WATER RELATED ECOSYTEM SERVICES

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D3.2 – Water-related ES summary

COUNTRY	APPROACH	RESULT TYPE	ES ANALYZED AND TRENDS[1]	DRIVERS DESCRIPTION
SWEDEN	External model	Indicator quantification	Water quality (-)	Felling area, affecting MeHg concentration
IRELAND	DSS model	Indicator quantification	Erosion control (=)	Felling area, buffer zones creation
LITHUANIA	External model	Grade quantification	Erosion control (=)	Harvest volume
NETHERLANDS	DSS outputs	Direction of change	All ES (+)	Forest age, harvest volume
TURKEY	DSS model	Indicator quantification	Erosion control (+) Water yield (-)	Increase of forests area
SLOVAKIA	DSS outputs	Direction of change	Water yield (+) Erosion control (-)	Species composition, harvest volume
GERMANY	DSS model	Indicator quantification	Water yield (=)	Stand density, species composition
PORTUGAL	DSS outputs	Direction of change	Water yield (+)	Harvest volume, age, fire risk
ITALY	DSS outputs	Direction of change	Erosion control (-)	Forest age, fire risk, touristic pressure

CSA have large differences in:

- ES analyzed
- Approaches used
- Main drivers of change

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D3.2 – main findings 1

The **approaches** applied by the CSA are:

- Direction of change based on DSSs outputs
- Quantification when the calculation is in the DSS

The main **drivers** of future changes identified by CSA are:

- Ongoing trends (tree age, tree species change, management trends)
- Changes in harvested area due to changes in the market
- Climate change, when included
- Others: forest area in Turkey; tourist pressure in Italy; risk of stand failure in Portugal

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D3.2 – main findings 2

Climate change, which has a direct impact on Water Related ES and it is probably the main component of the scenarios, is often judged as too complex and not included in any consideration.

An assessment from models not including hydrological processes is inevitably **highly uncertain**, but it can be interesting to identify a general direction of change;

To improve consistency between CSA, it would be good to include factors that may have a strong impact. For example: climate change; land-use policies; risk of stand failure;

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D3.2 – Ideas for discussion

No **landscape analysis**, could that be done?

- We are lacking a definition of a landscape, and what exactly should be included in a landscape analysis.
  - Is the result just the sum total of FMMs?
  - Can we organize a spatially explicit ES evaluation?

How to include **climate change** consistently across CSA**:**

- What variables can be provided by IIASA (monthly precipitation, temperature) and how can they be integrated in the DSSs? What variables can be affected (tree species, growth, mortality, water availability)

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Water ES – Planned publications

Davide is thinking about organizing a review paper:

Title: The evaluation of water-related Ecosystem Services in Decision Support Systems

Outline:

- Water-related ES are often underrepresented in DSS, because they require modelling of physical processes. An interdisciplinary view to shed light on the **advantages/limitations of different approaches** to estimate water ES in DSSs
- **Topics**: description of approaches available; role of climate, site conditions, and model validation; methods for landscape valuation

Timeline: end of summer

If somebody would like to contribute, has ideas or is already developing a similar paper, **please contact Davide** for discussion. His contribution can be mostly on the processes modelling, while he is looking for contributions on how DSSs available estimate water related ES (erosion, water availability etc.).

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