SEEA: measurement framework for 'green' indicators

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Outline

- Brief history of SEEA and the role of green GDP

- SEEA as comprehensive framework

- Green indicators

- Current status of green GDP

- Conclusions

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Brief history

- A: "Green GDP" original motivation for SEEA (late 1980s)
  - > The SNA treats natural resources as abundant
  - > GDP does not take their depletion / degradation into account - > wrong signal regarding sustainability

- Repetto study Indonesia – well-known

- Piloted in many countries (Sweden; Germany; China; USA) but little staying power

- Reasons:
  - > Political opposition
  - > Measurement challenges (especially monetary valuation)

- Notable exceptions, Mexico – mandated by law

Figure 1. GDP and "NDP," in Constant 1973 Rupiah
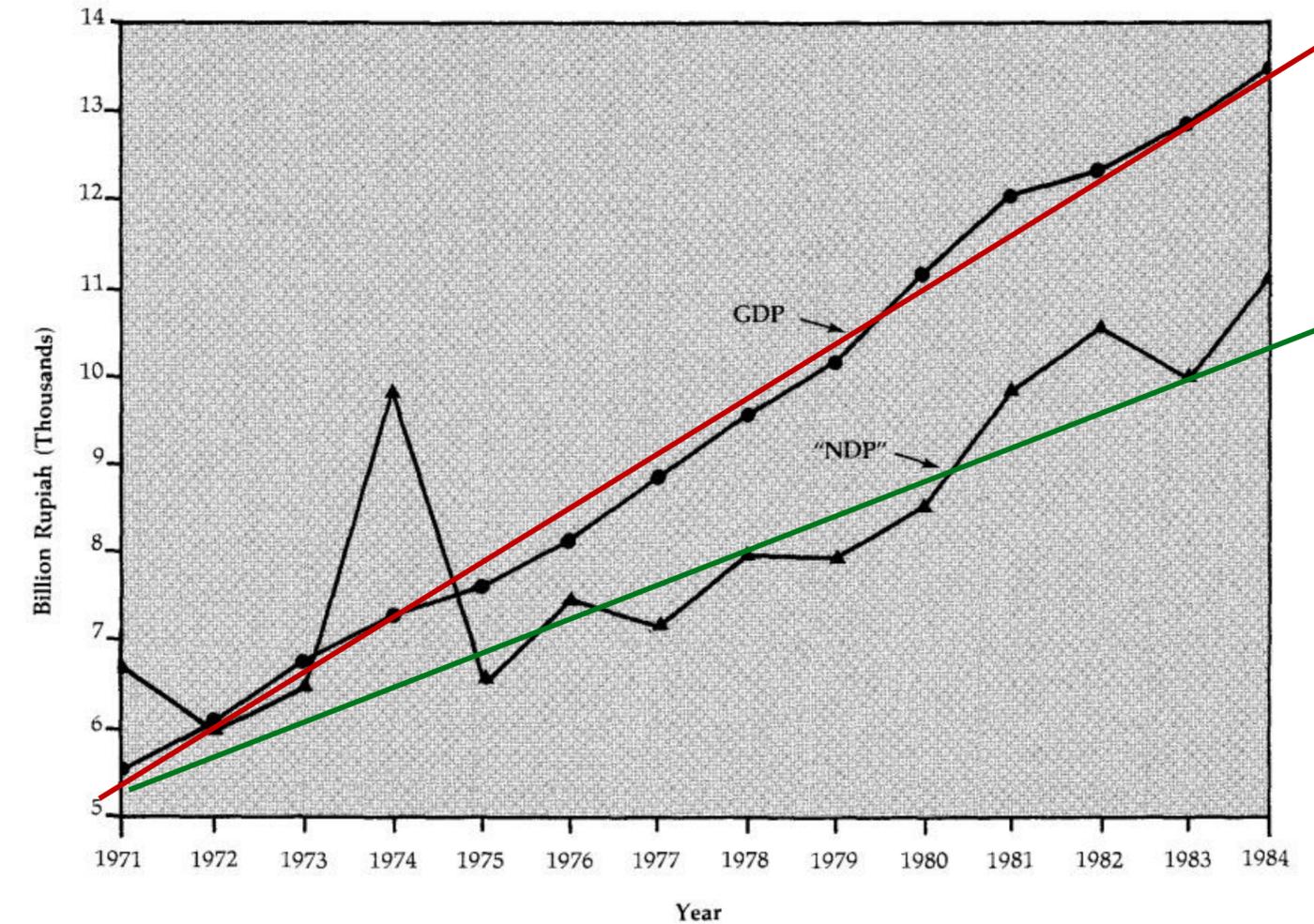
Source: WASTING ASSETS Natural Resources in the National Income Accounts Robert Repetto William Magrath Michael Wells Christine Beer Fabri/io Rossini

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Brief history, continued

- B: 1990s / 2000s onwards -> strong interest on material flow accounting (MFA)
  - Less controversial + major policy demands
    - 3Rs / G8 initiative; Circular Economy
    - SEEA: foundation in physical flow accounts that describe the "physical metabolism" of economies, complementing the monetary SNA
- C: 2010s -> Integration of geospatial and statistical information
  - Made possible due to technological advances
  - Advancement in data availability (Earth Observation data)

A + B + C -> SEEA

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SEEA as comprehensive measurement framework
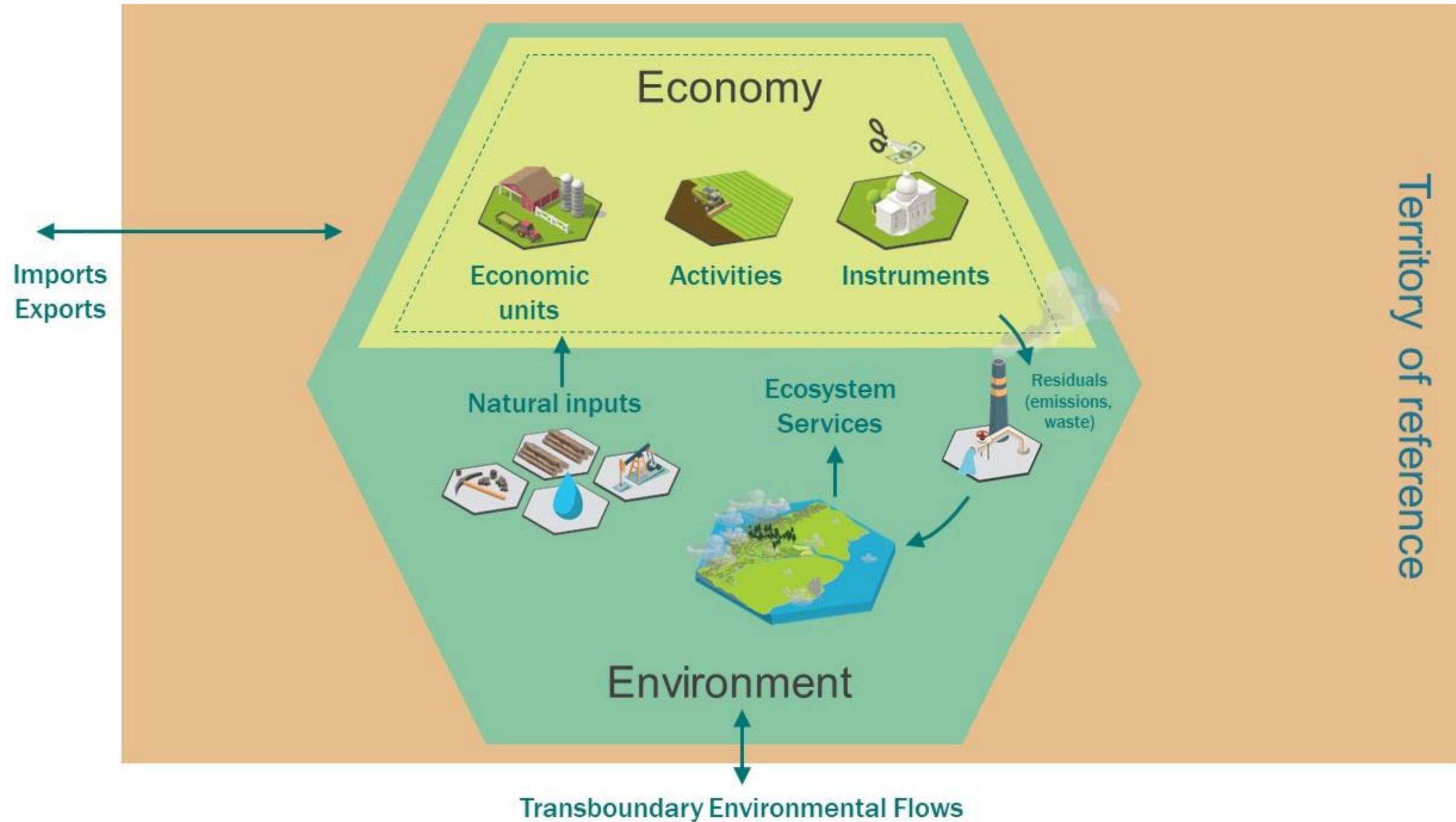
SEEA accounts

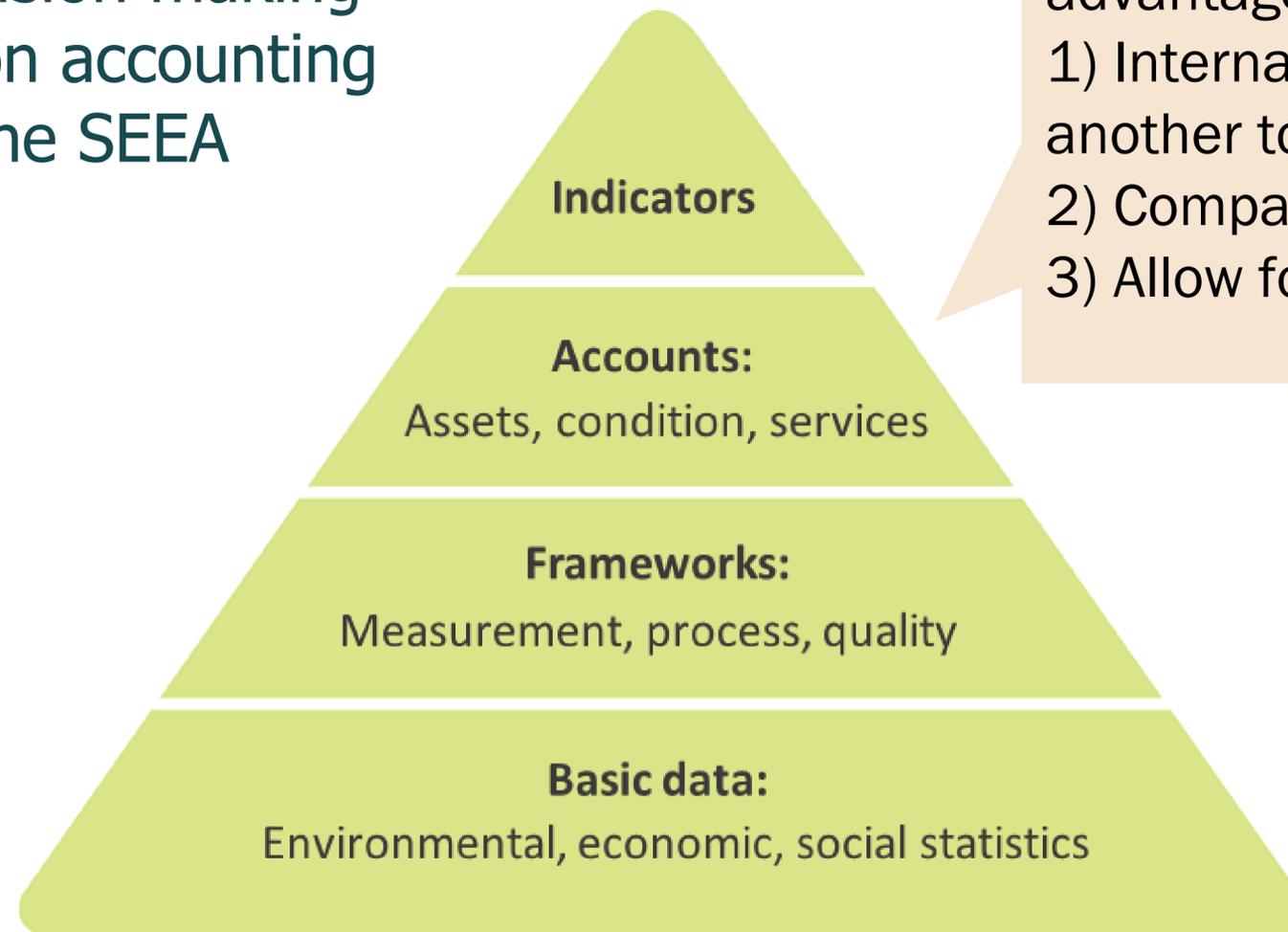|		
SEEA-CF (Central Framework)	•**Assets** •**Physical flows** •**Environmentally related transactions and activities**	•Minerals & Energy, Land, Timber, Soil, Water, Aquatic, Other Biological •Materials, Energy, Water, Emissions, Effluents, Wastes •Protection expenditures, taxes & subsidies, Environmental Goods and Services (EGSS)
SEEA Water; SEEA Energy; SEEA Agriculture, Forestry and Fisheries	Add sector detail	As above for • Water • Energy • Agricultural, Forestry and Fisheries
SEEA-EA (Ecosystem Accounting)	Adds spatial detail and ecosystem perspective	Extent, Condition, Ecosystem Services, Monetary asset accounts; Thematic: Carbon, Species
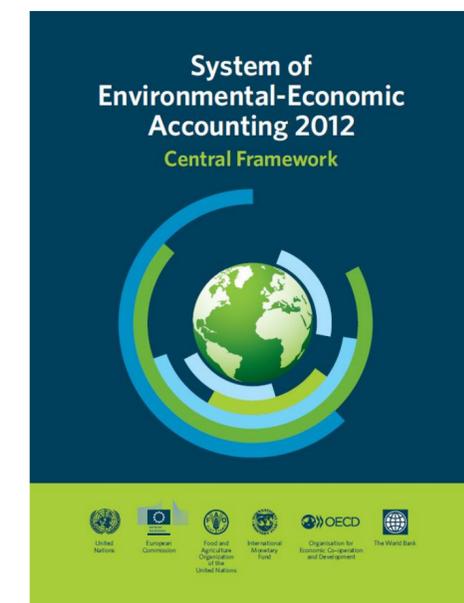
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Deriving indicators using the SEEA

Benefits of the use of structured data

Problem: for the most part, indicators used in decision making today are not based on accounting frameworks such as the SEEA

Indicators based on accounts have several advantages:
1) Internal consistency -> compared with one another to assess policy in a consistent way.
2) Comparability across countries
3) Allow for disaggregation

Indicators

Accounts:
Assets, condition, services

Frameworks:
Measurement, process, quality

Basic data:
Environmental, economic, social statistics

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The SEEA supports multiple ongoing initiatives

SEEA allows deriving various green indicators

- Indicators derived from individual accounts

    > Physical (e.g. water consumption)

    > Related to financing and cost recovery of economic activity related to the environment

- Ratio indicators from combination of accounts

    > Productivity and intensity indicators

    > Other combined presentations (e.g. implicit tax rate)

- Land + ecosystem accounts related indicators

    > Changes in extent / condition / ES supply

    > Maps (e.g. ES hotspots or degraded areas)

- Indicators resulting from applying the accounts in modelling / analysis

    > Footprints;

    > Decomposition analysis

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Status of "green GDP" in SEEA

- Green GDP technically speaking not correct:
  - > Net domestic product = GDP – Consumption of Fixed Capital
  - > If anything -> Green NDP = NDP – depletion / degradation

- In SEEA we use the term environmentally adjusted aggregate**s**
  - > Balancing items from the Sequence of accounts (current, capital, balance sheets) adjusted
  - > CF, <u>Depletion - Adjusted Aggregrates</u> (for production, operating surplus, savings)
  - > EA, <u>Degradation – adjusted aggregates</u>

- In SEEA EA, we also add to GDP (production of ecosystem services leading to Non-SNA benefits)

- SNA 2025 update: proposals to include also depletion + regeneration as output

- SEEA also includes extended measures of wealth (including natural / ecosystem capital) using a broader asset boundary

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Welfare vs. exchange values

- SEEA is aligned with SNA valuation principles –> exchange value, not welfare
    - > *"the SNA does not attempt to determine the utility of the flows and stocks that come within its scope. Rather, it measures the current exchange value of the entries in the accounts in money terms, that is, the values at which goods, services, labour or assets are in fact exchanged or else could be exchanged for cash"*

- SNA accounts do not include consumer surplus

- Externalities (not being transactions) in principle out of scope

- Due to exchange value basis, values will be smaller than welfare-based estimates

- SEEA EA discuss Complementary approaches to valuation (Chapter 12)
    - > Bridge table between accounting and welfare values
    - > Complementary tables to depict externalities
    - > Alternative measures of income, wealth and degradation

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Conclusions

- SEEA allows to derive various green types of indicators that can inform a range of policies and indicator sets

- Green GDP:

  > Concept has evolved, prefer terminology environmentally adjusted aggregates

  > May include both negatives (degradation) and positives (ES / restoration)

- Focus has shifted from changing GDP towards measuring wealth

  > SEEA allows to inform the natural capital part

- Due to exchange value basis, values will be smaller than welfare-based estimates (such as inclusive wealth)

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THANK YOU

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