



Introduction to ecosystem accounting principles

18-20 June 2018 – Forum of Experts on SEEA Ecosystem Accounting

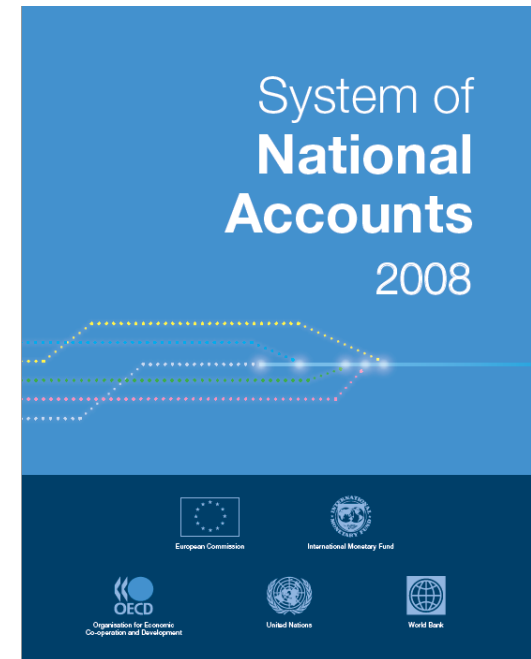
Anton Steurer, Eurostat – Environmental statistics and accounts; sustainable development

Aim of presentation

- *Basic idea of environmental accounting*
- *Key aspects of SEEA ecosystem accounting*
- *Ecosystem accounting model*
- *Basic set of accounts*
- *Anything difficult or complex is of course not covered:, e.g. all the conceptual issue, practical challenges and open questions we are here for*

What is environmental accounting

- **Ecosystem accounts** are one area of environmental accounting
- **Accounts:** structured tables with a logic
- **Basic principles:** supply=use tables (what flows in flows out) and balance sheets (opening stock +/- changes = closing stock)
- **National accounts:** a system of structured tables to describe the economy, including units, flows of goods and services and stocks of assets
- **Environmental accounts:** show environmental data in a way compatible with national accounts using matching concepts and classifications
- **Accounting process:** integrate existing data into coherent system, close gaps where needed
- **Uses:** monitoring and analysis of links, e.g. model ecological effects of economic activities and policy measures, contributions of nature to the economy and well-being



Ecosystem accounting: international guidance

*United Nations, European Commission, FAO, IMF, OECD and World Bank (2013): **System of Environmental-Economic Accounting 2012 – Central Framework (International Statistical Standard)***

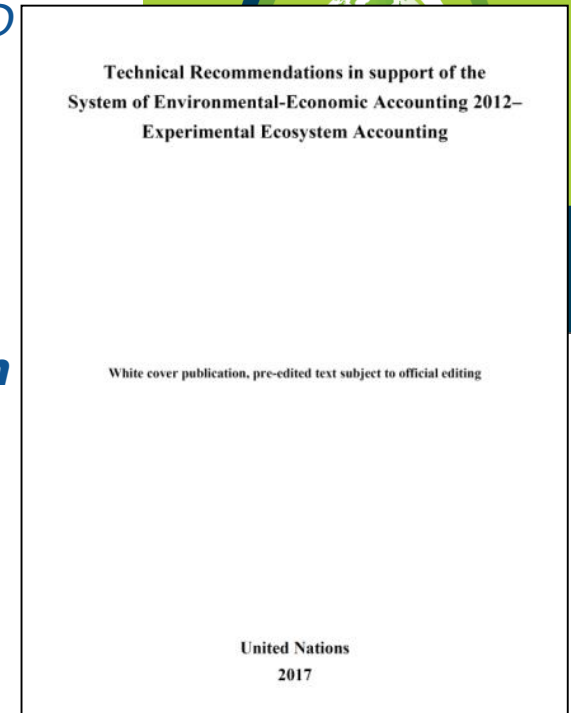
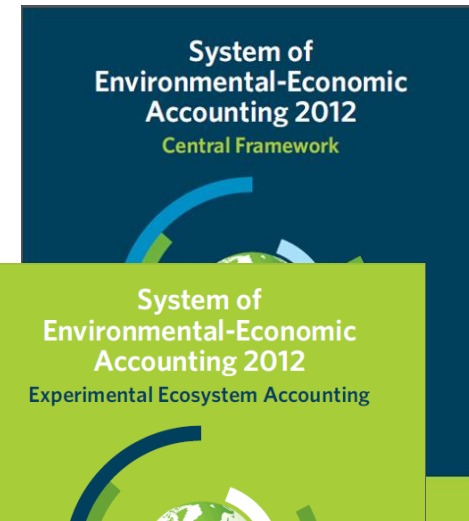
https://seea.un.org/sites/seea.un.org/files/seea_cf_final_en.pdf

*United Nations, European Commission, FAO, OECD and World Bank (2014): **System of Environmental-Economic Accounting 2012 - Experimental Ecosystem Accounting***

https://seea.un.org/sites/seea.un.org/files/seea_cf_final_en.pdf

*United Nations: **Technical Recommendations in support of the System of Environmental-Economic Accounting 2012–Experimental Ecosystem Accounting 2017***

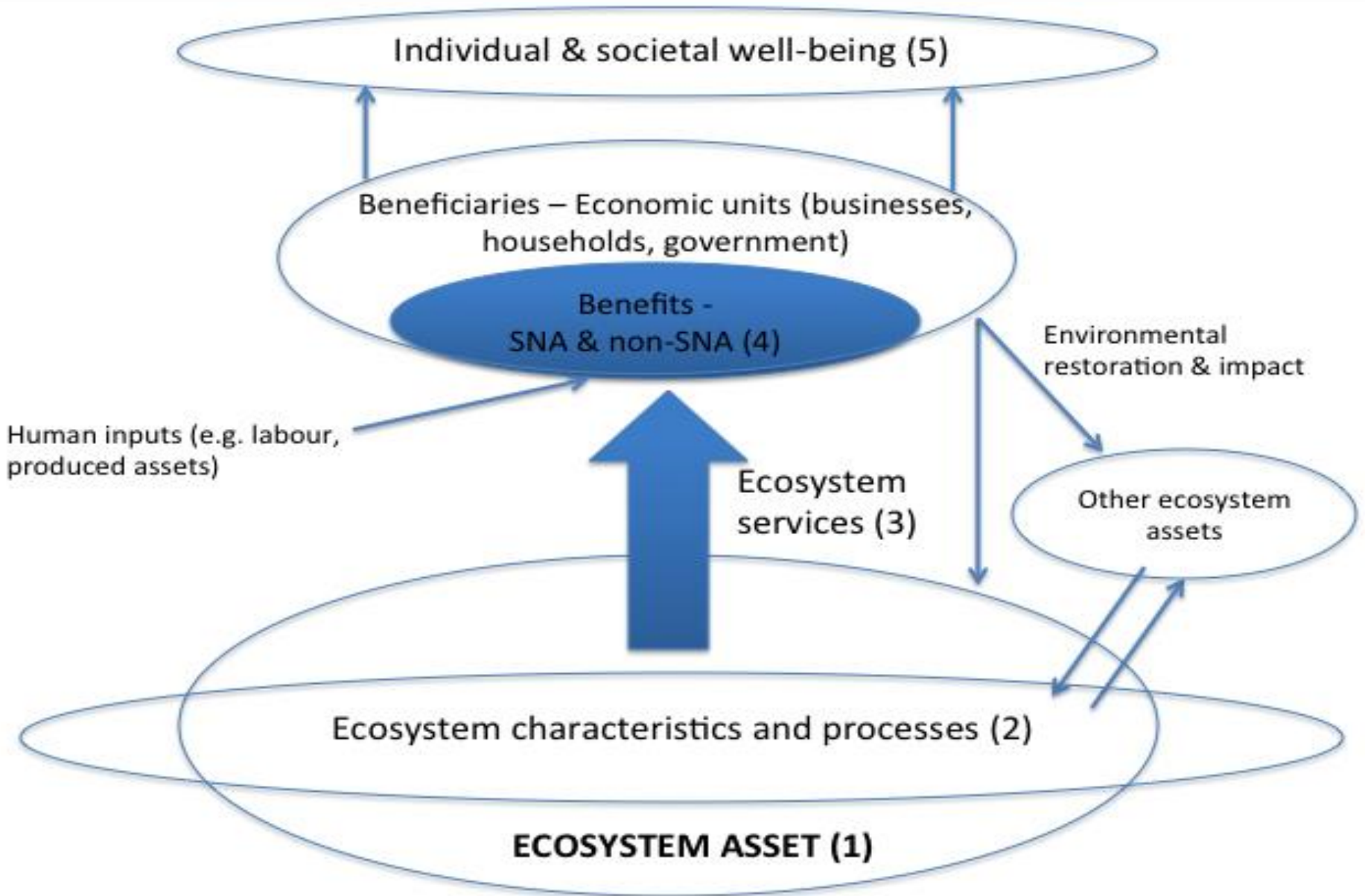
Several other (CBD, EU MAES)



Key concepts of SEEA ecosystem accounting

- *SEEA CF: component accounts (land, water, timber, fish....)*
- *SEEA EEA: **ecosystems** based. ES = spatial area combining biotic and non-biotic components functioning together = the capital or asset*
- *ES have **extent** (size) and **condition** (state or quality)*
- *ES produce a current/actual **bundle of ES services** = contributions to human benefits and well-being – excludes flows that benefit 'only' other ecosystems – 'final' ES service to avoid double counts – important but beware it needs two to double count and the flows' origins differ....)*
- *Actual is not **sustainable** flows (= service flows that can be produced for a long time without damaging the system)*
- *Ecosystems can also produce more ecosystem services than are demanded (**potential**), or can be converted or used differently to produce different service bundles (**capability**)*

Ecosystem accounting model



Matching offer & demand to get supply & use

Crop pollination by wild insects

Wild insect pollinators



Pollination **POTENTIAL**

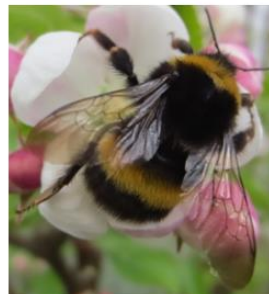
Pollinator-dependent crops



DEMAND for pollination

SEEA EEA
accounting
tables

USE of crop pollination

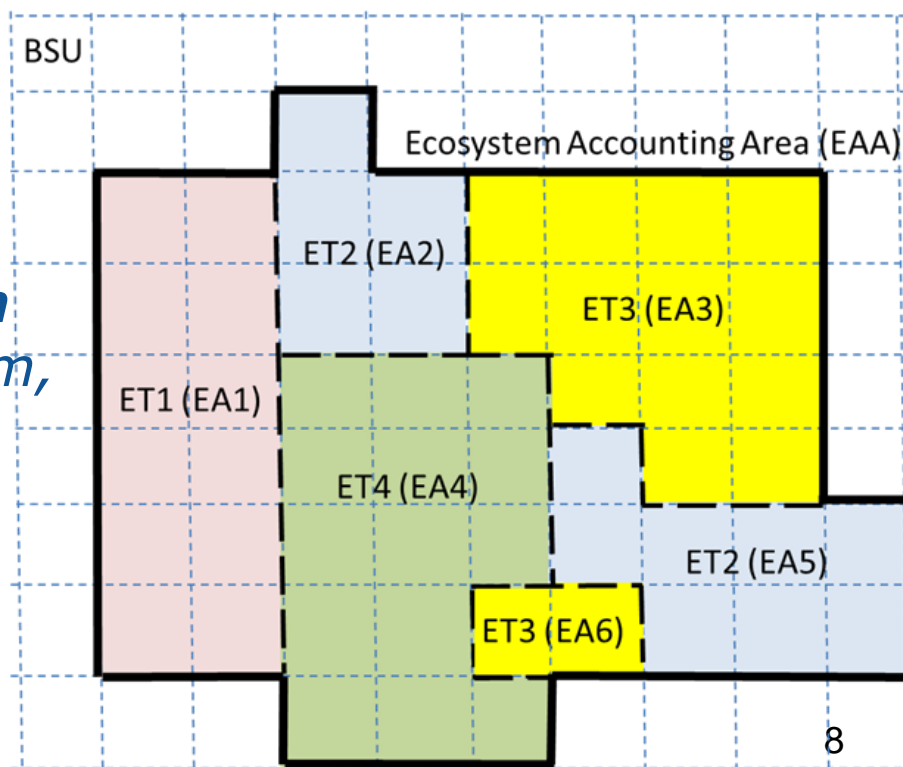


BENEFIT



Key tools of SEEA ecosystem accounting

- Key **concepts** (ecosystem, ecosystem service, extent, condition.....)
- Key **classifications** (= lists of ES and of ES services)
- E.g. the broad **categories** of ES services: provisioning (food, timber...), regulating (flood moderation, cleaner air, water....) and cultural (recreation, education....)
- Basic spatial **units** (=small unit, e.g. 1km² grid cells)
- Ecosystem units (**ecosystem asset** = a concrete ecosystem, and ecosystem type = class of ES assets)
- Accounting units (e.g. administrative regions)
- **Valuation** of ES and ES service flows

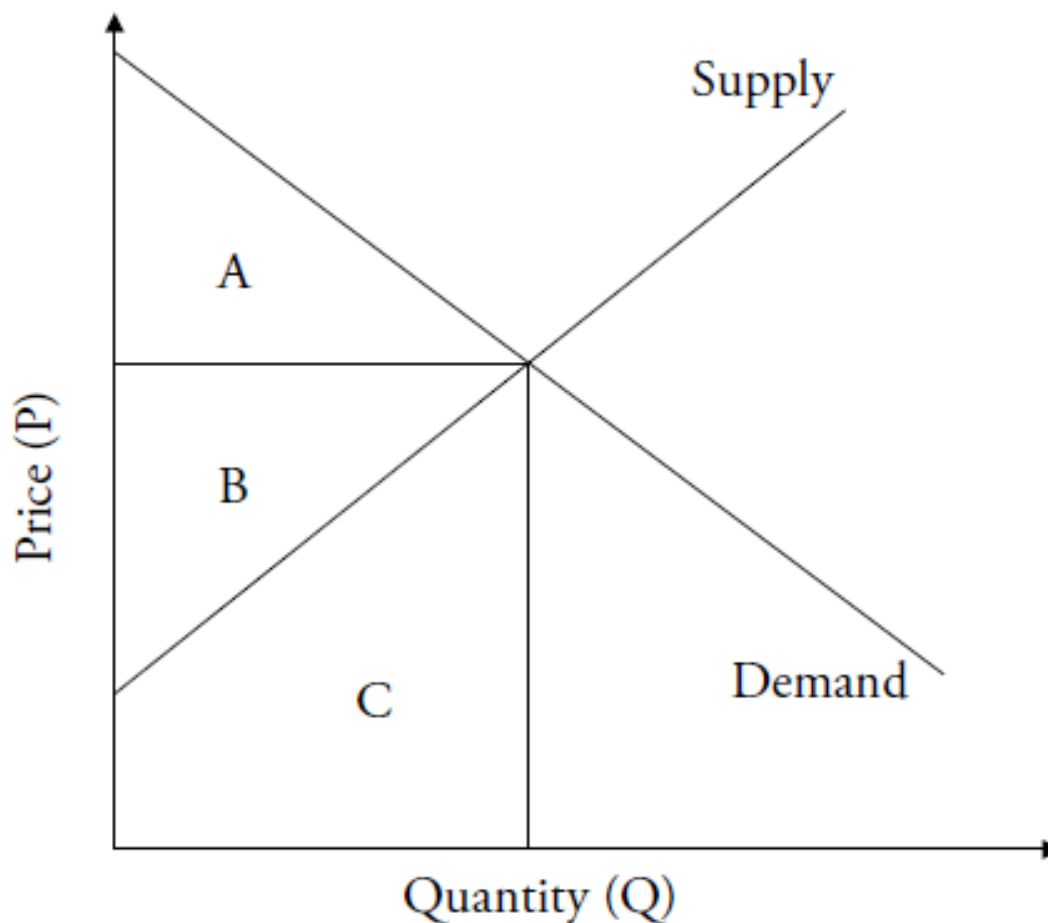


Valuing service flows and assets

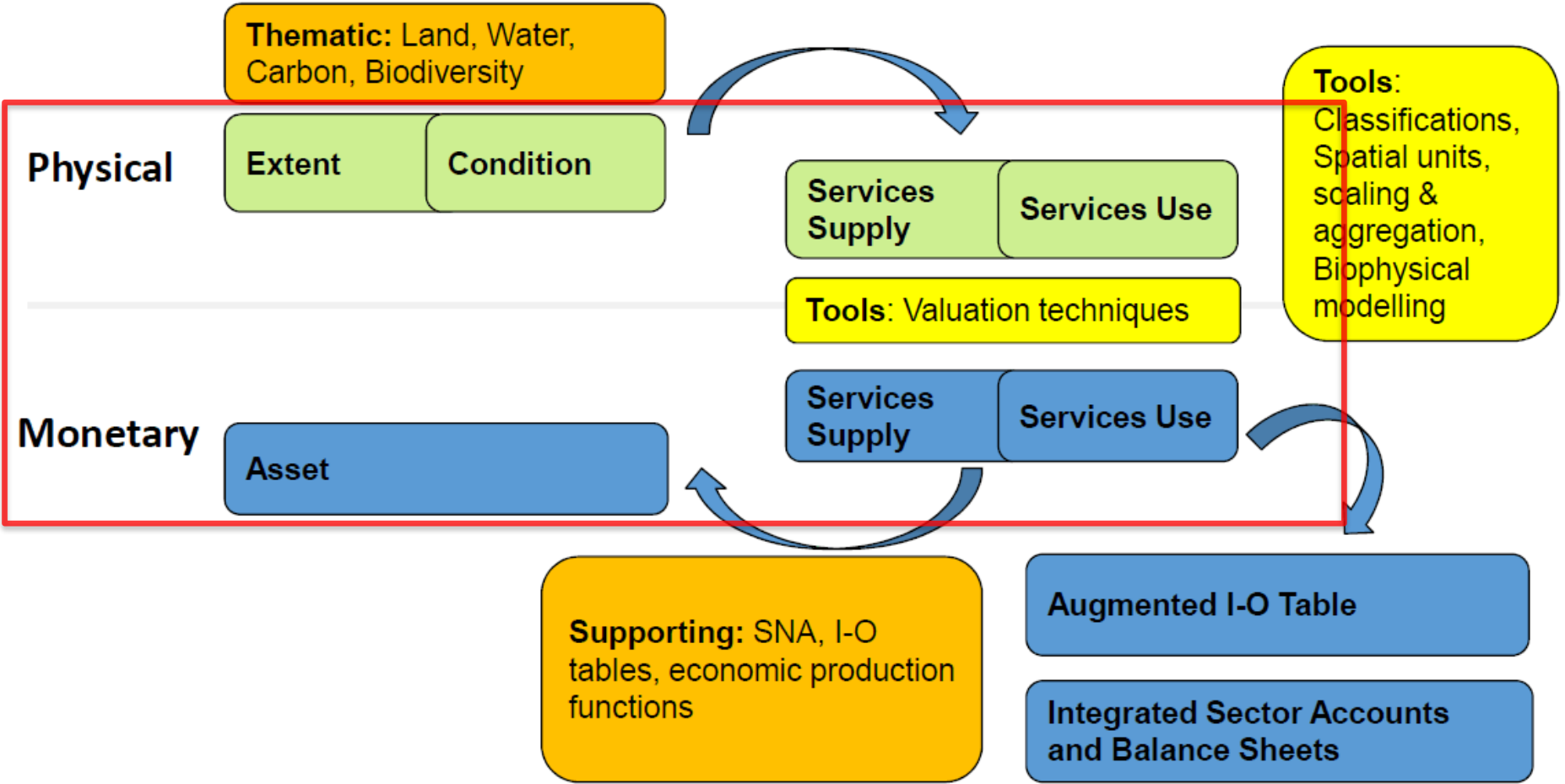
- *Main aim is integration with national accounting values of production, income, consumption and assets*
- *For integration, need to apply a valuation concept that is consistent – i.e. exchange values or transaction prices*
- *Transactions (exchanges) not necessarily monetary (barter, imputed)*
- *SEEA based valuation is a complement to other valuations*
- *Many methods, data scarcity, dialogue between accountants and those leading work on valuation in environmental economics and wealth accounting helps*

Figure 5.1
Consumer and producer surplus

Exchange value (rectangle) versus welfare value (area under the demand curve)



System of ecosystem accounts



The approach in other words:

- *List your ecosystem assets*
- *Describe them - extent, condition...*
- *List the ecosystem services you want to measure*
- *Quantify them in physical units (volume), by ecosystem if you can, by matching supply and use*
- *Value the ecosystem services flows (in money terms, in other terms)*
- *Sum the values of the flows up*
- *Assign values to the ecosystem assets that generate these flows (NPV)*
- *Add the values of the assets up*
- *Track the flows and assets over time (in volume and money value)*

Thank you for your attention