



Accounting for Ecosystem Services

Issues to be placed in the
research agenda of SEEA-EEA

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Systems Ecological Perspectives on Sustainability
Helsinki, 24-26 September 2014



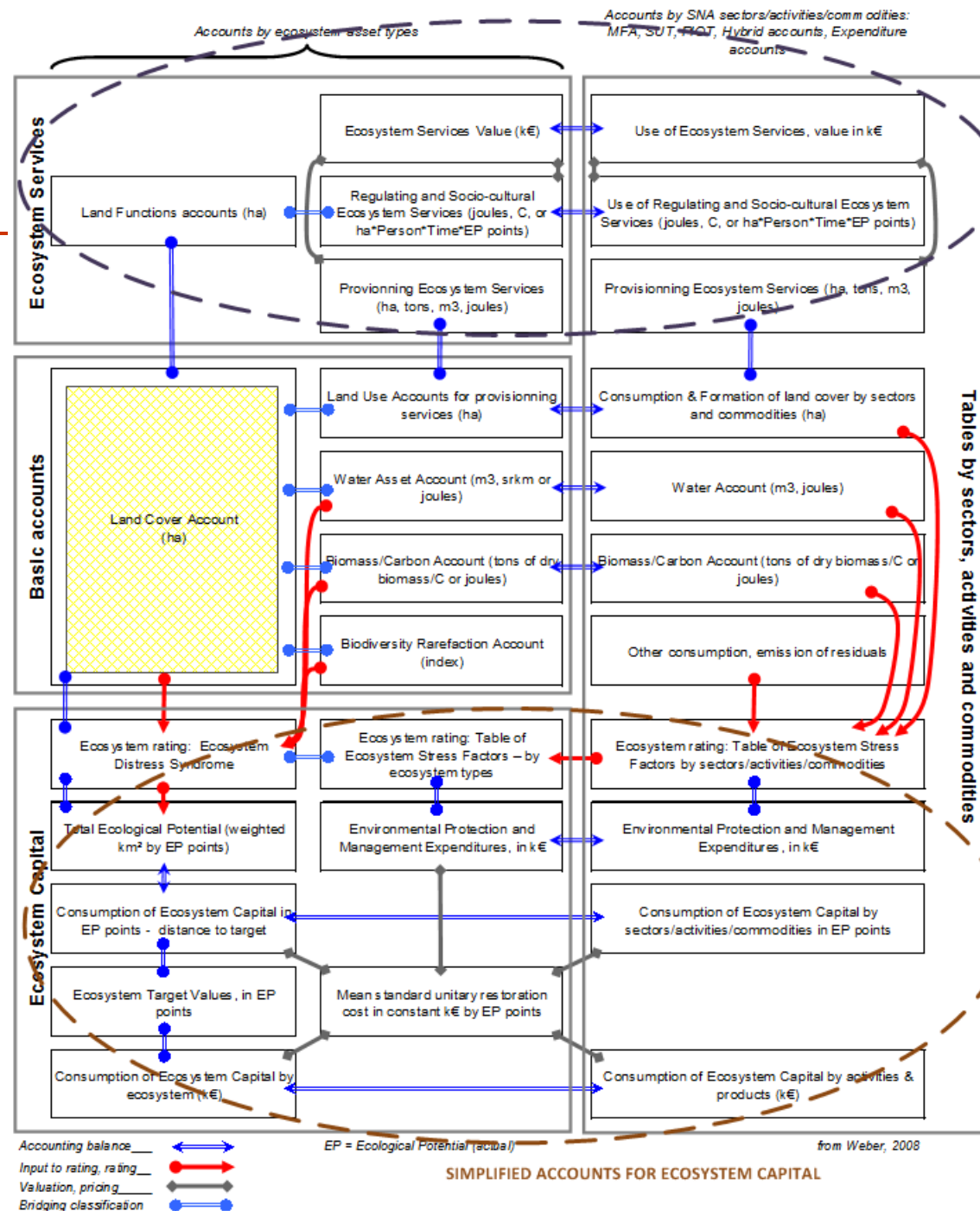
Content

- ▣ The UN framework SEEA-EEA
- ▣ Stocks and flows in ecosystem service accounting
- ▣ What is beyond the notion of ecosystem services
- ▣ A proposal through the example of water purification



Evolution of ecosystem accounting

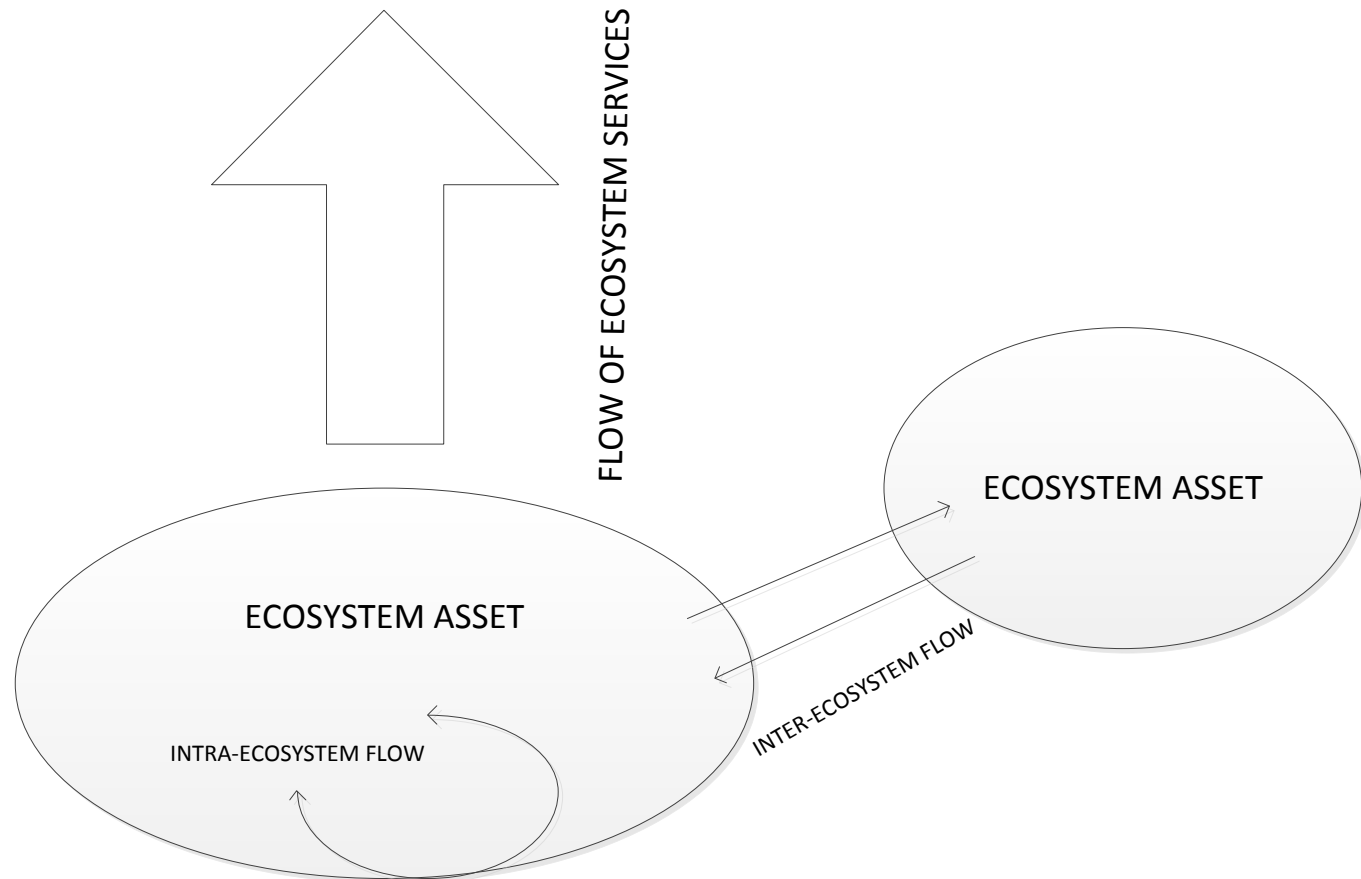
- ❑ Economic accounts and Environmental accounts
- ❑ Environmental accounts and Ecosystem accounts
- ❑ Ecosystem accounts: the European Environmental Agency proposal
- ❑ Ecosystem accounts: the London Group White Cover Handbook



EEA's LEAC framework

The UN framework SEEA-EEA: conceptual framework

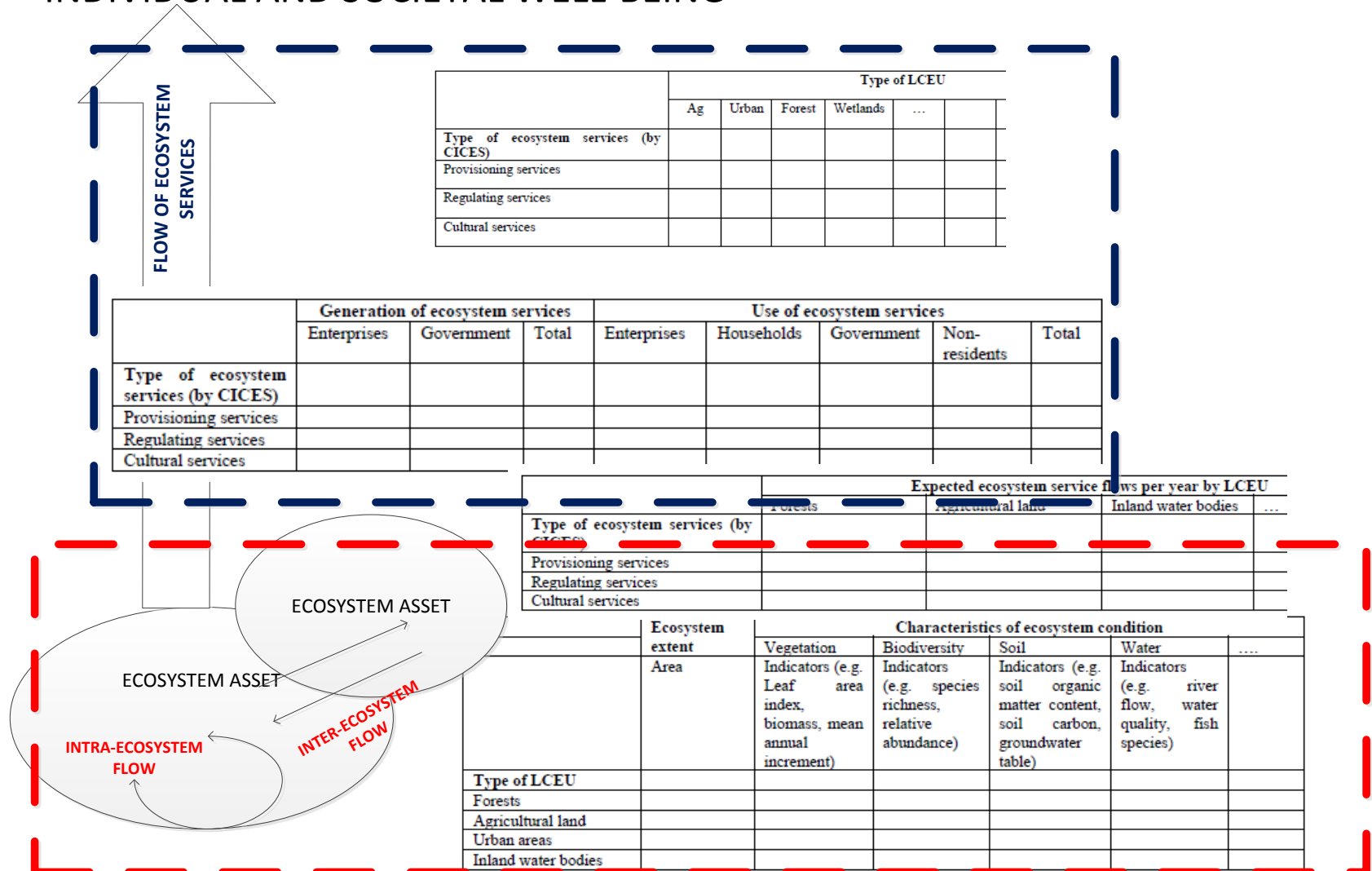
INDIVIDUAL AND SOCIETAL WELL-BEING





UN-SEEA: conceptual framework and tables

INDIVIDUAL AND SOCIETAL WELL-BEING



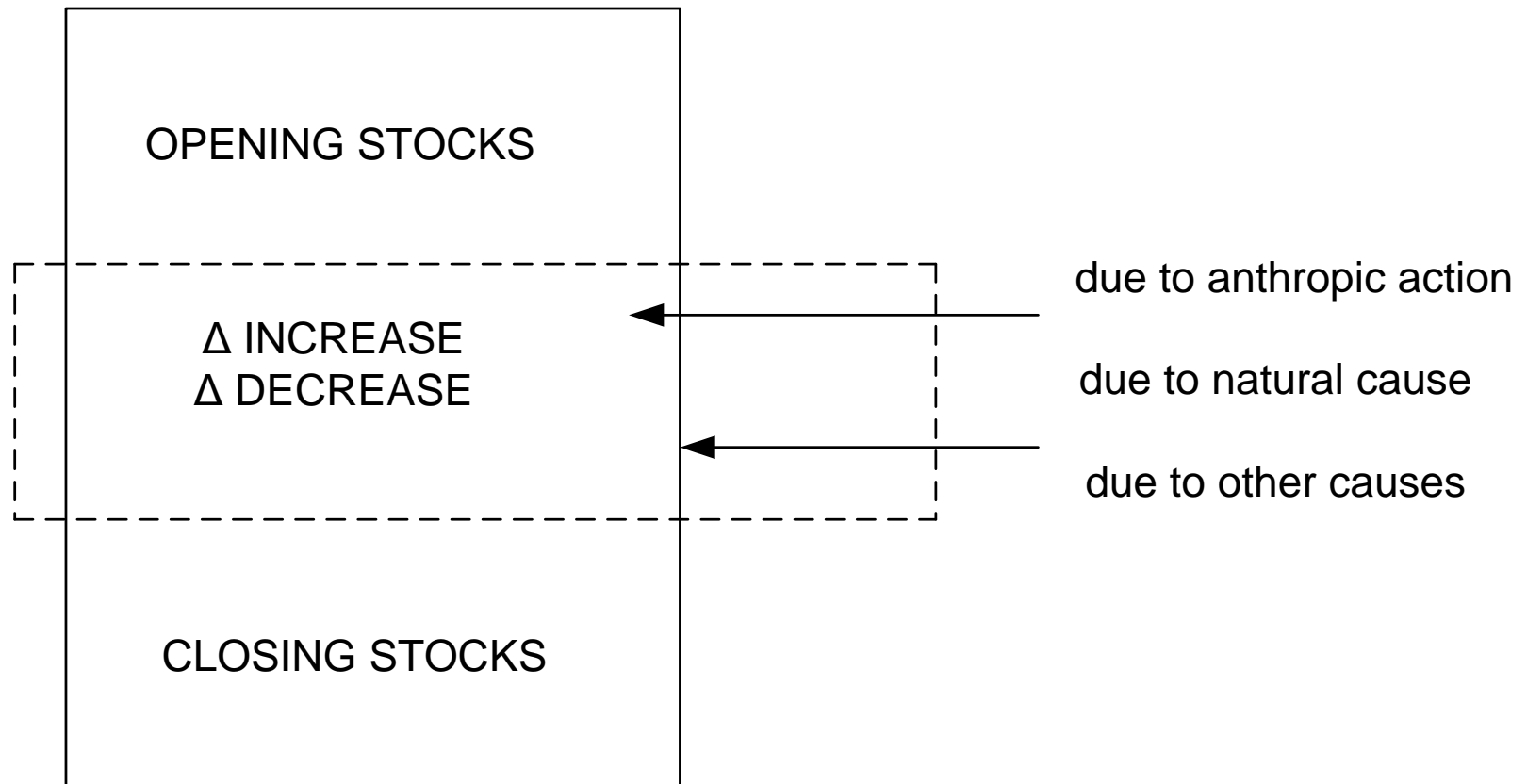


Stocks and flows in the SEEA-EEA

- ❑ Ecosystem accounting is funded on the relationship between stocks and flows
- ❑ Stocks: spatial areas comprising an ecosystem asset
- ❑ Flows: within and between ecosystem assets that reflect ecosystem process (intra and inter ecosystem services)
- ❑ Flows: people take advantage of what is generated by ecosystem (ecosystem services)

Notion of change in ecosystem asset

- Following the logic of the asset accounts in SEEA-CF:





SEEA-EEA Goal

- Integrating and organizing complex biophysical **data**
- **Measuring ecosystem services**
- **Tracking changes in ecosystem**
- **Linking those changes to economic activities**

Data:

Raw data VS derived data

Data is different from assessment

Level of analysis: the purpose differs according to the administrative/political levels

Raise awareness → global level

Set strategic direction → macro-regional and national level

From the strategy to the action → sub-national-local level



Measurement

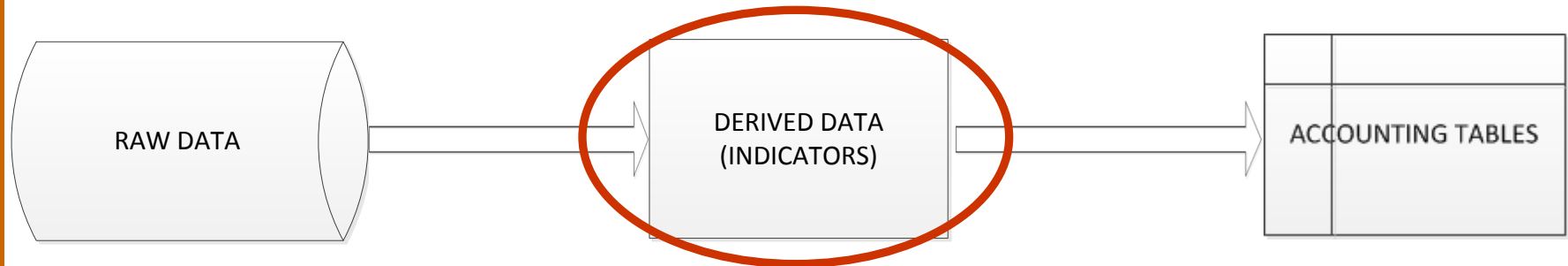
THE MEASUREMENT OF THE CHANGE TAKES
PLACE AT THIS STAGE OF THE PROCESS





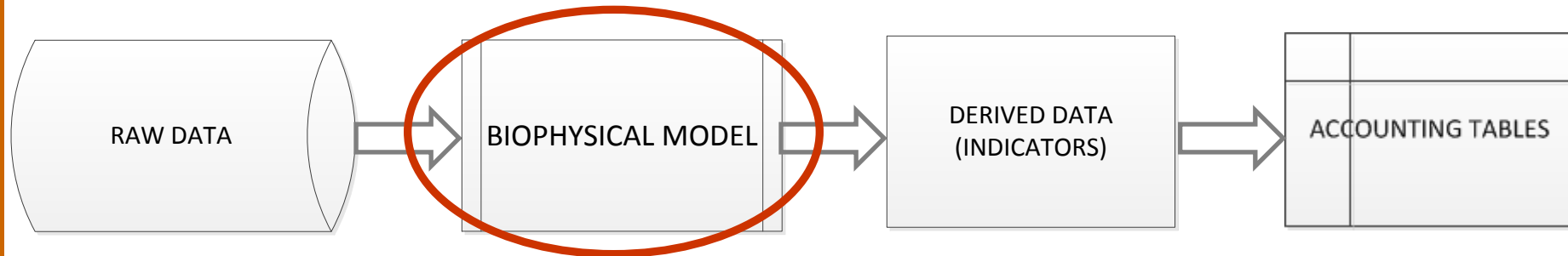
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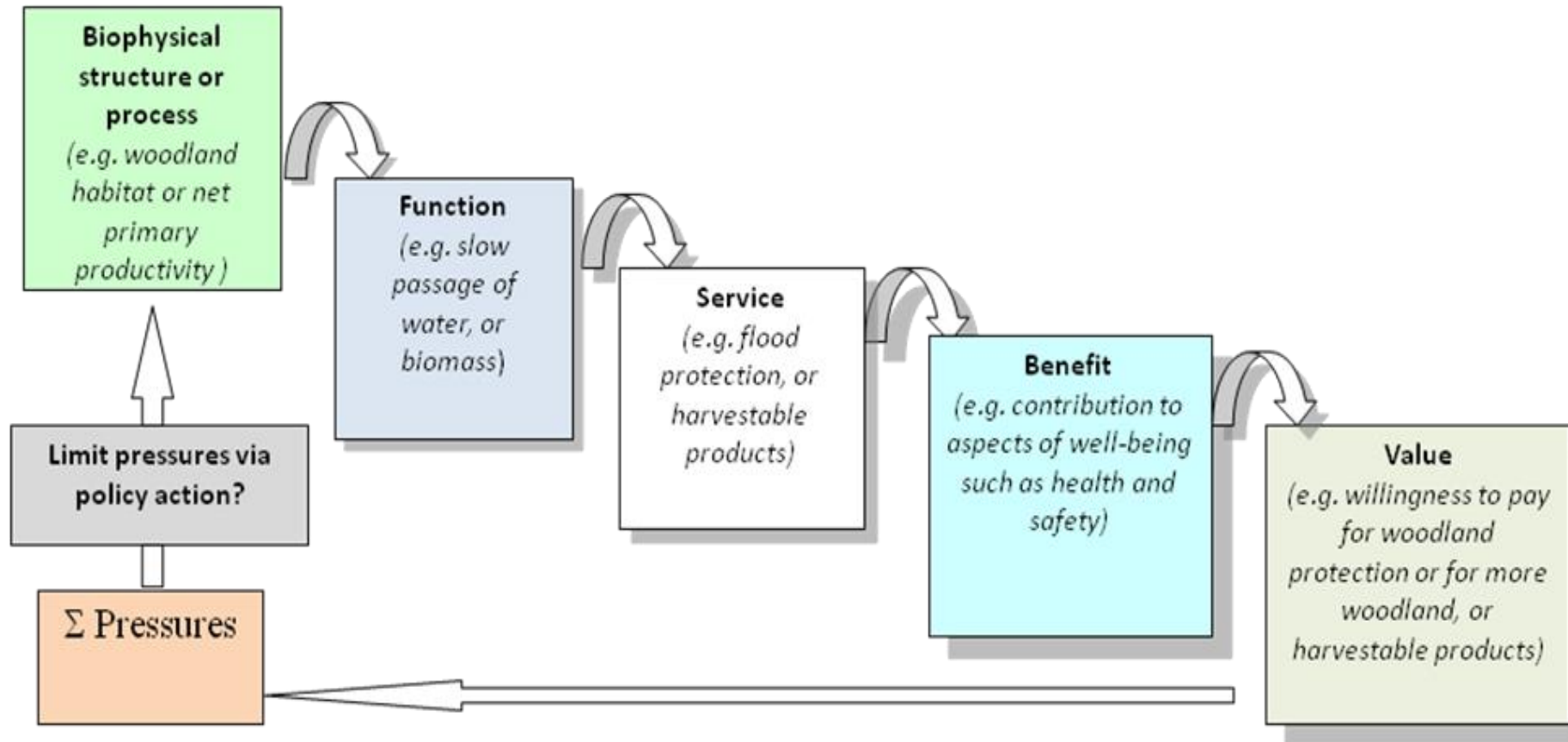
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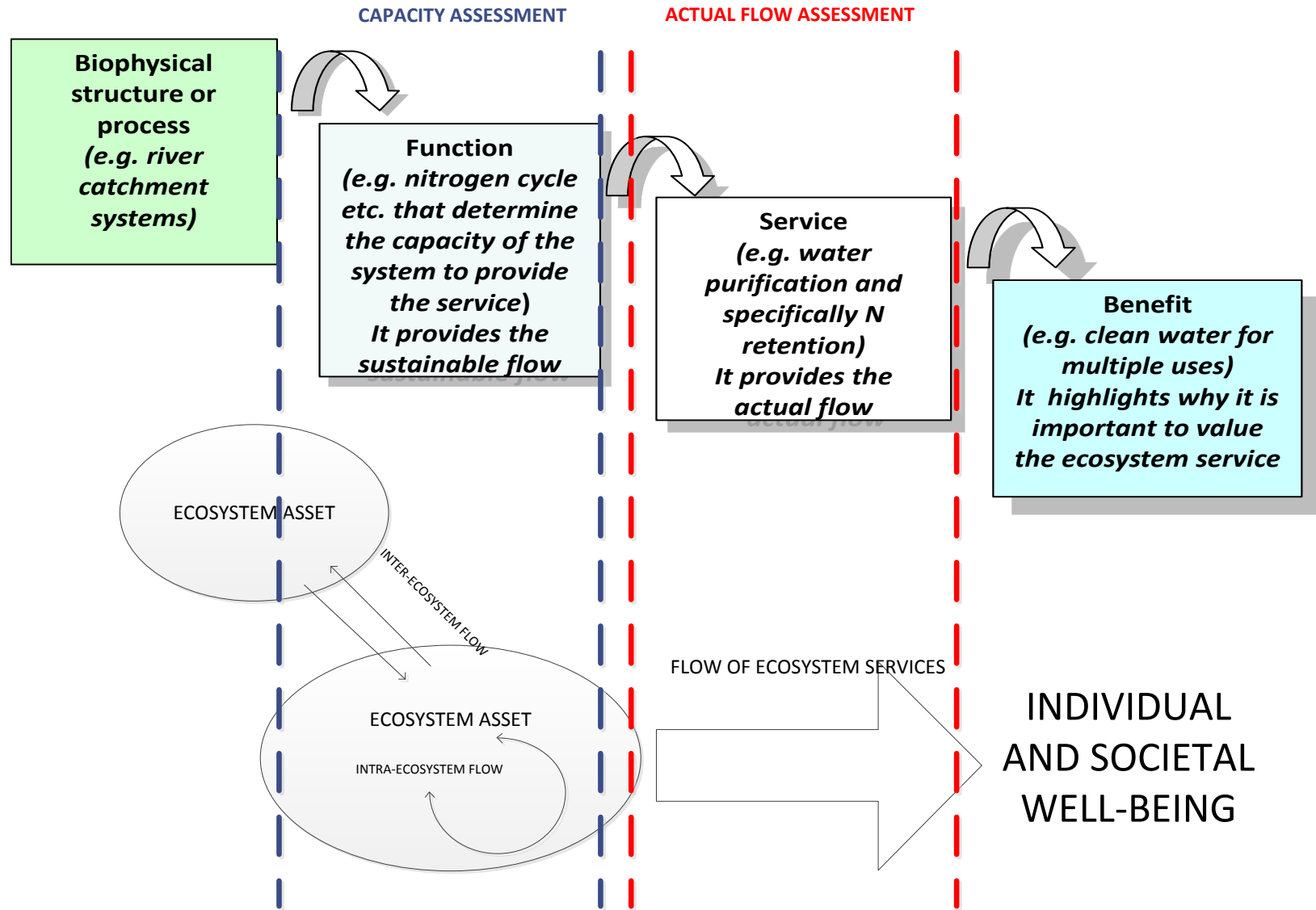




What is beyond the notion of ecosystem service



Notion of Ecosystem Services beyond Accounting

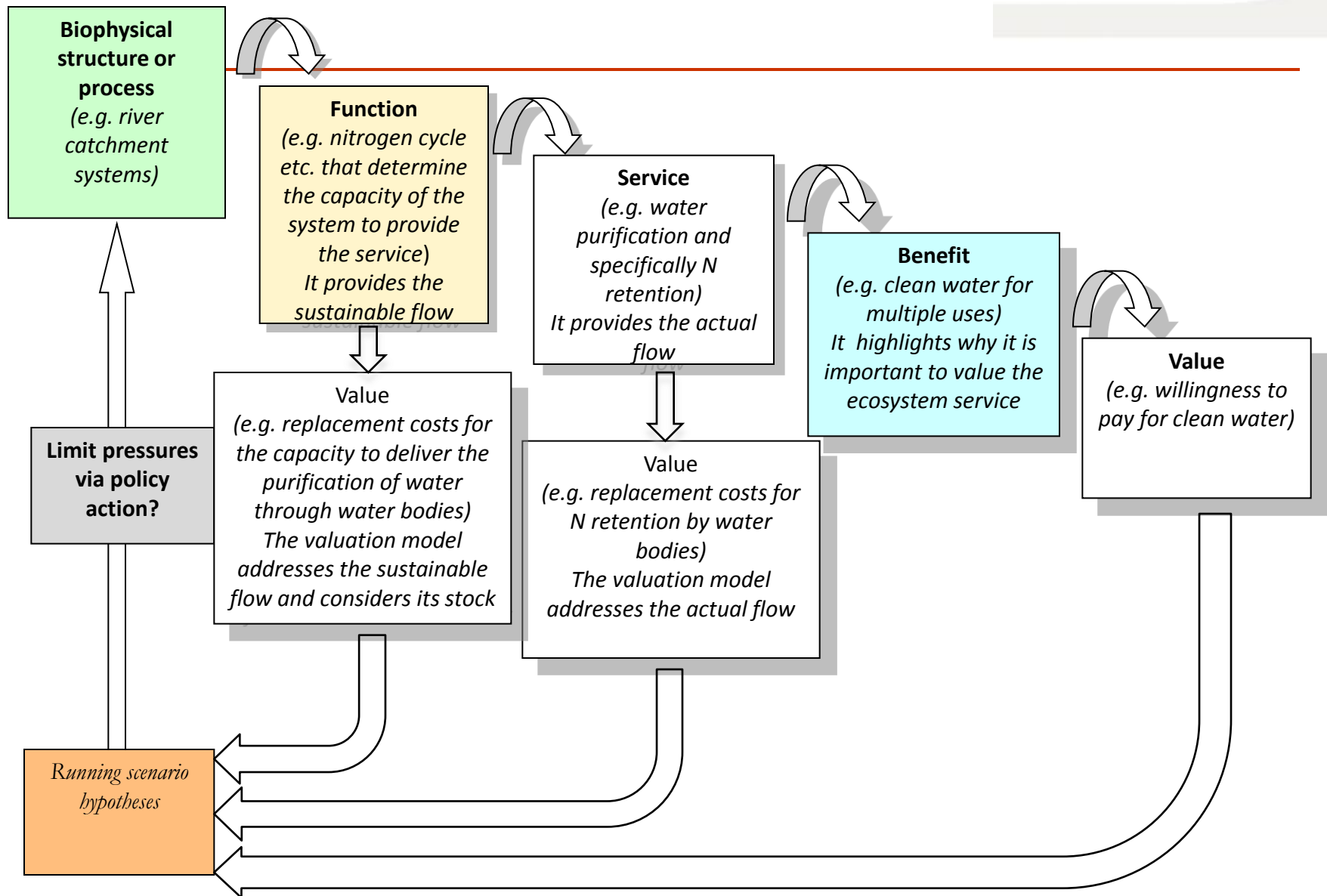




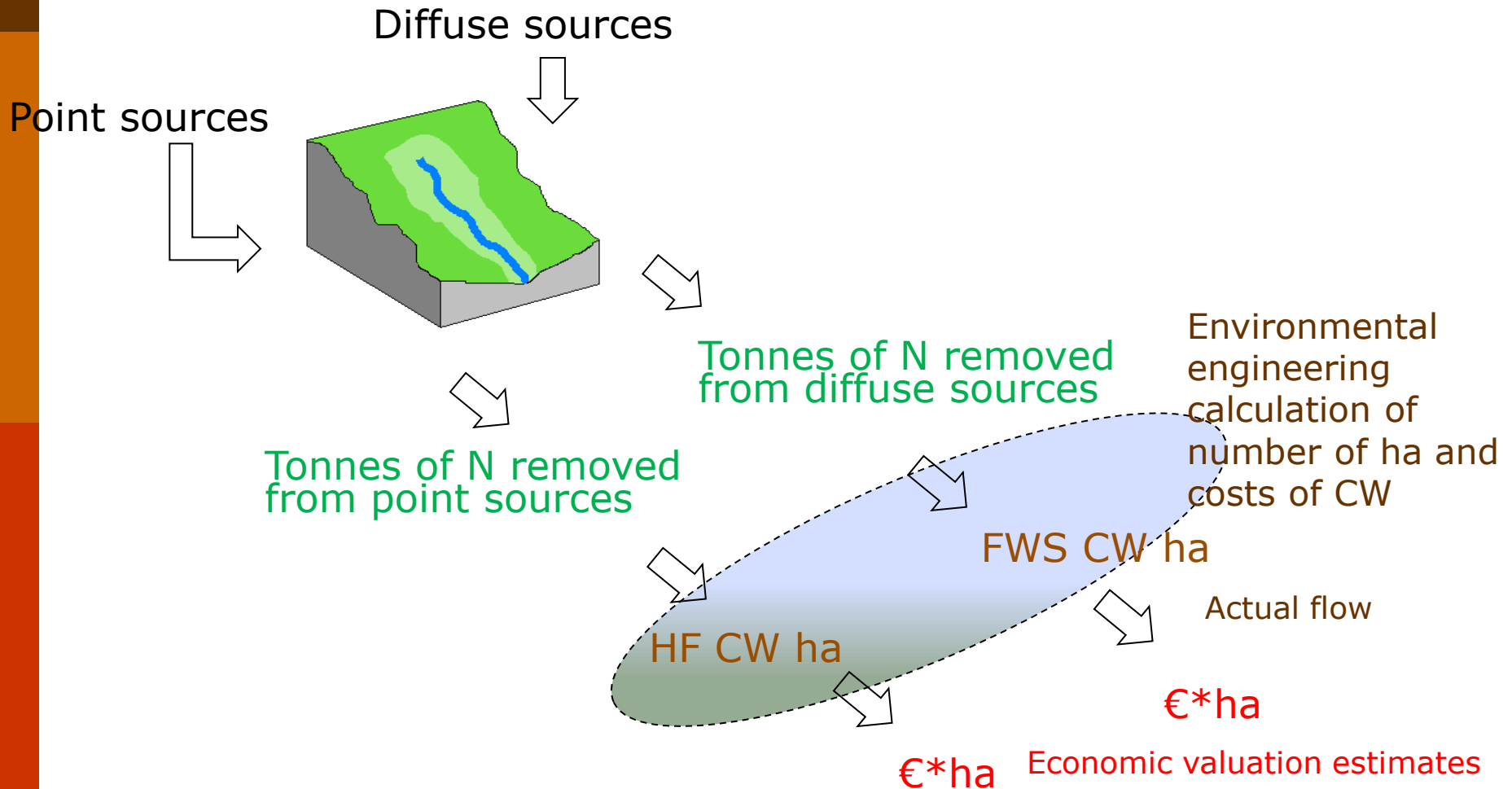
The crucial node between function and services: the notion of capacity

- ❑ Actual flow Vs. Sustainable flow
- ❑ Does the actual flow represent the Demand?
- ❑ Does the Sustainable flow represent the Capacity?
- ❑ Is the capacity a stock or a flow?

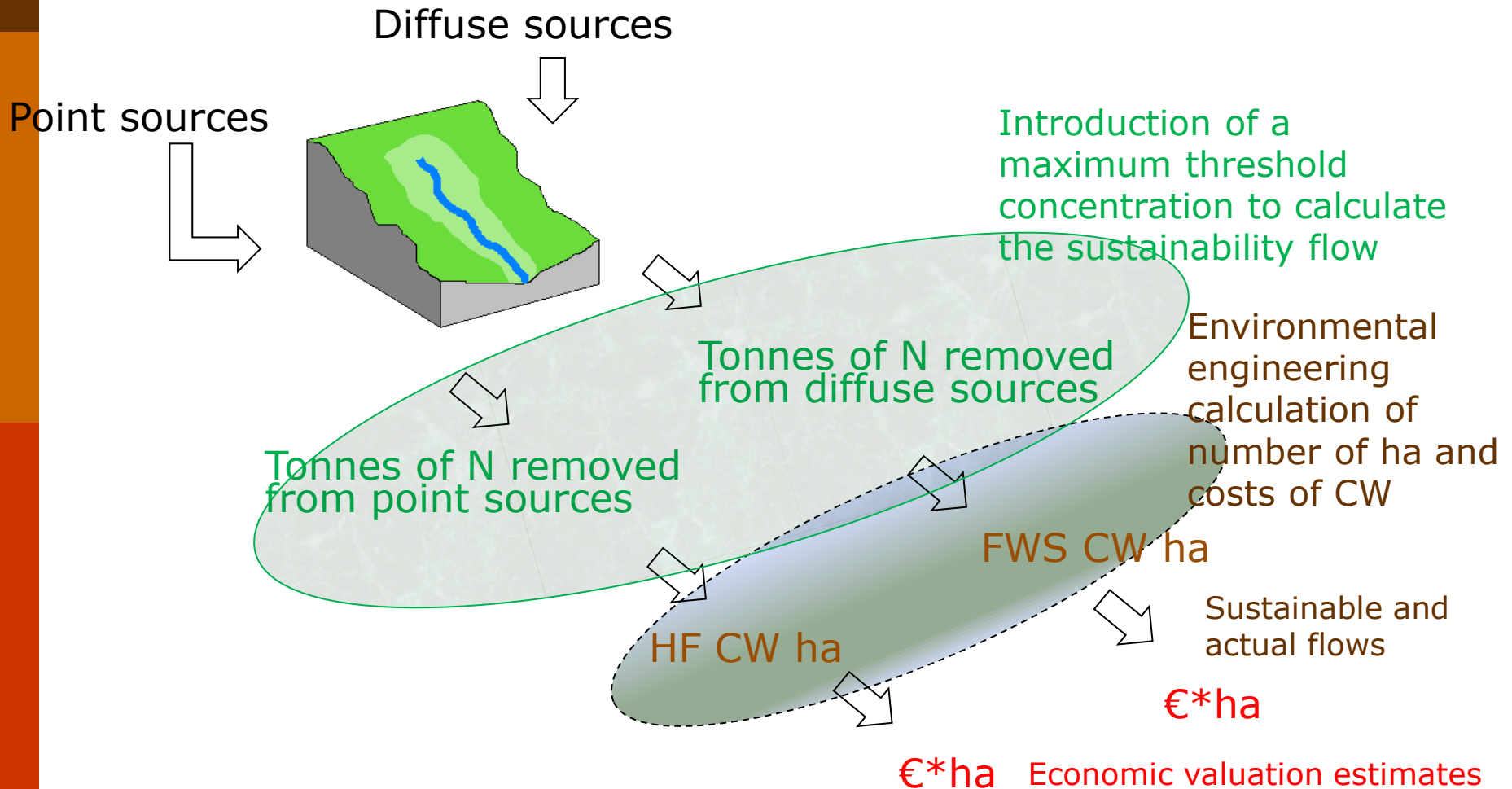
Water Purification/0



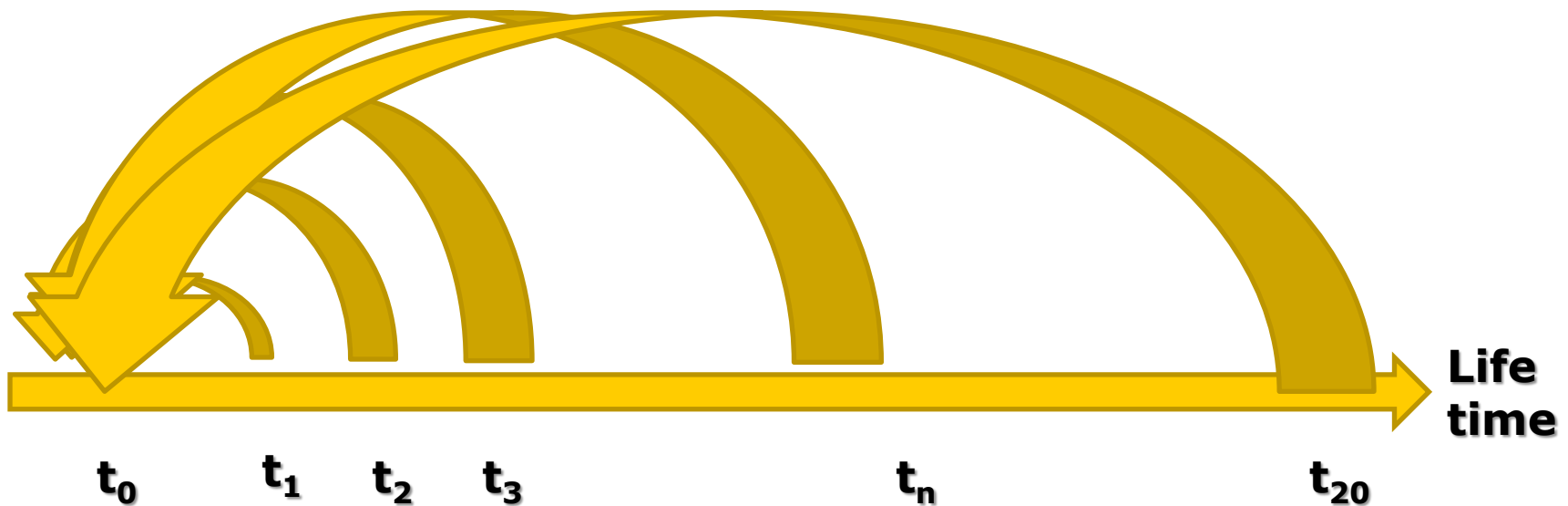
Water purification example/1



Water purification example/2



Water purification example/3



$$Y = \frac{a * (1+i)^{N-1}}{i * (1+i)^N}$$

a = yearly amount of building costs
i = discount rate (real interest rate; in our application set at 3%)
N = life expectancy of the CW (we assume 20 years)

The big questions



- Is it correct to consider capacity as a stock?
- Considering that the quantification of the stock and flows should take place within the biophysical assessment:
 - Is there an analogous way in ecology to move from the annual sustainable flow of the service to the capacity as a stock to generate that specific flow?



What should be part of the research agenda in ecosystem accounting

- ❑ Notion of stock and flow in ecosystem asset and in ecosystem services to be further explored
- ❑ Linkages between the notion of capacity and the notion of 'stock' for ecosystem services to be studied
- ❑ Difference between ecosystem assets and natural resources to be clarified
- ❑ Meaning of raw data and derived data in ecosystem accounting to be investigated
- ❑ Meaning of indicators and outcomes of biophysical models in ecosystem accounting to be investigated



Thank you for your attention!

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