Session 2. SNA 2008, Satellite Accounts and Environmental Accounts

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Session outline

- Brief introduction system of national accounts (SNA)
- Why extend or modify the national accounts?
- Environmental accounts: what are they and what do they cover?

What are national accounts?

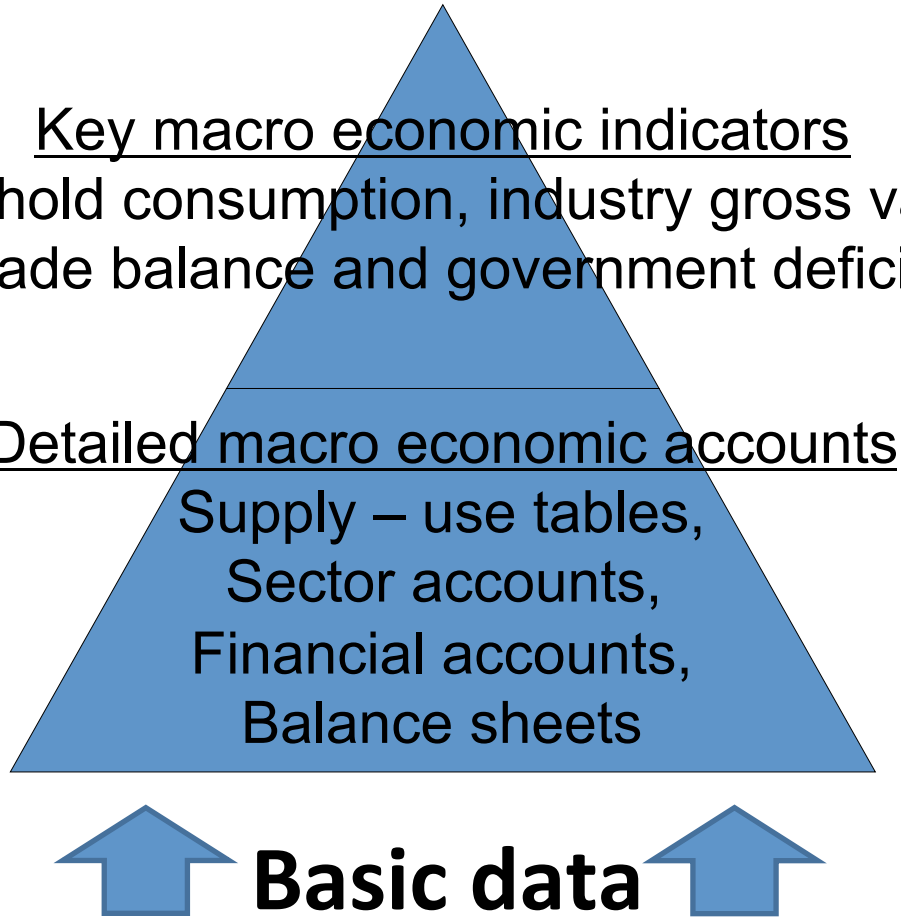
- An integrated set of macro-economic accounts showing relevant flows and stocks related to economic activity
- Accounts are based on relevant international guidelines
- System of National Accounts, SNA (1993 → 2008)

What are national accounts *cont*?

Compiling the Main Sequence of Accounts Using Business Data

	The Coffee Company Income Statement 2004/05($'000)		National Accounts Items
	Sales (including GST collected)	1773	Sales at purchaser's prices
less	GST collected	51	Taxes on products
equals	*Operating income*	1722	*Market output at basic prices*
less	Operating expenditure		
	Wages	545	Compensation of employees
	Depreciation	137	Consumption of fixed capital
	Land tax (Rates)	50	Other taxes on production
	Other operating expenses	899	Intermediate consumption
plus	Financial income (dividends) received	86	Property income - dividends received
less	Financial expenses (interest paid)	111	Property income - interest paid
plus	Investment grant received	17	Capital transfers
equals	*Net income before tax*	83	
less	Corporate income tax	24	Taxes on income
equals	*Net income after tax*	59	
plus	Extraordinary items:		
	Revaluation - fixed assets	153	Revaluation of fixed assets
	Revaluation - stocks	3	Revaluation of inventories
	Revaluation - financial assets	10	Revaluation of financial assets - other accounts receivable
less	Revaluation - liabilities	15	Revaluation of liabilities – shares & other equity
plus	Capitalised improvements to equipment	31	Output for own final use
less	Dividends paid	25	Property income - dividends paid
equals	*Additions to reserves*	216	*Changes in net worth*

Information system



SNA: An integrated framework based on accounting identities

- Transaction identity:
  Outlay = Receipt

- For goods and services
  Supply = Use

- When international trade is included:
  Domestic production + import (Supply) =
  Domestic use + export (Use)




Framework based on accounting identities…

- Based on double entry accounting principle (same as business accounts)

Example: cash sale / purchase of motor car

	Car seller		Car buyer
Goods and services account			
Car	$20,000	→	$20,000
Financial account			
Cash	$20,000	←	$20,000

Supply-Use table

Supply table $Bn					
	Agric-ulture	Manuf-acturing	Services	Imports	Total
Agricultural products	10				10
Manufactured products		16		10	26
Services			33		33
					69
Total	10	16	33	10	

Use table $Bn							
	Agric-ulture	Manuf-acturing	Services	Consum-ption	Capital formation	Export	Total
Agricultural products				8		2	10
Manufactured products	2	6	4	4	6	4	26
Services	6	5	10	10		2	33
							69
Value added (balance)	2	5	19				26
Total	10	16	33	22	6	8	

Defining Gross Domestic Product (GDP)

- *Income approach:*
  GDP = Value added (compensation of employees, gross operating surplus, net taxes on production)

- *Production approach:*
  GDP = outputs – intermediate consumption

- *Expenditure approach:*
  GDP = consumption + investment + exports – imports (= C + I + E + M)

Defining GDP volume growth

- GDP growth in current prices =

  GDP Current Prices x GDP deflator

  In practice, it is the various components making up GDP that are individually deflated

  (i.e. the GDP deflator is a composite deflator)

SNA Classifications

- Based on the UNSD classifications

- Industries
  - International Standard Industrial Classification (ISIC)
  - Agriculture; Mining & Quarrying; Manufacturing etc…

- Products
  - Central Product Classification (CPC)

  - Consistency between SNA & SEEA

Institutional sector accounts

- **Standard Institutional Sector Classification of Australia**
- Non-financial corporations; Financial corporations; General government; Households NPIs serving households; Rest of the world
- Enables transfers to be identified

Conclusions

- A very brief picture…
  Strength of national accounts:
  * internationally accepted and widely used system

- Links indicators and accounts

- Definitions, concepts and classifications serve mainstream economic analyses well
  - But not necessarily other types of analyses…

General principles of satellite accounting

- National accounts governed by the principles of System of National Accounts (SNA)
- these principles are consistent, coherent
- but, sometimes more appropriate to use different principles

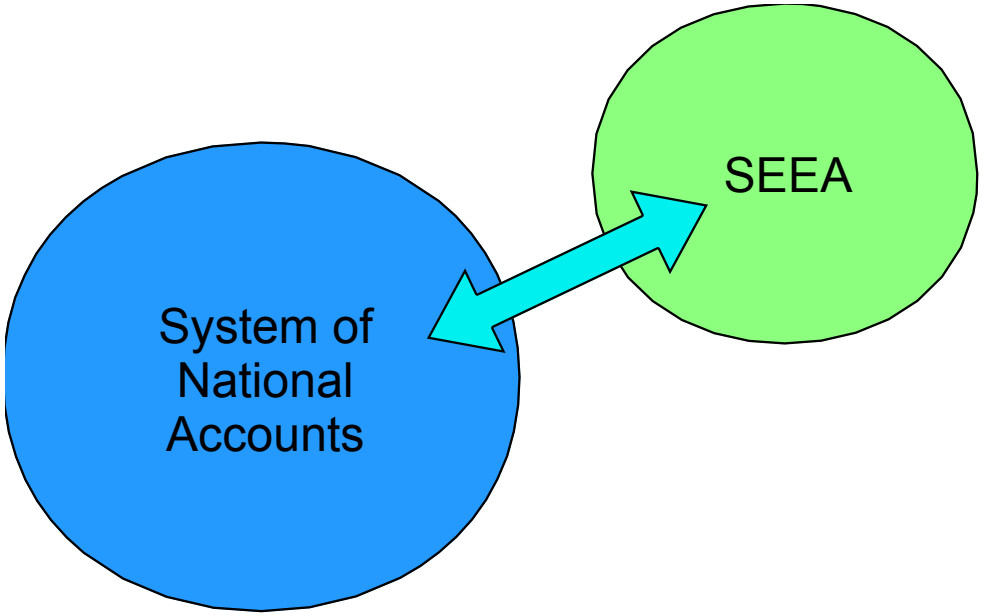
General principles of satellite accounting, *cont…*

- we prefer not to disrupt the 'core' national accounts
- so we undertake these analyses separate from the 'core' national accounts (i.e. in 'satellite' context)

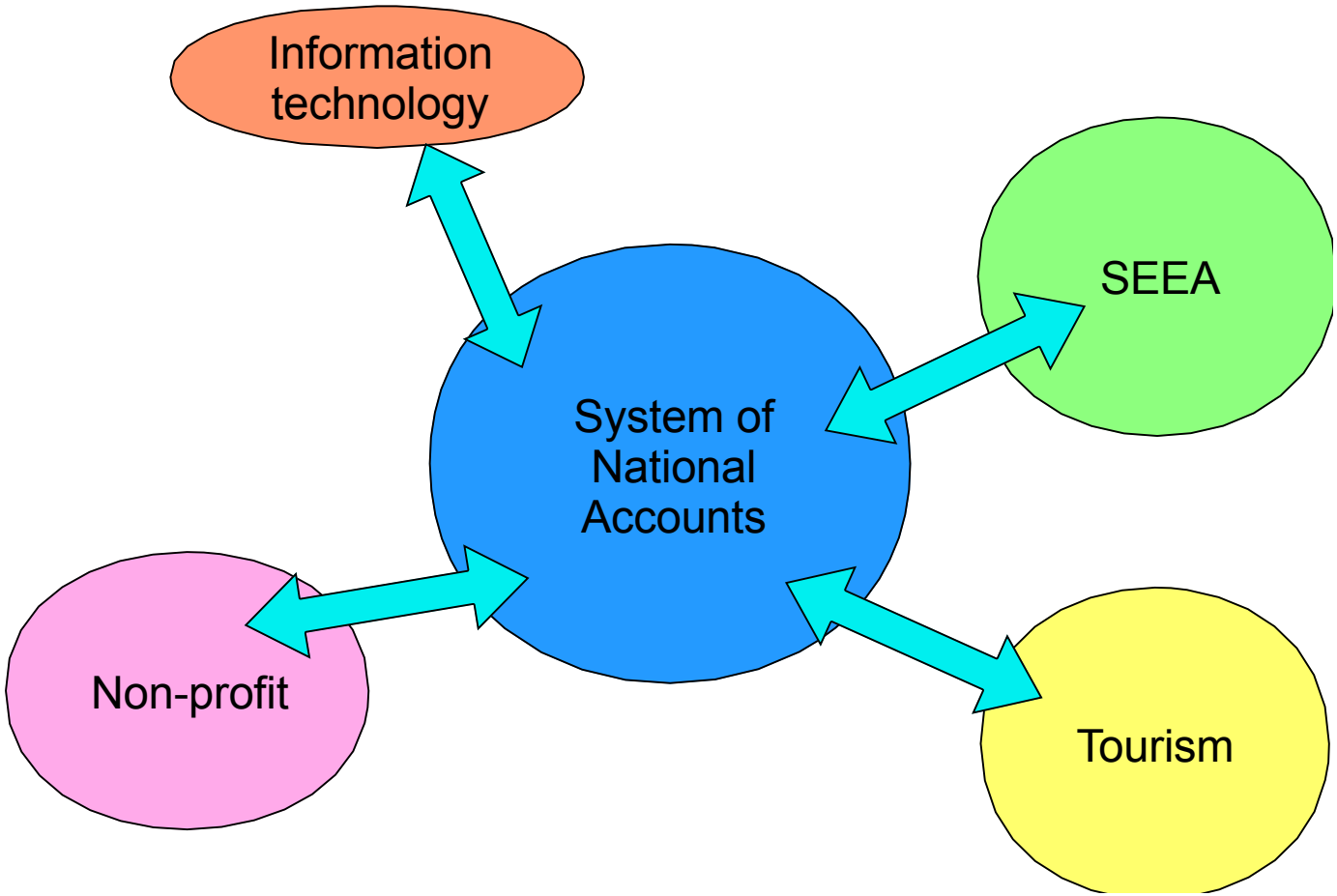
General principles of satellite accounting, *cont...*

- Most satellite accounts use re-worked versions of the key SNA tables
  - e.g. GDP account, showing depletion of natural resources
- Many are based on supply and use tables
  - e.g. Tourism, IT
- Some construct new suites of tables
  - e.g. SEEA (Physical Accounts)

SEEA began as a ‘satellite account’ of the SNA



SEEA is one of many satellite accounts



Why satellite accounting?

1. **Deepening of specific sectors or functional activities – transport, health, environment…**
2. Introduce alternative concepts
3. Supplementary datasets

1. Deepening specific sectors

- E.g. how much does environment protection contribute to employment or to GDP?
  - Main producers of environment protection services: water purification; waste treatment…
  - Environment protection activities on own account
  - Suppliers of environmental protection equipment

Why satellite accounting?

1. Deepening of specific sectors or functional activities – transport, health, environment…
2. **Introduce alternative concepts**
3. Supplementary datasets

Alternative concepts in the national accounts

- Production boundary
  - Most household production excluded
  - Services provided by the natural environment are excluded
  - Learning is not a productive activity

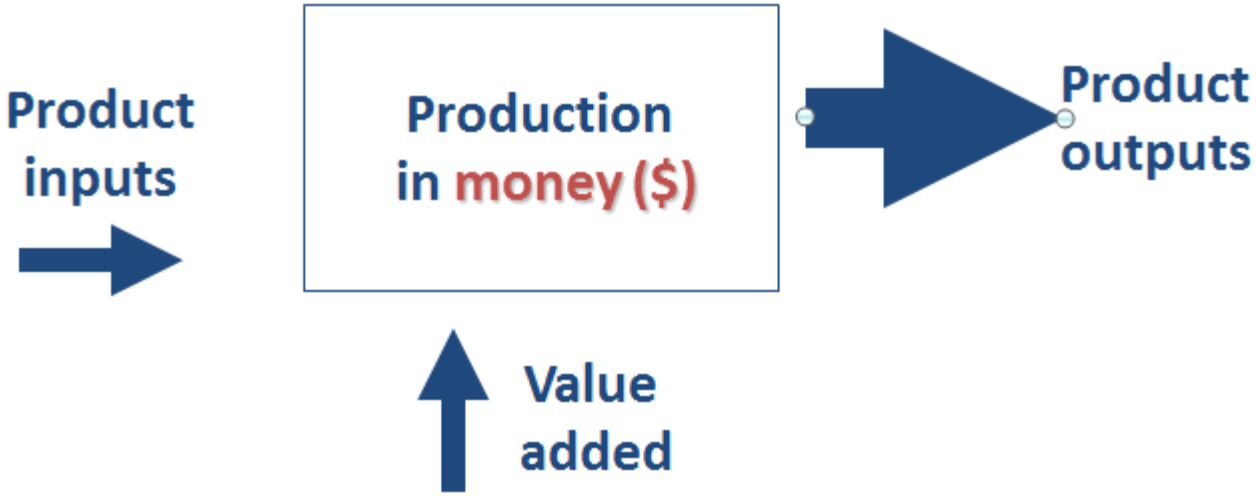
- Asset boundary
  - A number of environmental assets are not included as part of economic wealth on the national balance sheet

Why satellite accounting?

1. Deepening of specific sectors or functional activities – transport, health, environment…
2. Introduce alternative concepts
3. **Supplementary datasets**

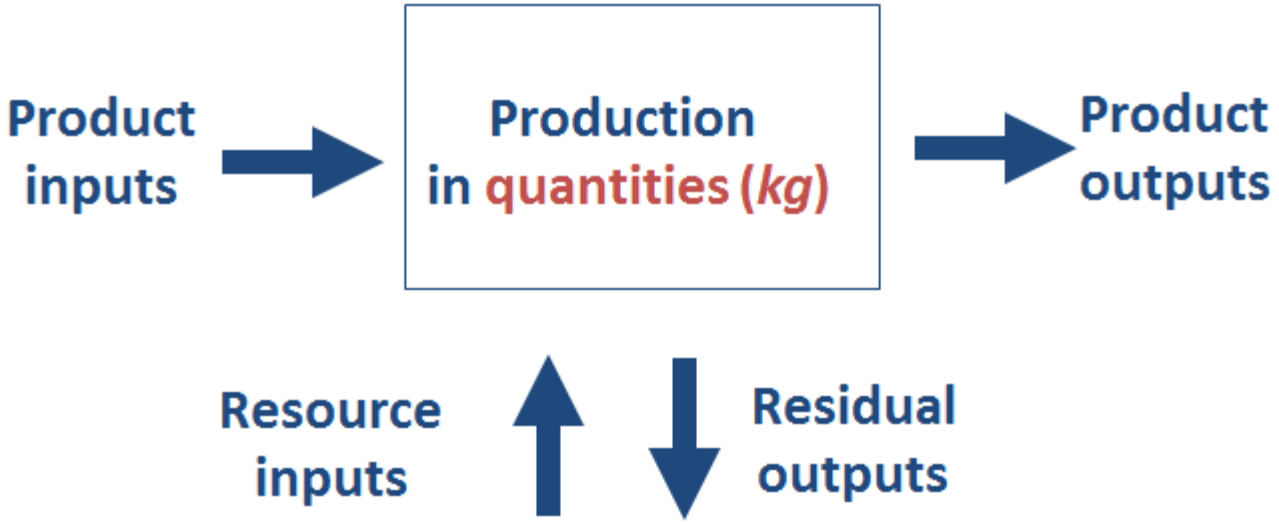
Supplementary data sets

Monetary data sets:
economic accounting (SNA)



Supplementary data sets *cont…*

Non-monetary data sets: *environmental accounting (SEEA)*



Why satellite accounting?

Conclusions:

1. Standard national accounts are a powerful tool but are not always appropriate

2. Alternative concepts, classifications and supplementary datasets may add analytical usefulness to national accounts in specific areas.

3. National accounting is a powerful tool to link indicators to detailed information systems

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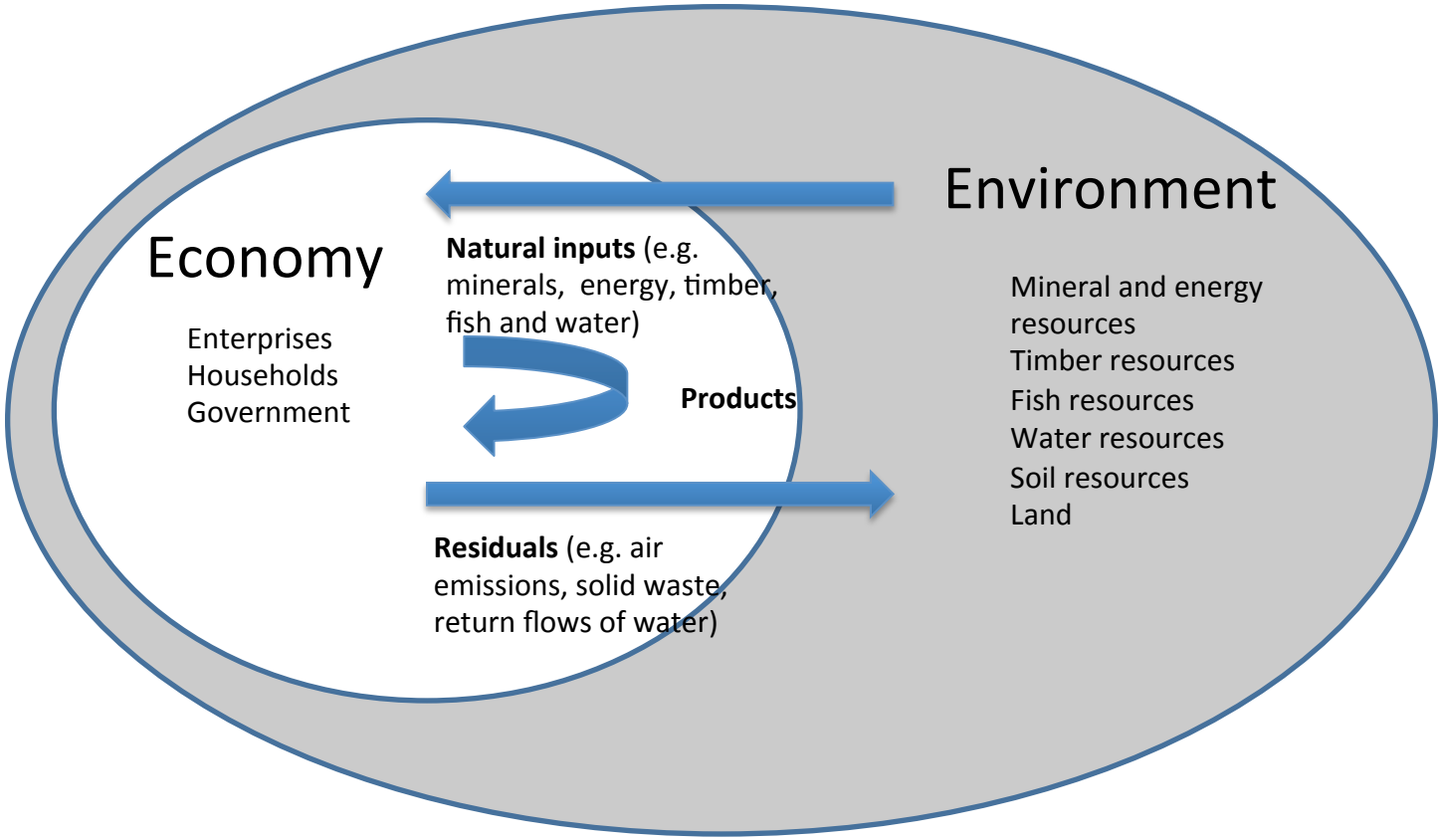
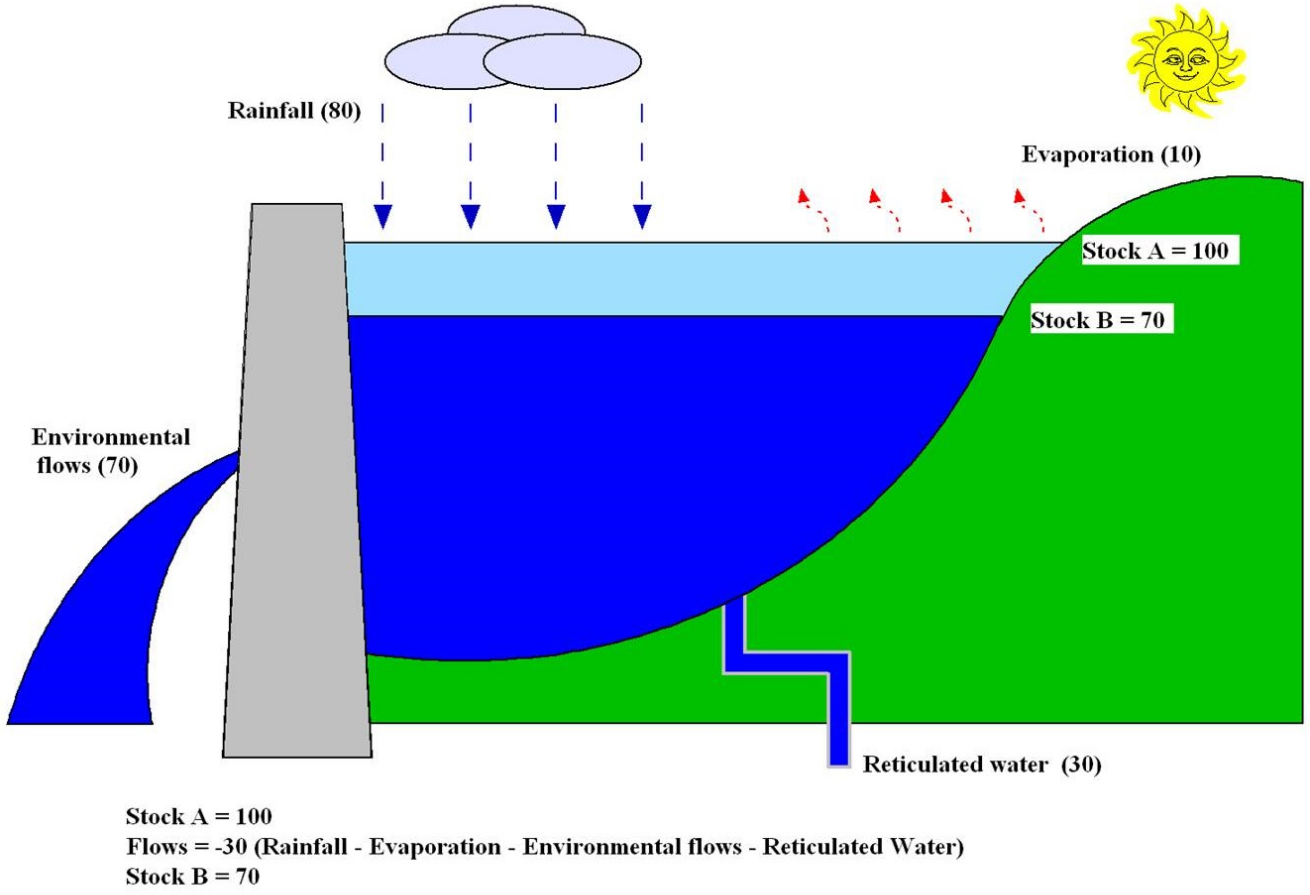
Environmental accounting:

The application of national accounts concepts, frameworks and classifications for a statistical description of environmental-economic dependencies

Environmental accounts, what are they and what do they cover?



The Concept of Stocks and Flows



Stock A = 100
Flows = -30 (Rainfall - Evaporation - Environmental flows - Reticulated Water)
Stock B = 70

Environmental accounting

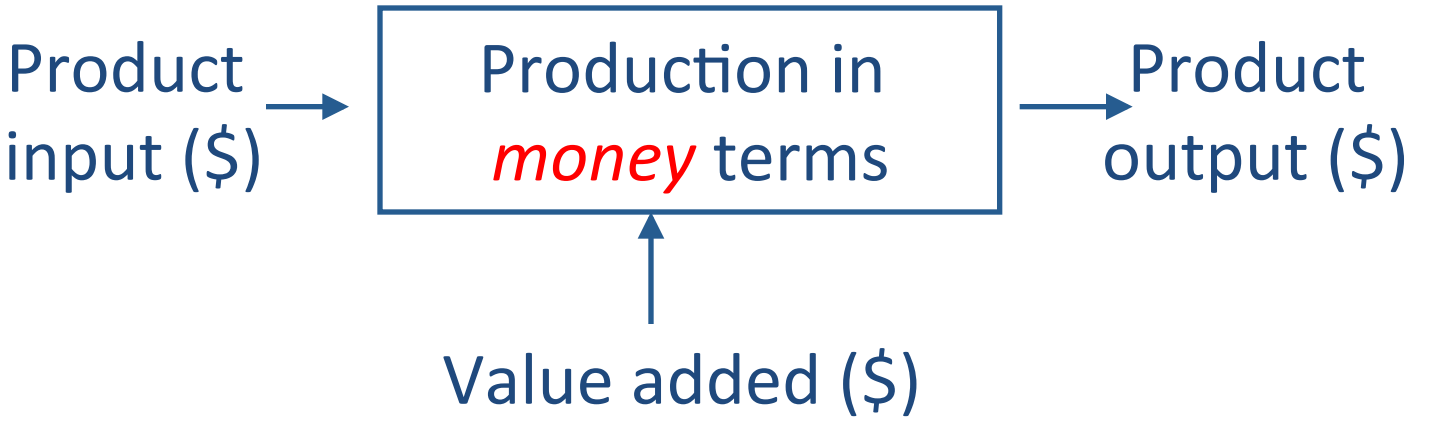
I. The physical economy (flows)

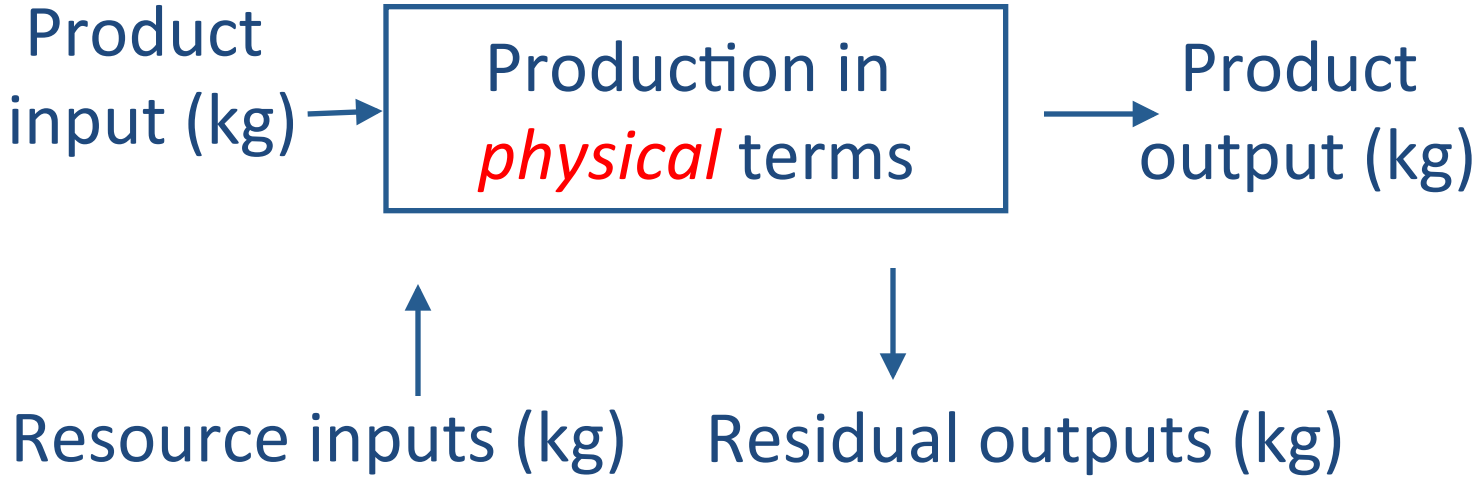
II. Environmental capital

III. Environment-related changes of the economic system

IV. Adjusting national accounts aggregates

I. The physical economy:





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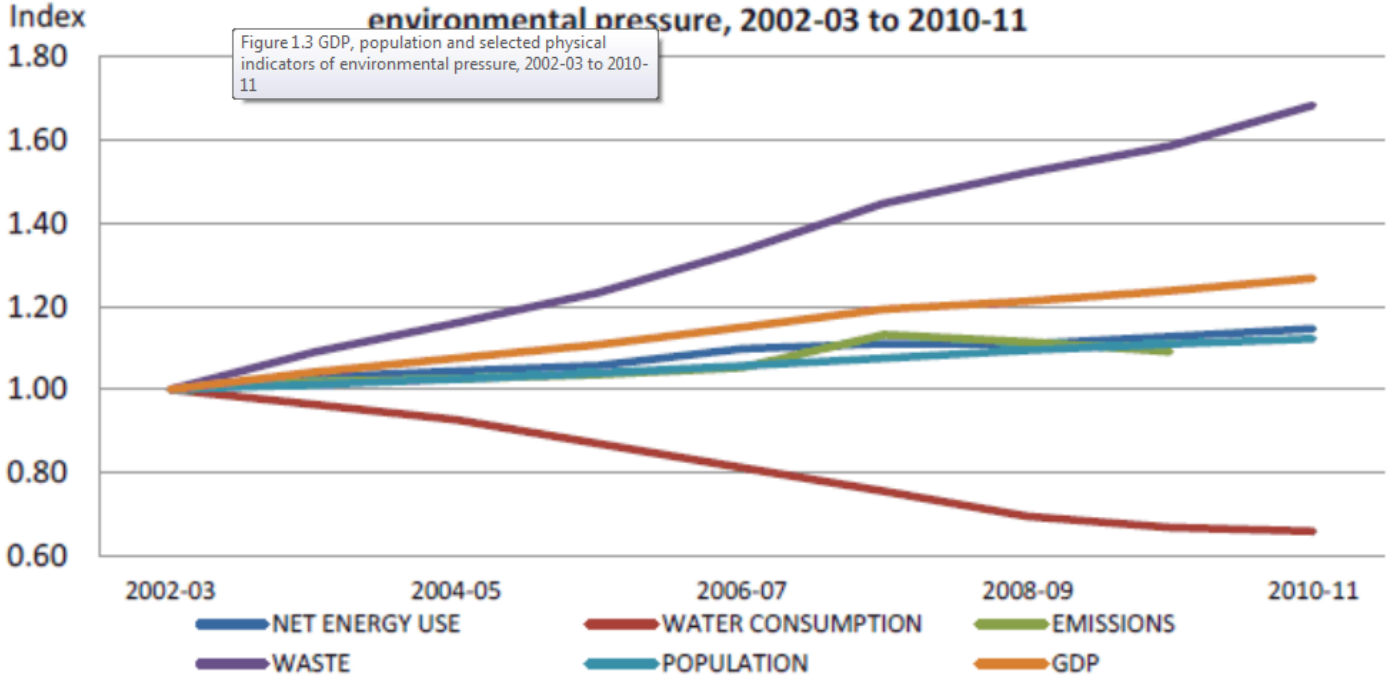
The physical economy:

Decoupling environmental pressures from economic growth

Figure 1.3 GDP, population and selected physical indicators of environmental pressure, 2002-03 to 2010-11



Note: Index: 2002-03 = 1

Sources: ABS; Department of Climate Change and Energy Efficiency; Department of Sustainability, Environment, Water, Population and Communities.

II. Environmental capital:

- Capital in the **national accounts:**
- Fixed assets (produced: machinery, equipment, dwellings)
- Non-produced assets:

  ⇒ Tangible (land, subsoil assets, non-cultivated biological assets, water resources)

  ⇒ Intangible (goodwill)
- Financial assets (currency, loans, bonds, shares)

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II. Environmental capital:

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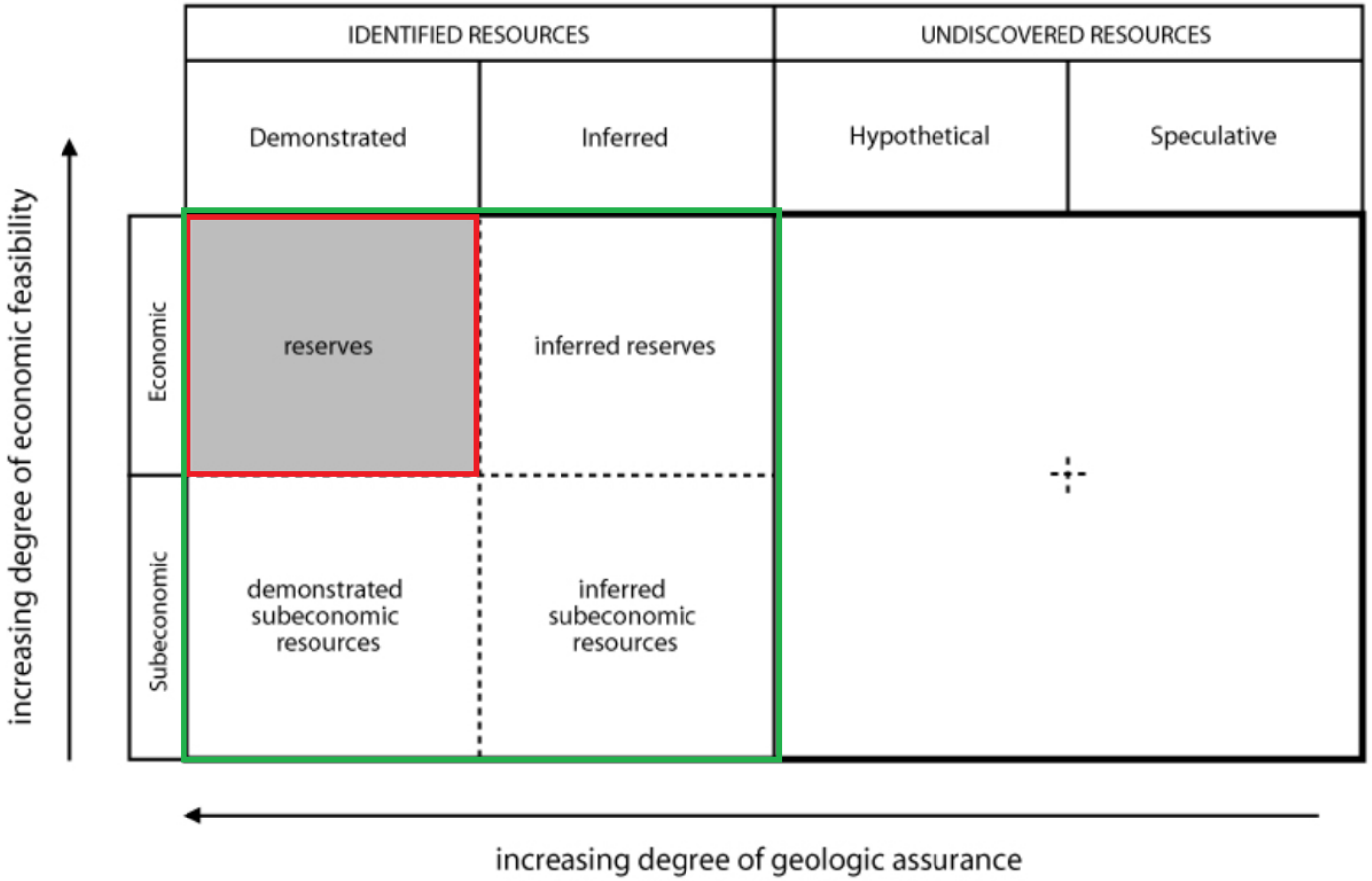
- Include AEEA Capital Estimates in graph format.

II. Environmental capital:

- Capital in the Integrated **Environmental-Economic Accounts (SEEA):**
- Expansion of the non-produced tangible assets in detail and in number of categories, for example:
- Different types of land and water bodies
- Additional asset types, for example:
  - ⇒ Soil resources
  - ⇒ Ecosystems (terrestrial, aquatic)

II. Environmental capital:

McKelvey diagram for coal or gas reserves



SNA Scope – Economic Demonstrated Resource

SEEA Scope – Subeconomic Demonstrated Resource

III. Environment-related changes of the economic system:

- Environment related economic activities
- Environment related services
  ⇒ *Environmental Protection Expenditure Accounts (EPEA)*
- Environmental taxes and subsidies
- Clean up costs and environmental costs related to the disposal of fixed assets

IV. Adjusting national accounts aggregates:

- How can the costs of using up or damaging the environment be reflected in national accounts aggregates (GDP, Saving)?
- A variety of possible answers: *'Env-adjusted Domestic Product', 'Sustainable NI', 'Genuine Saving', 'Green GDP'...*
- What are the underlying concepts and what are their policy uses?

Conclusions

Domains of environmental accounting:

1. Accounting for the physical economy and its industrial metabolism
2. Accounting for environmental assets
3. Accounting for environment related transactions
4. Valuation of environmental damages and the adjustment of national accounts balancing items

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Questions?