

# System of Environmental Economic Accounting



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Environmental  
Economic  
Accounting

# Introduction to Core Accounting Principles on SEEA and SNA

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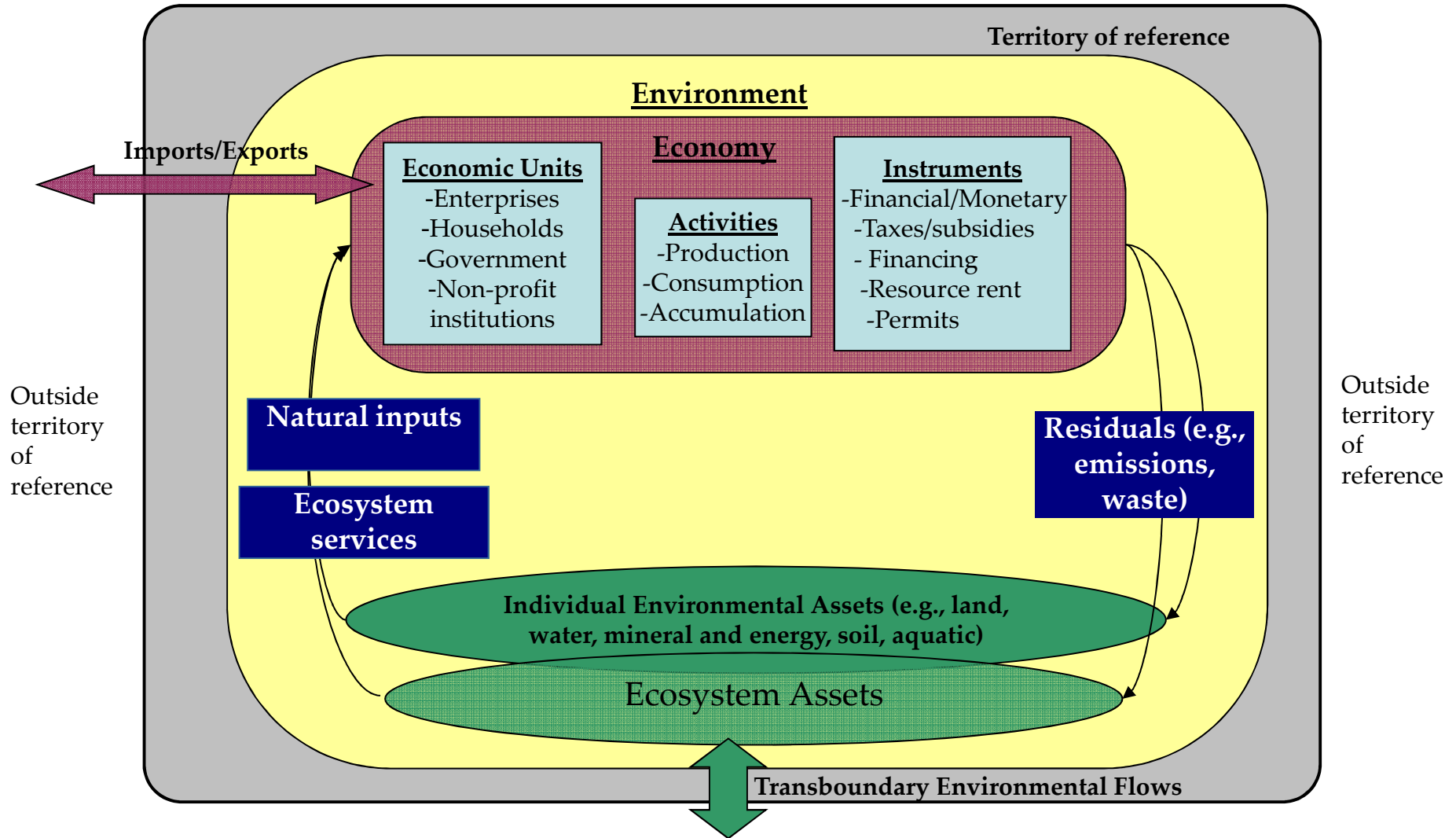


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# Objectives of the Session

- Define the scope of measurement in the SEEA
  - > Defining the economy and the environment
  - > The production boundary
  - > Economic units – sectors and industries
- The accounting structure of the SEEA

# SEEA Conceptual Framework



# Defining the economy

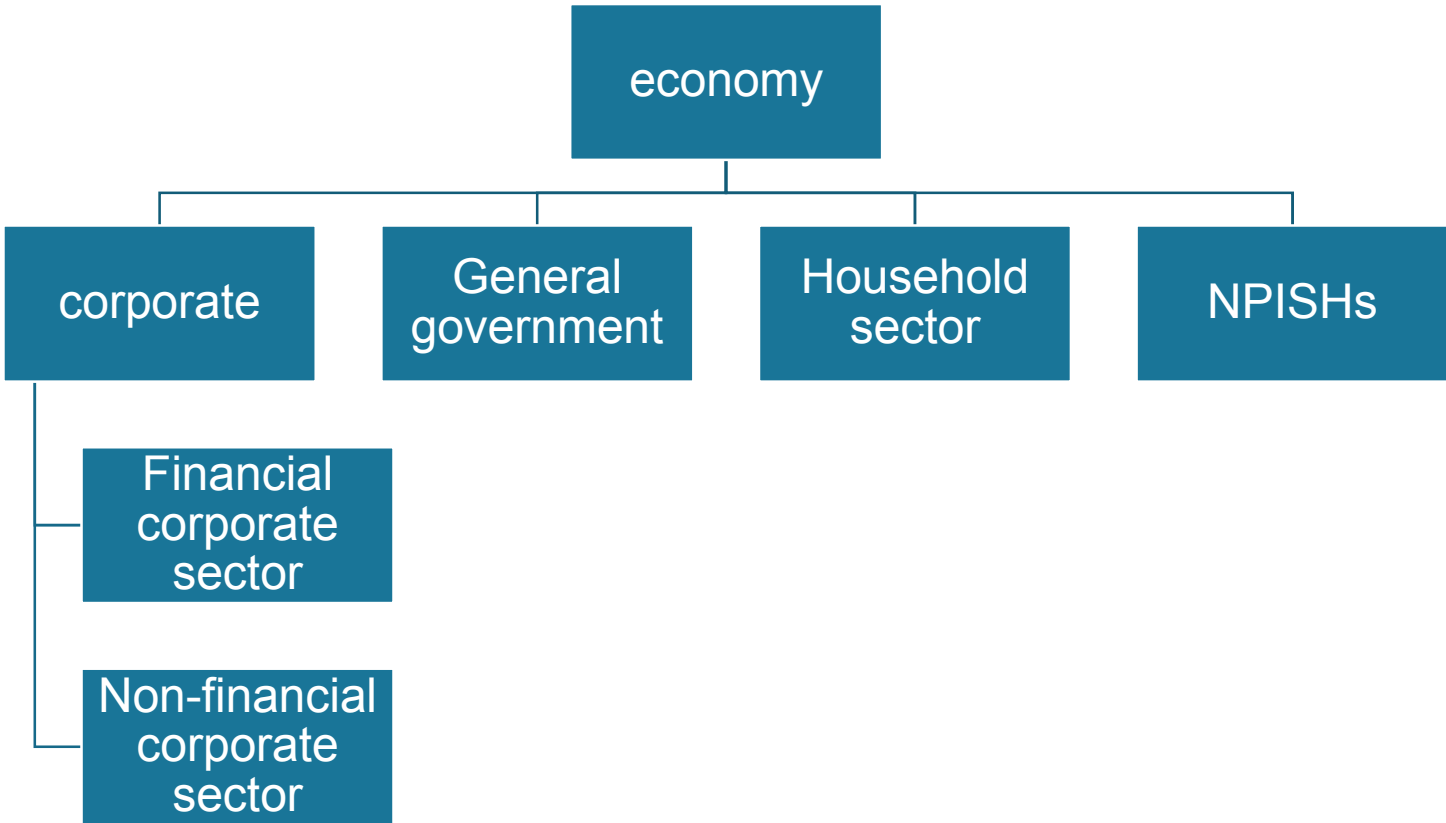
# Defining the “Economy”

- Economic activities
  - > Production, Consumption, Accumulation
- Economic products
  - > Goods and services
- Economic assets
  - > Produced, Non-produced, Financial assets
- Economic units
  - > Establishments, enterprises, households, governments
- Economic territory
  - > Residence, geographic coverage

# Constituents of an economy

- All institutional units residing in the economic territory of a country during the accounting period constitute its economy.
  - > ***Institutional unit***: an entity capable of owning assets, incurring liabilities, carrying out economic activities taking decisions on all aspects of economic life and engaging in transactions with other entities
  - > ***Residing***: The economic territory in which an institutional unit has its centre of predominant economic interest [2008 SNA] is the residence of the unit.
  - > ***Economic Territory***: The geographic territory administered by the government of the country within which persons, goods, and capital can circulate freely.

# Institutional sectors





# Enterprises, Establishments and Industries

- Enterprises
  - > Institutional units from the perspective of being producers of goods and services
- Establishments
  - > Enterprises in a single location performing a single or predominant type of productive activity
- Industries
  - > Groupings of establishments undertaking similar types of productive activity

# The Production Boundary

- “Production is an activity carried out ... by an institutional unit that uses inputs of labour, capital and goods and services to produce outputs of goods and services” (2008 SNA, 6.24)
- In practice:
  - > Exclude things you do only for yourself
  - > Exclude household production of services for itself
    - Except rent of owner-occupiers & wages of domestic staff
  - > Include household production of goods for itself
    - Agricultural products, fishing, fuelwood, clothes, furniture, water, energy
  - > Include concealed and illegal activity

# Types of Output and Production

- Market output
  - > Transactions between economic units at market prices
- Non-market output
  - > Not transacted at market prices (government education, health)
  - > Valued at cost of production
- Own-account production (within establishments)
  - > For own final consumption (e.g. subsistence agriculture) : INCLUDED
  - > For own final capital formation (e.g. building own house) : INCLUDED
  - > For own intermediate consumption : EXCLUDED (except ancillary activity)

# Questions on the economy

State whether TRUE or FALSE.

1. Foreign students staying for three years are considered residents.

Q 1. FALSE

2. A branch of Citi Bank (an American bank) in Tokyo is a resident of Japan.

Q 2. TRUE

3. Australian crew of a ship of a Japanese company are residents of Japan.

Q 3. FALSE

4. Non-residents are not considered to be owners of immovable assets.

Q 4. TRUE

# Key Messages

- Many aspects to defining the economy
- Measurement boundaries are important to understand
  - > Production boundary key determinant of the size of GDP
- Own- account activity needs special consideration
- Economic (institutional) units can be seen from two key perspectives
  - > Institutional sector: Similar economic behaviours / legal basis
  - > Industry: Similar productive activities

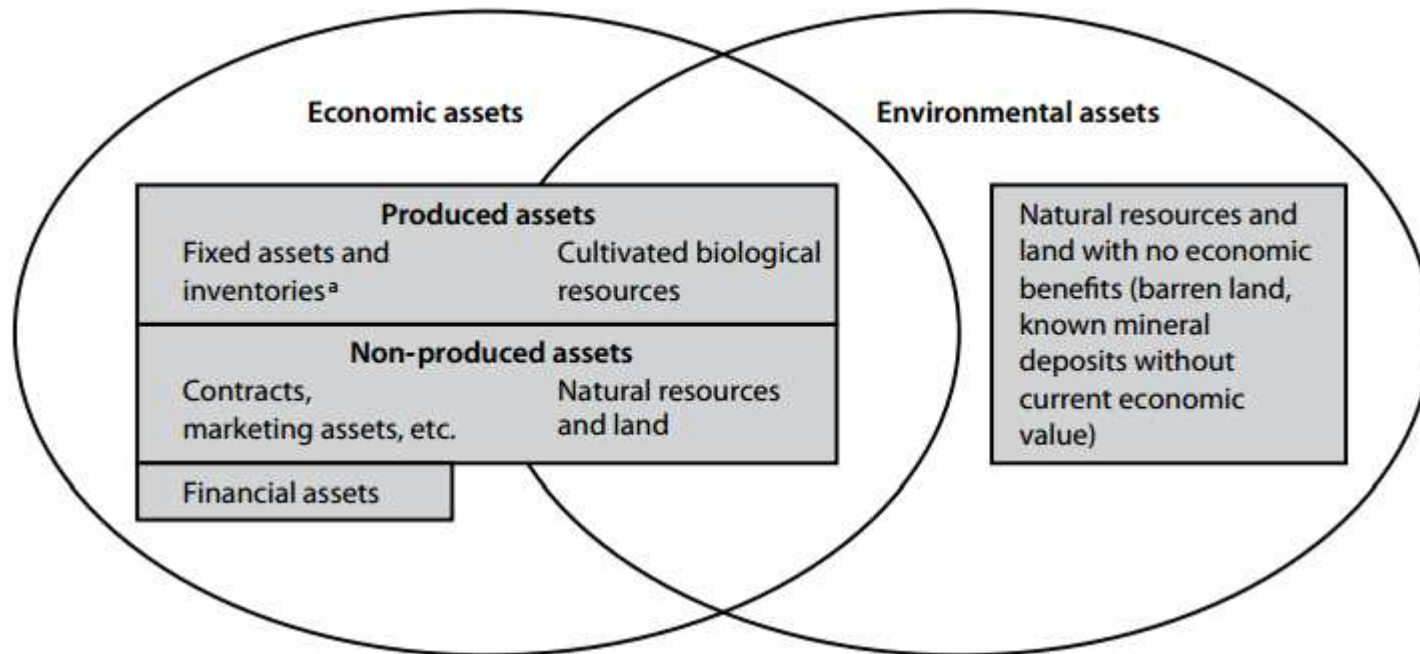
# The accounting structure of the SEEA

# Some definitions

1. **Environmental assets** are the naturally occurring living and non-living components of the Earth, together constituting the biophysical environment, which may provide benefits to humanity.
2. **Ecosystems** are a dynamic complex of plant, animal and microorganism communities and their non-living environment interacting as a functional unit

In the SEEA CF has an environmental assets approach

# Environmental and economic assets





# Physical and Monetary Scope

- In principle, when accounting for environmental assets in physical terms all environmental assets whether or not they have a monetary value are included
  - > All land in a country is included in physical land accounts
  - > Also timber resources, other biological resources, soil, inland water resources
- Mineral and energy resources scope is known deposits
- Aquatic resources scope is all resources within EEZ plus rights on high seas
  - > In practice limit to commercial stocks and subsistence

# Key Points and Boundary Issues

- Distinct treatment of land
  - > Account for its provision of space / area not the resources that are within it
- Include natural and cultivated biological resources
- Oceans and atmosphere excluded
- Stocks of potential energy from renewable sources excluded
  - > E.g. solar, wind, tidal power
  - > Slight exception for hydropower

# The SEEA Central Framework Accounts

- 1. Stock accounts** for environmental assets: natural resources and land
  - physical (e.g. fish stocks and changes in stocks) and/or monetary values (e.g. value of natural capital, depletion)
- 2. Flow accounts:** supply and use tables for products, natural inputs and residuals (e.g. waste, wastewater) generated by economic activities.
  - physical (e.g. m<sup>2</sup> of water) and/or monetary values (e.g. permits to access water, cost of wastewater treatment, etc.)
- 3. Activity / purpose accounts** that explicitly identify environmental transactions already existing in the SNA.
  - e.g. Environmental Protection Expenditure (EPE) accounts, environmental taxes and subsidies
- 4. Combined physical and monetary accounts** that bring together physical and monetary information for derivation indicators, including depletion adjusted aggregates

# Basic form of monetary supply and use table

	Industries	Households	Government	Accumulation	Rest of the world	Total
<b>Supply table</b>						
Products	Output				Imports	Total supply
<b>Use table</b>						
Products	Intermediate consumption	Household final consumption expenditure	Government final consumption expenditure	Gross capital formation (including changes in inventories)	Exports	Total use
	Value added					

# Basic form of physical supply and use table

	Industries	Households	Accumulation	Rest of the world	Environment	Total
<b>Supply table</b>						
Natural inputs					Flows from the environment	Total supply of natural inputs
Products	Output			Imports		Total supply of products
Residuals	Residuals generated by industry	Residuals generated by final household consumption	Residuals from scrapping and demolition of produced assets			Total supply of residuals
<b>Use table</b>						
Natural inputs	Extraction of natural inputs					Total use of natural inputs
Products	Intermediate consumption	Household final consumption	Gross capital formation	Exports		Total use of products
Residuals	Collection and treatment of waste and other residuals			Accumulation of waste in controlled landfill sites	Residual flows direct to environment	Total use of residuals

# Some observations on the physical and monetary supply and use tables

1. Differences in the rows
2. Differences in the columns
3. Classifications

# Supply and use identity

*Total Supply of Products*

= Output + ????

is identical to

*Total Use of Productions*

= Intermediate consumption

+ Household final consumption

+ Gross capital formation

+ ????

# Input-output identity

*Materials into the economy* = Flows from the environment + imports + residuals received from the rest of the world + residuals recovered from the environment

*is equal to*

*Materials out of the economy* = Residual flows to the environment + exports + residuals sent to the rest of the world

*plus*

*Net additions to stock in the economy* = Gross capital formation + accumulation in controlled landfill sites - residuals from produced assets and controlled landfill sites



# Basic form of asset accounts

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**Opening stock of environmental assets**

**Additions to stock**

Growth in stock

Discoveries of new stock

Upward reappraisals

Reclassifications

*Total additions of stock*

**Reductions of stock**

Extractions

Normal loss of stock

Catastrophic losses

Downward reappraisals

Reclassifications

*Total reductions in stock*

**Revaluation of the stock<sup>a</sup>**

**Closing stock of environmental assets**

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# Other accounts

- Functional accounts
  - > Environmental protection expenditure accounts
  - > Environmental goods and services
  - > Environmental taxes
- Combined presentations



**THANK YOU**

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