Aligning SNA with SEEA

Outline of the paper

A. Theoretical part:

- The macro perspective on the economy, SNA
- The micro perspective on the economy, Marginal Utility Theory
- The relation between the economy and nature, SEEA

B. Evaluation of the SNA-update guidance notes:

- Common features of statistical information systems
- Main changes to the SNA proposed in the Guidance Notes
- Tentative conclusions on consistency and coherence

The SNA perspective on assets and nature

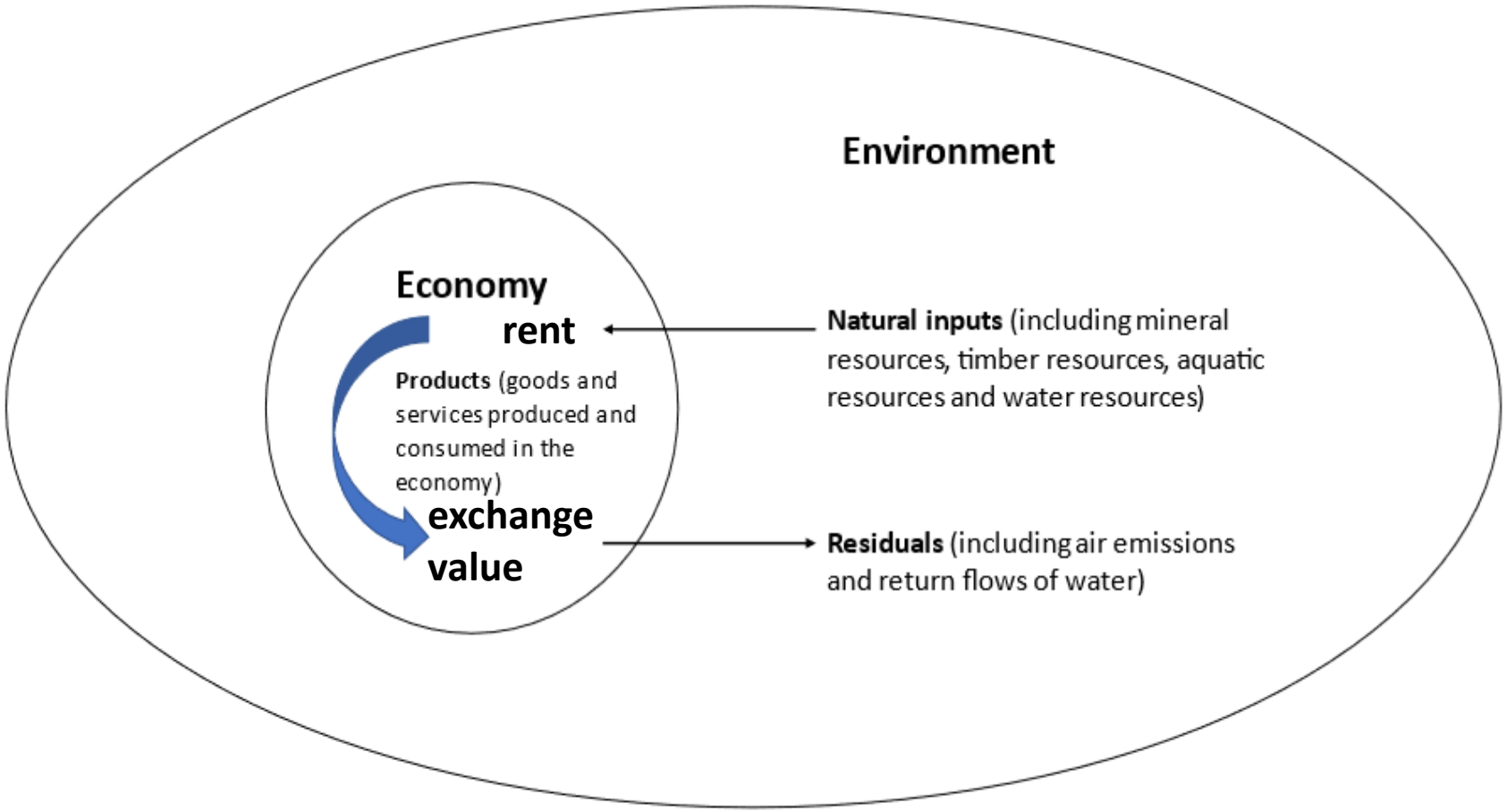
The **activity of production** is fundamental. In the SNA, production is understood to be a **physical process**, carried out under the responsibility, control and management of an institutional unit, in which **labour and assets** are used to **transform inputs** of goods and services **into outputs** of other goods and services. All goods and services produced as output must be such that they can be **sold on markets** /…/(SNA2008 §1.40)

(please observe: emphasis added)

Natural resources are treated as **free goods** to the society,
rent is a payment for the use of land and
the rights to natural resources. (Vanoli)

The SNA/SEEA perspective on nature and the economy

Figure 2.1 in SEEA CF (slightly modified)



Labour productivity (P_L) versus MFP (P_{MFP})

Multi Factor Productivity (MFP) is the origin of nature defined as a capital asset in SNA guidance notes

Growth of value added in volume, net of capital costs

$$\dot{P}_L = \frac{\dot{VAn}}{\dot{HW} + \left(1 + \dot{HW}\right) * \dot{q}}$$

Growth in labour input, hours worked (HW) including changes in the composition of labour quality (skill)

Growth in gross real value added (purchasing power)

$$\dot{P}_{MFP} = \frac{\left(1+p_{VAg}^{REAL}\right)*\dot{VAg}}{\alpha*\underbrace{\left(1+p_L^{REAL}\right)*\dot{L}}+\beta*\underbrace{\left(1+p_K^{REAL}\right)*\dot{K}}+(1-\alpha-\beta)*\underbrace{\left(1+p_N^{REAL}\right)*\dot{N}}}$$

Growth in real wages of human capital, L

Growth in real gross return to industrial capital, K

Growth in real gross return to natural capital, N

Shares of gross value added = {α, β, 1-α-β}

p_i^{REAL} i = {L, K, N, VAg}

Impact of relative price changes

Comparison of main principles of SNA and Marginal Theory

	National Accounts, SNA	Marginal Utility Theory
Output and input	Volume, aggregated with prices as weights.	Real value, i.e. nominal value adjusted with the overall price change (inflation).
Definition of product-ive assets	Objects that assist in production of output in volume.	Objects that provide the owner with a flow of income allocated from production.
Value of fixed assets	Exchange value or capitalised production costs.	Present value of future net income.
Income generated in the economy	Value added.	Value added, including the holding gains and losses on goods, inventories and assets held during the period.
Measurement	Actual exchange values or production costs.	General equilibrium prices.
Important valuation principle	Replacement costs, comparison of the same alternative at two different points in time.	Opportunity costs, comparison of two different alternatives at the same point in time.

Asset boundaries: SNA versus SEEA CF

SNA	SEEA-CF
Cultivated biological resources	6 Other biological resources (part) 5.1 Cultivated aquatic resources (the part used for breeding purposes)
Work-in-progress on cultivated biological assets	6 Other biological resources (part) 4.1 Cultivated timber resources 5.1 Cultivated aquatic resources (part)
Land including surface water	2 Land (space) 3 Soil 7.1 Surface water (part) 7.3 Soil water
Mineral and energy reserves	1 Mineral and energy resources
Non-cultivated biological resources	4.2 Natural timber resources 5.2 Natural aquatic resources 6 Other biological resources (part)
Water resources	7.1 Surface water (part) 7.2 Groundwater
Other natural resources Of which: Radio spectra	Not included

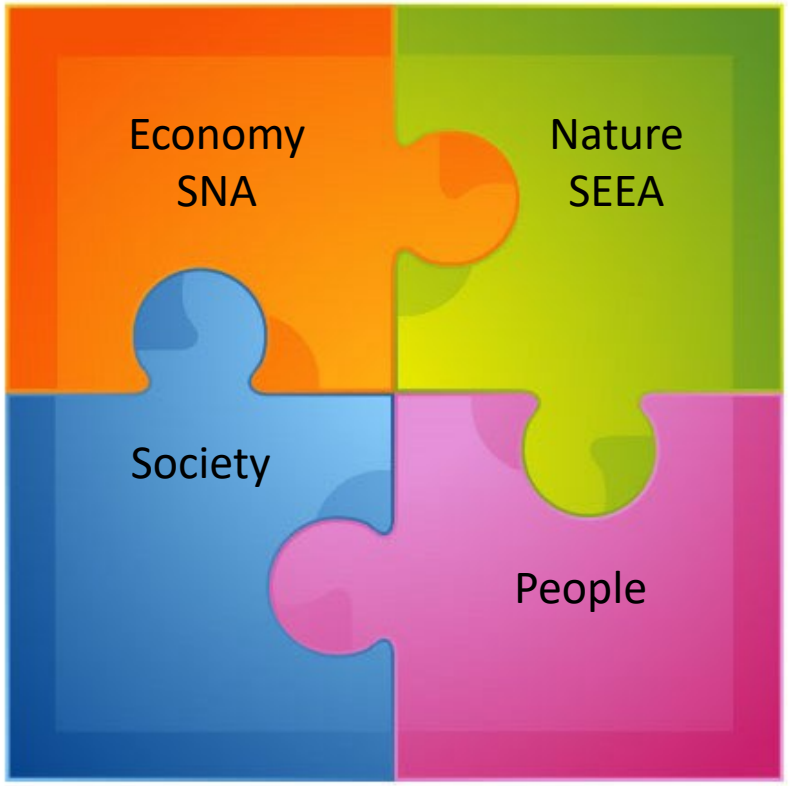
Issue of inconsistencey between domains, Economy > Nature?

Radio spectra (asset or not?)

- **Problem**: Government receives money for granting the exclusive right to use certain frequencies to transmit radio signals.
- How should this (lump sum) payment be recorded: lease, sale or tax?
- **Income perspective (the value process):**
  - Does the owner receive income over several years from producers? (=government resource lease of an **asset** to corporations)
- **Production perspective (the physical process):**
  - What inputs does the frequency transform into useful output? (**no transformation of input = no asset**)
- **Production perspective (the value process):**
  - Is it possible to move purchasing power by investing in the exclusive rights to radio frequencies? (**no**, the value of this right declines by each year passing)
- **What's the role of government?**
  - Economic owner
  - Responsible for economic policy

The family of statistical information systems

Internal consistency
in each framework



Coherence between the frameworks means:
it is possible to combine information from two or more frameworks in a meaningful way

Problems with coherence between SNA and SEEA:
Asset boundary
Valuation principles (in SEEA influenced by Marginal Theory)

Evaluation of guidance notes (selection)

		GN adds internal consistency to		GN adds to the coherence of SNA and SEEA	
GN	Proposals / Options	SNA	SEEA	Definitions / Classification of assets	Valuation method
Current situation		NO	YES	NO	NO
WS.6 Economic Ownership and Depletion of Natural Resources	Split ownership	NO	n.a.	YES	n.a.
	Depletion as production cost	NO	n.a.	YES	n.a.
WS.11 Renewable Energy Resources	Wind, Sun, etc. as assets	NO	NO	NO (creates duplication)	NO
WS.7 Emission Trading Schemes	1: Non-produced non-financial asset	NO	NO	NO (creates duplication)	n.a.
	2: Advance payment as financial asset + surrender as rent payment	NO	NO	NO (creates duplication)	n.a.
	3: Tax paid at auction + permit non-financial asset + surrender as other changes in volume	NO	n.a.	n.a.	n.a.
	4: Emission permit as a financial asset	YES	n.a.	n.a.	n.a.


Thanks for your attention!