Session 3: Overview of current conceptual model and issues for discussion, thoughts about a typology

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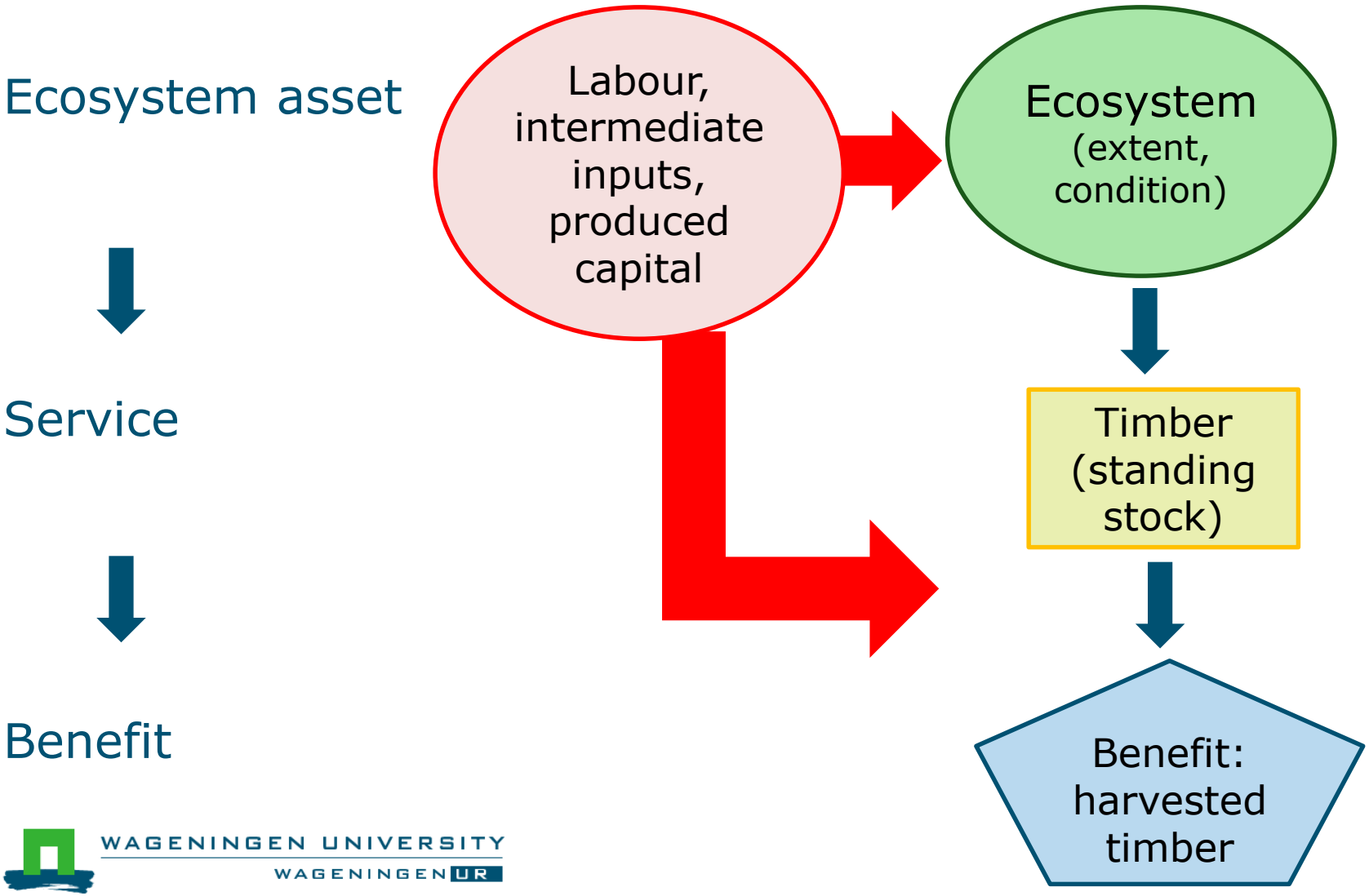
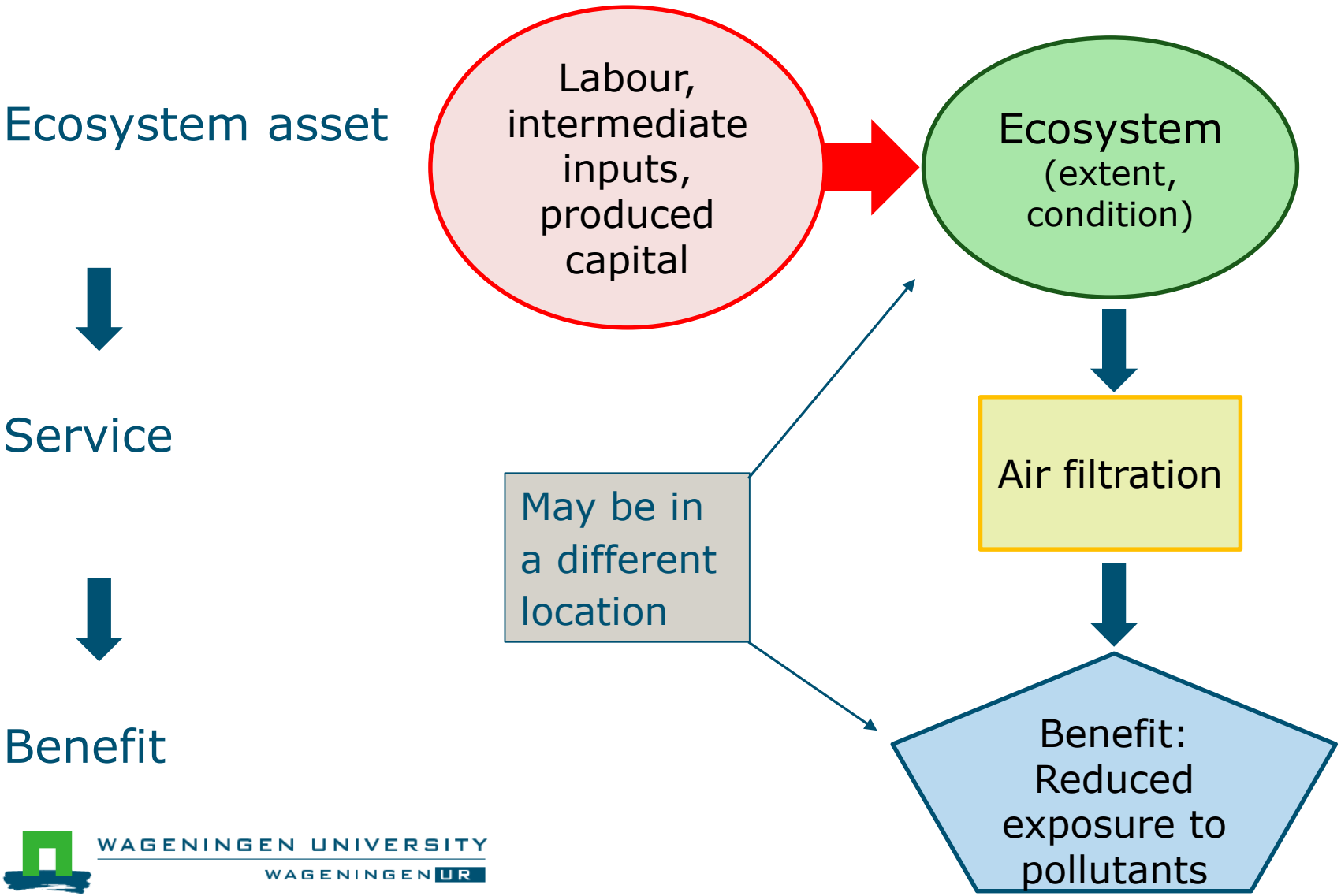
Ecosystem services definition

- Update based on 10 individual services papers
  - Conceptual models for ecosystem services
    - Provisioning
    - Regulating
    - Cultural
    - Intermediate-final
- Questions for discussion
  - Natural versus cultivated ecosystems <-> crop provisioning
  - Regulating (sink services) & externalities

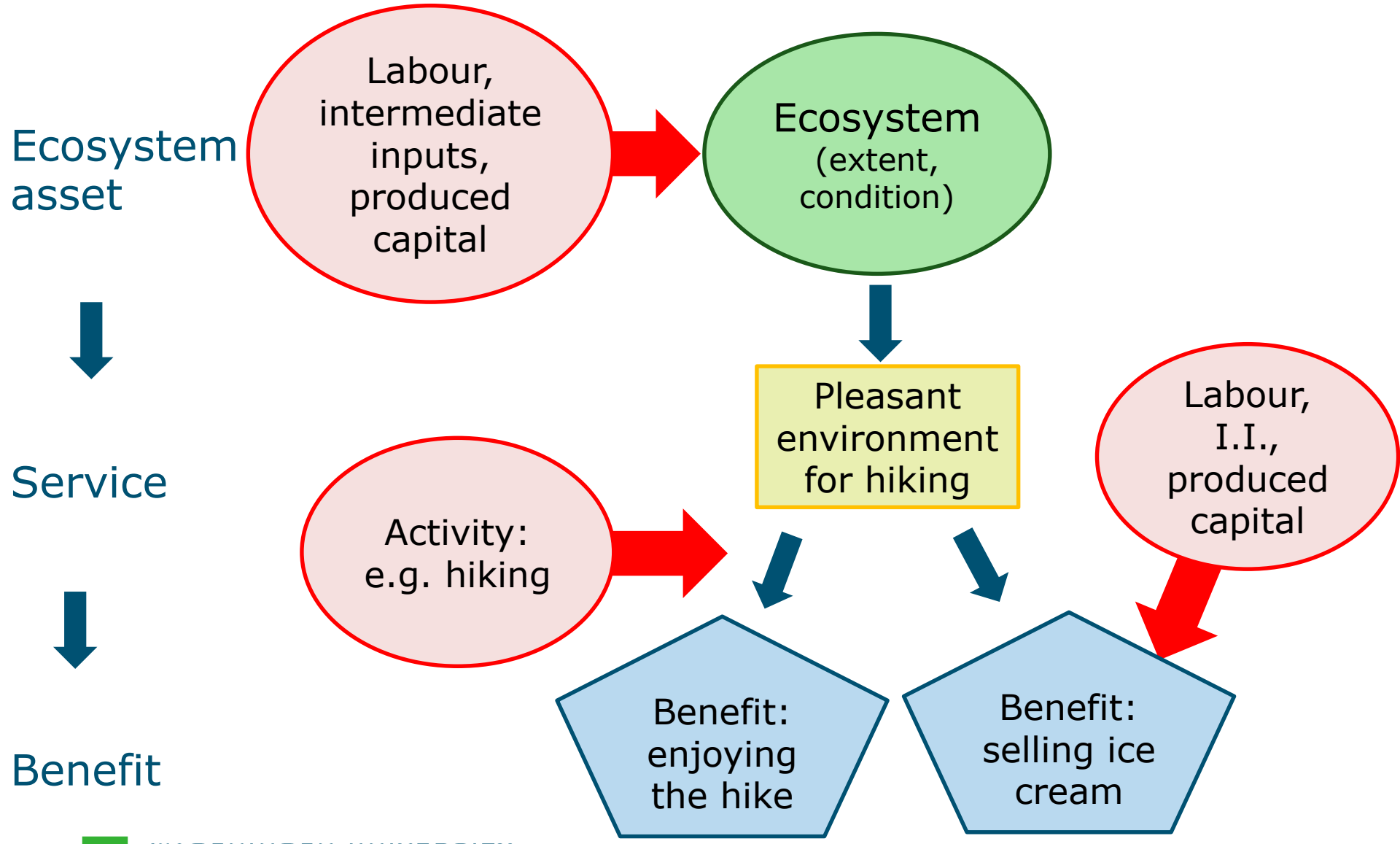
Conceptual model: provisioning services



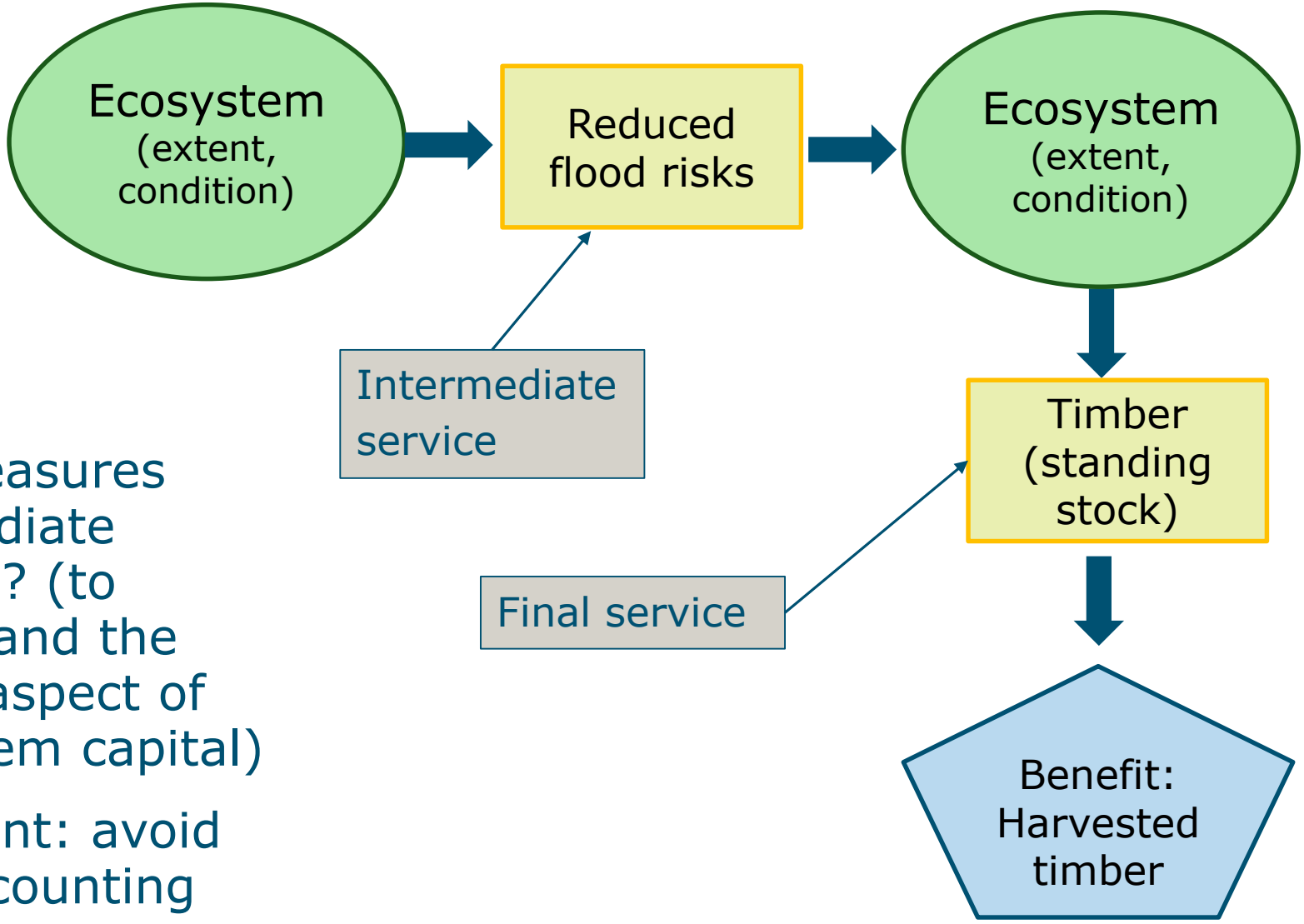
Conceptual model: regulating services



Conceptual model: cultural services

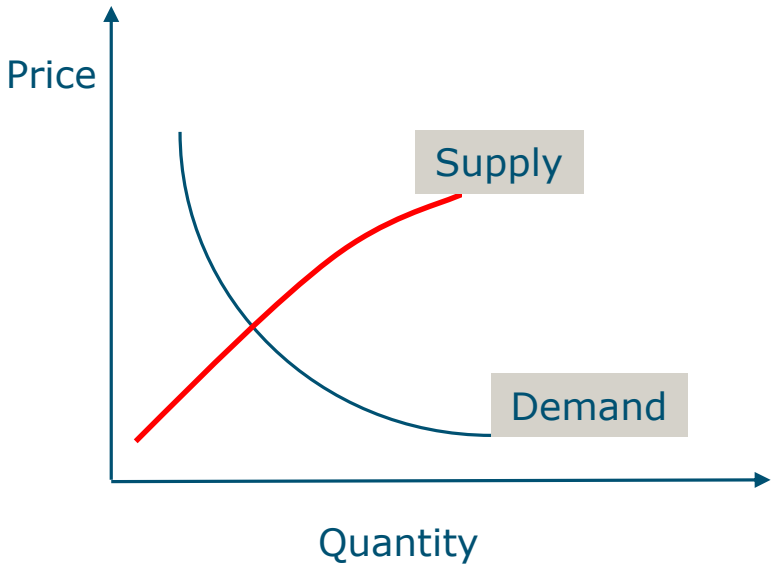


What are intermediate services?



- Why measures intermediate services? (to understand the spatial aspect of ecosystem capital)
- Important: avoid double counting

How about demand and supply for services?



- Demand is no given, fixed quantity
- Provisioning services require harvesting; cultural services activities or passive enjoyment
- How about regulating services: when do they materialise?
- Their needs to be a benefit (or: a beneficiary using the service)
- The beneficiary may be in a different location (or time)
- Given the spatial and temporal component of the service, the ecosystem accountant may need to map where (and when) the use of the service takes place (or: where/when there is demand for the service)

But it is not necessary (or possible) to quantify this demand in absolute (volume) terms without considering price

Typology

- Including the three main categories of provisioning, regulating and cultural services (see SEEA EEA glossary)
- Potentially involving one or more hierarchical levels
- Building upon definitions of ecosystem services
- Key outcome 2018 Glen Cove meeting: do not overcomplicate the typology
- Other criteria: consistency, excludability, comprehensiveness, measurability

Issues for discussion

Topic 1

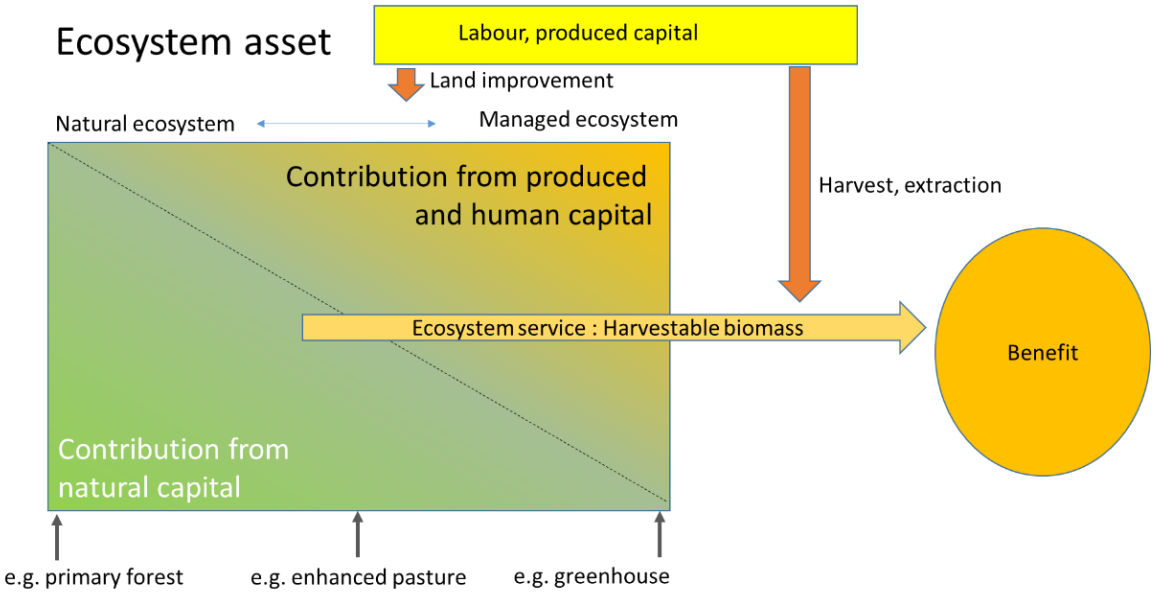
- Do we need to distinguish between cultivated and natural ecosystems? (as in the SNA)
- How to define the crop provisioning service?

Topic 2

- How to align the somewhat different models proposed for the regulating services?
- How to deal with externalities? (including CO_2 emissions from – degraded - ecosystems)

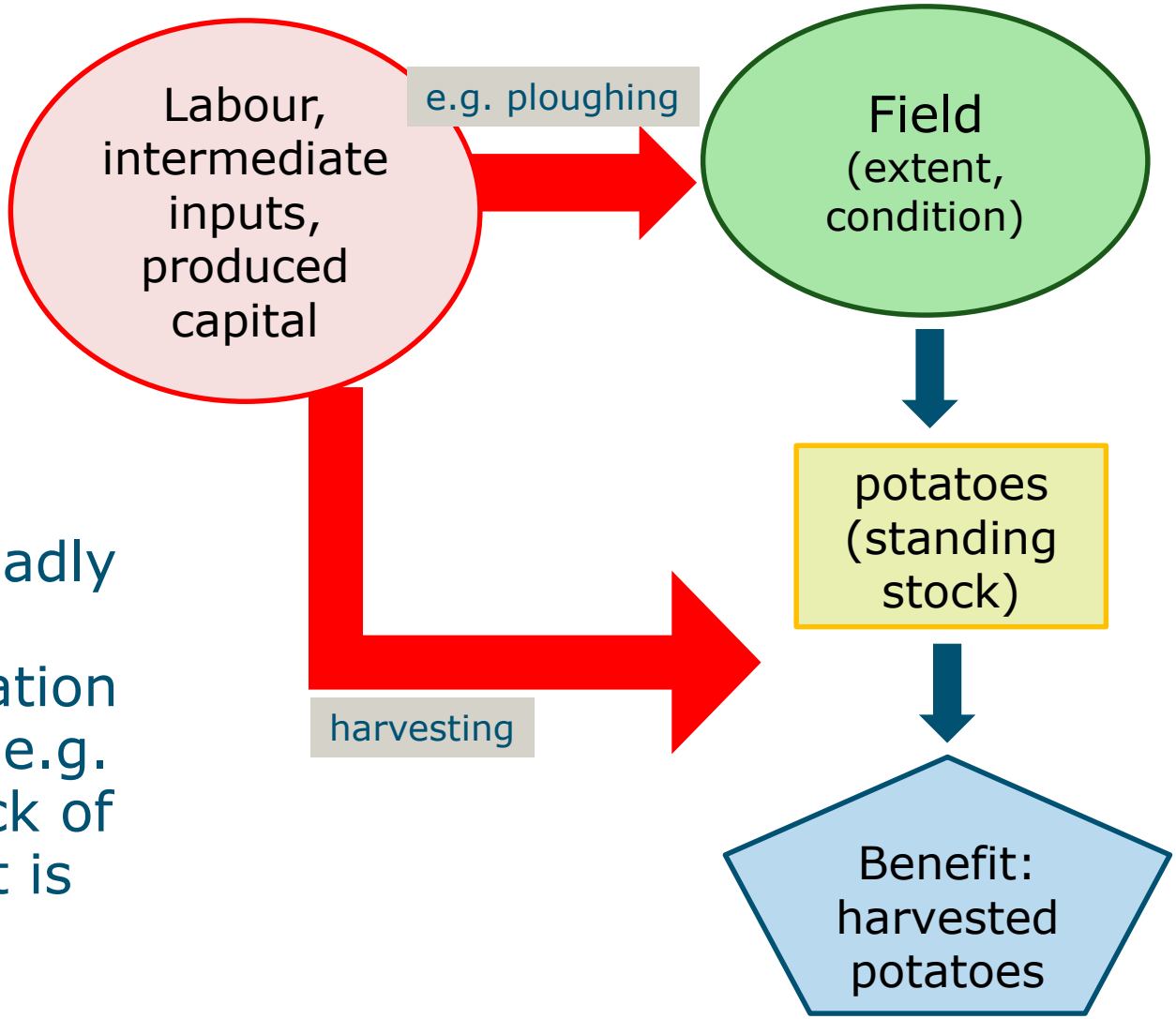
1. do we need to distinguish between cultivated and natural ecosystems? (as in the SNA)

How to define terrestrial biomass provisioning services in particular those related to agriculture?



- Relate to the harvested crop
- Relate explicitly to the processes/contributions that contribute to growing the crop

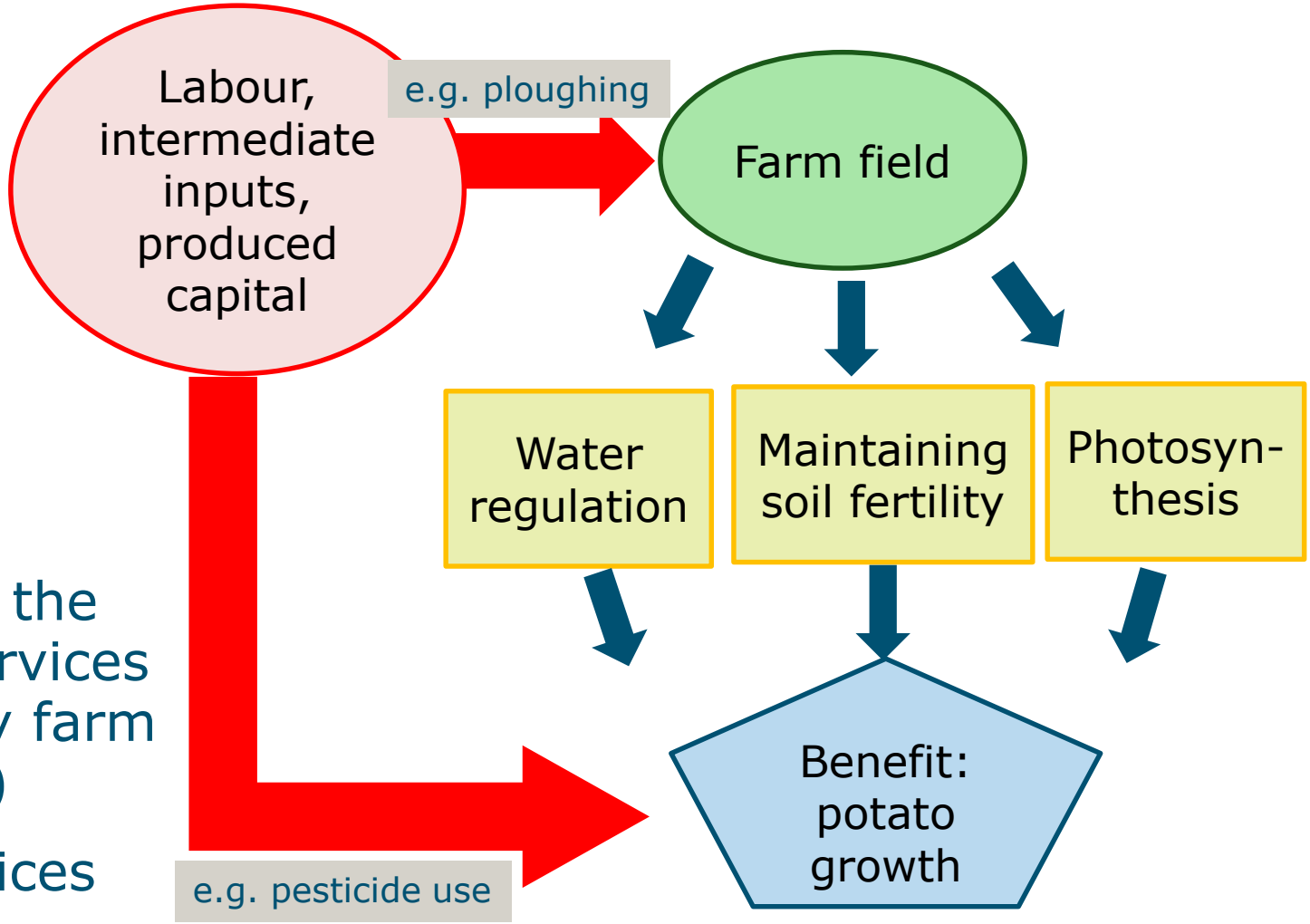
Ecosystem service = contribution to crop/agricultural production Model 1



Challenge

- Finding a broadly acceptable conceptualisation of a service (e.g. standing stock of potatoes that is harvested)

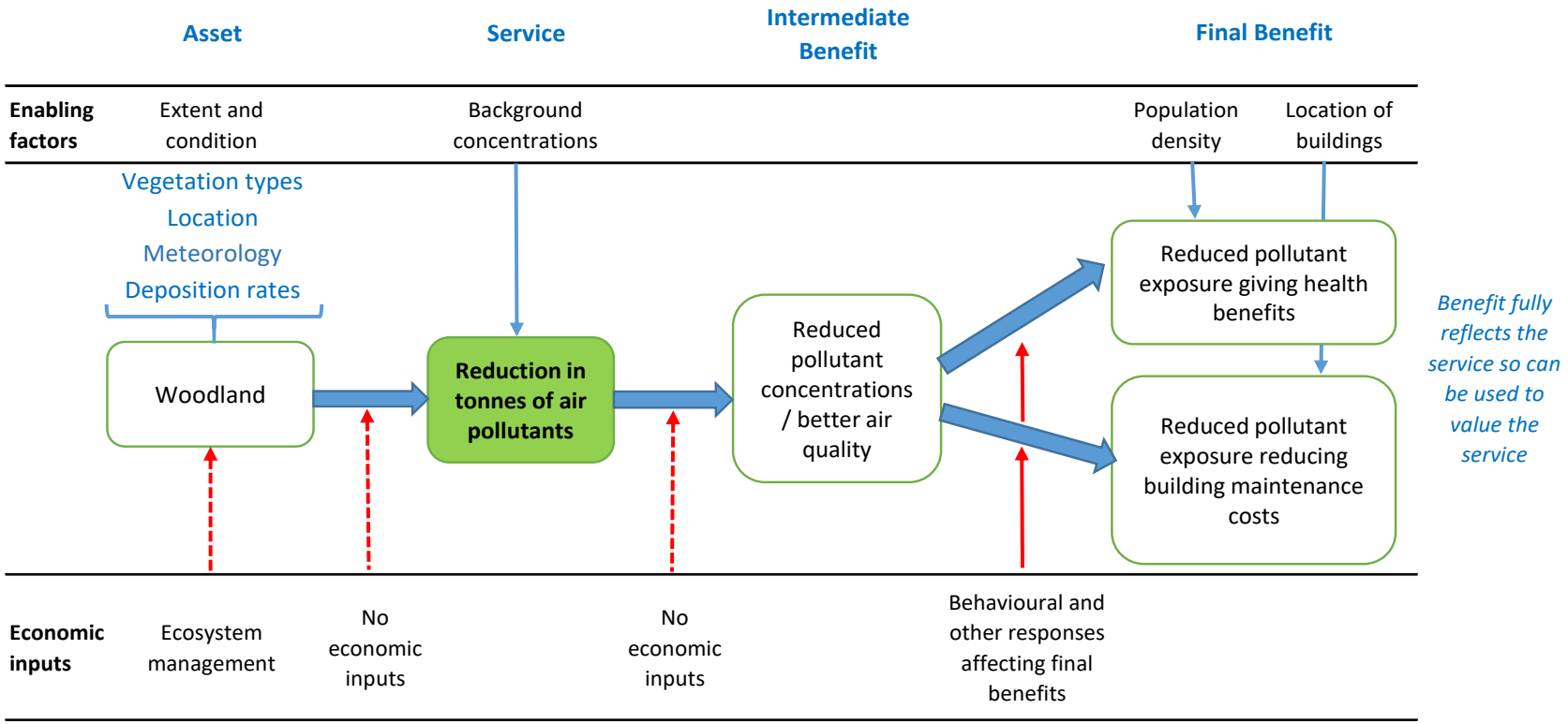
Ecosystem service = contribution to crop/agricultural production – Model 2



Challenges:

- Identifying & measuring all the ecosystem services (influenced by farm management)
- Note the services are not provisioning

2. Regulating services that have to do with mitigating pollution (~ sink services)



Question:

- Does the service provide a benefit to the people using air or water and/or the polluters?

Filtering services

Entry point for analysis:

- Where water is extracted for use (e.g. for drinking water production), this water may be cleaner due to filtering).
- The beneficiaries are the users of the water (or air)
- The ecosystems where the filtration takes place (e.g. floodplains, reed beds) generate the service

- Question2: Dilution (in the ecosystem) contributes to the benefit for the polluters and for the users of water, but is not considered in studies modelling filtration by the ecosystem. Is this an ecosystem service? (part of the sink service)

3. What to do with ecosystem externalities?

Example: tropical peat lands

- Drained (for agriculture):
  - Very high CO_2 emissions (up to >100 ton CO_2/ha/year)
  - Fires leading to smoke and health effects
- Undrained, natural ecosystems:
  - Slow accumulation of CO_2
  - No fires
- If these effects are not included in the ecosystem accounts, the accounts cannot be used meaningfully to support ecosystem management.
- Note these are flows, with a biophysical and monetary aspect to it
- 'Cleanest' solution ??: add them to the ecosystem services account – either positive (reductions in) or negative

Thank you