



Vlaanderen
is wetenschap

RESEARCH INSTITUTE
NATURE AND FOREST

REA-Flanders: Regional Ecosystem Assessment – Flanders

Dr. Wouter Van Reeth, Reporting & Advice, INBO

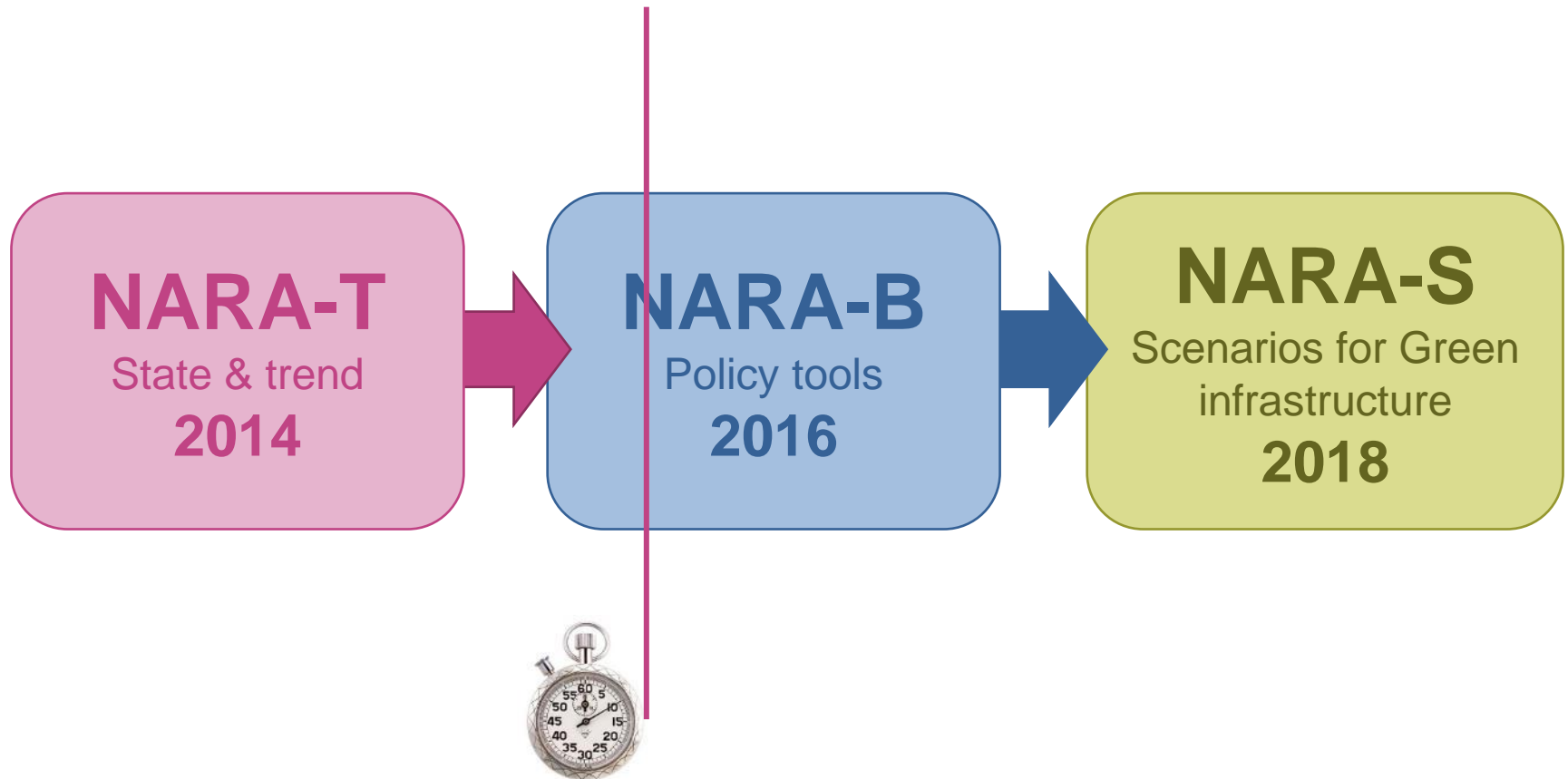
Nature Conference – Rīga, Latvija – May 26-27, 2015

REA - Flanders: Regional Ecosystem Assessment Flanders

- ▶ Objectives, approach, results
- ▶ Conceptual framework
- ▶ Mapping & assessment of ESS state & trend
- ▶ ESS & nature based solutions for ecosystem restoration
- ▶ Ecosystem services & biodiversity
- ▶ Valuation of ecosystem services

OVERVIEW

REA - Flanders: Regional Ecosystem Assessment Flanders



ECOSYSTEM ASSESSMENT IN 3 STAGES

REA - Flanders: Regional Ecosystem Assessment Flanders

- ▶ **Increase the visibility** of the services and benefits that people receive from ecosystems and how our actions affect the supply of these services
- ▶ **Present a knowledge base** for an integral policy conducive to the sustainable use of ecosystems and their services
- ▶ **Explore options** for ecosystem policy and management focused on a future sustainable supply of ecosystem services
- ▶ **Stimulate cross-sectoral communication and co-operation** for the development of ecosystem policy and management

OBJECTIVES

REA - Flanders: Regional Ecosystem Assessment Flanders

- ▶ Scoping & developing conceptual framework (TR Ch. 1-2)
- ▶ Mapping & Assessment of 16 ESS (TR Ch. 11-26)
- ▶ Integrating analysis & research questions (TR Ch. 3-10)
 - How does man affect ecosystem services?
 - State & trend of ecosystems & biodiversity
 - State & trend of 16 ecosystem services
 - Role of biodiversity for ecosystem services
 - Contribution of ESS to well-being
 - Valuation of ESS
 - Interactions between ESS
 - ESS governance

SUB STAGES Flanders REA State & Trends (2014)



Flanders
State of the Art

REA - Flanders: Regional Ecosystem Assessment Flanders



February 27, 2015: presentation of **NARA-T 2014**
to Ms. Joke Schauvliege, Flemish Minister of Environment,
Spatial Development & Agriculture



Natuurrapport

INSTITUUT
NATUUR- EN BOSONDERZOEK

Natuurrapportering 2014-2018 Natuurrap

Natuurrapport 2014: Toelichting op de ecosysteemdiensten in

Reporting:



1600 pages



53 authors

20 fte



179 reviewers

+50 organisations

Vlaanderen is een kleine, verstedelijkte regio waar de levering van ecosysteemdiensten onder druk staat. Er zijn de voordelen die de maatschappij van de natuur ontvangt, zoals voedselproductie, klimaatregulatie, biodiversiteit, bescherming tegen overstromingen, luchtzuivering, ruimte voor recreatie. Het INBO onderzocht de toestand van ecosysteemdiensten in Vlaanderen, en stelde vast dat de dienstverlening momenteel niet voldoet aan de vraag. Bovendien is voor de helft van die ecosystemen de voorbije jaren nog verder gedaald.

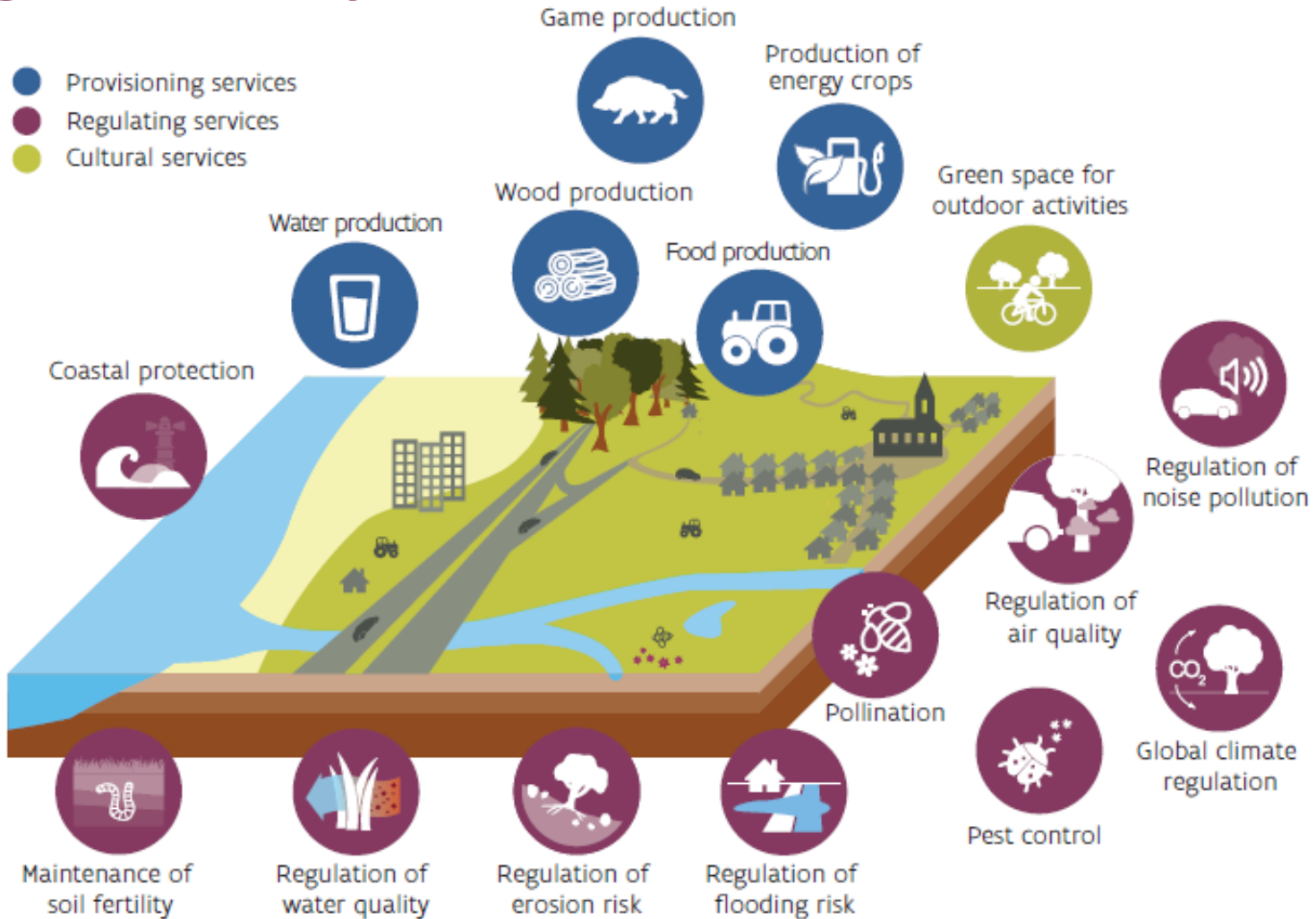
Maarten Stevens, coördinator van het **INBO Natuurrapport**, kijkt naar de maatschappelijke uitdagingen door een ecosystemisch perspectief te nemen, merk je hoe natuur en economie niet elkaars vijanden zijn, maar net elkaar kunnen versterken. Als samenleving kunnen we heel wat voordeel halen uit het behoud en herstel van ecosysteemdiensten. Bepaalde ecosysteemdiensten zijn van fundamenteel belang voor de ondersteuning van het

Meer...

- [Het Syntheserapport](#)
- [De 26 hoofdstukken van het Technisch Rapport](#)
- [Het volledige persbericht](#)
- [Naar de interactieve kaart Ecosysteemdiensten Vlaanderen](#)



REA - Flanders: Regional Ecosystem Assessment Flanders



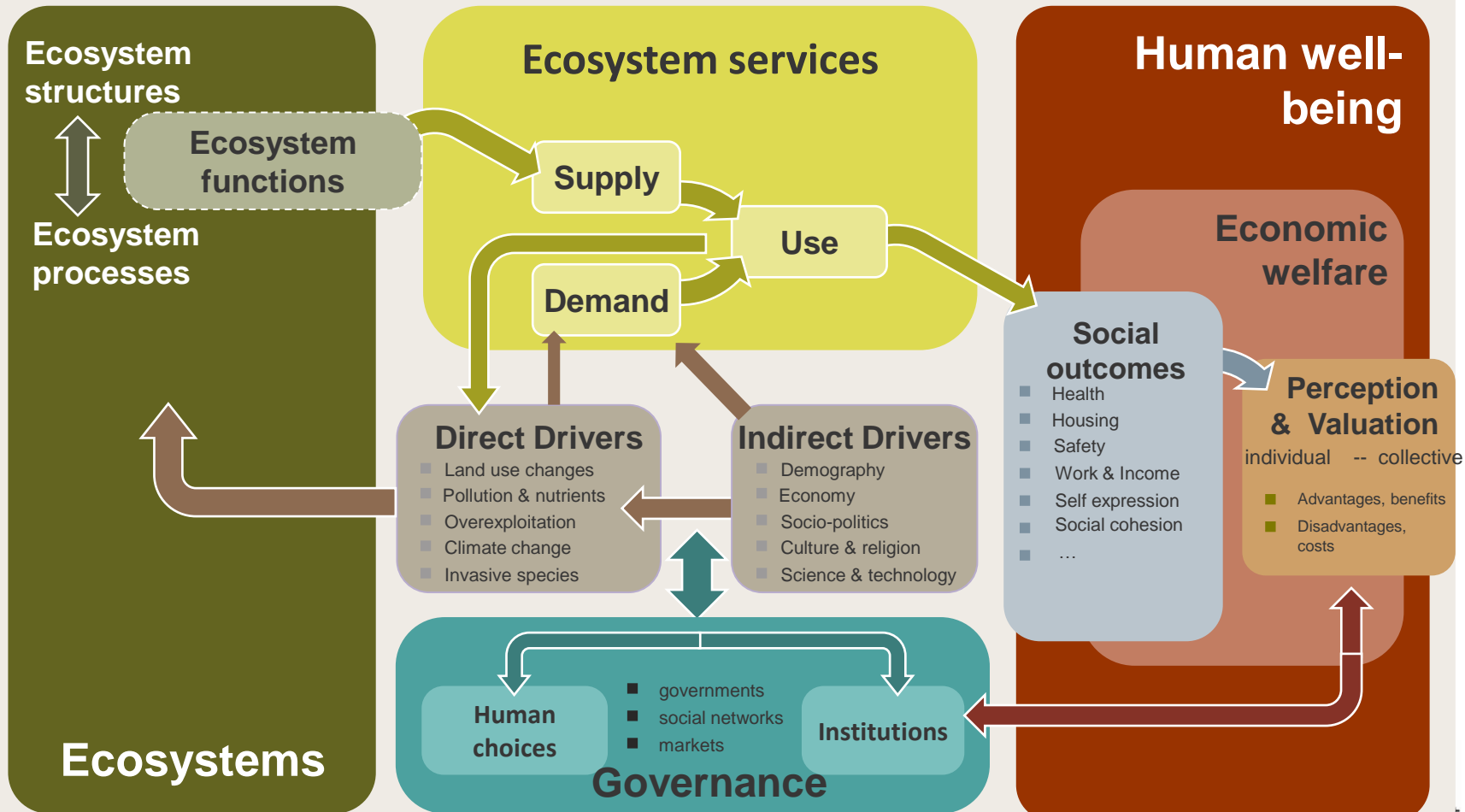
REA - Flanders: Framing of policy issues (TR Ch. 2)

Global

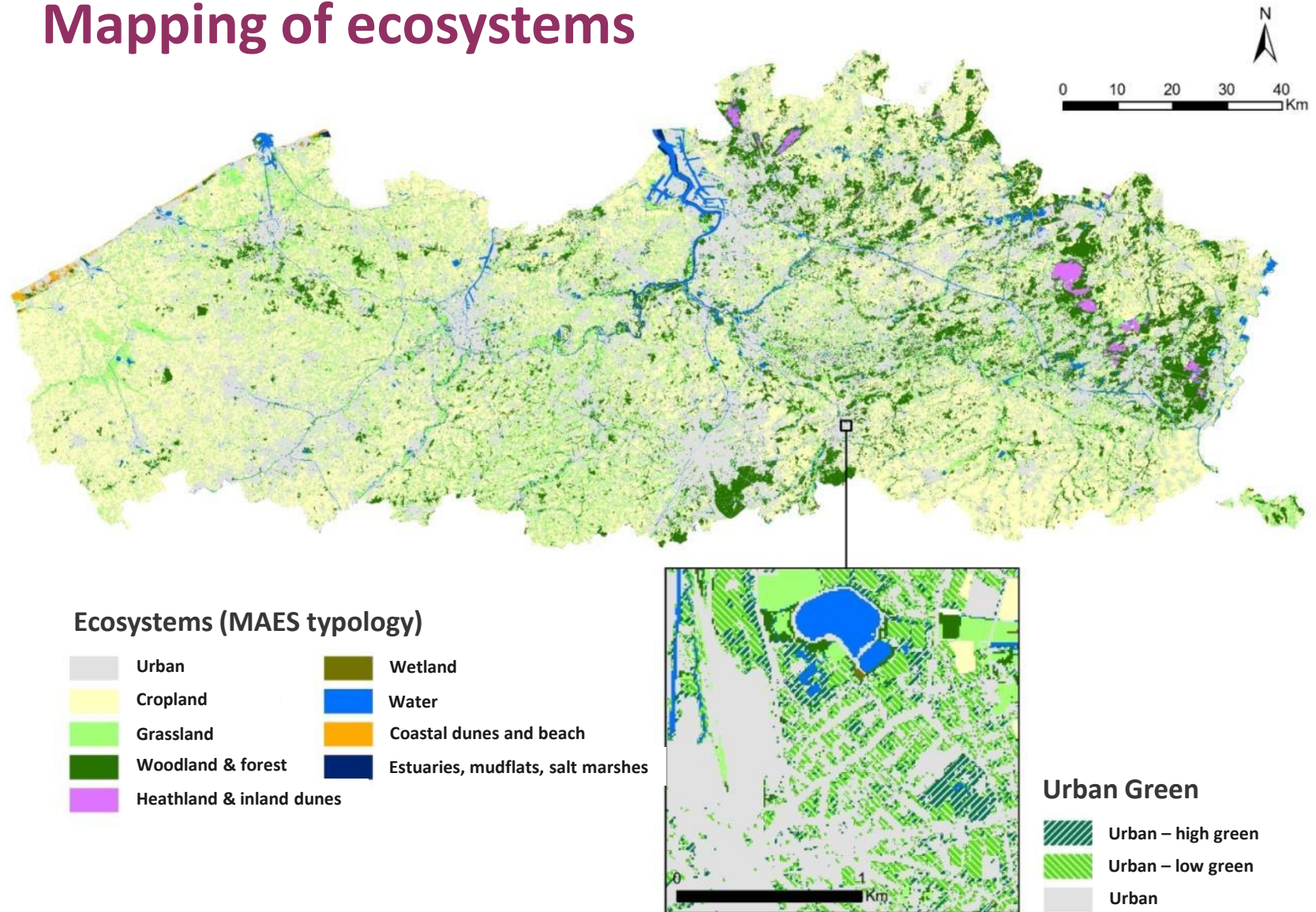
Regional

Local

SES



REA - Flanders: Mapping of ecosystems



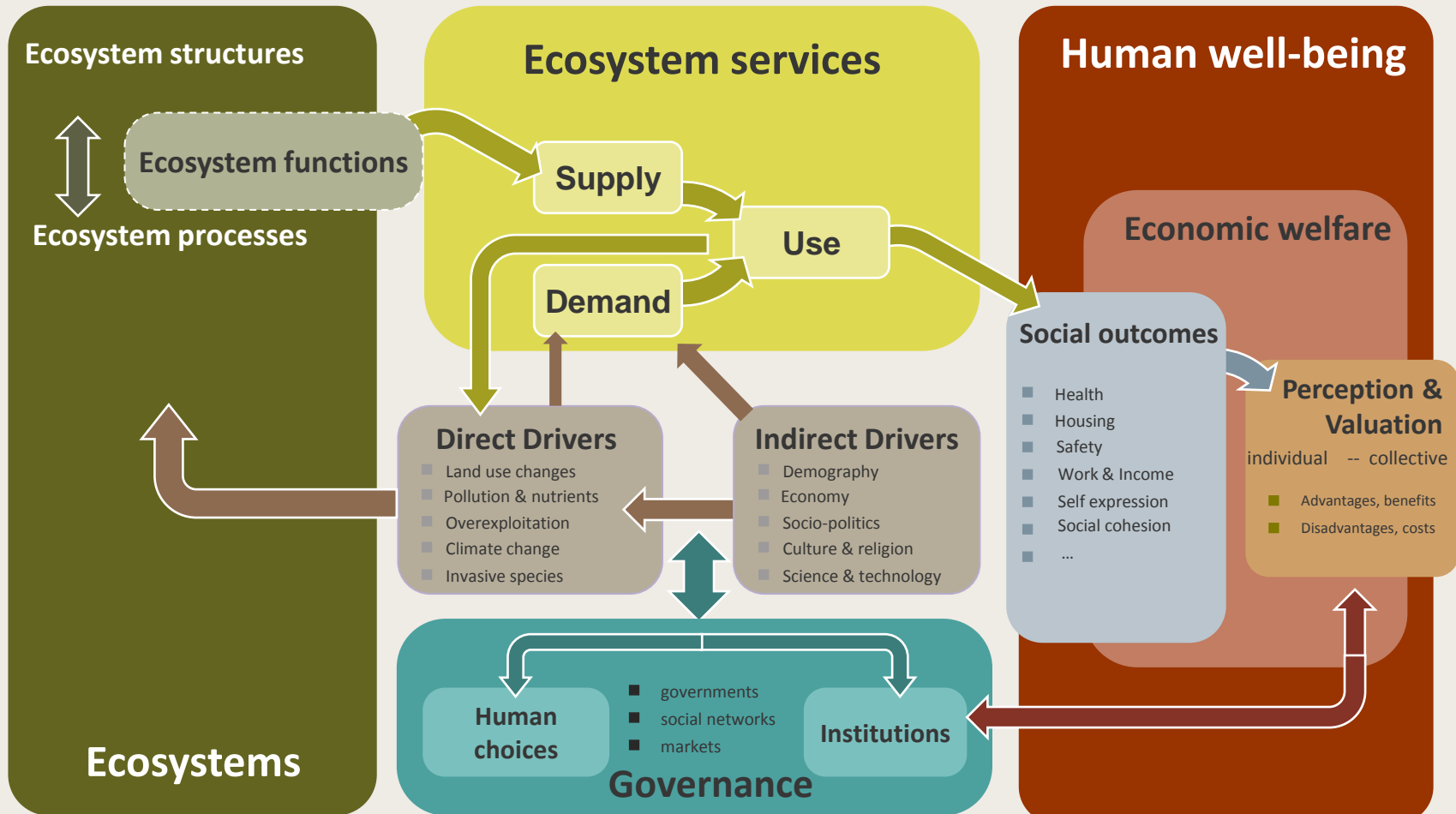
REA - Flanders: Framing of policy issues (TR Ch. 2)

Global

Regional

Local

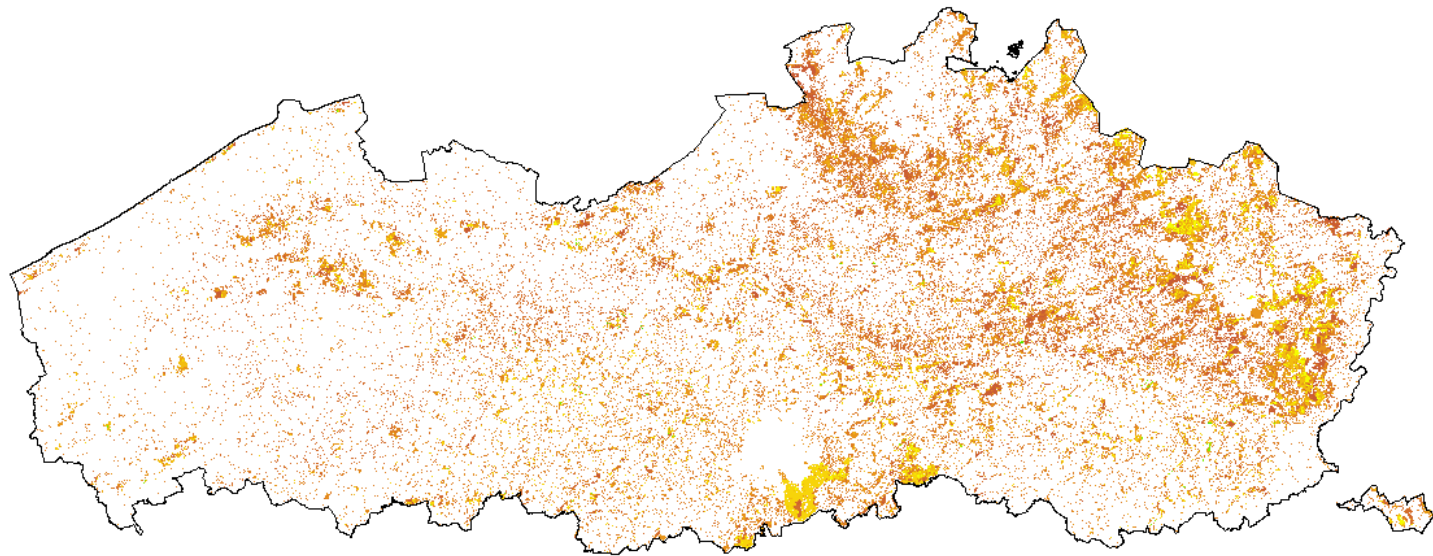
SES



REA Flanders : Mapping & Assessing ESS

Illustration : supply wood production

Current supply: current land use

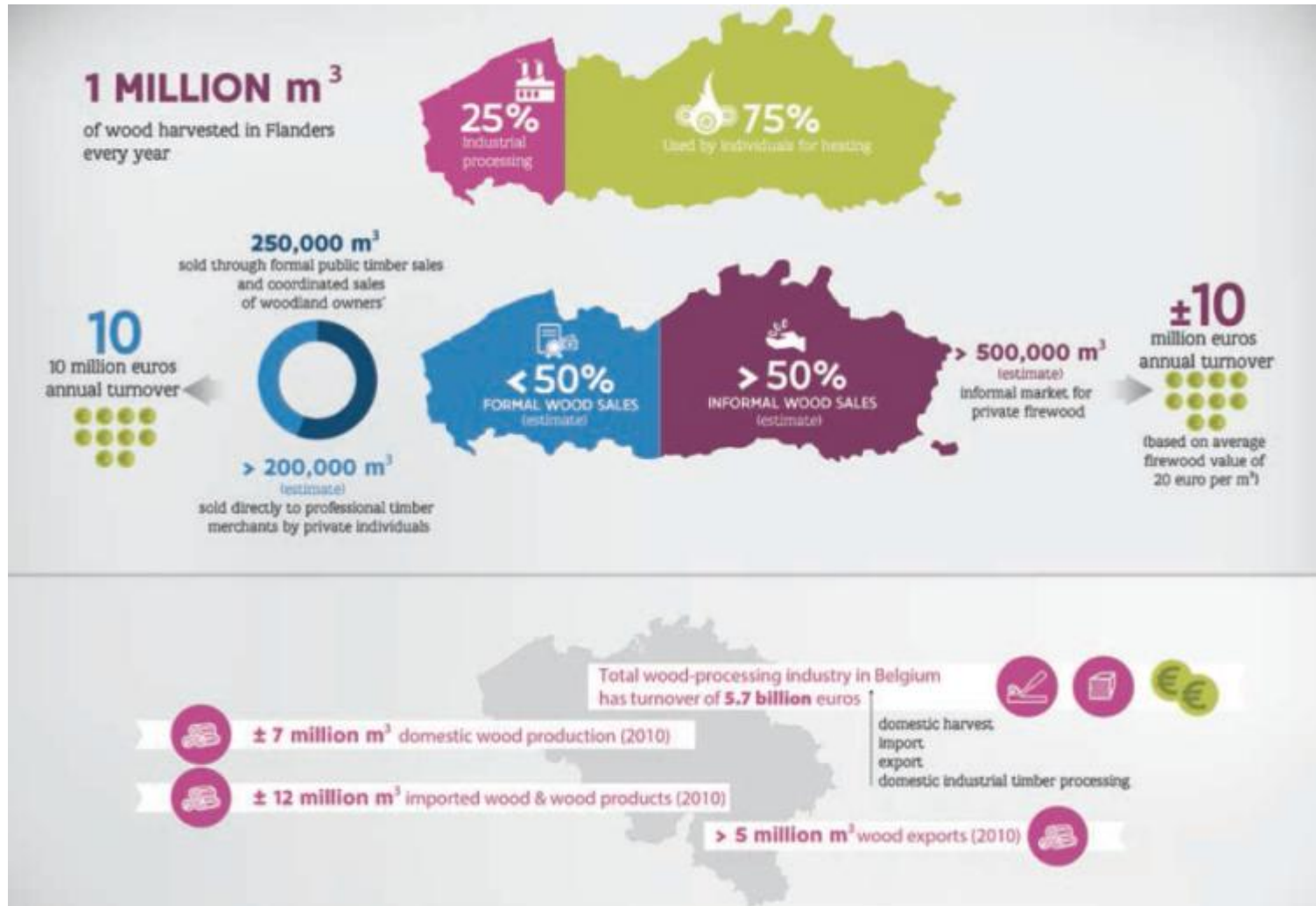


m³/ha.year

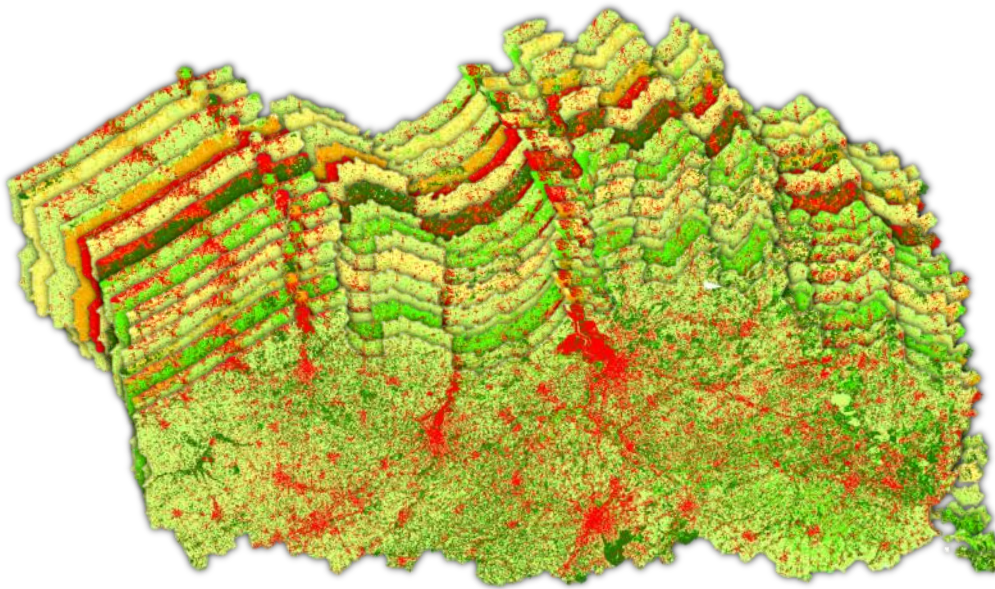


Flanders
State of the Art

Mapping & assessing ESS supply & demand

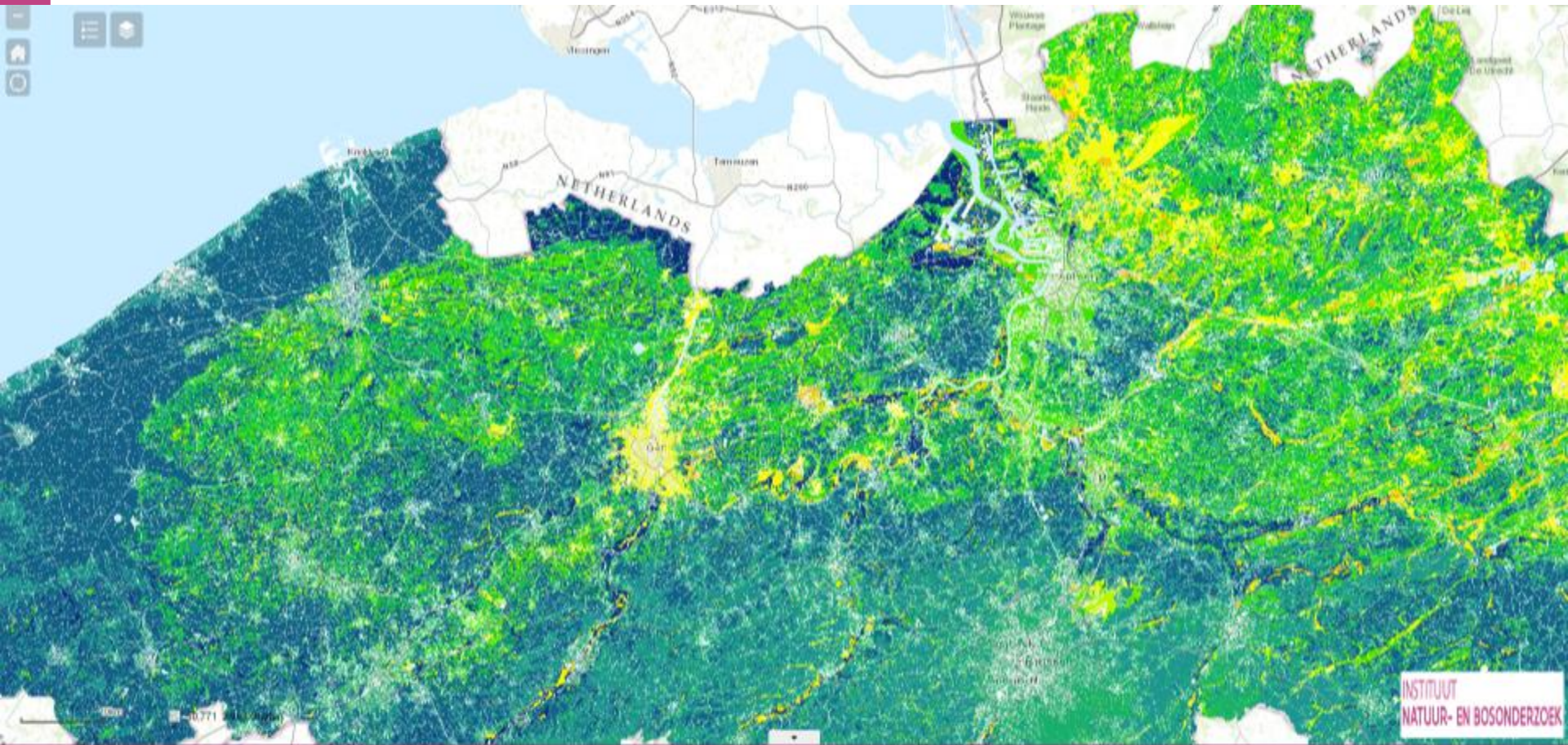


REA - Flanders: MAES for 16 regional ecosystem services



Target 2, action 5 of the
European biodiversity strategy

Map Thesaurus – web viewer via www.nara.be



[Beschrijving](#) [Interpretatie](#) [Referentie](#) [Definities](#) [Download](#)

Hieronder kan u een kaartenset uit het Natuurrapport 2014 downloaden. Opgelet: u heeft een GIS-programma nodig om deze bestanden te kunnen openen. Deze kaartenset werd samengesteld voor een analyse van ecosysteemdiensten op schaal Vlaanderen in het kader van het Natuurrapport 2014 van het INBO. De procedures staan beschreven in de verschillende hoofdstukken van het rapport. Het kaartmateriaal mag gebruikt worden voor andere toepassingen, maar het is aan de gebruiker om de geschiktheid van de kaartenset te beoordelen. INBO kan niet verantwoordelijk worden gesteld voor eventuele fouten in de kaarten of voor een foutief gebruik van het kaartmateriaal. Bij iedere publicatie die voortvloeit uit het gebruik van de kaartenset dient expliciet verwezen te worden naar het Natuurrapport 2014. Door het downloaden van het bestand geeft u aan dat u de voorwaarden voor het gebruik van de kaarten begrijpt en ermee akkoord gaat.

[Download](#)

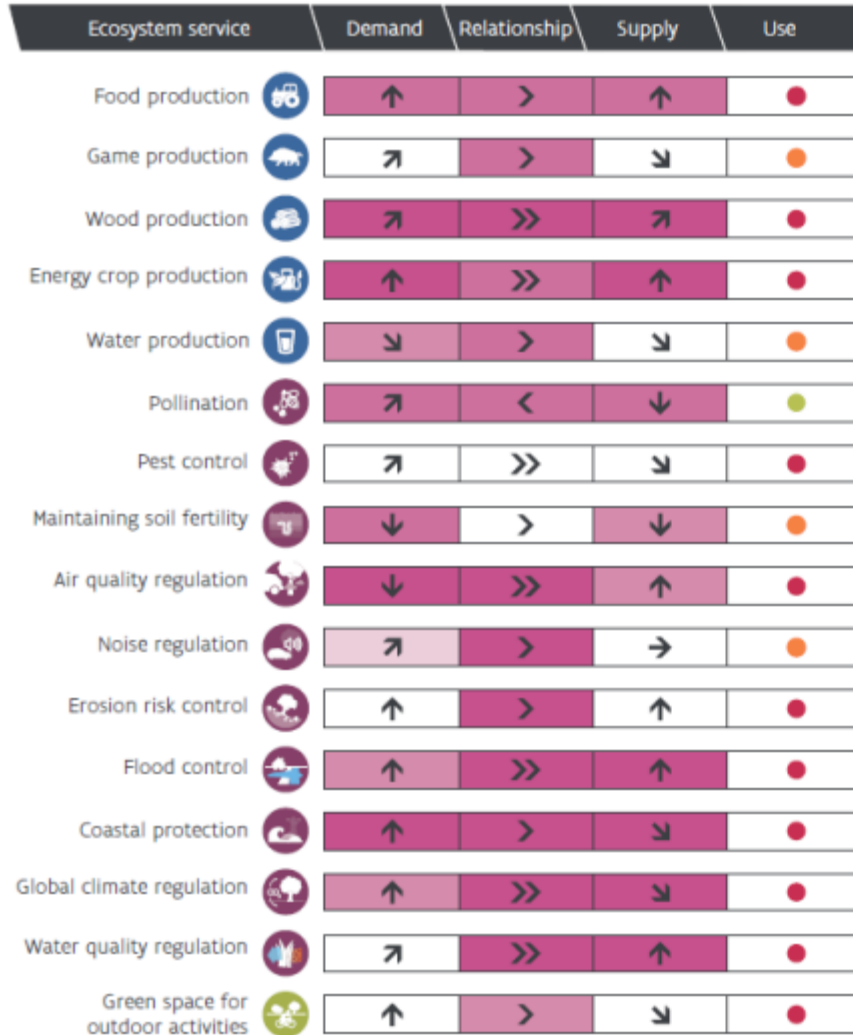
<https://www.milieu.be/dms/d/1/workspace/SpaceStore/10623550-clad-495d-af7f-a41142109-c1c9413.zip>

www



Flanders
State of the Art

REA - Flanders: ESS state & trend (TR ch. 5)



Supply/demand subject to

- ↑ increase
- ↗ slight increase
- no pronounced trend
- ↘ slight decrease
- ↓ decrease

Demand is:

- >> much greater than supply
- > greater than supply
- < smaller than supply
- << much smaller than supply

Use shows:

- a stable balance between supply and demand without negative effects on other ESSs
- a fragile balance between supply and demand and/or has a negative effect on other ESSs
- a lack of balance between supply and demand and/or has a highly negative effect on other ESSs

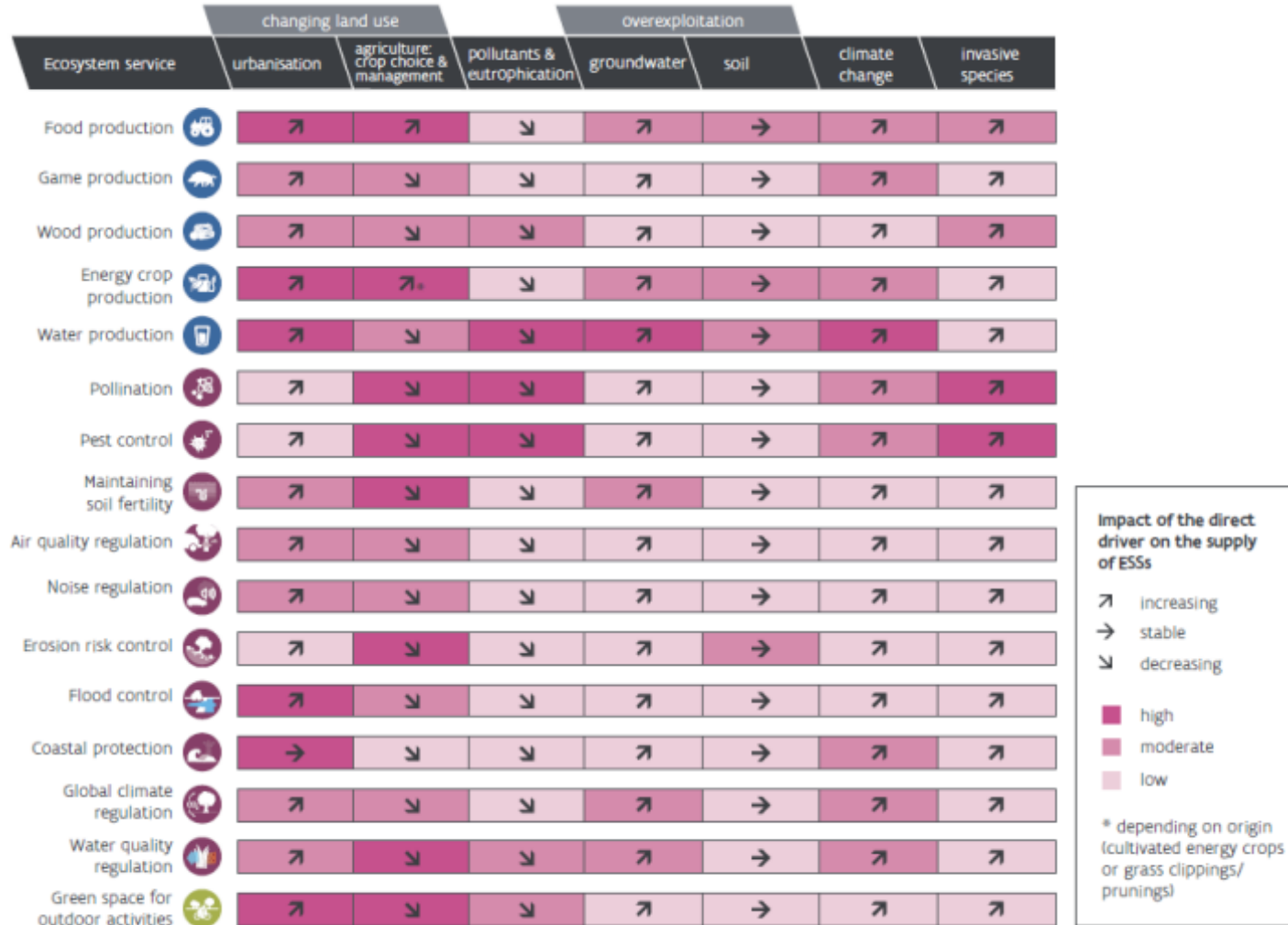
Reliability:

- reliability not known
- very high
- high
- moderate
- low

STATE: ESS DEMAND > SUPPLY

TREND: SUPPLY DECREASES FOR 8/16 ESS

REA - Flanders: Direct drivers (TR ch. 3)



OUR IMPACT ON ECOSYSTEM SERVICES

REA - Flanders: Take home messages (1)

- ✓ Mapping and Assessment of Ecosystem Services
 - ✓ Importance of ESS cycle
 - ✓ ESS cycle & mapping tool
- ✓ Mapping and assessment of ecosystems in EU
 - ✓ Ecosystem classification:
 - ✓ Defining a 'nature based' gradient is essential
 - ✓ Linking with EU targets: restoration 15% degrades ES
- ✓ Biodiversity
 - ✓ Towards a framework for indicators
 - ✓ Spatial analysis to help prioritise
- ✓ ESS-valuation
 - ✓ Need to embrace value pluralism
 - ✓ Economic valuation for scenario's & non-critical NC
 - ✓ Economic valuation ≠ plea for market approach



REA – Flanders & Biodiversity Strategy, Target 2: “restore at least 15% of degraded ecosystems”

- ▶ Forest
- ▶ Heathland and inland dunes
- ▶ Wetland
- ▶ Grassland
- ▶ Cropland
- ▶ River and lakes
- ▶ Estuarine area
- ▶ Coastal area
- ▶ Urban area

How to define ‘degraded’ and ‘restored’?

Each ecosystem group has a ‘nature based’ gradient

Ecosystems: defining the 'nature based gradient'

Food
production



Water
purification



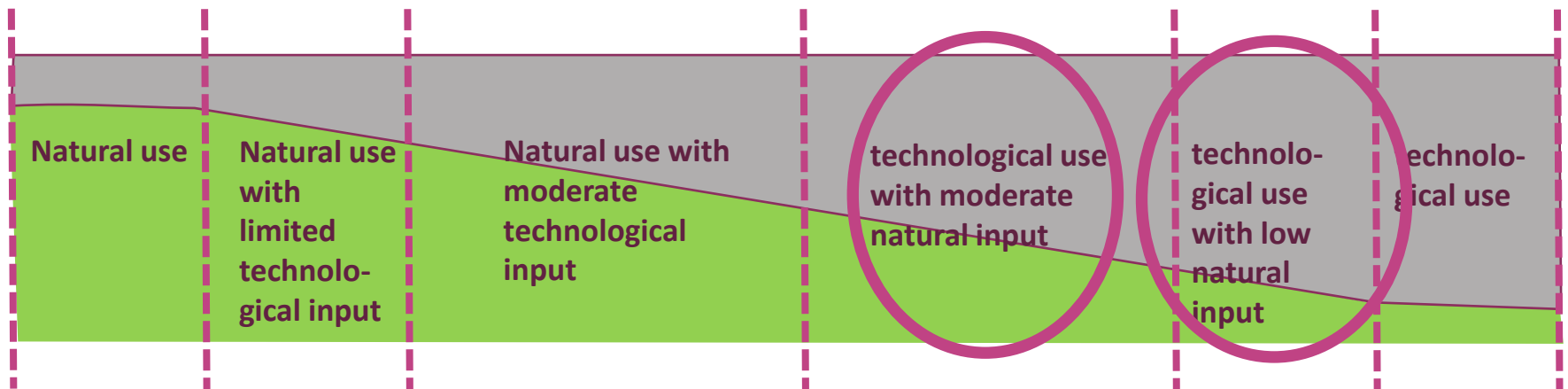
Nature based solution

Technical solution



State of the Art

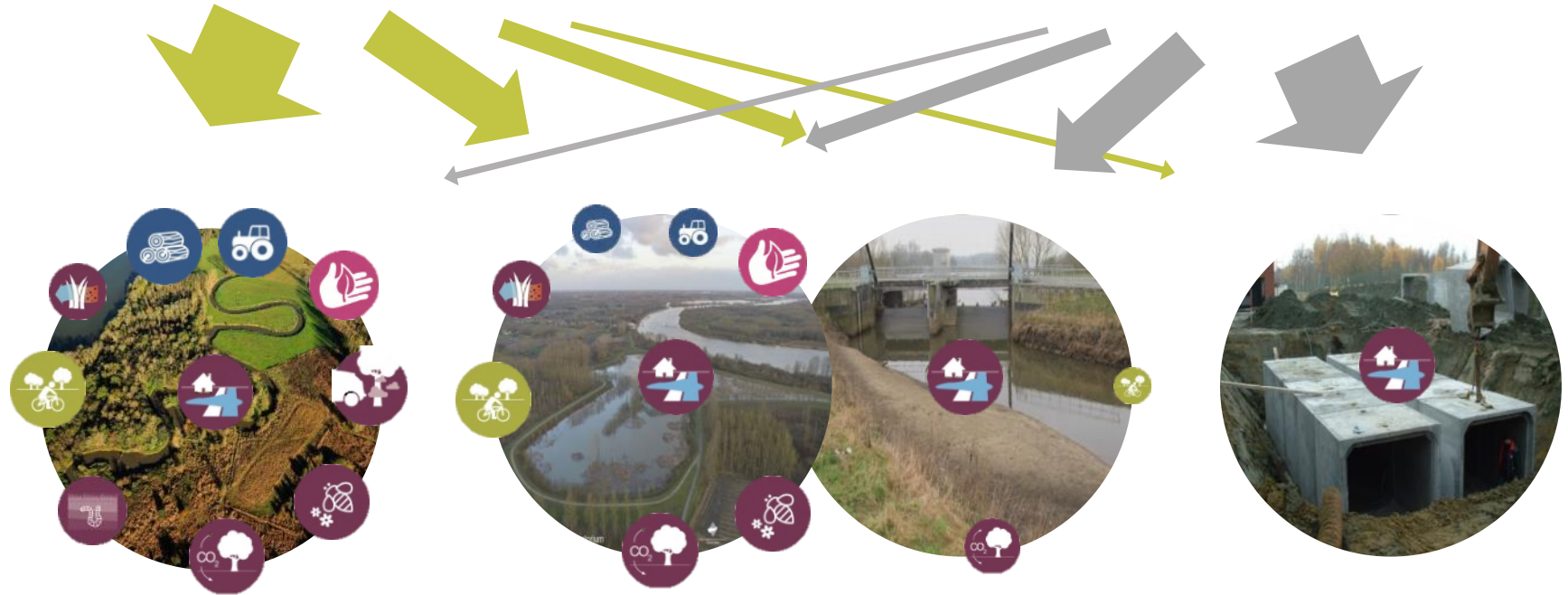
Ecosystems: defining the 'nature based gradient'



Ecosystems: defining the 'nature based gradient'

Natural processes

Technical input



Nature based solution

Technical solution



Flanders
State of the Art

Towards nature based solutions

Impact

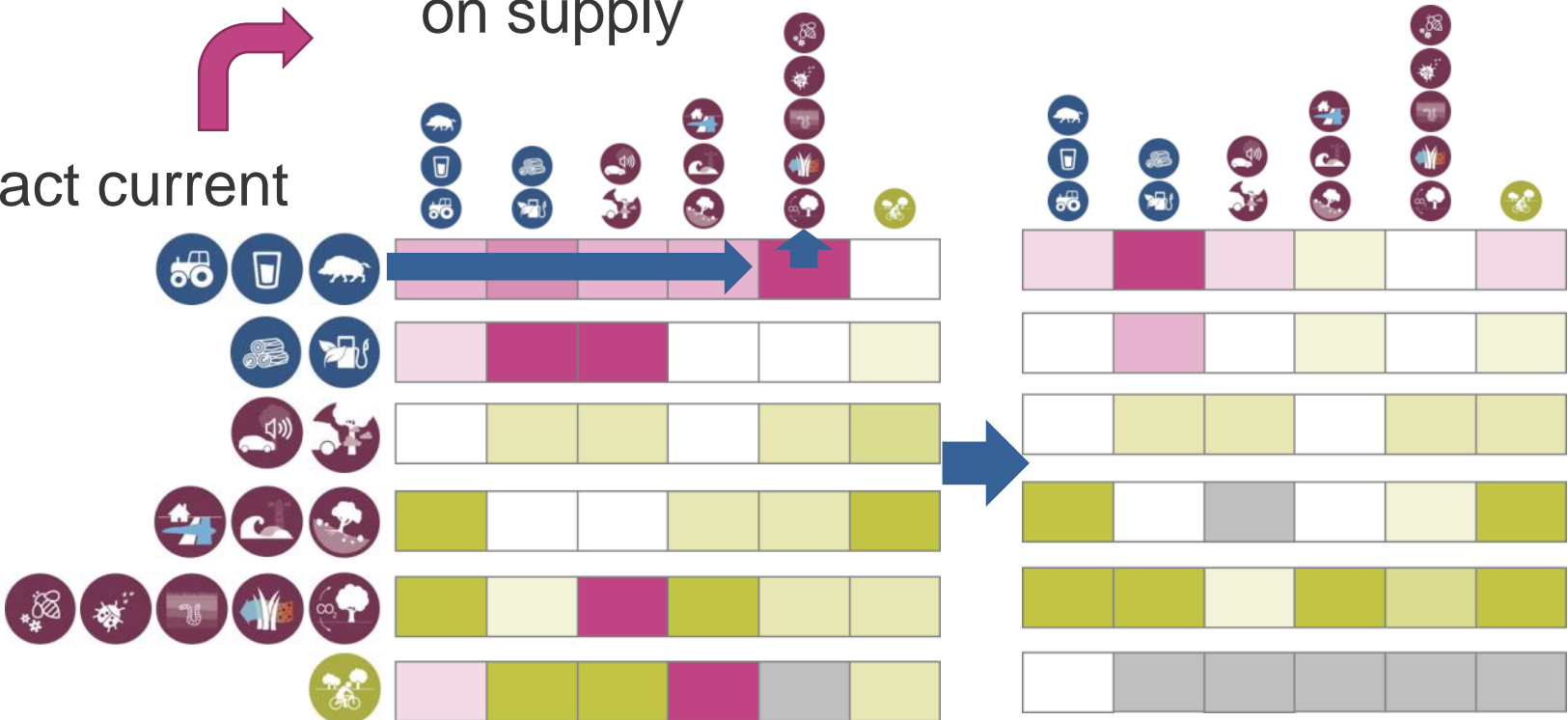
negative

neutral

positive

on supply

Impact current use



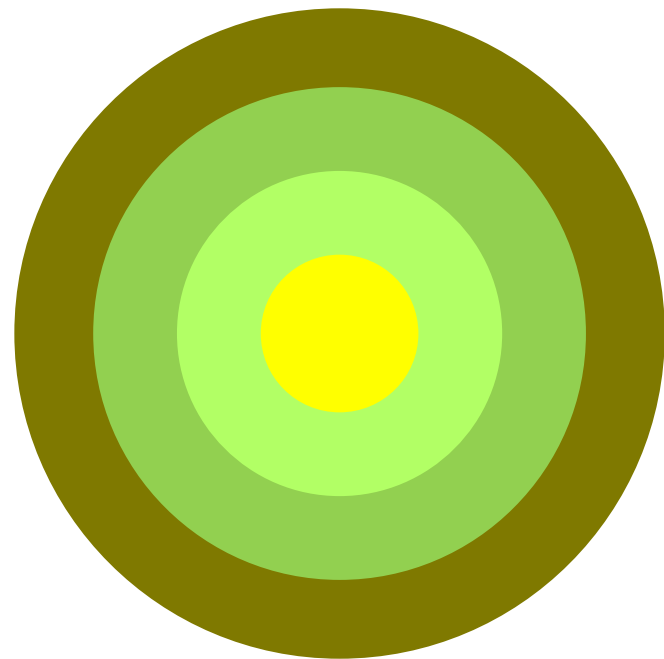
the Art

REA - Flanders: Take home messages (2)





- ✓ Mapping and Assessment of Ecosystem Services
 - ✓ Importance of ESS cycle
 - ✓ ESS cycle & mapping tool
- ✓ Mapping and assessment of ecosystems in EU
 - ✓ **Ecosystem restoration:**
 - ✓ Defining a 'nature based' gradient is essential
 - ✓ Nature based solutions to restore 15% degraded ES
- ✓ Biodiversity
 - ✓ Towards a framework for indicators
 - ✓ Spatial analysis to help prioritise
- ✓ ESS-valuation
 - ✓ Need to embrace value pluralism
 - ✓ Economic valuation for scenario's & non-critical NC
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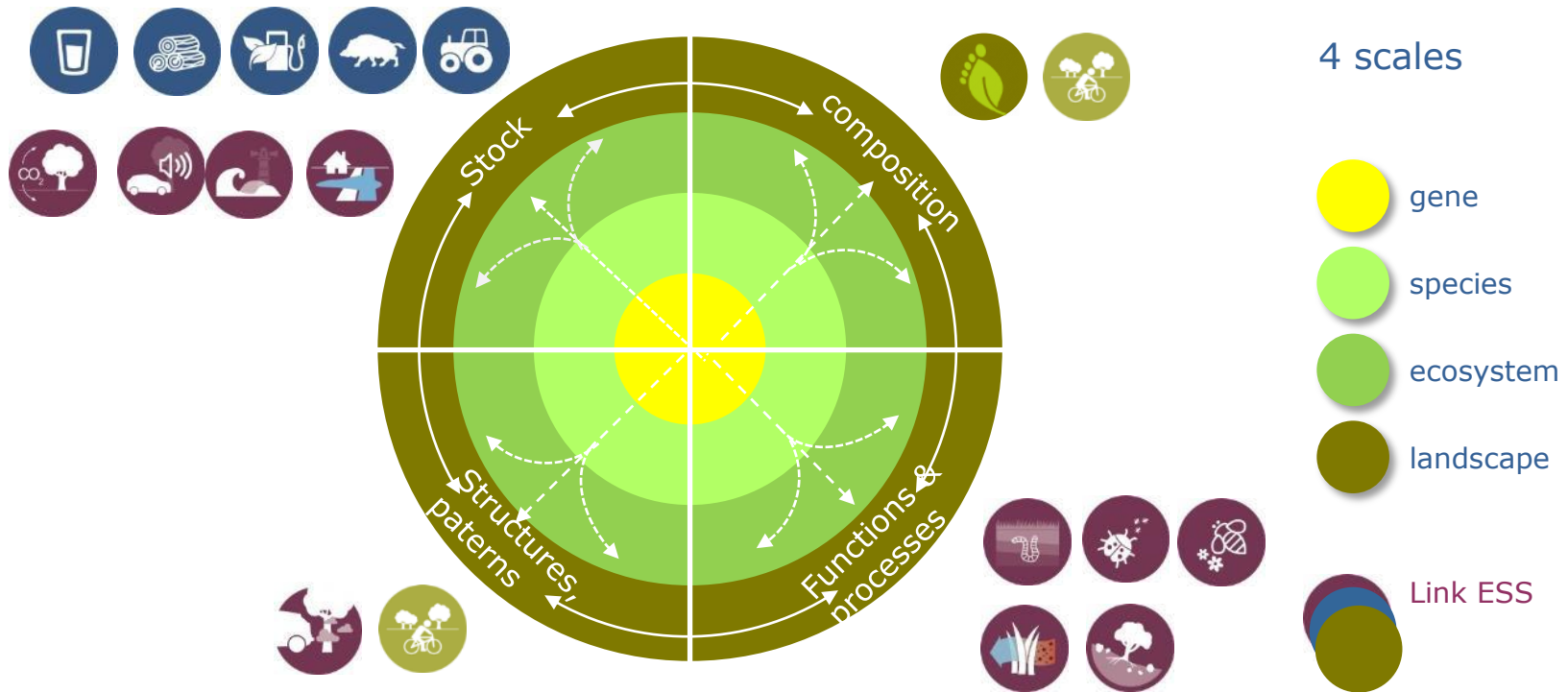
REA – Flanders & Biodiversity: Scales & approaches to biodiversity (TR ch. 6)



4 scales

-  gene
-  species
-  ecosystem
-  landscape

REA – Flanders & Biodiversity: Scales & approaches to biodiversity



4 approaches or 'angles'

REA – Flanders & Biodiversity: How bio-diverse is Flanders?

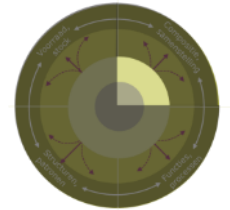
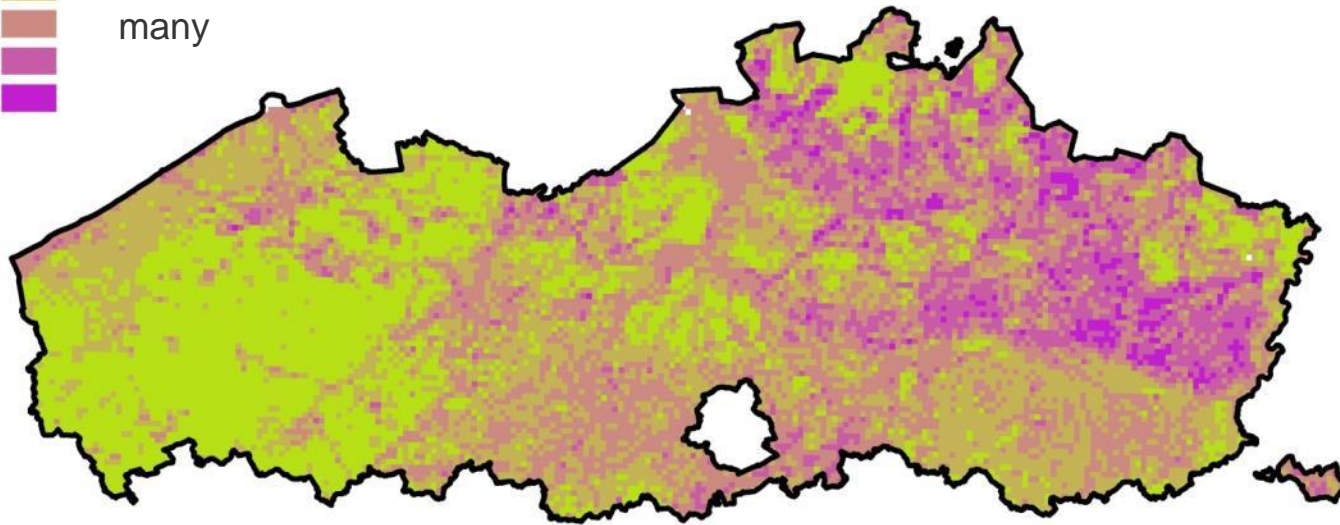
Species richness



few

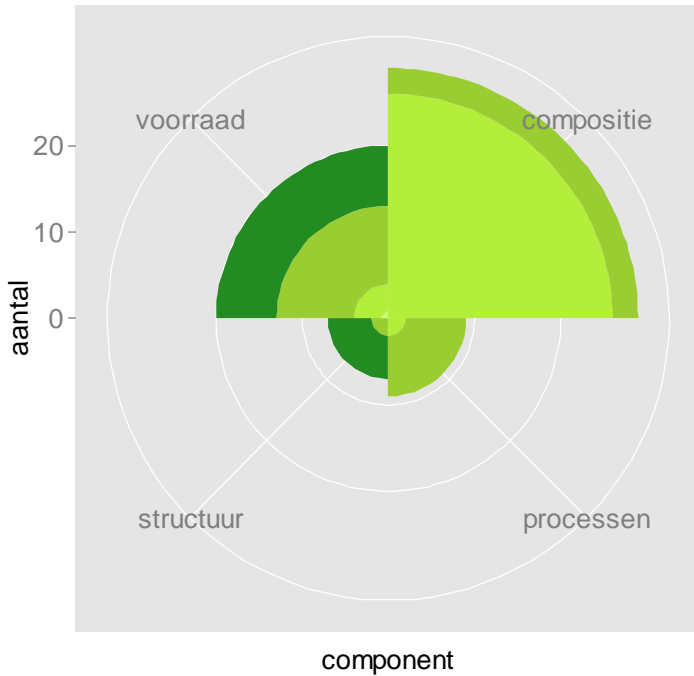


many

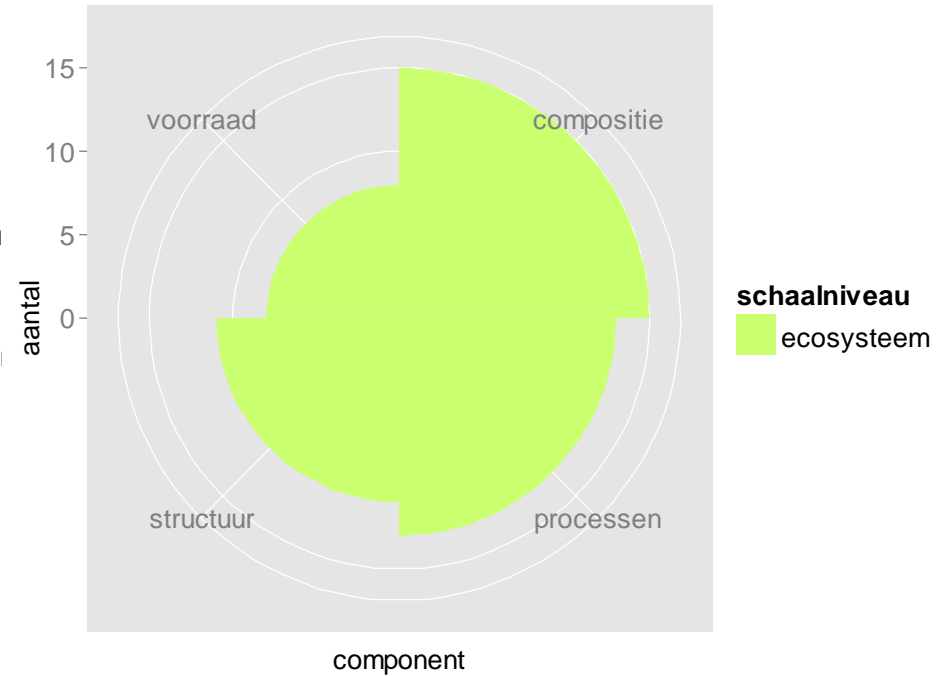


Biodiversity indicators: analysis current indicators

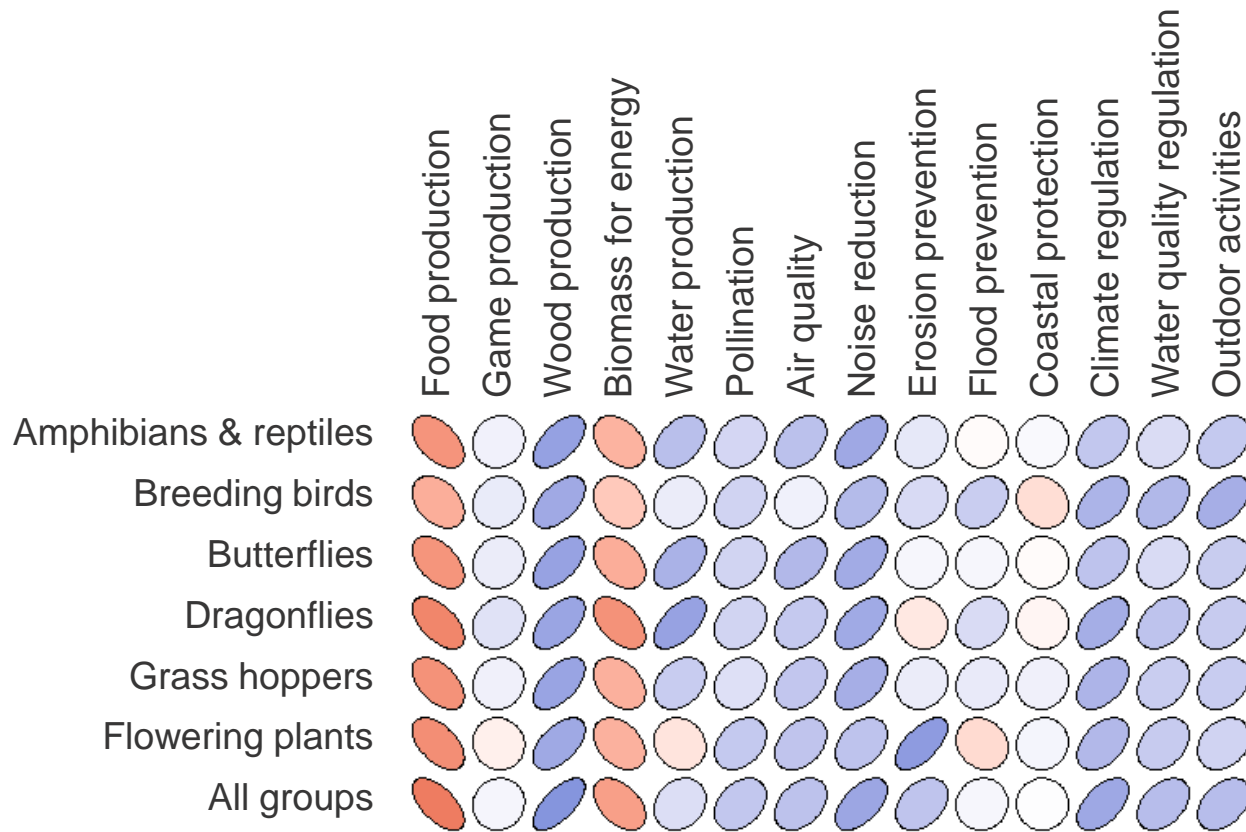
Indicators Nature
Conservation



Indicators Water Framework
Directive



Spatial correlation of ESS supply & biodiversity hot spots



REA - Flanders: Take home messages (3)

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REA – Flanders & Valuation: Economic value of (non)-marketed ESS

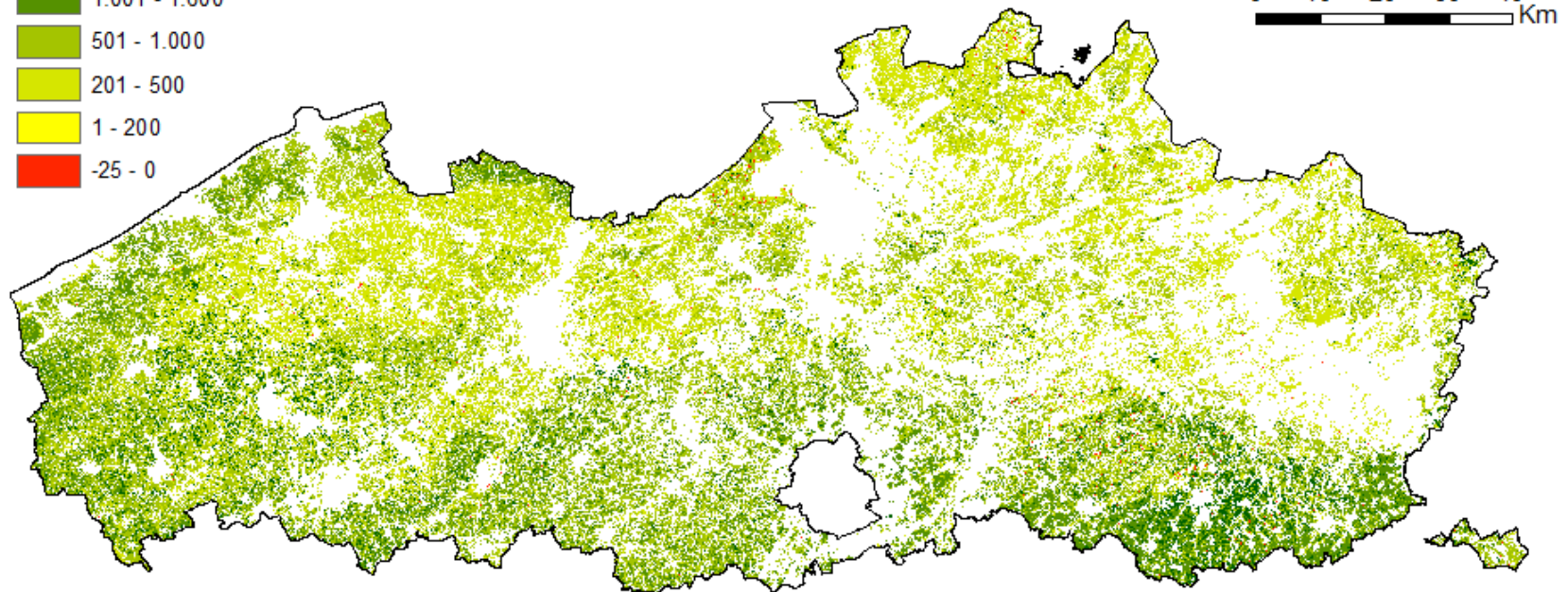
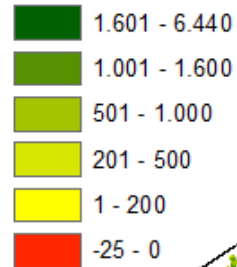


What if private land users
would take the economic value
of **non**-marketed ESS
into account ?

REA – Flanders & Valuation: Economic value of (non)-marketed ESS (TR Ch. 8)

Food production - economic value (incl. subsidies)

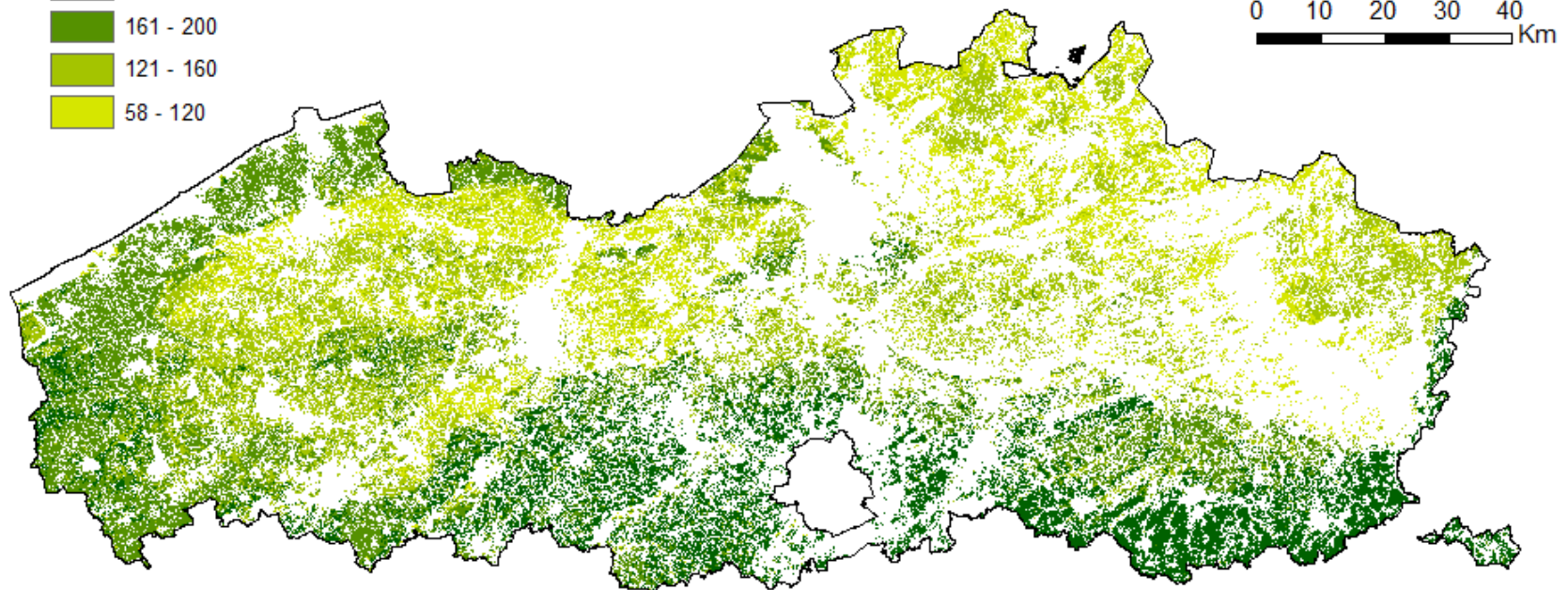
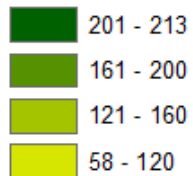
€/ha.yr



REA – Flanders & Valuation: Economic value of (non)-marketed ESS

Wood production - economic value

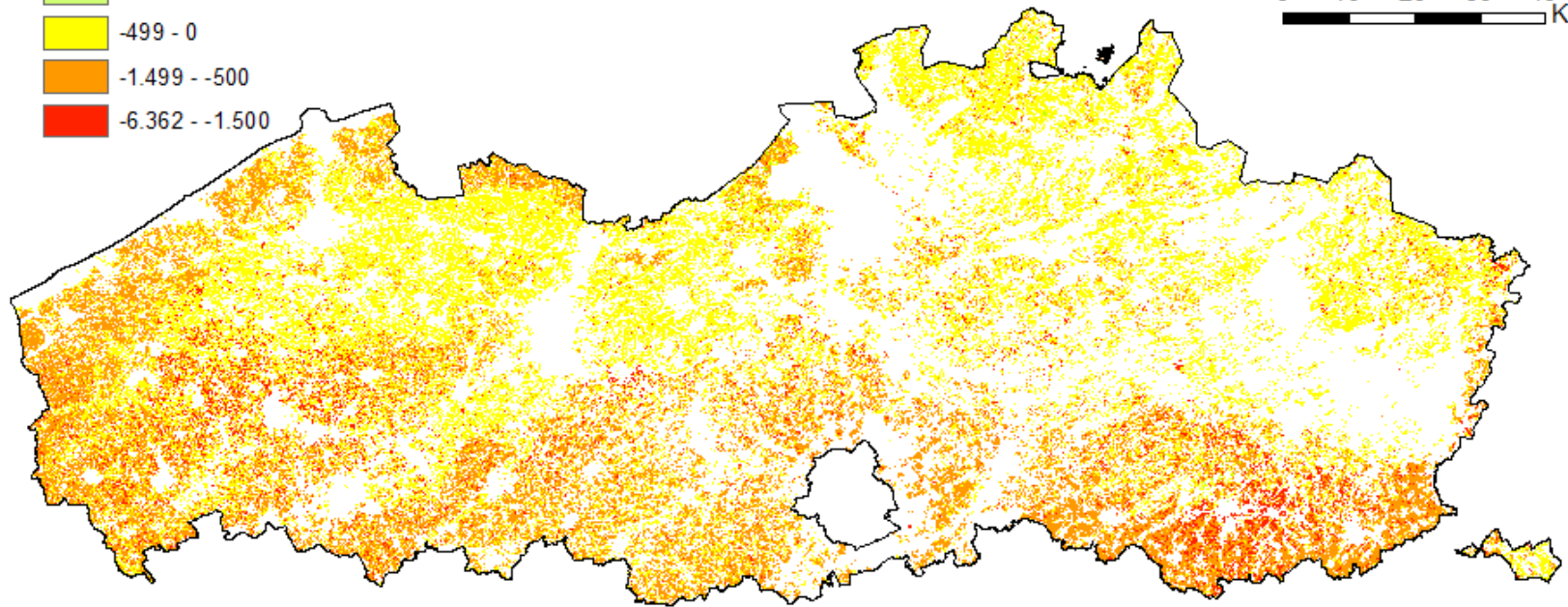
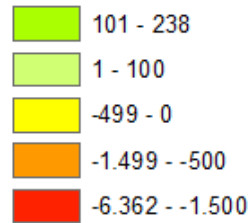
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REA – Flanders & Valuation: Economic value of (non)-marketed ESS

Net benefits wood - food production (incl. subs.)

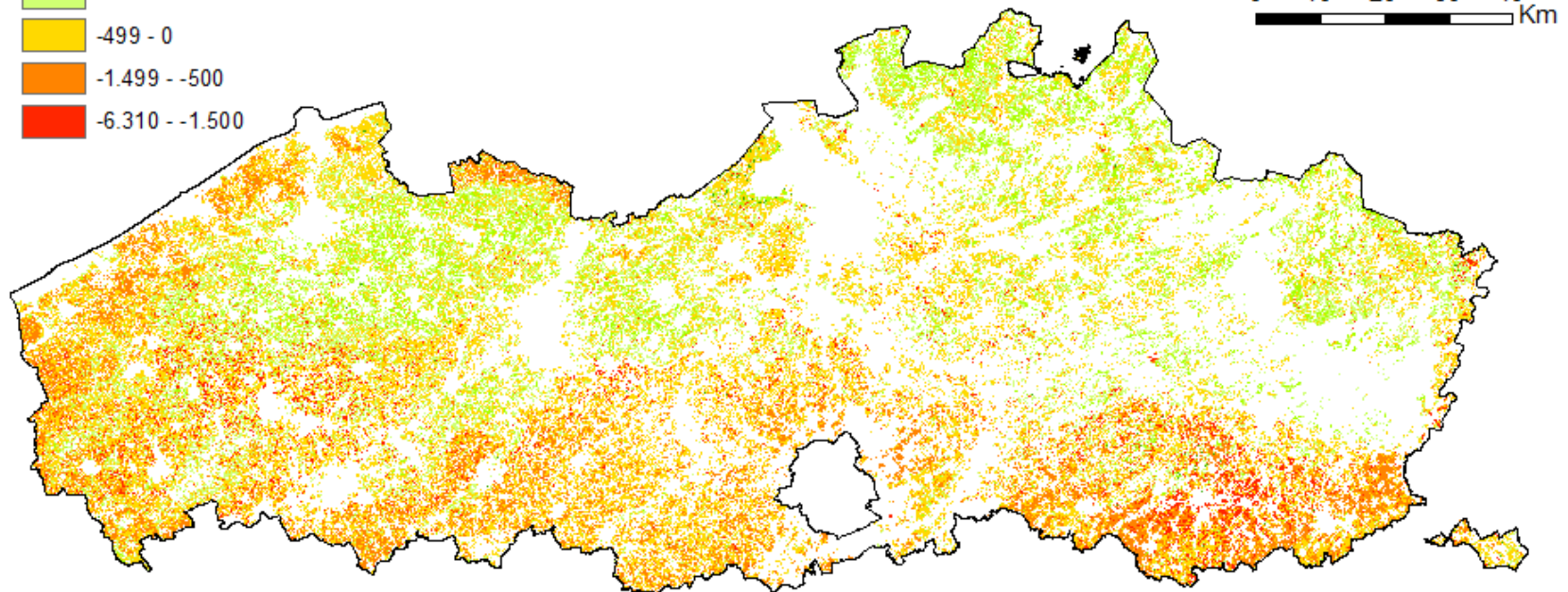
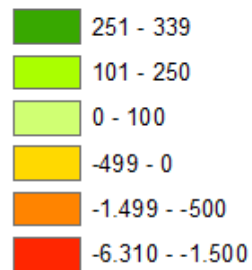
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REA – Flanders & Valuation: Economic value of (non)-marketed ESS

Net benefits wood - food production (excl. subs.)

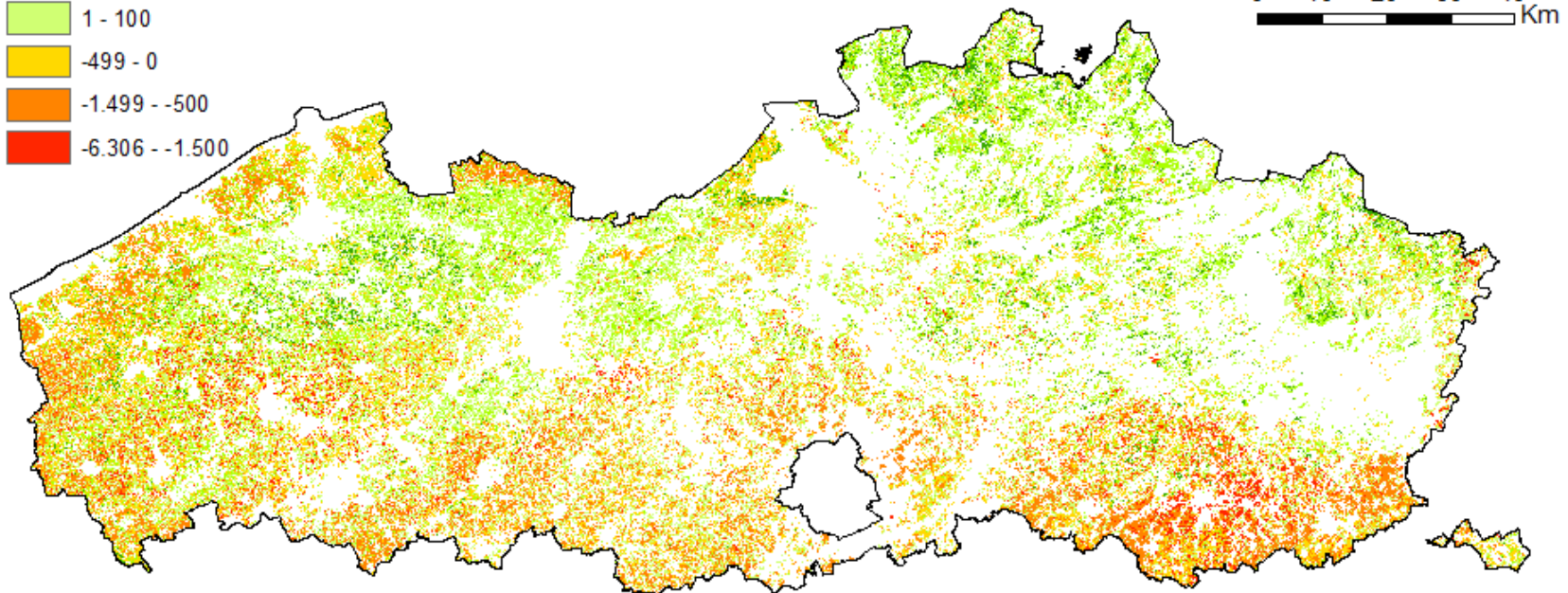
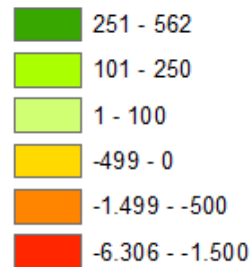
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REA – Flanders & Valuation: Economic value of (non)-marketed ESS

Net benefits wood + carbon - food production (excl. subs.)

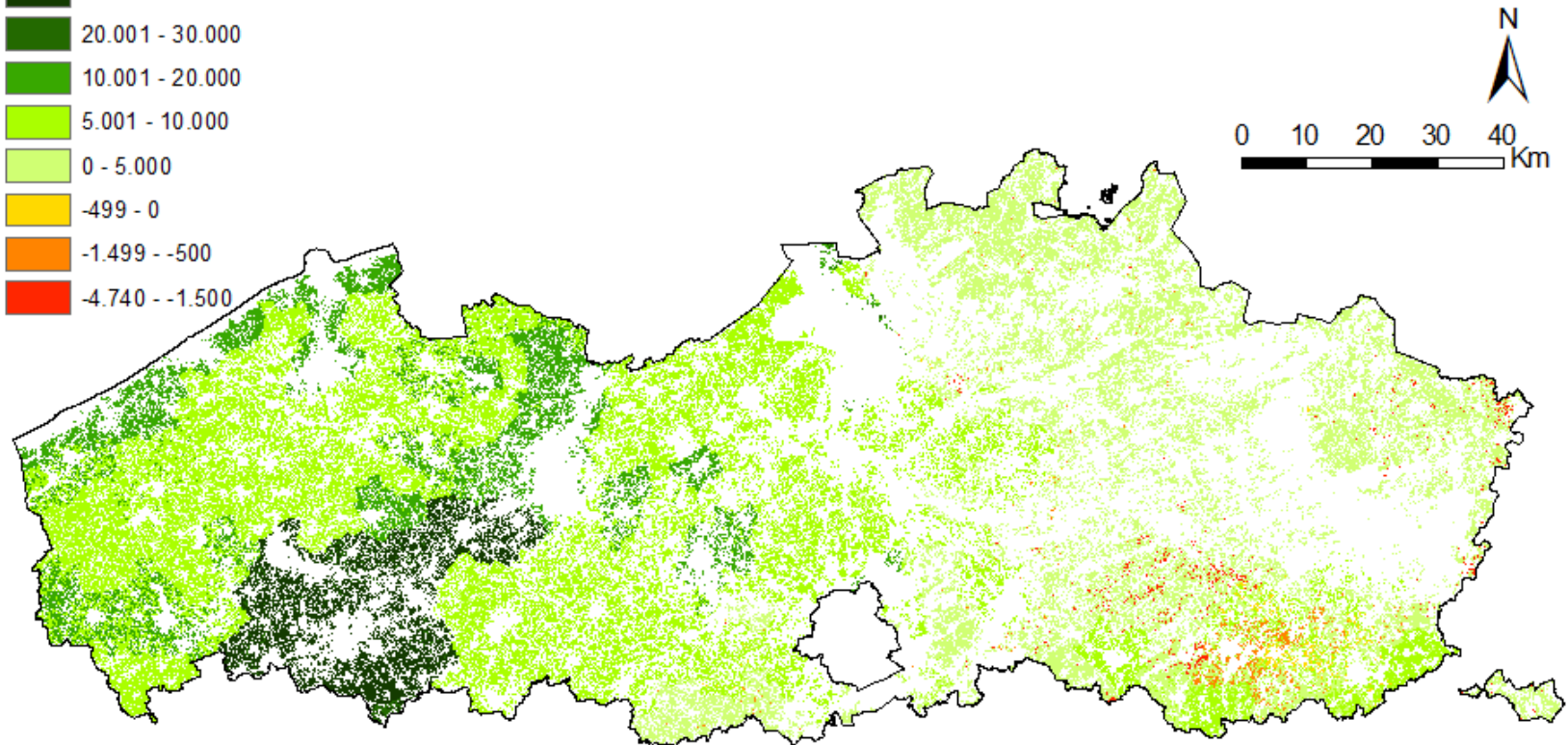
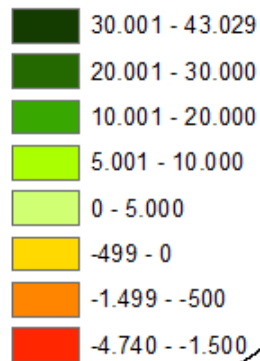
€/ha.yr



REA – Flanders & Valuation: Economic value of (non)-marketed ESS

Net benefits wood + carbon + recreation - food production (excl. subs.)

€/ha.yr



REA – Flanders & Valuation: Scope & assumptions of economic values

- ▶ Different, incommensurable value types (Jax et al., 2013):
intrinsic / fundamental / eudaimonistic / instrumental



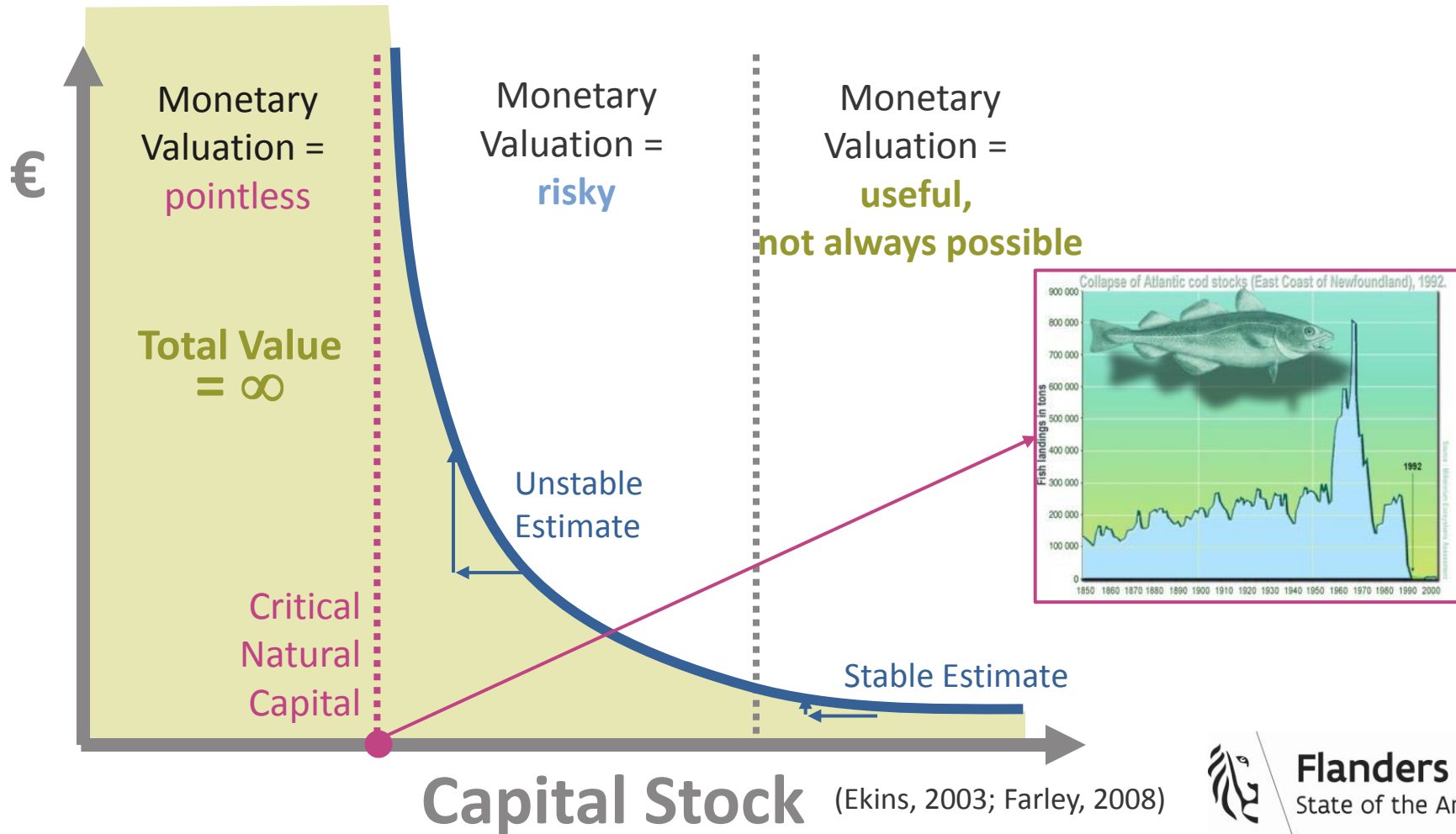
Economic
Value

- ▶ Choice value system & valuation method
≠ ethically/socially/politically neutral
 - e.g. economic value = exchange value
 - ⇒ assumes commodities & reversability
 - ⇒ empowers market-based discourse



REA – Flanders & Valuation: Operating space for economic valuation

- ▶ Monetary values → only for marginal changes that are well above critical capital stock level



REA - Flanders: Take home messages (4)

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REA-Flanders : Stage 2 - Putting ecosystem services to work! - NARA-B, 2016



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Technisch rapport

Inleiding | Conceptueel raamwerk | Drivers | Toestand biodiversiteit | Toestand en trend van ecosystemendiensten in Vlaanderen | Diversiteit

- Hoofdstuk 1 [Inleiding en doelstellingen](#)
- Hoofdstuk 2 [Conceptueel raamwerk](#)
- Hoofdstuk 3 [Drivers](#)
- Hoofdstuk 4 [Toestand biodiversiteit](#)
- Hoofdstuk 5 [Toestand en trend van ecosystemendiensten in Vlaanderen](#)
- Hoofdstuk 6 [De rol van biodiversiteit in de levering van ecosystemendiensten](#)
- Hoofdstuk 7 [Wetlijn](#)
- Hoofdstuk 8 [Waardering](#)
- Hoofdstuk 9 [Interacties tussen aanbod, gebruik en vraag van ecosystemendiensten in Vlaanderen](#)
- Hoofdstuk 10 [Ecosystemendiensten gericht beleid](#)
- Hoofdstuk 11 [Ecosystemendienst voedselproductie](#)
- Hoofdstuk 12 [Ecosystemendienst wildbreedproductie](#)
- Hoofdstuk 13 [Ecosystemendienst houtproductie](#)
- Hoofdstuk 14 [Ecosystemendienst productie van energiegewassen](#)
- Hoofdstuk 15 [Ecosystemendienst waterproductie](#)
- Hoofdstuk 16 [Ecosystemendienst bestuiving](#)



Flanders REA
Synthesis Report
can be downloaded
in English from :

<https://www.inbo.be/en/flanders-regional-ecosystem-assessment-state-and-trends-synthesis-report>



Thank you for your attention !

Any questions ?

