

WECAN

Natural heritage for economic prosperity

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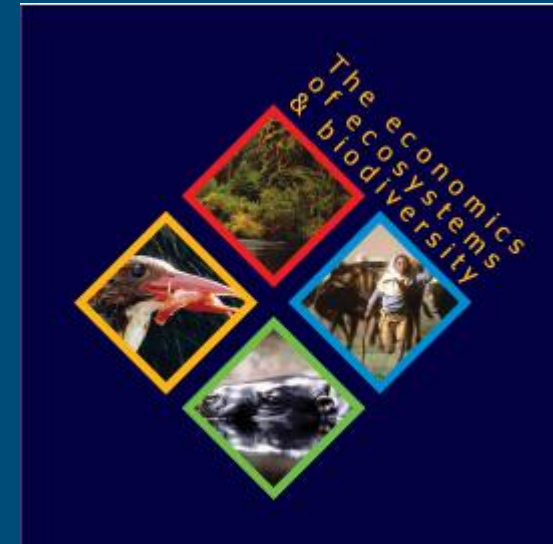
Rationale in decision-making



Tragedy of natural heritage

- No market commodities – free of charge
- Indirect benefits to human wellbeing
- Mismatch decision support tools and actual situation
- Suboptimal policy decisions

Re-establishing the link between nature and economy



The Economics of Ecosystems and Biodiversity (TEEB), an international initiative that aims:

- to draw attention to the global economic benefits of biodiversity, to highlight the growing costs of biodiversity loss and ecosystem degradation

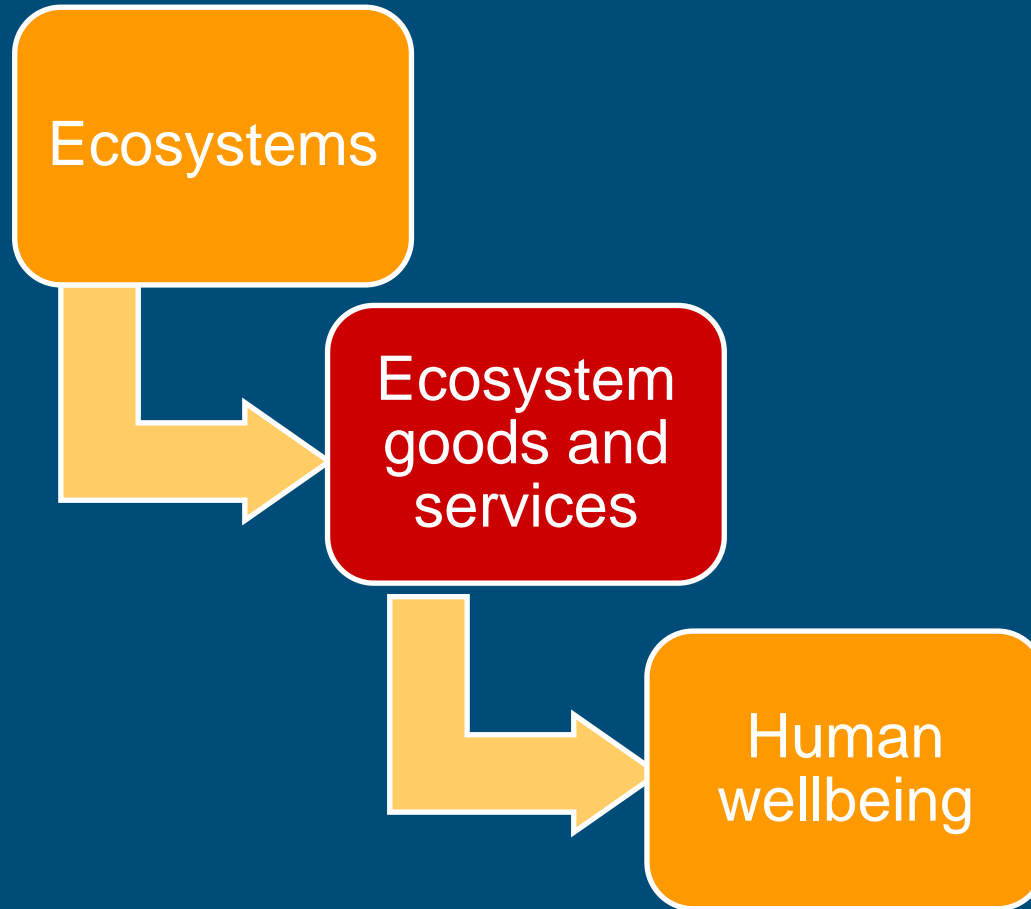
Topics

- Valuing what?
- WECAN valuation tool and test on National Park Hoge Kempen
- Intra-European differences
- Research vs. Practice

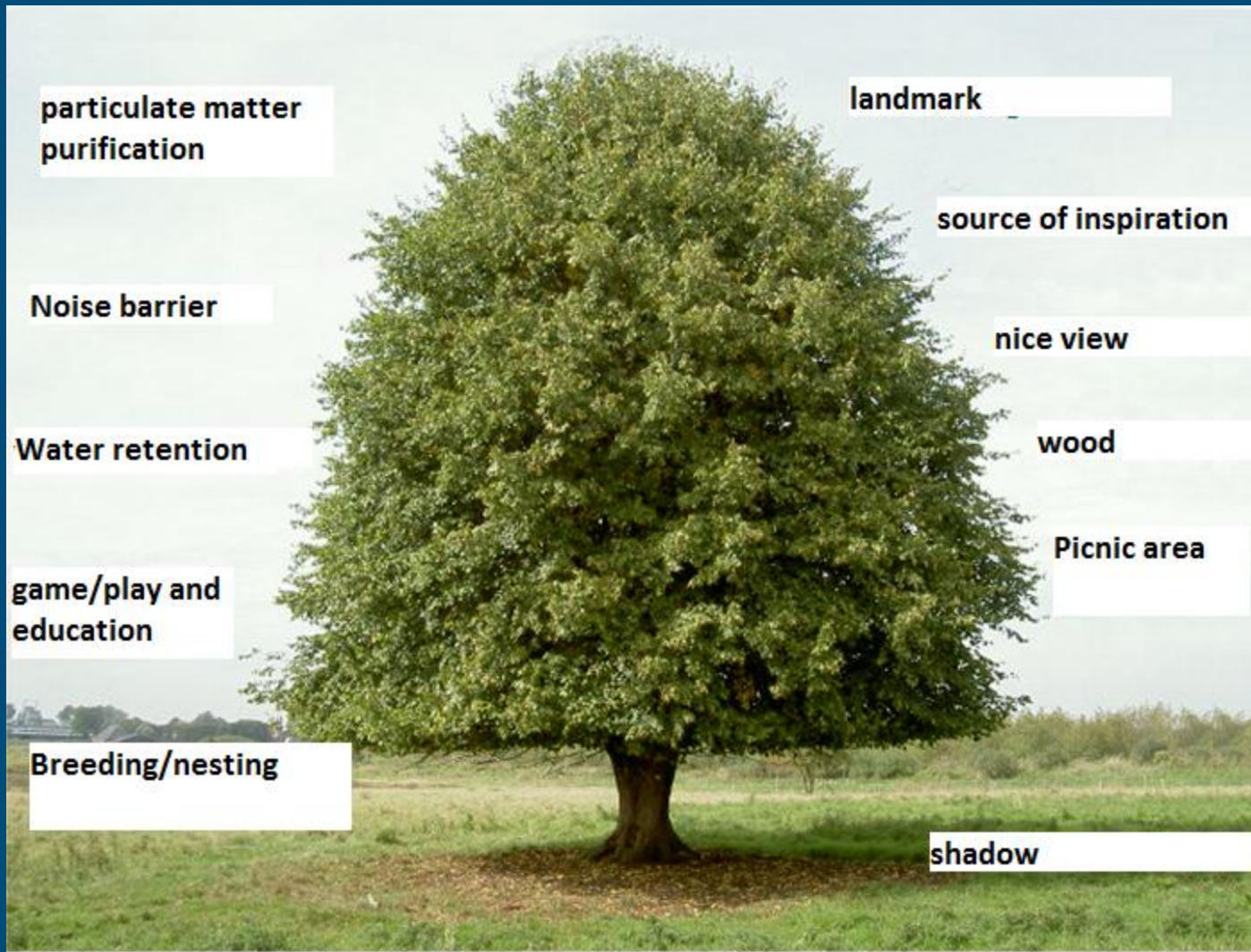
WECAN project – Alterra project objective

- Identification of the values of natural heritage for regional prosperity
- Development of an instrument to assist the WECAN partners to estimate and communicate the values of natural heritage for economic prosperity

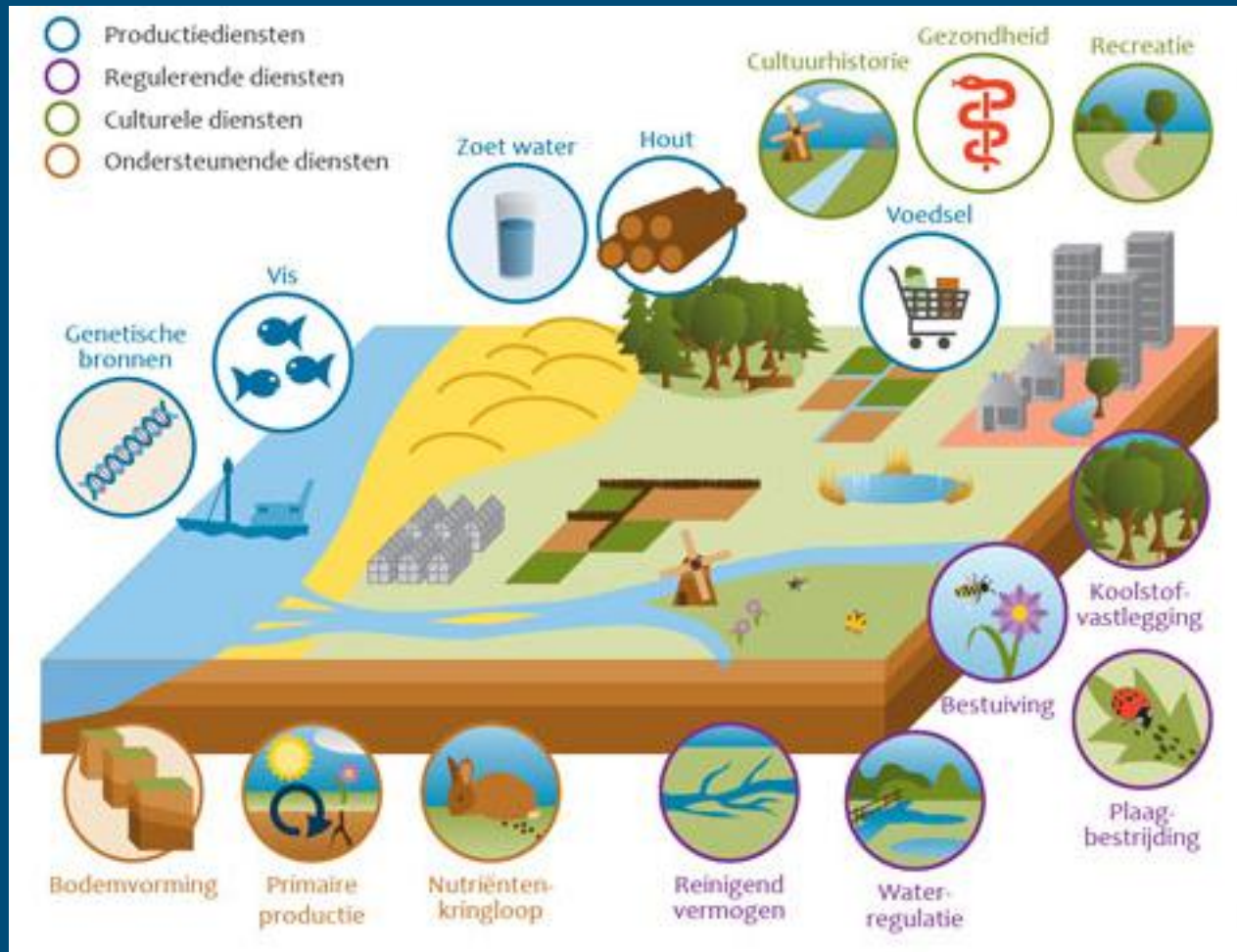
The missing link – ecosystem goods and services



What's in a name?



What kind of goods and services?



Ecosystem goods and services

- Provisioning goods and services
- Regulating services
- Cultural services
- Supporting services

Provisioning goods and services

- Products from the land, like food, raw materials, medicinal resources, fresh water, ...
- Exploitation of the products from lands provide **jobs** and **income**
- Contribute to **regional prosperity and well-being**



Regulating services

Carbon absorption –
contributes to climate
change mitigation



Local climate regulation –
to decrease the heat
island effect in cities



Water purification



Regulating services



- Air purification



- Protection from disasters (floods and droughts)



- Biological control – pest control



Regulating services



- Soil erosion and fertility – contributes to agriculture



- Pollination – contributes to attractive landscape, agriculture and recreational entrepreneurship



Cultural services

- Recreation and tourism – contribute to regional prosperity and well-being



Cultural services

- Education, research and culture – contribute to well-being
- Social cohesion and sense of place – contributes to well-being



Cultural services: quality of the environment

- An attractive environment contributes to the well-being of inhabitants
- Quality of the environment attracts new inhabitants: housing prices are maintained or will increase
- Attracts new companies



How does natural heritage contributes to regional prosperity?

- **The presence** of natural heritage generates returns: a tree removes pollutants, and a nature reserve contribute to water retention
- **The use** natural heritage generates returns: walking in the national park contributes to health, a tree can be sold as an energy source.
- Natural heritage generates possibilities to entrepreneurs, for instance bicycle rental or restaurants

Economic value of natural heritage

Different types:

- Income and employment: sale of natural resources or recreation and tourism (direct return in euro's)
- Avoided costs because of purification or protection from flooding, or health care expenses (indirect return in euro's)
- Blooming economy because of attractive living and working environment (indirect return in euro's)
- Increasing well-being (can we express this in monetary terms?)

WECAN valuation tool

- Step 1: Specifying the geographically available ecosystems
- Step 2: Recognizing the values: identifying and assessing the full range of ecosystem services
- Step 3: Demonstrating the value: estimating the values

tool: Step 1: determining the geographical area and specifying the ecosystem aspects

specifying the ecosystem

Indicate which ecosystem elements are present in the study area

yes no

Are there water bodies and rivers in the study area?

Are there forests in the study area?

Are there agricultural activities in the area?

tool: Step 2: determine provided ecosystem goods and services

ecosystem goods and services	
provisioning services	
food	
fibre, timber and other raw materials	
fuel/energy	
fresh water	
biochemicals, natural medicine and pharmaceuticals	
ornamental resources	
regulating services	
climate regulation	
disease & pest regulation	
detoxification and purification	
pollination	
air quality regulating	
water regulating	
hazard regulation	
noise regulation	

tool: Step 3: demonstrating the value by entering the data

helpdesk	insert data	insert data	benefits
think of food produced from animals (incl. fish, wild, game meat), from plants, from microbes			
	kg/year	euro/kg	euro/year
	kg/year	euro/kg	euro/year
	kg/year	euro/kg	euro/year
	kg/year	euro/kg	euro/year
	kg/year	euro/kg	euro/year
	kg/year	euro/kg	euro/year
	kg/year	euro/kg	euro/year
	kg/year	euro/kg	euro/year
	kg/year	euro/kg	euro/year
	kg/year	euro/kg	euro/year
	number of jobs in food production	number of jobs	

Provisioning services, water



Approach

Extraction of drinking water: take the difference in production costs between water produced in the area and surface water. Step 1: try to find out with drinking water produces in the area how much cub water they extract from the area (colom c). If this data is not available, you can use figures related to the new supply of ground water.

Step 2: determine production costs within the area and compare them withe extraction costs outside the area (colom E)

Waterproduction and nature



Calculation water

The price difference between production costs between surface water extraction and groundwater extractoin around the natura area ca 13 ct per cub. Figure for supply of groundwater per ha varies from ca 100 cub (pine forest) to 362 cub (broadleaf forest)

WECAN tool total value of natural heritage to economic prosperity

Total contribution to prosperity in the study area	
income from provisioning services	0
jobs	0
avoided costs	0
wellbeing of people in the area	pm
amenity value	0

From pine forests to broad leafed forest in Hoge Kempen

Ecosystem service	Benefit of transformation process (in euro's)
Provisioning goods and services	
wood	5000/ha
Drinking water	260/ha
Regulating services	
Avoided costs of water purification (nitrate)	200/ha
Avoided costs of water purification (phosphate)	100/ha
carbon absorption	-50/ha
Cultural services	
Identity	decreases
Recreation	increases

The regional workshops – intra-European differences

- Focus on monetary valuation of nature: which methods, scientific argumentation, ... (France)
- Focus on planning: how to use natural heritage to develop projects that contribute to economic prosperity? (UK)
- Focus on raising awareness on the link between natural heritage and economic prosperity in policy making (Belgium)

Scepticism on the methodologies (contingent valuation)

“I find the park important, although I never use it”



The regional workshops

- 4 views regarding valuation
 - Utilitarian view
 - Detailed view
 - Intrinsic value view
 - Valuation view

What we do not know

- Complexity of ecosystem functioning
- Scarcity and valuation
- Scaling in time and in geography
- Substitution of ecosystem goods/services
- ...

The never-ending (research) story? No!

- Raise awareness regarding the contribution of ecosystems to economic prosperity
- Opens new perspectives - can be used in the development of innovative and sustainable projects



- Helps to identify who loses and who wins – which enables the development of new financial arrangements
- New land use practices and new institutional arrangements

Expert and stakeholder knowledge interaction instead of scientific desk study approach

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