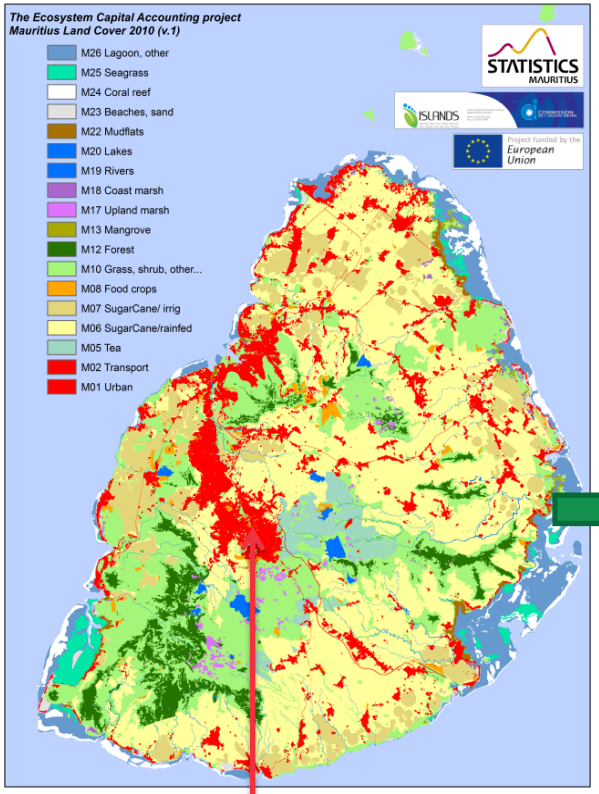

Biodiversity


Capability

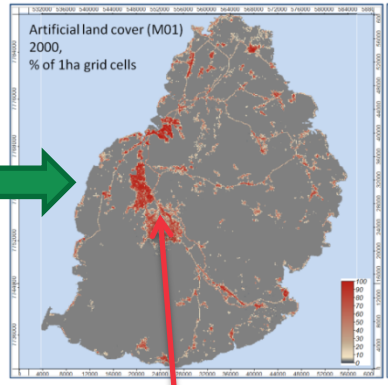
http://commissionoceanindien.org/fileadmin/resources/ISLANDSpdf/Experimental_Ecosystems_Natural_Capital_Accounts_Mauritius.pdf

Example: Mauritius preliminary results :

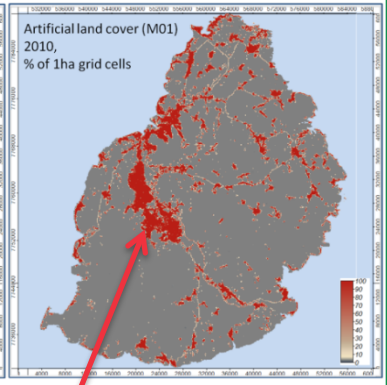
Land cover and urban change from 2000 to 2010



Urban land cover 2000



Urban land cover 2010



Accounts are

- **Complete coverage**
- **Over time**
- **Maps and tables**

Land cover stock and change account/ urban sprawl

Provisional Results

	Rivière du Rempart	Pamplemousses	Flacq	Moka	Grand Port	Wilhems				TOTAL
District AREA SQKM	14703	18019	29826	23512	26134		25558	24758	3976	186325
M01 Urban land cover 2000 v0	747	705	405	282	406		334	266	2667	7872
M01 Urban land cover 2000 v1, adjusted	1225	1172	667	510	549	2456	542	379	3284	10782
lf1 Urban sprawl	478	467	263	228	143	396	208	112	616	2911
M01 Urban land cover 2010	1704	1639	930	738	691	2852	749	491	3900	13693

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Foundations of ecosystem accounting

Built from the concepts and knowledge from many areas

Ecology and environmental science

Environmental data and statistics

Ecological economics

National accounts

Sustainable development

Economic management and planning

Environmental policy

Where does your understanding start?

Three pairs of concepts for ecosystem accounting

- Stocks measured at a point in time (e.g. 1 January)
- Flows measured as a rate (e.g. litres/minute, dollars/year)

Stocks and flows

Physical and monetary measures

- Physical measures like kilograms, hectares, litres, parts per million
- Monetary measure like $, €, ¥, £, etc.

Benefits beneficiaries

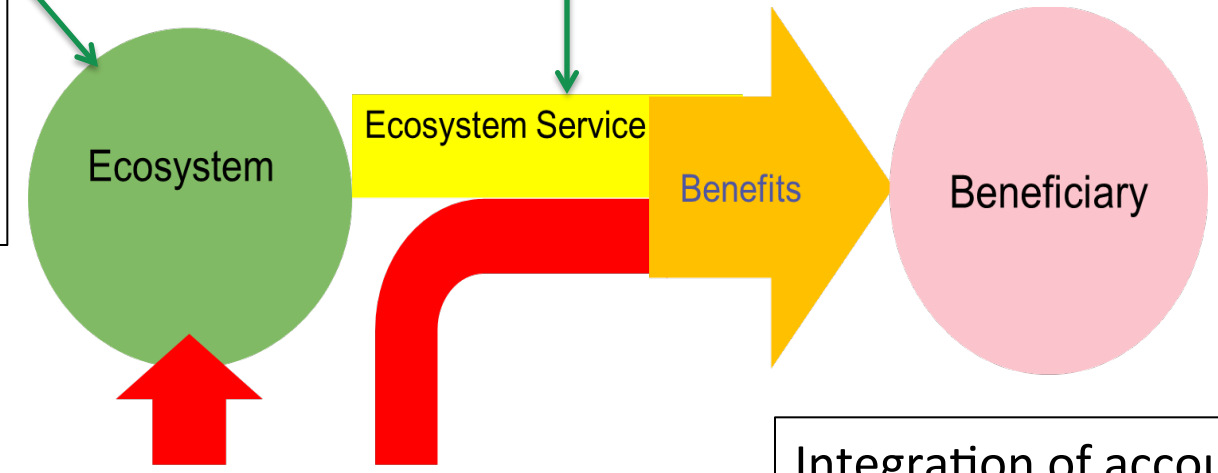
- Benefits in SNA (in GDP) or non-SNA (not in GDP)
- Beneficiaries are people or groups (e.g. farmers, government, miners)

Ecosystem accounts: key concepts and accounts

Ecosystem asset/ stock accounts
- Land
- Water
- Carbon
- Biodiversity

(Quantity & condition)

Service flow accounts
- Provisioning
- Regulating
- Cultural



System of National Accounts

Integration of accounts
- E.g. supply use tables

Idealised chain of the production and use of ecosystem accounts

Basic data (e.g. rainfall, agricultural survey)

Account compilation (e.g. water account)

Analysis and interpretation (e.g. water use by industry)

Policy and decision making (e.g. differential water pricing)

The Great Barrier Reef, Australia

- **Background:**
  - World famous for biodiversity and tourism
  - Agricultural practices mean that sediment, nutrients and chemicals enter the water and degrade the reef
  - Managing the reef requires managing the river basins that drain on the reef
- **Discussion question**
  - Who are the main stakeholders of the Reef?
  - What specific benefits can ecosystem accounting bring to each stakeholder?

Understanding the Great Barrier Reef via accounting

Farmers benefit from growing and selling agricultural products

Consumers benefit by buying products

Land use practices degrade the reef

Tourists benefit from visiting the reef

Tourism industries benefit from sale of goods and services

World Heritage - benefits beyond the tourists

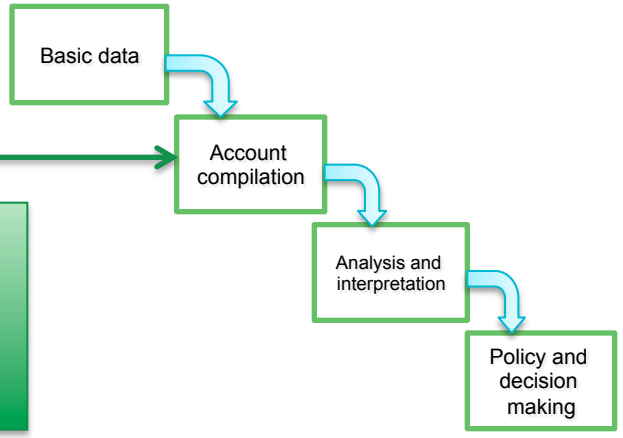
Accounting for the Great Barrier Reef

- Stocks and flows
- Monetary and physical terms
- Benefits and beneficiaries
- (who benefits, when, where and how)

	Consumers		
	Agriculture	Households	World
Producers			
Great Barrier Reef	Ecosystem services * Provisioning, and regulating	Ecosystem services * Cultural	Ecosystem services * Cultural
Agriculture		Food, etc.	Food, etc.
Tourism		Hotels, tour boats, tours	
Government		Park management	Park management

Up to here now

What can be done?



Managing the Great Barrier Reef via accounting

Challenges:

- Australian Government is the manager of the reef (Fishing and tourism are managed, shipping is controlled)
- Three levels of government plus Catchment Management Authorities involved in the broader environment, economic and social policy
- Farmers and other land managers have little reason to change for the benefit of others at their own expense

Managing the Great Barrier Reef via accounting

Discussion question:

- According to your experience, what mechanisms can be developed to bring about change to activities driving the degradation of the reef?

Lessons from building and using accounts

Need strong partnerships

Use what basic data are available now

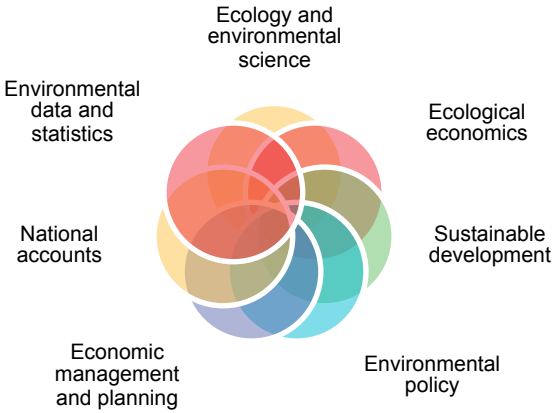
Accounts get better over time

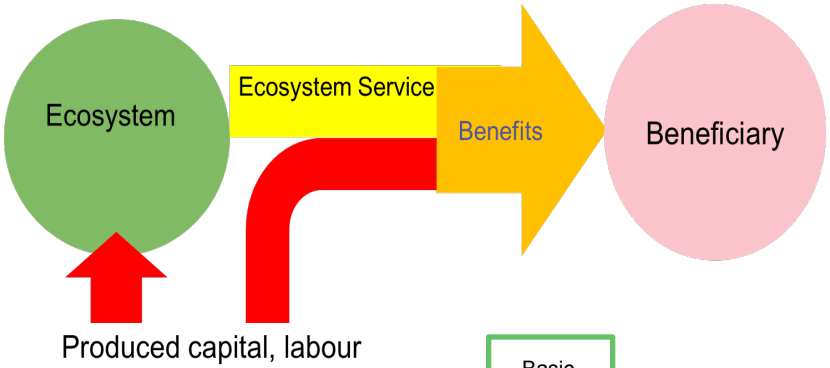
The best way to learn is to do

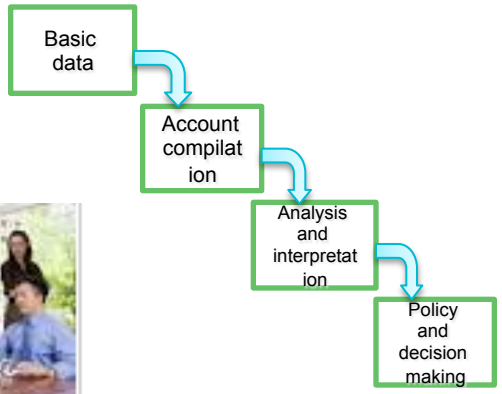
Exercise

In groups answer the following questions:

- Why is ecosystem accounting important to your group?
- What is the most important aspect of ecosystem accounting to your group?
- How does your group fit into the ecosystem accounting chain?







Session feedback

Please rate the session on a scale of 1 to 5

1. **Very poor,**
2. **Poor,**
3. **Average,**
4. **Good,**
5. **Very good**