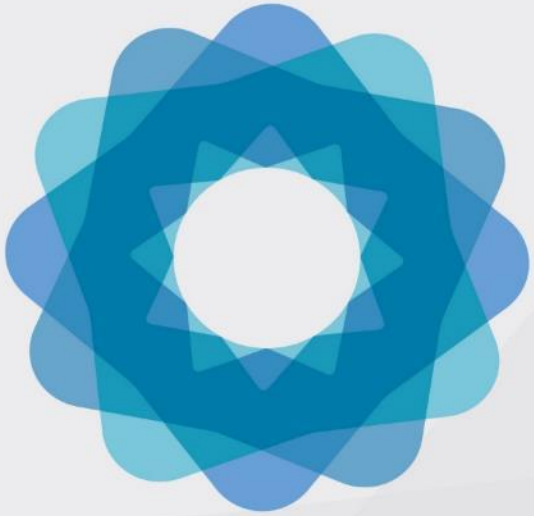

System of Environmental Economic Accounting

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SEEA EXPERIMENTAL ECOSYSTEM ACCOUNTING: PERSPECTIVES ON VALUATION

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UNSD Consultant, Editor SEEA EEA Revision

United Nations

Webinar overview

- Background and context
- Overview of ecosystem accounting
- Valuation context and concepts

<< Clarifying questions >>

- Research and revision program

<< Open discussion and questions >>

- Taking things forward

Background and context

The System of Environmental Economic Accounting (SEEA)

Two standards, one approach:

- The **SEEA Central Framework (SEEA CF)** was adopted as an international statistical standard by the UN Statistical Commission in 2012 to measure the environment and its relation with the economy

- The **SEEA Experimental Ecosystem Accounting (SEEA EEA)** complements the Central Framework and represents international efforts toward coherent ecosystem accounting

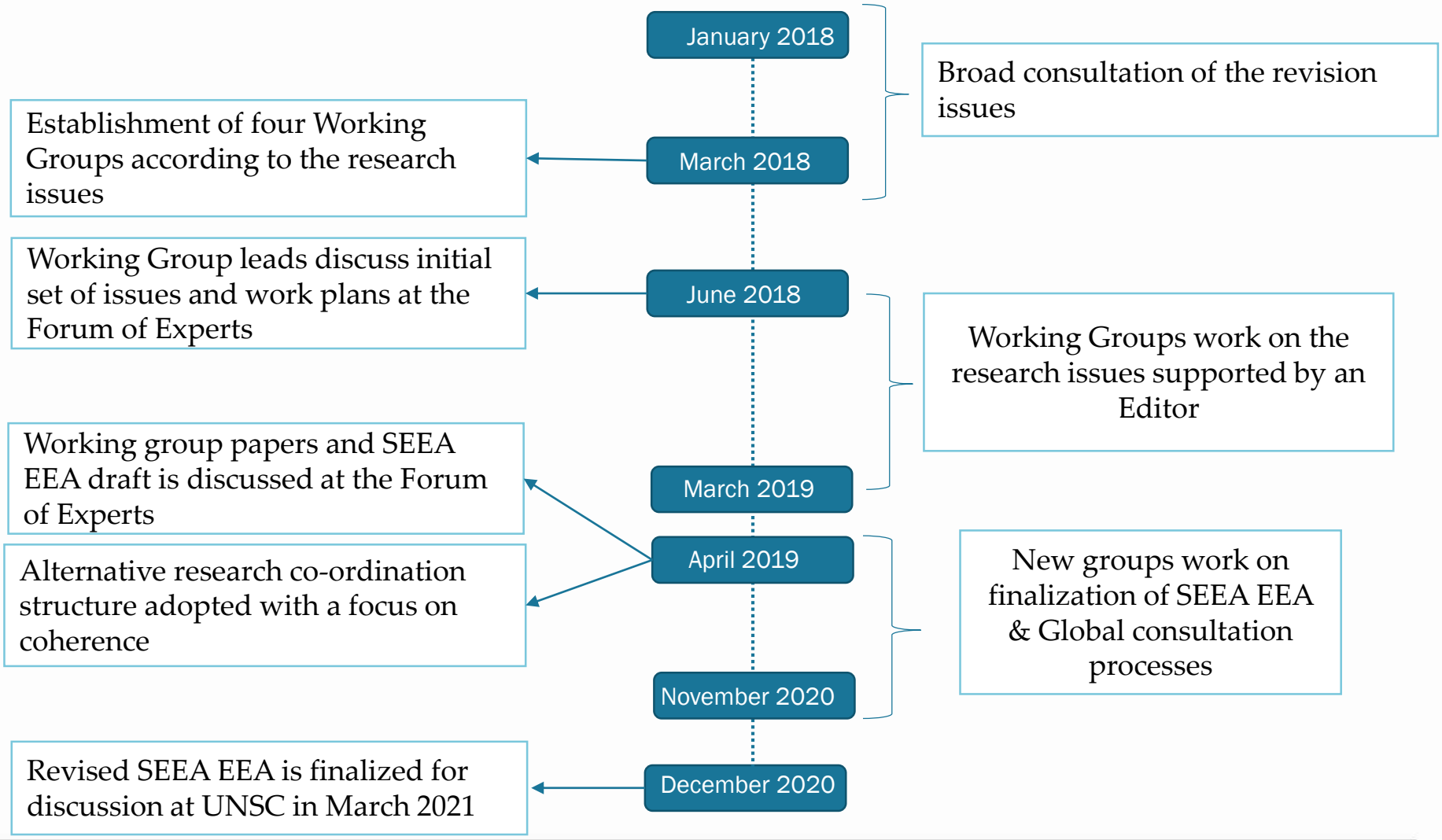
Revision of the SEEA EEA

- **Mandate:** Forty-eighth UN Statistical Commission (2017) supported efforts of UNCEEA to revise SEEA EEA by 2020
  - In June 2017 UNCEEA determined to initiate the process of revision
- **Base for revision:** The revision will be based on the two main publications
  - SEEA 2012–Experimental Ecosystem Accounting (published in 2014)
  - Technical Recommendations in support of the SEEA EEA (published in 2017)
- **Scope:** Revision process will draw upon experience of ecosystem accounting initiatives and projects
- **Involvement:** We seek for broad involvement of partners and experts in the process, as well as for financial and in-kind contributions.
- **Oversight** will be provided by the SEEA EEA Technical Committee (established by UNCEEA) and the Bureau of UNCEEA with broad involvement of experts in the field.

Research agenda for the revision

- Revision structured around **four research areas**:
  - **Spatial areas**: Classification of ecosystem types
  - **Ecosystem condition**: Characteristics and indicators of ecosystem condition
  - **Ecosystem services**: The description and classification of ecosystem services
  - **Accounting treatments and valuation:**
    - Valuation concepts for ecosystem services and ecosystem assets
    - Valuation methods for key ecosystem services
    - Accounting for ecosystem capacity, degradation and enhancement
- There is also a number of **crosscutting domains**, such as oceans and marine ecosystems, freshwater ecosystems, urban ecosystems, etc..

Revision process: keystones & timeline



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Overview of ecosystem accounting

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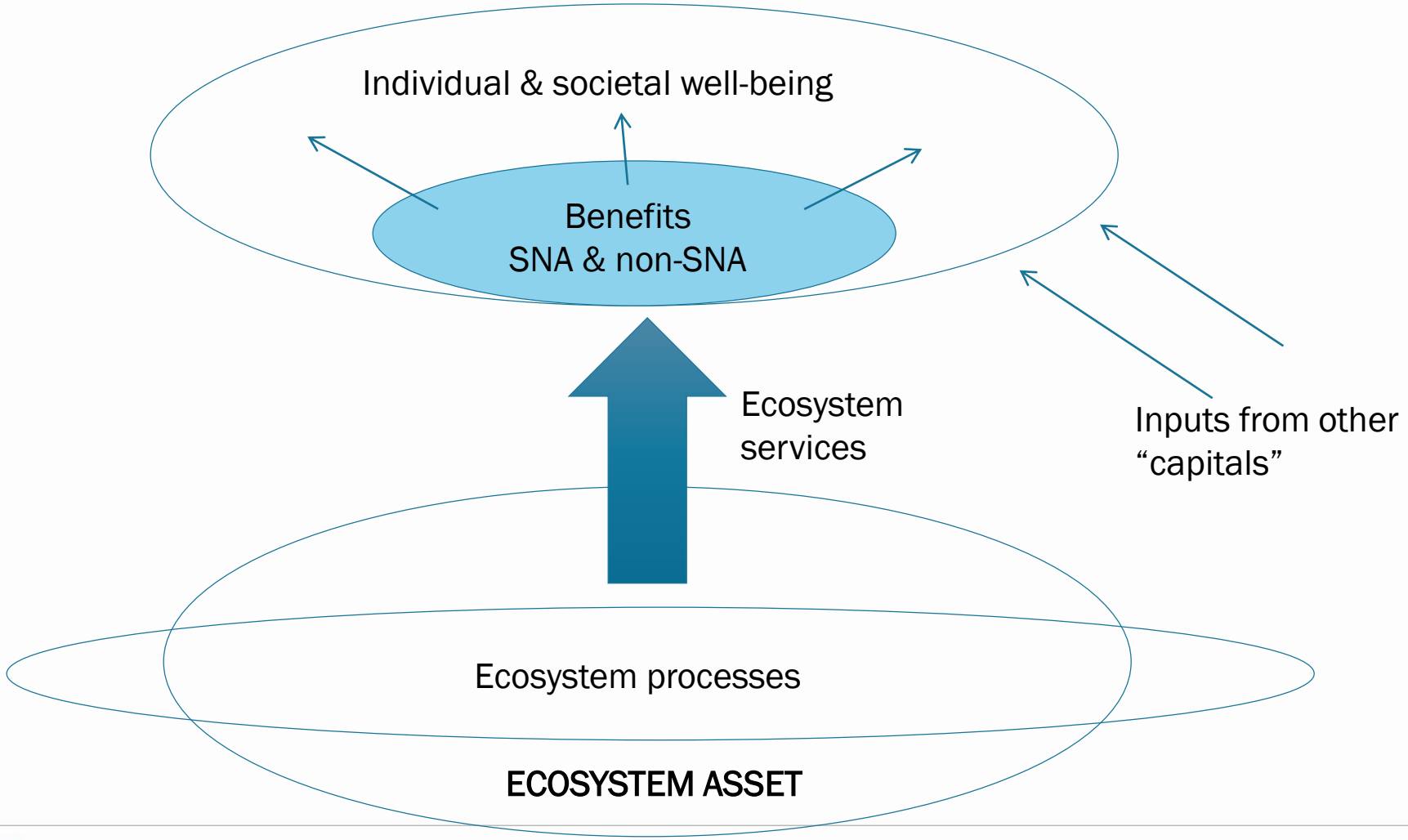
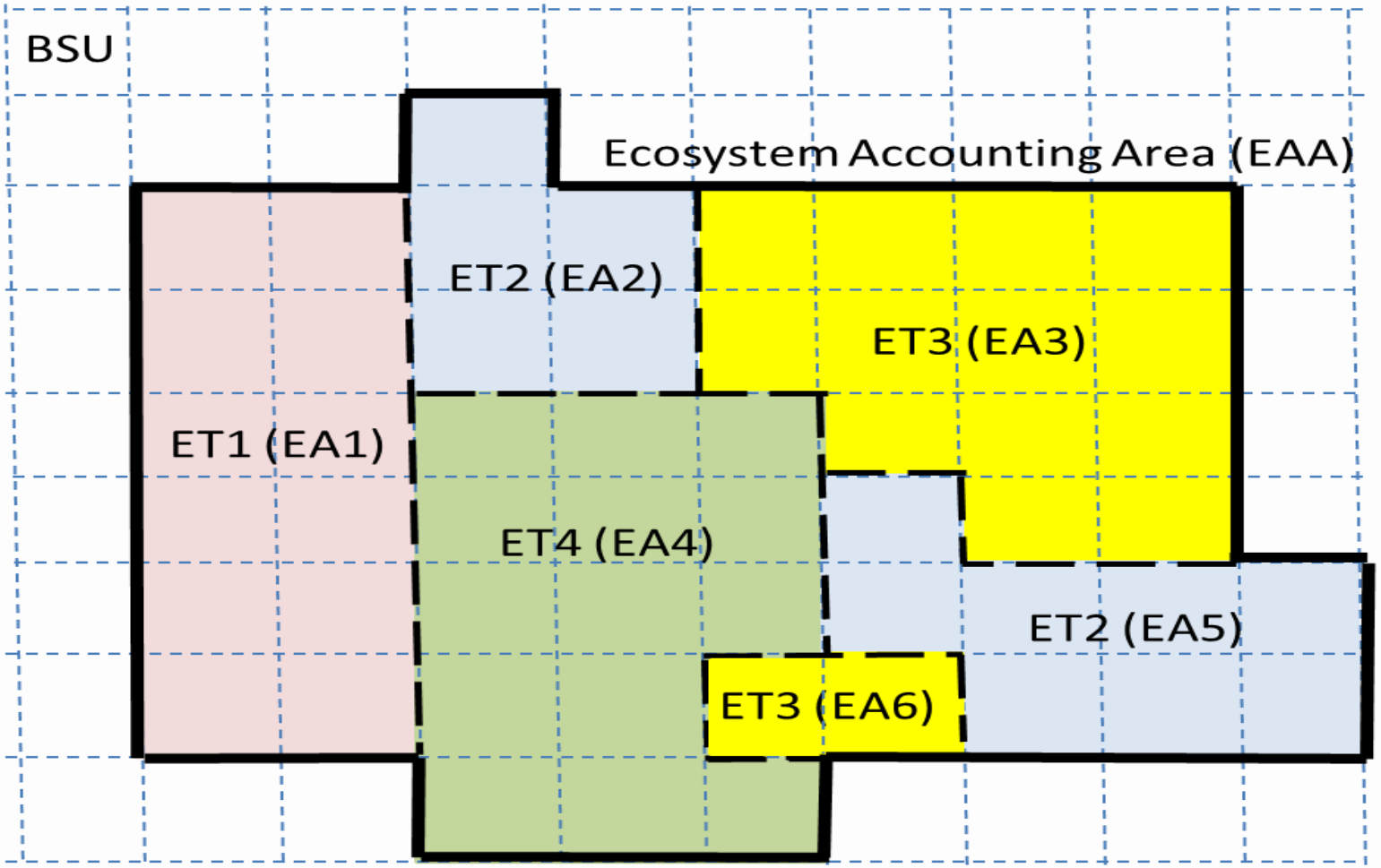
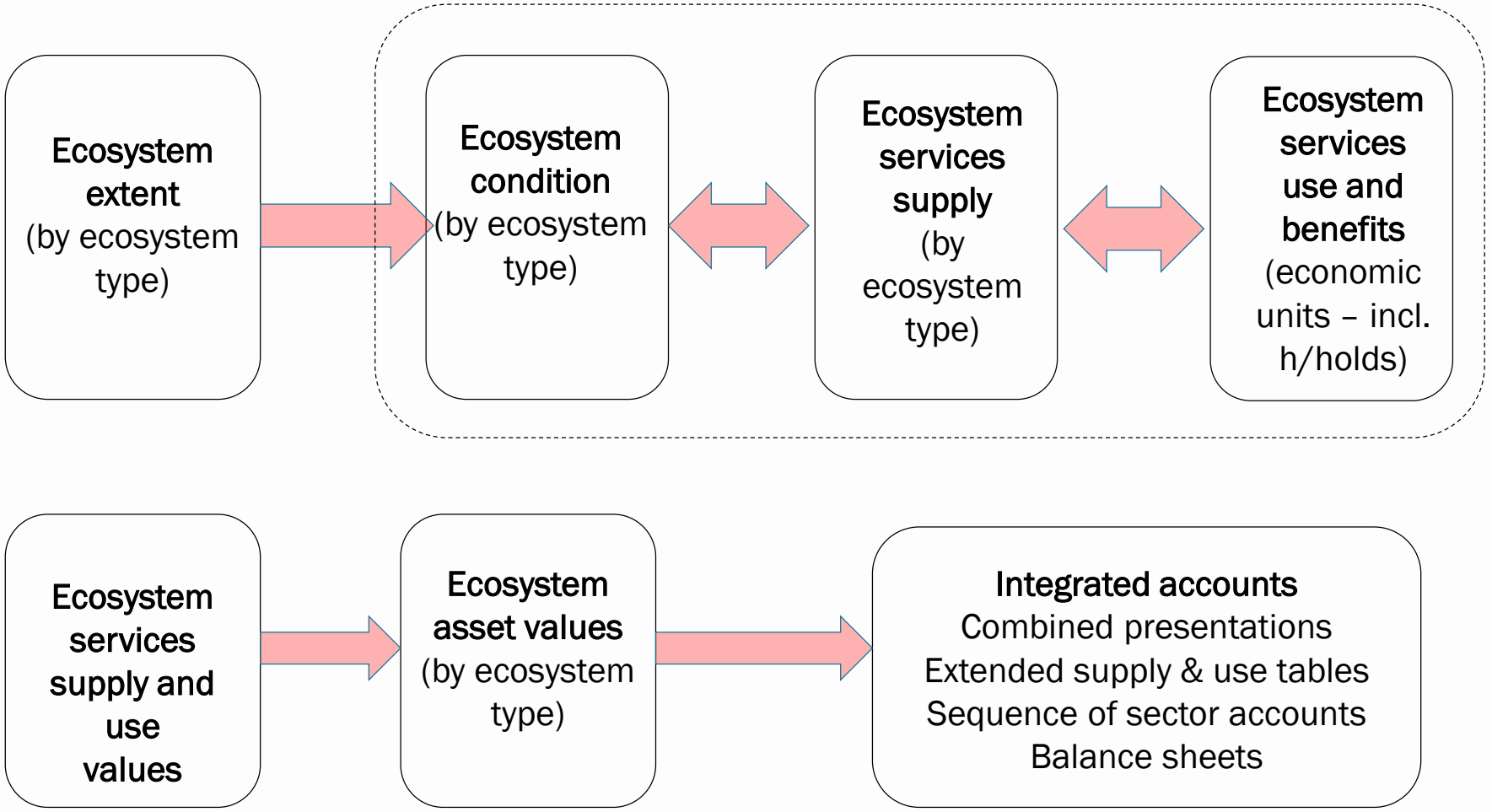
Stocks and flows in ecosystem accounting



Delineating spatial units



Steps in ecosystem accounting



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Valuation context & concepts

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Context for SEEA EEA valuation work

- 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 across economic and environmental stocks and flows – i.e. **exchange values** or transaction prices
- Recognise other purposes and frameworks for valuation
  - **Social cost-benefit** analysis
  - **Externality** assessments
  - **Inclusive wealth** / green accounting
- One part of the valuation challenge has been a **lack of ongoing dialogue** between those leading the work on valuation in environmental economics and those in the national accounts community
- SEEA based valuations should be a **complement** among valuations much as national accounting estimates complement other economic valuation work

Key concepts for valuation

- Accounting has a focus on recording **transactions between units**

- Types of transactions in SNA
  - Monetary transactions
  - **Non-monetary transactions**
  - Imputed transactions

- Defining ecosystem services
  - **Ecosystem services as products that are transacted**
  - Ecosystem services are not the same as benefits
  - Challenge of establishing quantification of service
  - Coverage of final and intermediate services

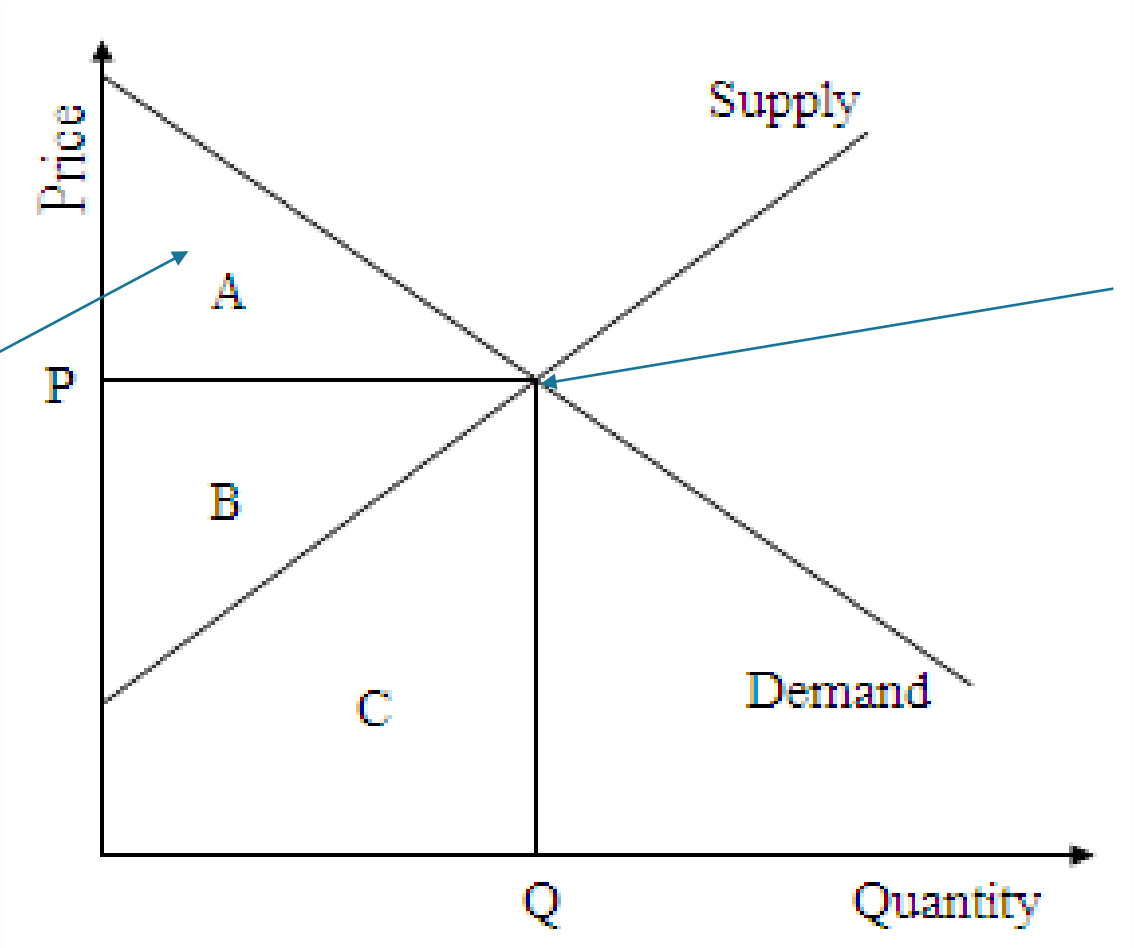
Valuing non-monetary transactions

- In SNA
  - Market price equivalent / similar markets
  - Cost of production

- Idea of valuation "**as though a market existed**"

- Connection to ideas of Nordhaus – near and far market values

Exchange and welfare values



Consumer surplus

Exchange value

Valuing ecosystem services: Environmental economics methods

- **Methods considered to date**
  - Resource rent, production function, hedonics
  - PES and environmental markets
  - Replacement cost, damage cost, averting behavior
  - Travel cost
  - Restoration cost
  - Stated preference
  - Simulated exchange values

- Using **channels of ecosystem services** (from Freeman)
  - Inputs to production, household consumption & well-being
  - Consider both type of services and user characteristics

Current thinking on application to EEA

- **Methods considered to date**
  - Resource rent, production function, hedonics
  - PES and environmental markets
  - Replacement cost, damage cost, averting behavior
  - Travel cost
  - Restoration cost tbd
  - Stated preference
  - Simulated exchange values

Valuation of ecosystem assets

- Starting point is to apply **Net Present Value** approaches
  - > Broadening the set of benefits from a single asset will, ceteris paribus, increase the asset value

- Requires estimation of / assumptions regarding
  - > **Expected streams of services** – links to condition and capacity of the ecosystem asset and expected demand profiles
  - > **Estimated asset lives**
  - > **Discount rates**

- Need to consider overlaps/connections with observed transactions in land, e.g. for agricultural land

Connection to SEEA Central Framework

- SEEA Central Framework (& SNA) based estimates for natural resources reflect valuations for **specific provisioning services** – e.g. timber and fish

- In ecosystem accounting, this SEEA CF based valuation is incorporated but then extended with other ecosystem services that are expected to be supplied from the same ecosystem asset – e.g. air filtration services

- Expect that for the same service, physical and valuation estimates from **SEEA CF would align with SEEA EEA**

- Expected flows for non-provisioning services are likely to depend on understanding of expected harvesting profiles

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Clarifying questions

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Research and revision program

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Key steps since 2013

- **Experiences at country level** in valuation
  - > UK
  - > Netherlands
  - > Pilot countries across UNSD and World Bank programs

- Drafting of the **SEEA EEA Technical Recommendations**

- Extending engagement with the ecosystem services and environmental economics communities
  - > **Bonn workshop** on valuation – April 2018
  - > **Forum of Experts** on ecosystem accounting – June 2018
  - > Research papers on **individual ecosystem servi**ces – Oct-Nov 2018
  - > Links to **broader networks** incl: IPBES, Ecosystem Services Partnership, ACES, European Assoc. Environmental & Resource Economics

General valuation issues

- **Placing exchange values in context**
  - Clarifying the policy and analytical question and matching valuation requirement with appropriate concept and method
  - Considering potential of complementary accounts
  - Understanding connection to non-monetary valuation

- Broad conceptual challenges
  - Determining extent to which **different valuation methods can be used to estimate exchange values**
  - Describing the **institutional assumptions/arrangements** that should underpin exchange values for accounting purposes
  - Treatment of **non-use, intrinsic**, bequest and existence values

Specific valuation issues

- Measuring exchange values for provisioning services where **resource rents are low or negative**
- **Potential of cost based approaches**
  - Appealing to accountants and mixed views among economists
  - Distinguishing cost of securing benefits from cost of supplying service
  - Distinguishing costs already recorded in the accounts in the valuation of ecosystem services (e.g. travel costs)
- Potential of **simulated exchange values** and using marginal values from demand functions
- Use of prices from PES schemes and environmental markets
- Linking the value of ecosystem services to **human health outcomes**

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Open discussion and questions

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Taking things forward

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Next steps

- Progress research through working groups on individual ecosystem services and valuation & accounting (to end February 2019)
- Discussion and consultation in expert meeting (end January) and open expert review (February-March 2019)
- Discussion at next Forum of Experts (April or May 2019)
- Drafting of chapters for revised SEEA EEA and global consultation (May 2019 onwards)
- Ongoing research on outstanding issues (May 2019 onwards)
- Discussion at London Group (October 2019) and other relevant events
- Global consultation processes (May 2019 – Nov 2020)
- Discussion at UNSC (March 2021)

THANK YOU

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