LAND

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Inclusive Coastal Landscapes

Session 5 - Friday, 27th of April 2018

Phase B: Evaluation + Assessment of Coastal Landscapes

B.1 Integrated Landscape Assessment Approaches

with Prof. Dr. Roman Lenz, Nürtingen-Geislingen University

Universitatea de Arhitectură și Urbanism "Ion Mincu"

www.emu.ee Eesti Maaülikool Estonian University of Life Sciences

Hochschule für Wirtschaft und Umwelt Nürtingen-Geislingen

HOCHSCHULE WEIHENSTEPHAN-TRIESDORF UNIVERSITY OF APPLIED SCIENCES

ULB Faculté d'Architecture La Cambre Horta

LE:NOTRE Institute
Linking landscape education, research and innovative practice

ISOCARP
Knowledge for Better Cities

Seminar Process

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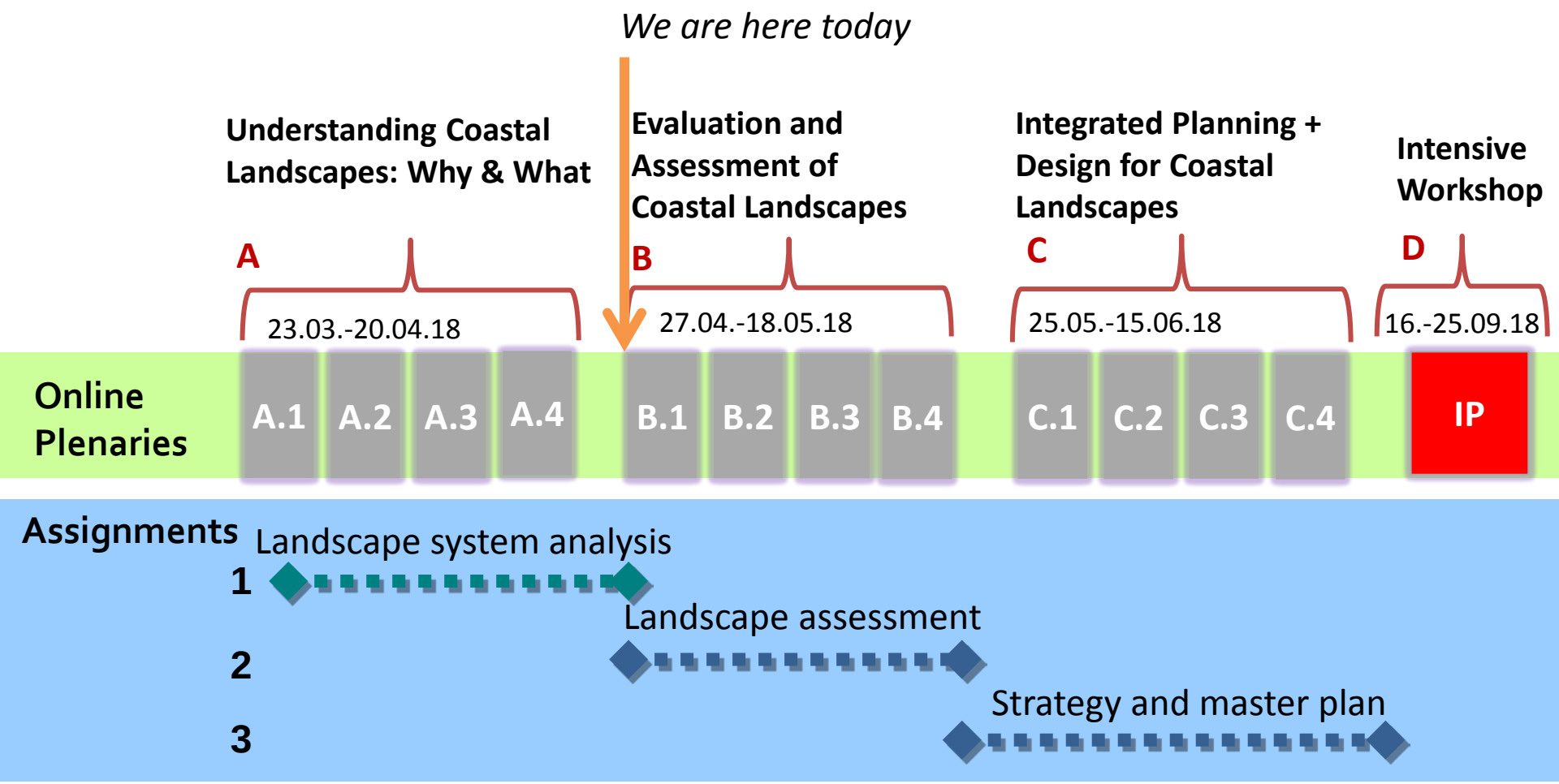

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Wiki Template for Section B (1/3)

Phase B: Landscape Evaluation and Assessment

B.1 Assessment Strategy

- *Based on the hypothesis derived from your previous landscape systems analysis you are now asked to define the goals for assessing the landscape. Your assessment is the basis for evaluating the landscape status.*
- *Which elements and phenomena need to be mapped, why and how?*
- *This a text contribution, max 250 words*

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Wiki Template for Section B (2/3)

B.2 Mapping

- *As defined by your assessment strategy you conduct the mapping and present your findings here*
- *As a minimum, at least three different themes need to be mapped, you may choose more if needed*

Your case your assessment mapping themel.jpg

briefly explain the findings of your mapping

Your case your assessment mapping theme2.jpg

briefly explain the findings of your mapping

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Wiki Template for Section B (3/3)

B.3 Problem definition and priority setting

- *Give a summary of the major findings of your mapping process, what are the problems/potentials identified?*
- *Draw a problems/potentials map*
- *Set priorities for the most relevant issues*

Your case problems potentials map.jpg

add caption here

B.4 Theory reflection

- *Please reflect the assessment and evaluation methods used based on at least three readings*
- *Did you encounter limitations'*
- *200 words test contribution*

B.5 References

- *give a full list of the references you have used for this section*

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Presentation of your Findings

Friday, May 18, 2018

15 00 – 16 30 CEST, in parallel groups

Why Assessment and Evaluation?

Introduction and the example of Ecosystem Services

The “core” of Planning and Design Methods

- Assessment of environmental goods and services:

→ Are landscape processes of harmful impact to environment and people? (Your DPSIR in space and environmental media)

- Evaluation of your landscape system:

→ Is the current landscape working well? (Your hypotheses, its facts and developments, and goals for assessment)

Outline

- Framework/Concepts
- Scenario (?)
- Ecosystem Services
- Examples and Questions

Concepts of Evaluation and Assessment, e.g.:

- Landscape components/environmental goods
- Land use as „overlay“ of the socio-economic system with the natural system
- Basic methods (like DPSIR, SWOT)
- Environmental Impact Assessment
- Assessment and problem solving process (Action research)
- Scenario technique

- Framework “EIAMA” and others: please explore…

Protective goods/Environmental media

- Soils
- Waters
- Air/Climate
- Species and Biocoenoses
- Uniqueness/scenery of Landscape
- ...

Protective goods in Environmental Impact Assessments

- Soils
- Waters
- Air/Climate
- Species and Biocoenoses
- Uniqueness of Landscape
- Objects, cultural heritage
- Human being
- Interactions

Protective goods and Environmental conflicts in (effect-) Eco-balances

- Abiotic and biotic resources
- Surface sealing (area consumption)
- Global warming, ozone depletion
- Human-, Ecotoxikology
- Acidification and eutrophication
- Photochemical ozone creation, radiation, waste heat
- Occupational health
- Noise, bad smell
- Physical damage to ecosystems
- Landscape scenery

New approach: Ecosystem Services

- Not just provisioning of environmental goods like soil, water, species...
- Not just providing landscape functions like water retention,...
- Not just indicating harmful effects or protective goods like noise or biotic and abiotic resources...
- But: you will see later!

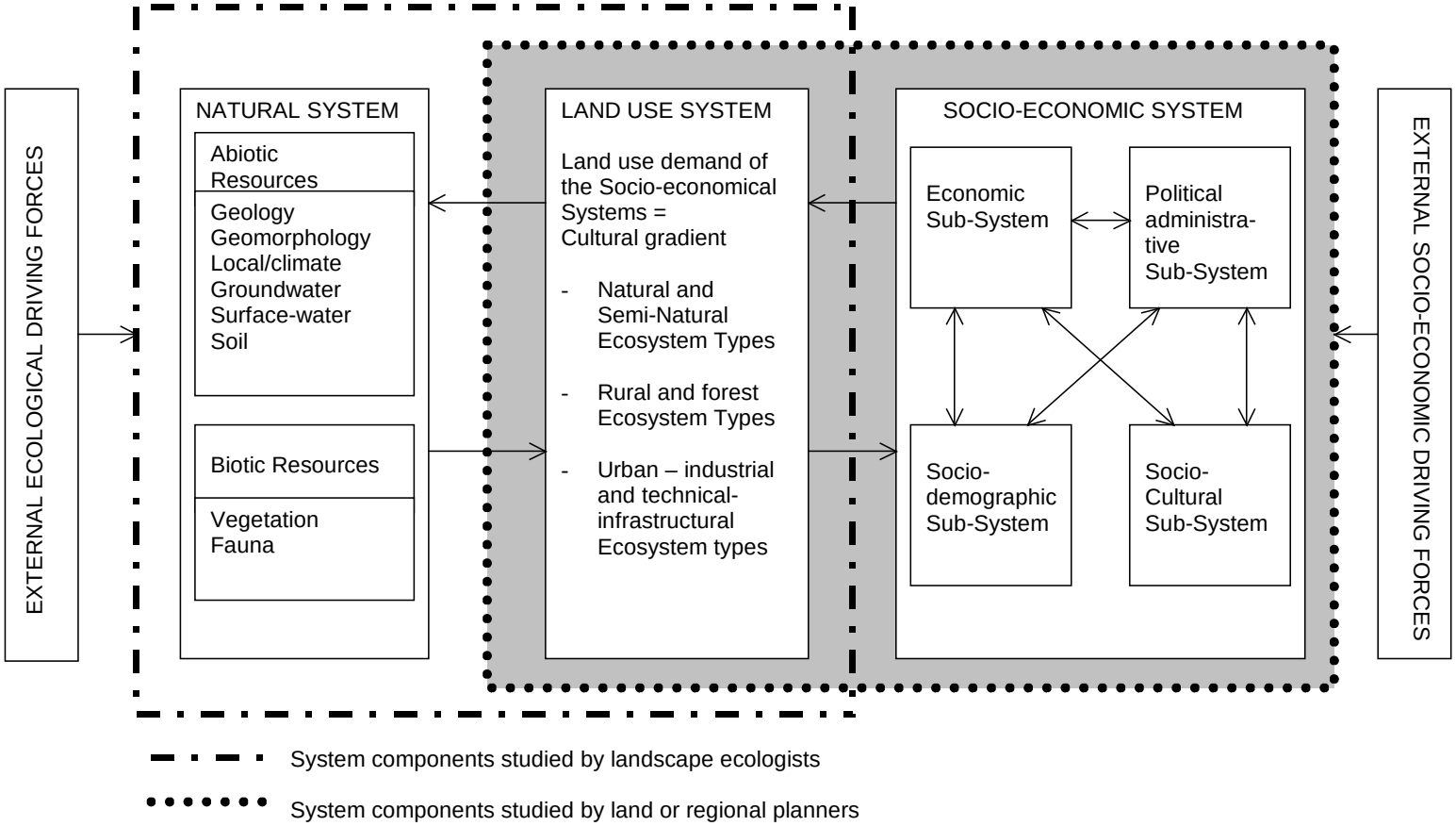
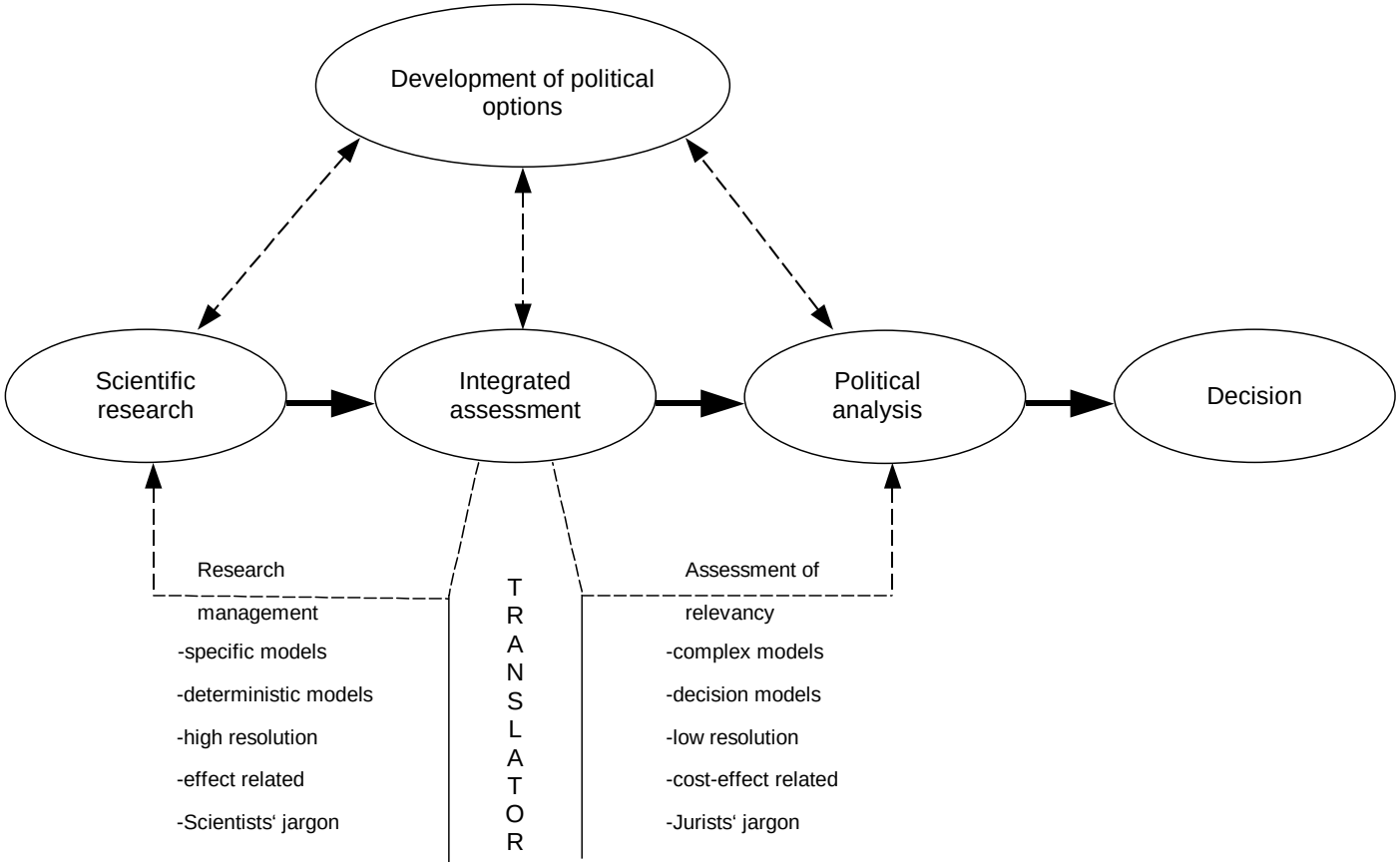


Figure 1 Simple model of a regional ecological-economic system. Explanation in the text. (Adapted from Messerli and Messerli, 1979)

Basic Methods: from risks to potentials

- Impact analysis (Risk- or conflict-analytical approach)
- Structure typification (landcover/landuse structures, types)
- Suitability assessment (suitability for landuse; potentials)

The role of an Integrated Assessment (STREETS 1989)

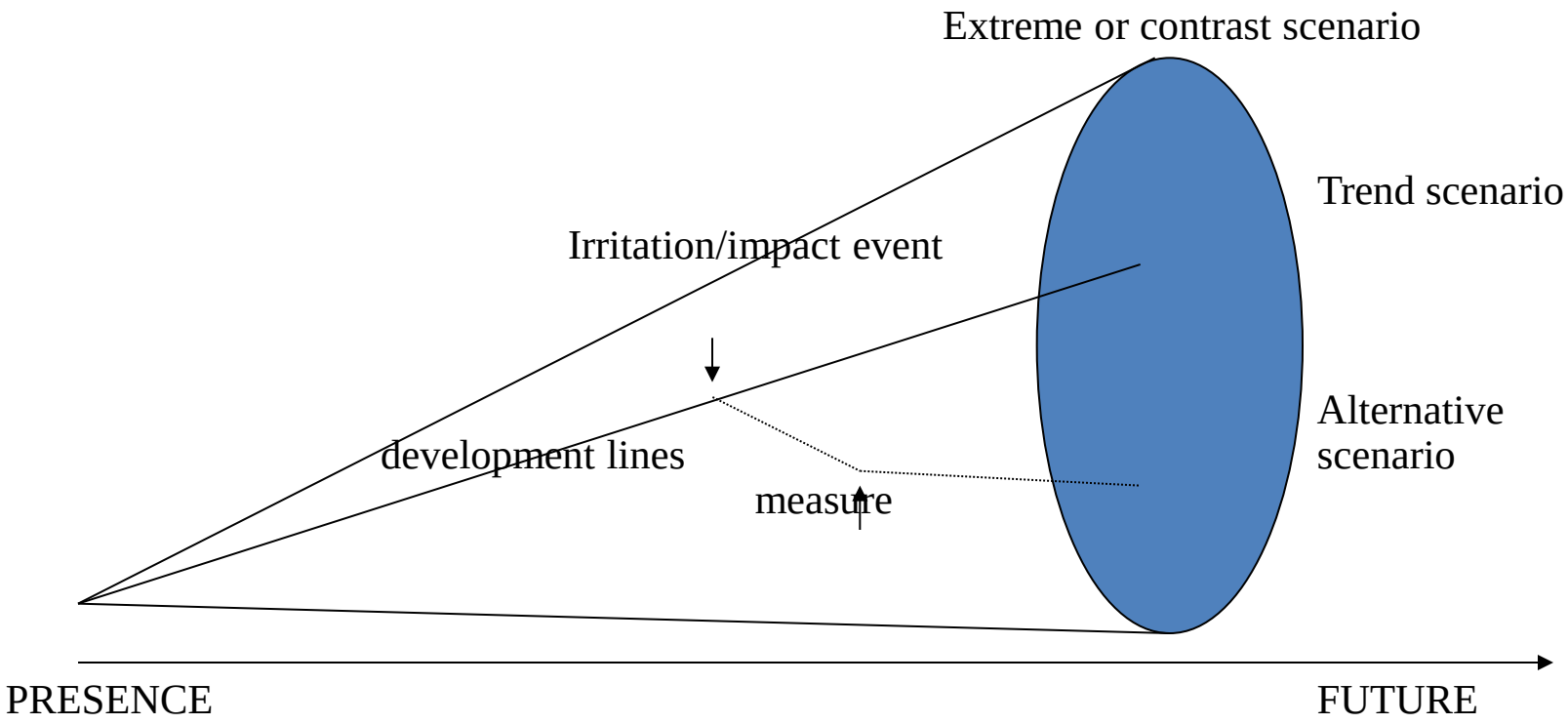


Some methods and examples…

What is a scenario?

- **Trend-Scenario**
- **Alternative-Scenario**
- **Extreme-Scenario; Contrast-Scenario**

- Scenario – Image of a future situation
- Development line of a Scenario
- Changed development line by an irritation or impact event
- Irritation/impact event
- Decision point e.g. for taking measures


Extreme or contrast scenario
Trend scenario
Irritation/impact event
Alternative scenario
development lines
measure
PRESENCE
FUTURE

What is the plan?

The Carl Steinitz Framework for Planning

Carl Steinitz (University of Harvard) formulated a toolkit for understanding and organising the process of landscape design.

This framework is composed of six questions:

- How should a landscape be described?
- How does the landscape work?
- How does one judge whether the landscape is working well?
- How does the landscape change?
- What differences might these changes cause?
- How is a decision to be made?

(Source: Steinitz in Landscape Journal, October 1990)

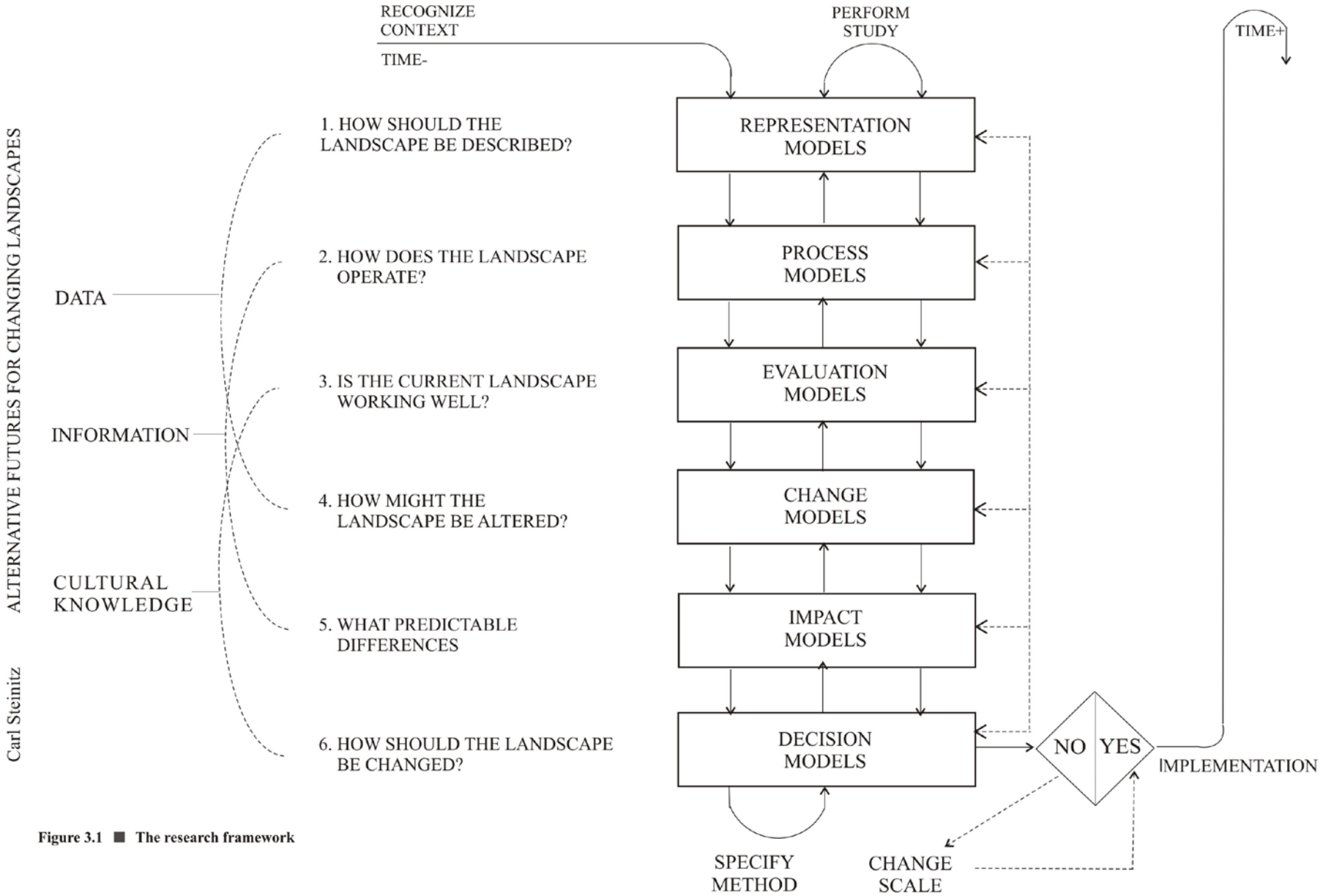
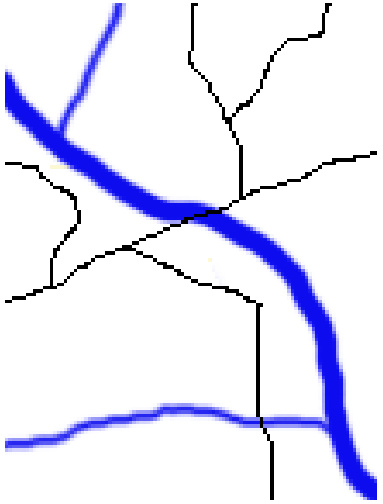


Figure 3.1 ■ **The research framework**

What is the plan?

The Carl Steinitz Framework for Planning

How should a landscape be described?



Representation models show our understanding of landscapes:

What is important? What constitutes a landscape?

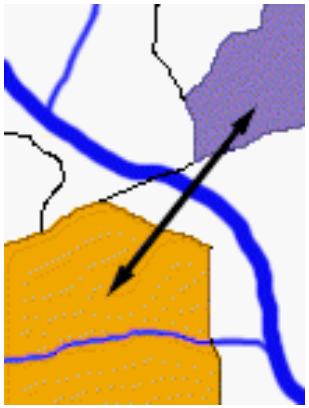
GIS systems can combine various data to a multi-layered Representation of landscapes –

but: we still have to decide, what is relevant.

Photos and drawings are also representations of landscapes. They support the representation model, often by means of **digital image processing.**

What is the plan?

The Carl Steinitz Framework for Planning



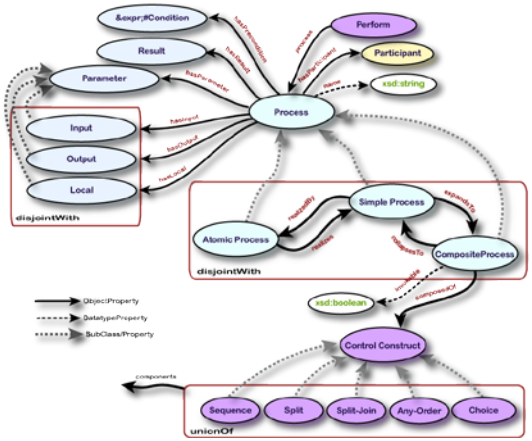
How does the landscape work?

Process models illustrate the functional and structural relationships among landscape elements.

These are immediate effects or long term developments.

GIS systems can illustrate trends and potential conflicts by using analysis tools among different landscape layers.

Its still up to us to decide what is a conflict or a trend.



What is the plan?

The Carl Steinitz Framework for Planning

How does one judge whether the landscape is working well?

Evaluation models depend on our criteria of judgement.

What is beautiful?
What has to be protected?

GIS systems can support evaluations by means of representation and process models.

Its still up to us to set the criteria.

The **internet** can support public participation within an evaluation process.

Visualisation techniques bear the potential to support but also to manipulate this participation process.

What is the plan?

The Carl Steinitz Framework for Planning

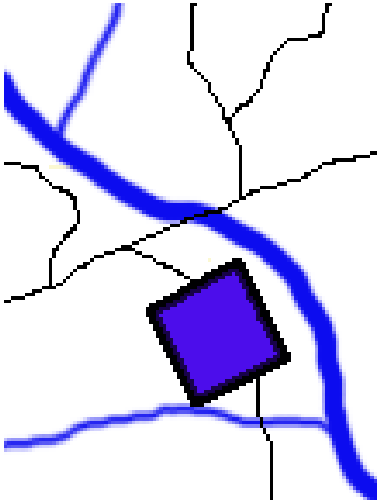
How does the landscape change?

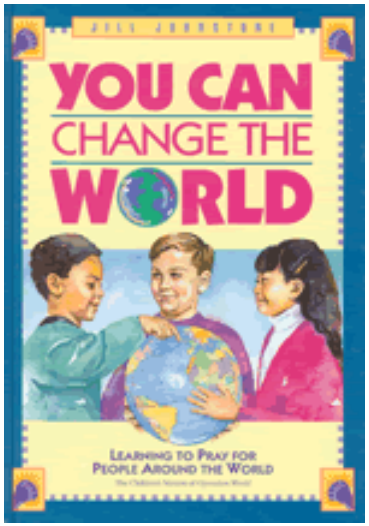
Change models can illustrate spatial development trends or individual interventions in the landscape.

GIS systems have the potential to represent spatial development trends.

CAD, digital terrain modelling and **visualisation techniques** illustrate interventions in the landscape.

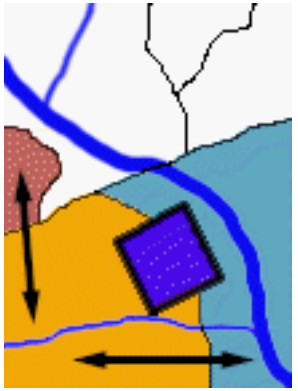
The **internet** supports the communication of these interventions to the public.





What is the plan?

The Carl Steinitz Framework for Planning



What differences might these changes cause?

Impact models illustrate the predictable consequences of simulated landscape changes.

GIS systems provide process models, their interpretation leads to impact modelling.

CAD, Digital Terrain Modelling and **Visualisation techniques** help to illustrate and communicate changes and impacts and thus support the decision process.

The **internet** can help to communicate these scenarios and make the public participate in the decision process.

What is the plan?

The Carl Steinitz Framework for Planning

How is a decision to be made?

Decision Models are based on a comparison of different courses of action or scenarios. The result should be a planning proposal.

Decision models depend on knowledge, cultural values and legal frameworks.

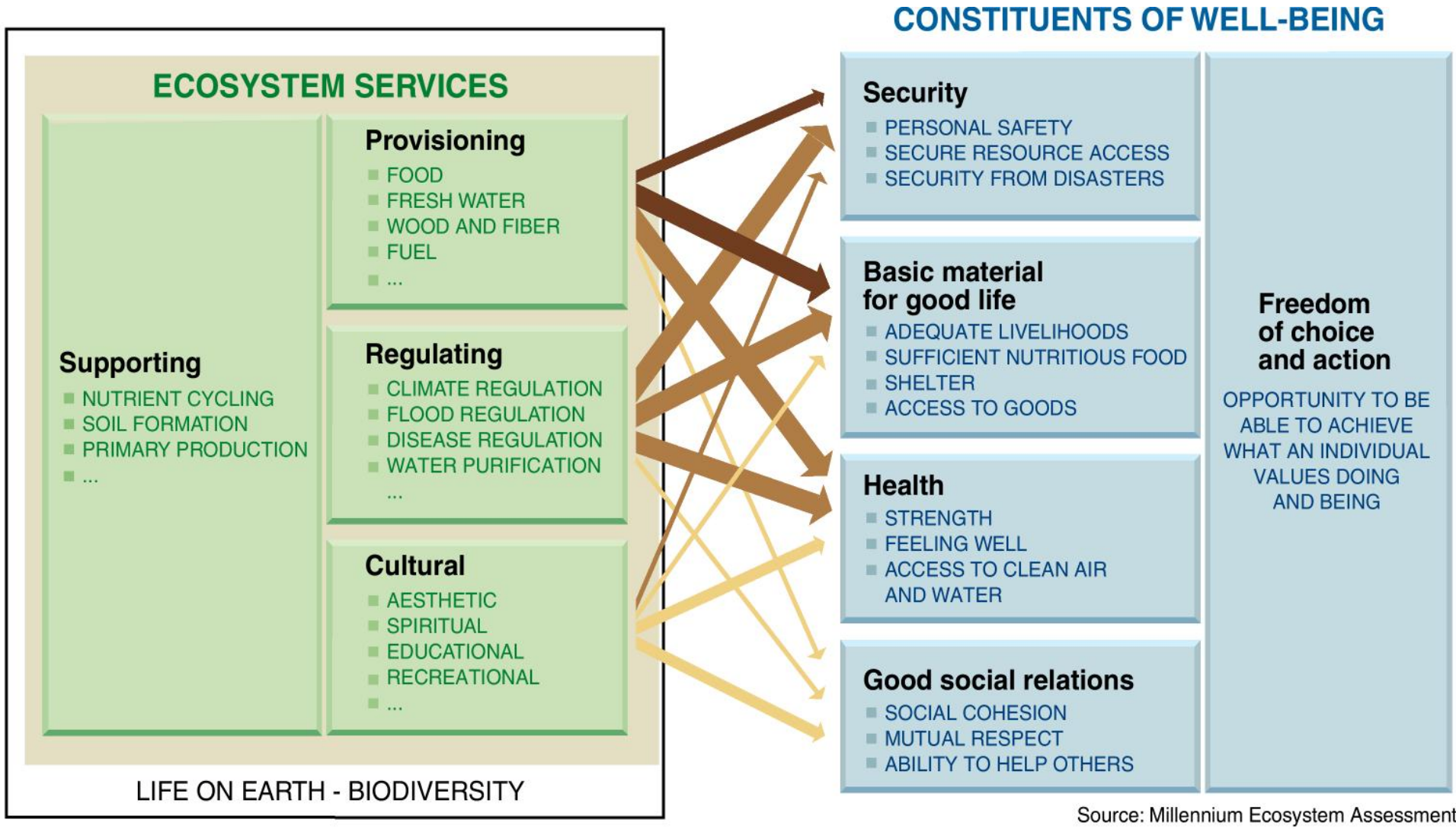
GIS systems provide multi-layered representations of possible scenarios and thus give a discussion basis.

Inclusive Coastal Landscapes

Ecosystem Services

Ecosystem Services ES

- What`s that?
- State of discussion
- ES supply/flow and ES demand
- Should we use and apply the concept?



Source: Millennium Ecosystem Assessment

ARROW'S COLOR
Potential for mediation by socioeconomic factors

- Low
- Medium
- High

ARROW'S WIDTH
Intensity of linkages between ecosystem services and human well-being

- Weak
- Medium
- Strong

TEEB: The Economics of Ecosystems and Biodiversity

- http://www.teebweb.org
- http://www.teebweb.org/areas-of-work/country-studies-home/
- http://www.teebweb.org/areas-of-work/biome-studies/teeb-for-water-and-wetlands/

Mainstreaming ecosystem services into EU policy

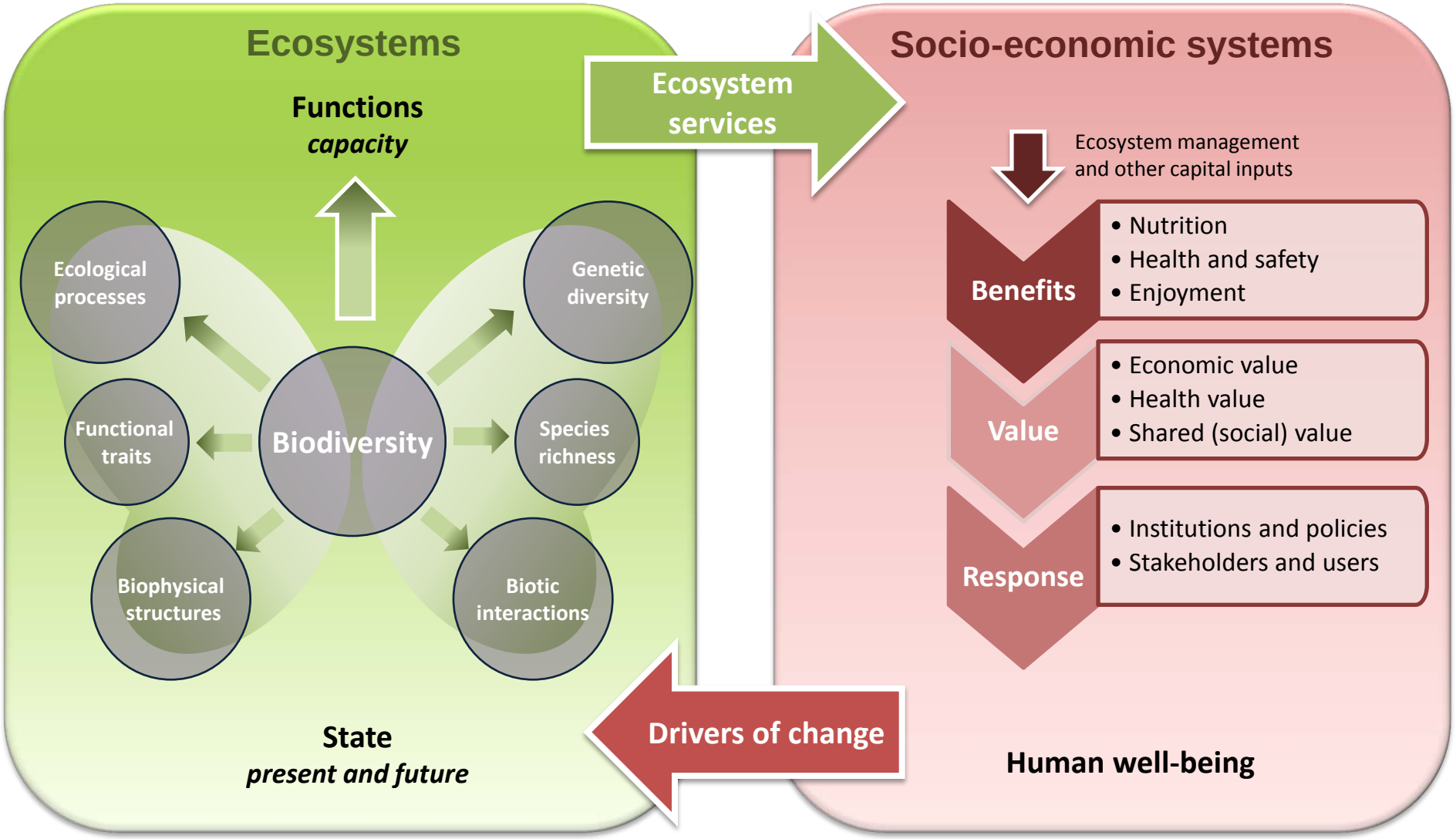
Joachim Maes

European Commission - Joint Research Centre, Ispra, Italy

Importance of EU Action 5

- Target 2: By 2020, ecosystem services are maintained and enhanced through the establishment of Green Infrastructure and the restoration of at least 15% of degraded ecosystems.

  - ➔ Action 5: Improve knowledge about ecosystems and their services in the EU (mapping in 2014; economic value assessment etc. in 2020).


Ecosystems
Functions
capacity
Ecological processes
Genetic diversity
Functional traits
Biodiversity
Species richness
Biophysical structures
Biotic interactions
State
present and future
Ecosystem services
Socio-economic systems
Ecosystem management and other capital inputs
Benefits
• Nutrition
• Health and safety
• Enjoyment
Value
• Economic value
• Health value
• Shared (social) value
Response
• Institutions and policies
• Stakeholders and users
Drivers of change
Human well-being

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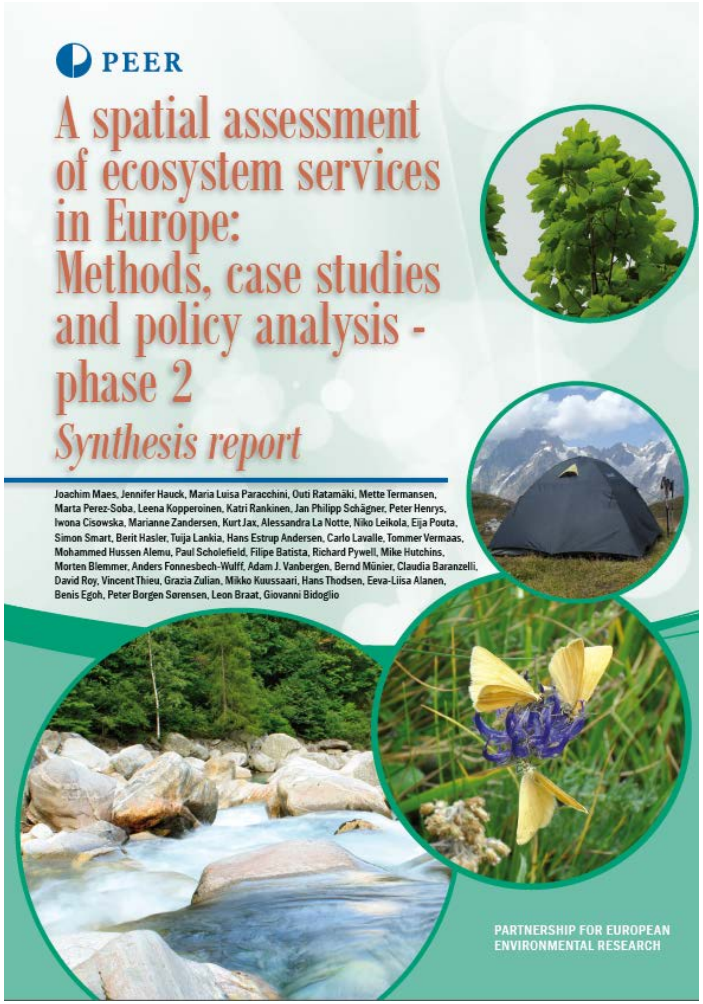


Joachim Maes, Jennifer Hauck, Maria Luisa Paracchini, Outi Ratamäki, Mette Termansen, Marta Perez-Soba, Leena Kopperoinen, Katri Rankinen, Jan Philipp Schägner, Peter Henrys, Iwona Cisowska, Marianne Zandersen, Kurt Jax, Alessandra La Notte, Niko Leikola, Eija Pouta, Simon Smart, Berit Hasler, Tuija Lankia, Hans Estrup Andersen, Carlo Lavalle, Tommer Vermaas, Mohammed Hussen Alemu, Paul Scholefield, Filipe Batista, Richard Pywell, Mike Hutchins, Morten Blemmer, Anders Fonnesbech-Wulff, Adam J. Vanbergen, Bernd Münier, Claudia Baranzelli, David Roy, Vincent Thieu, Grazia Zulian, Mikko Kuussaari, Hans Thodsen, Eeva-Liisa Alanen, Benis Egoh, Peter Borgen Sørensen, Leon Braat, Giovanni Bidoglio

Ecosystem service case studies

POLLINATION

RECREATION

WATER PURIFICATION

Critical success factor for mainstreaming BES into EU policy?

- **“**Smart, sustainable and inclusive growth” (Europe 2020)
  - What is the return on investment in green infrastructure in terms of jobs, sustainable growth and regional development?

- Requires demonstrating that policy changes are beneficial to biodiversity and human well-being ***at the same time through the enhanced flow of ecosystem services.***

Mapping

- https://www.researchgate.net/profile/Benjamin_Burkhard/publication/315074237_What_to_map/links/58dcd8bcaca2725c475dbdcd/What-to-map.pdf

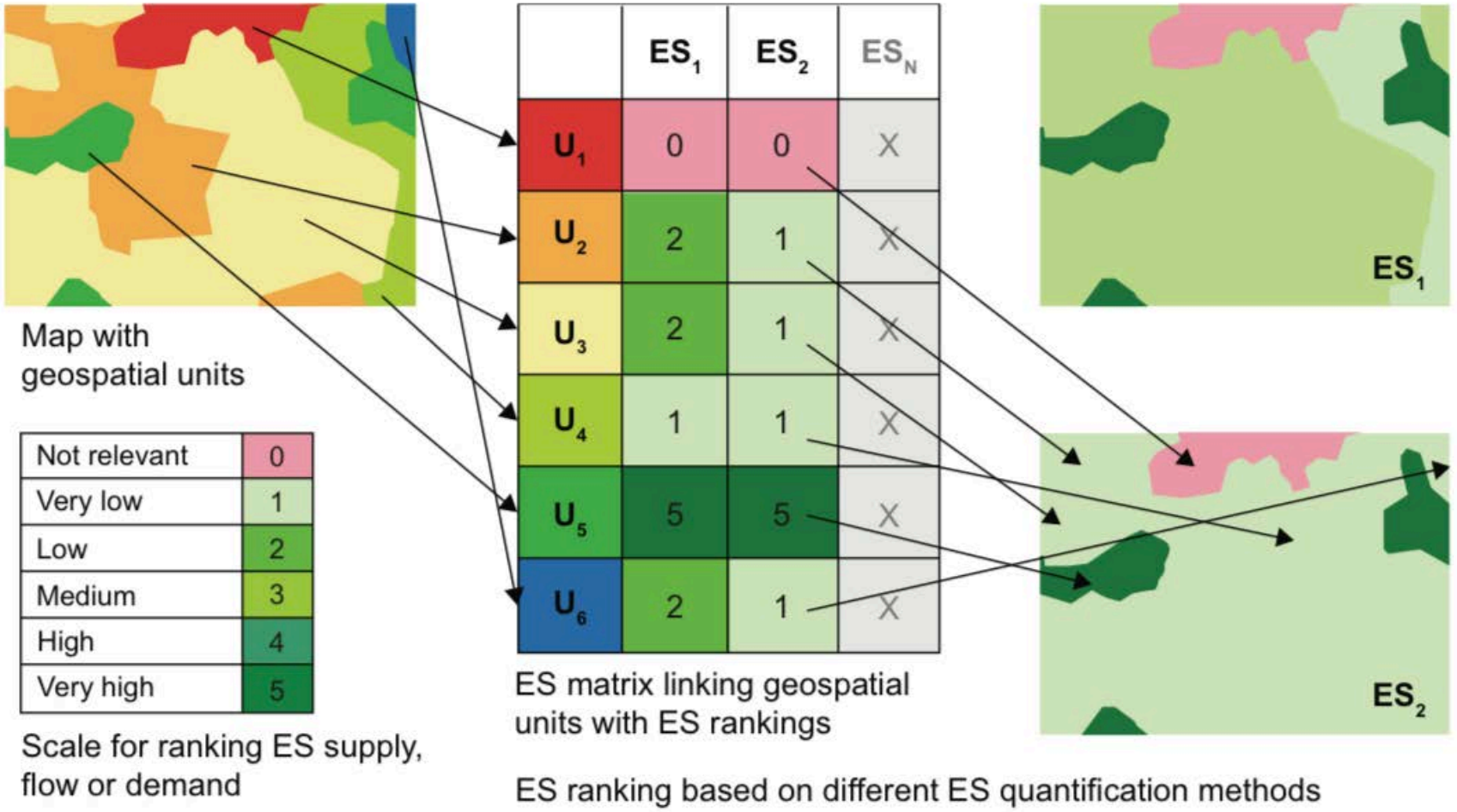


Figure 1. Overview of the ES matrix approach, based on geospatial map data, the actual matrix and resulting ES maps.

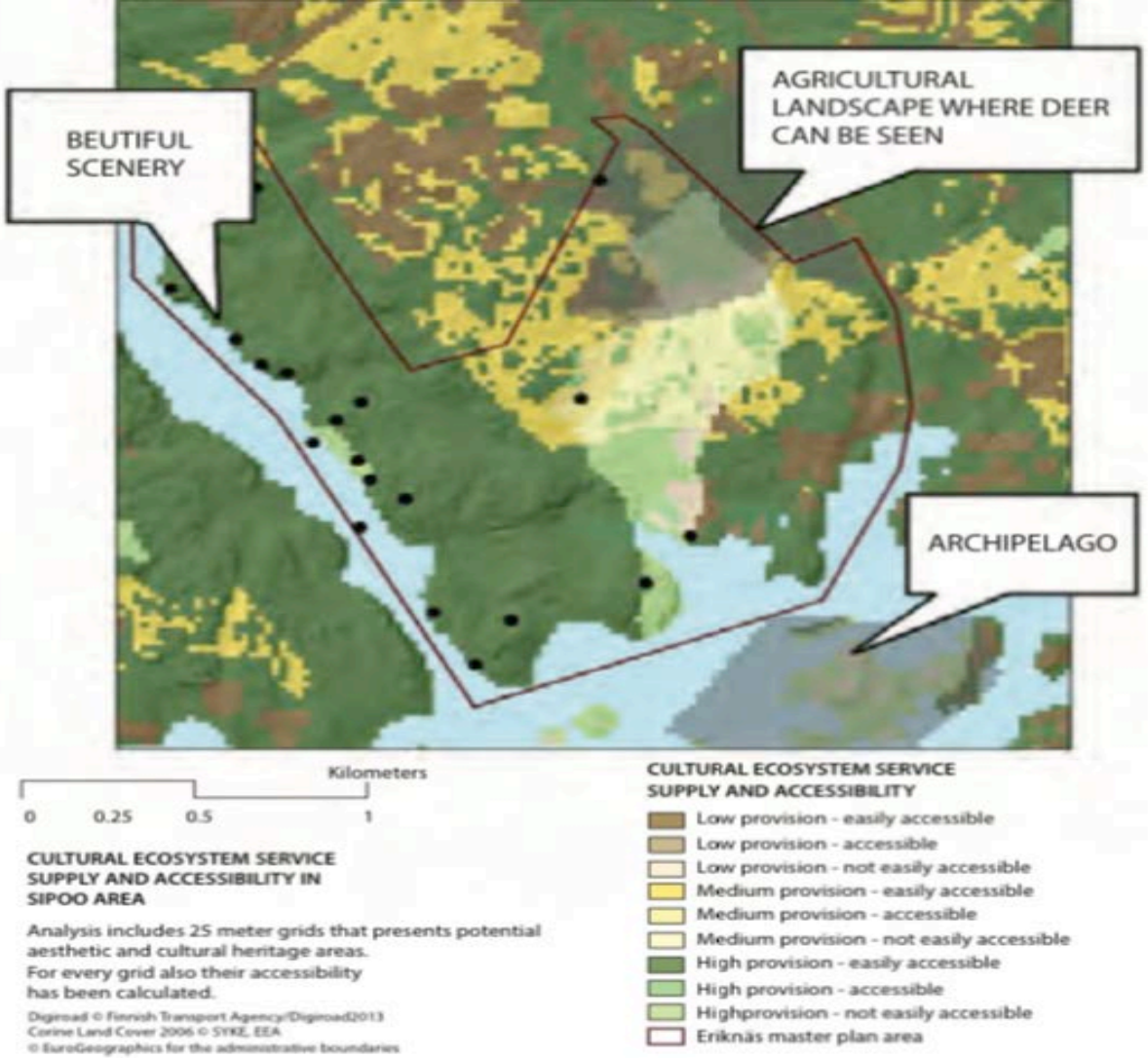


Figure 3. A map presenting the opportunity spectrum of the CES group 'Aesthetics and cultural heritage' in the background and residents' point and polygon markings of the same CES group. Examples of open-ended explanations of the markings have been added on the map. The border of the local master plan area is shown as well.

1 Policy and scenario analysis

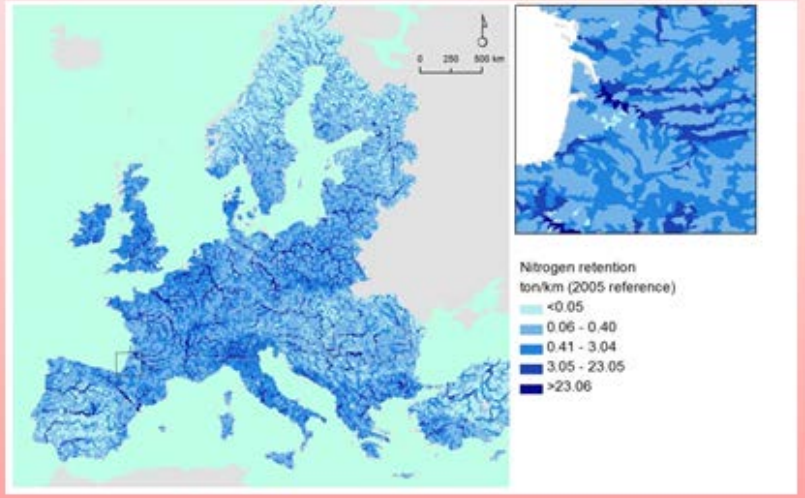
Common agricultural policy
Greening the direct payments to farmers

↓

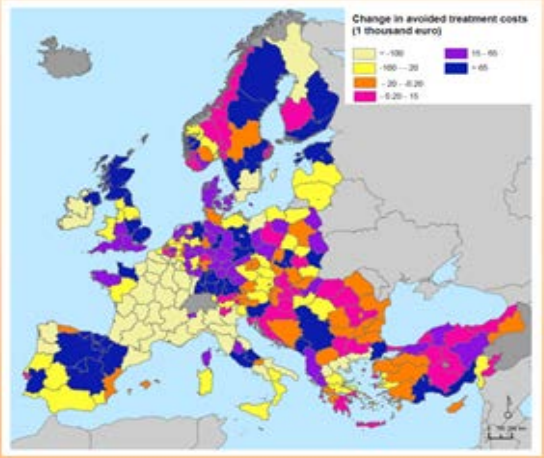
Land use change

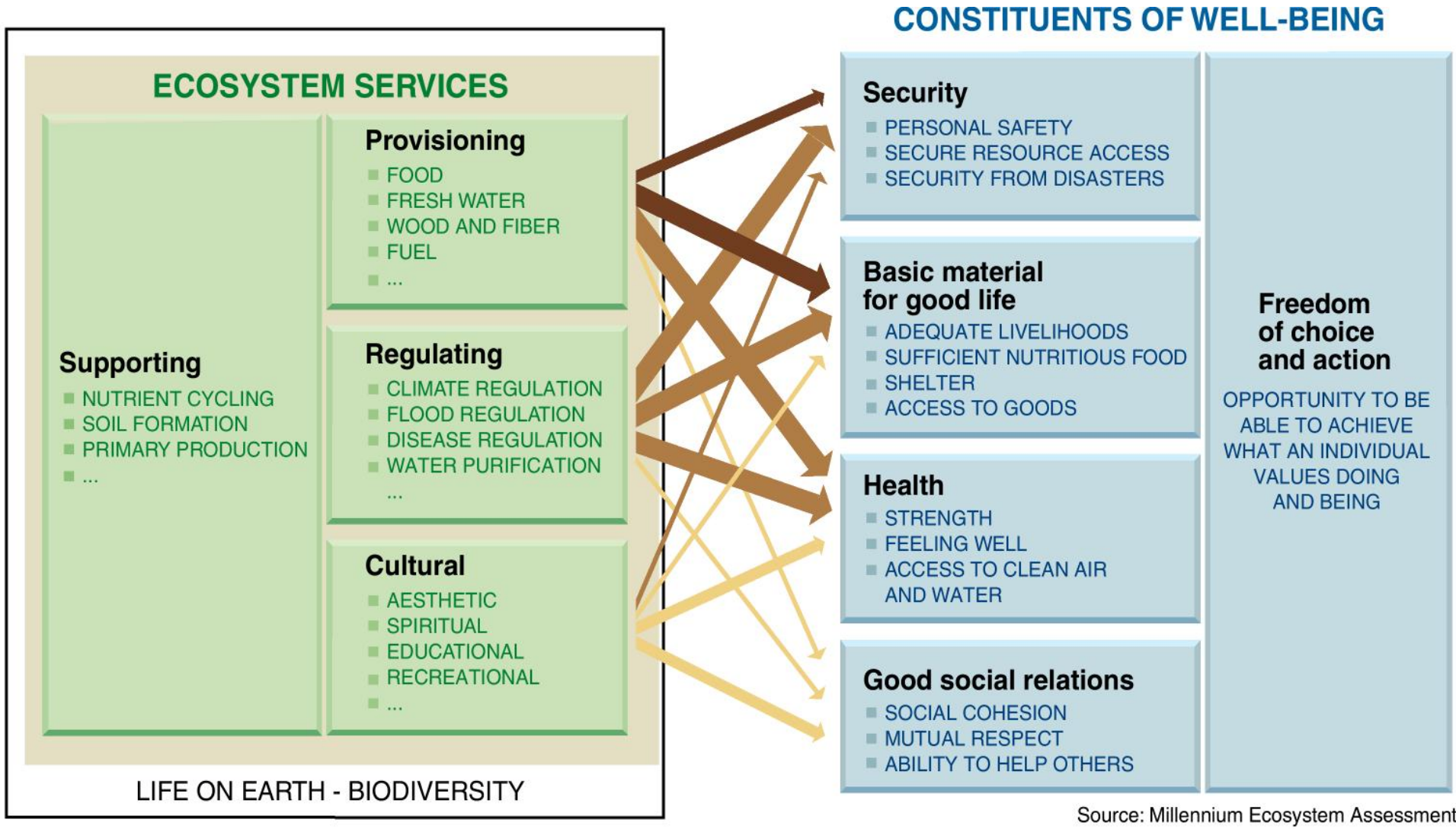



2 Biophysical modelling



3 Monetary valuation of the benefits





Source: Millennium Ecosystem Assessment

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- Low
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ARROW'S WIDTH
Intensity of linkages between ecosystem services and human well-being

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- Medium
- Strong

ES from green and blue infrastructure...

- Filter capacity of a beech tree equals the work of 20 charwoman/dust sucker...
- ...reduces climate regulation by producing the daily amount of oxygen required for 13 people
- ...which can also be used for burning 4 kg petrol (e.g. in cars)
- Provides food/fish in this amount...

Should we use and apply the concept in the Coastal Landscapes?

- Yes, because...
- No, because...

→ Questions for the groups and case studies

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Next Steps

- Define your assessment strategy: goals?
- What has to be mapped an how?
- Start mapping

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Questions?

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Next meeting

Friday, May 4, 15 pm CEST

B.2 Integrated Landscape Assessment Approaches (2)

with Roman Lenz (NGU)

and Himansu Sekhar Mishra (EMU)

BlueHealth
Linking environment, climate & health

Universitatea de Arhitectură și Urbanism "Ion Mincu"
Eesti Maaülikool Estonian University of Life Sciences
Hochschule für Wirtschaft und Umwelt Nürtingen-Geislingen
HOCHSCHULE WEIHENSTEPHAN-TRIESDORF UNIVERSITY OF APPLIED SCIENCES
ULB Faculté d'Architecture La Cambre Horta
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Thank you for your attention