

NFP/Eionet meeting 22-23 October 2014, Bratislava

## Workshop on Ecosystems and their services: assessments and beyond

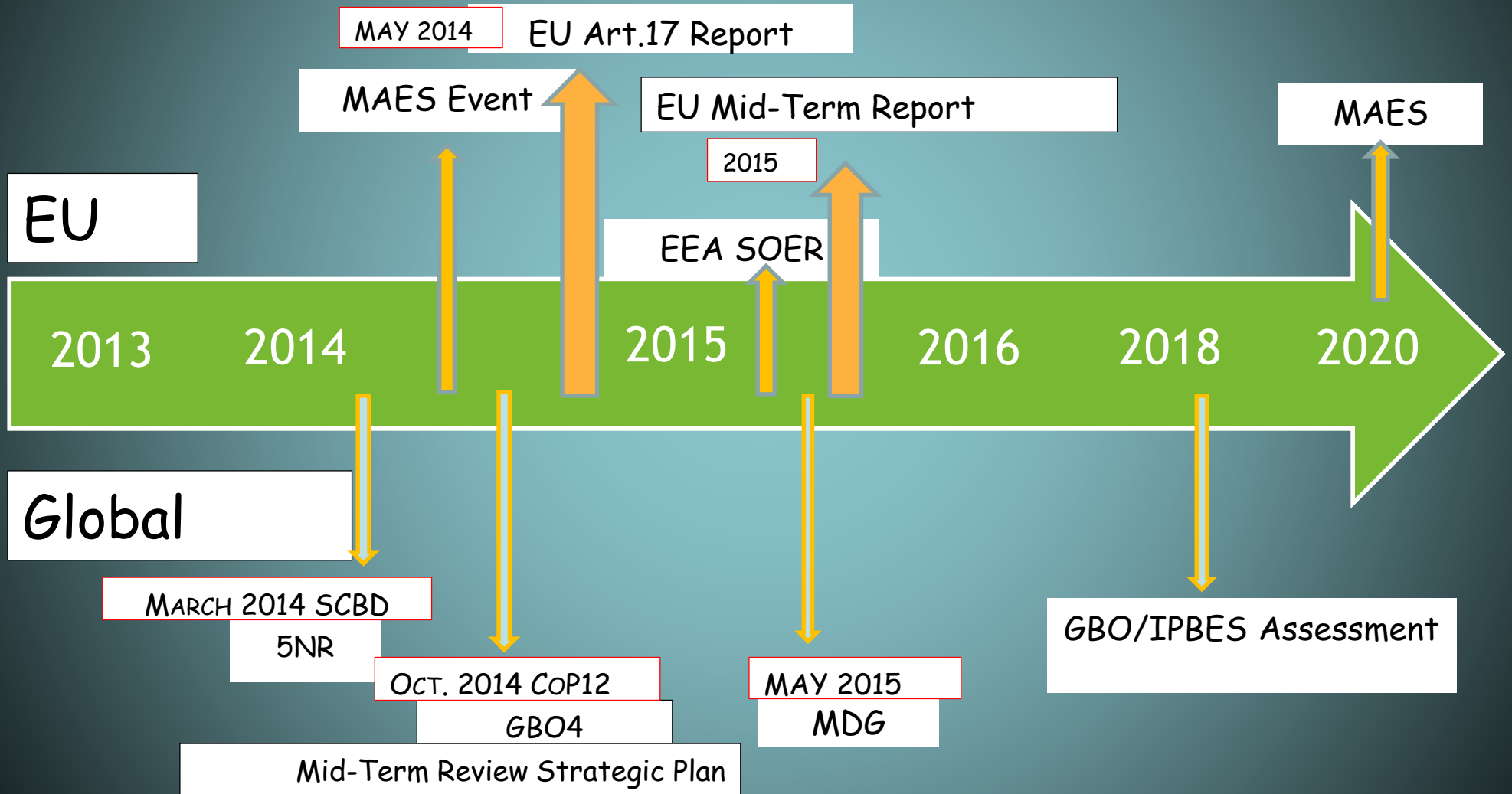
### EEA work on mapping and assessment of ecosystems - overview of progress' - Ronan Uhel

Reference: EU Biodiversity Strategy 2020 and corresponding Common Implementation Framework - Target 2 Actions 5 (+6)

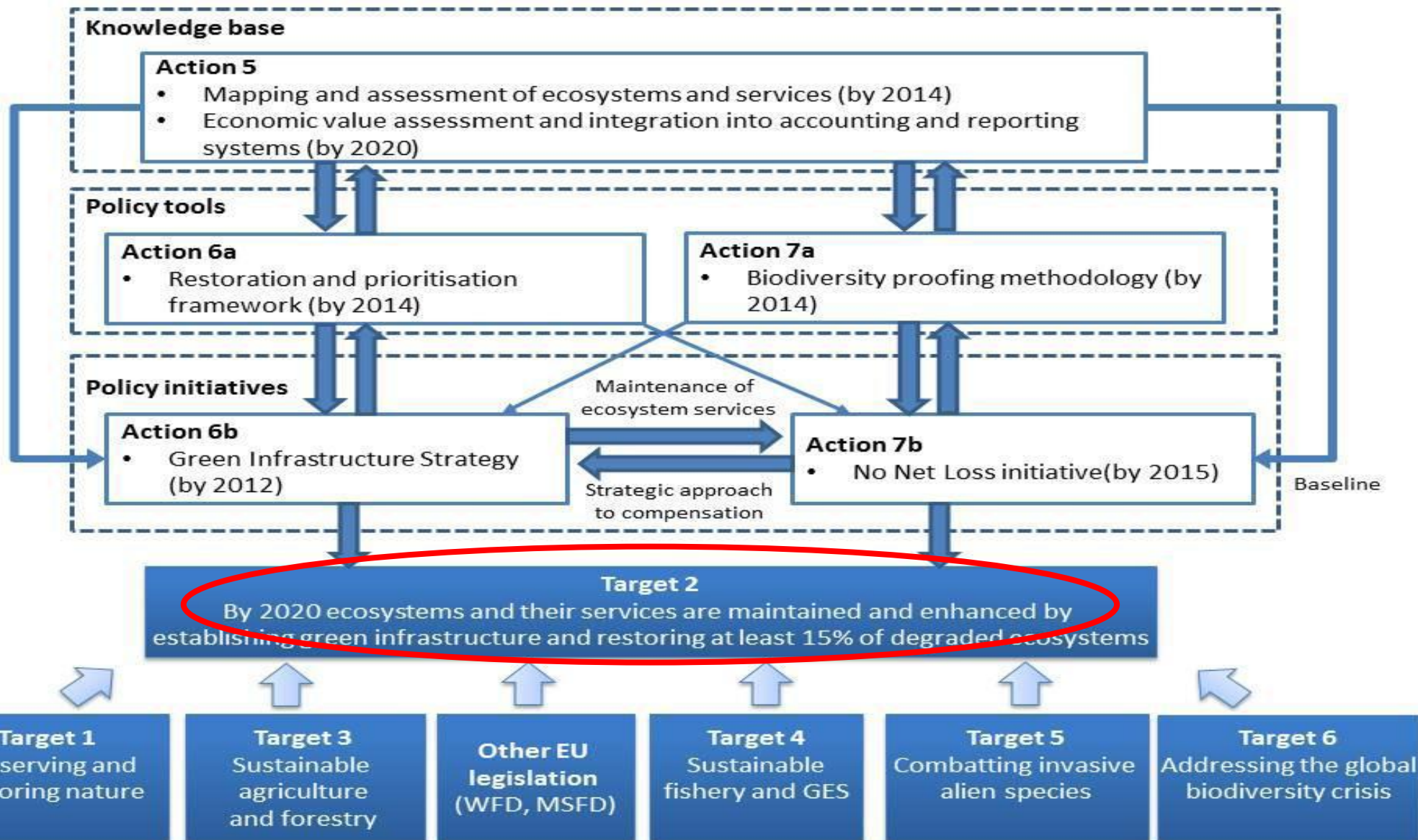
- MAES - EU Working Group on Mapping and Assessments of Ecosystems and their Services
- EEA support to BD20 Mid-Term review (several different contributions!)
- EEA AWP2015 deliverables and MAWP2014-18



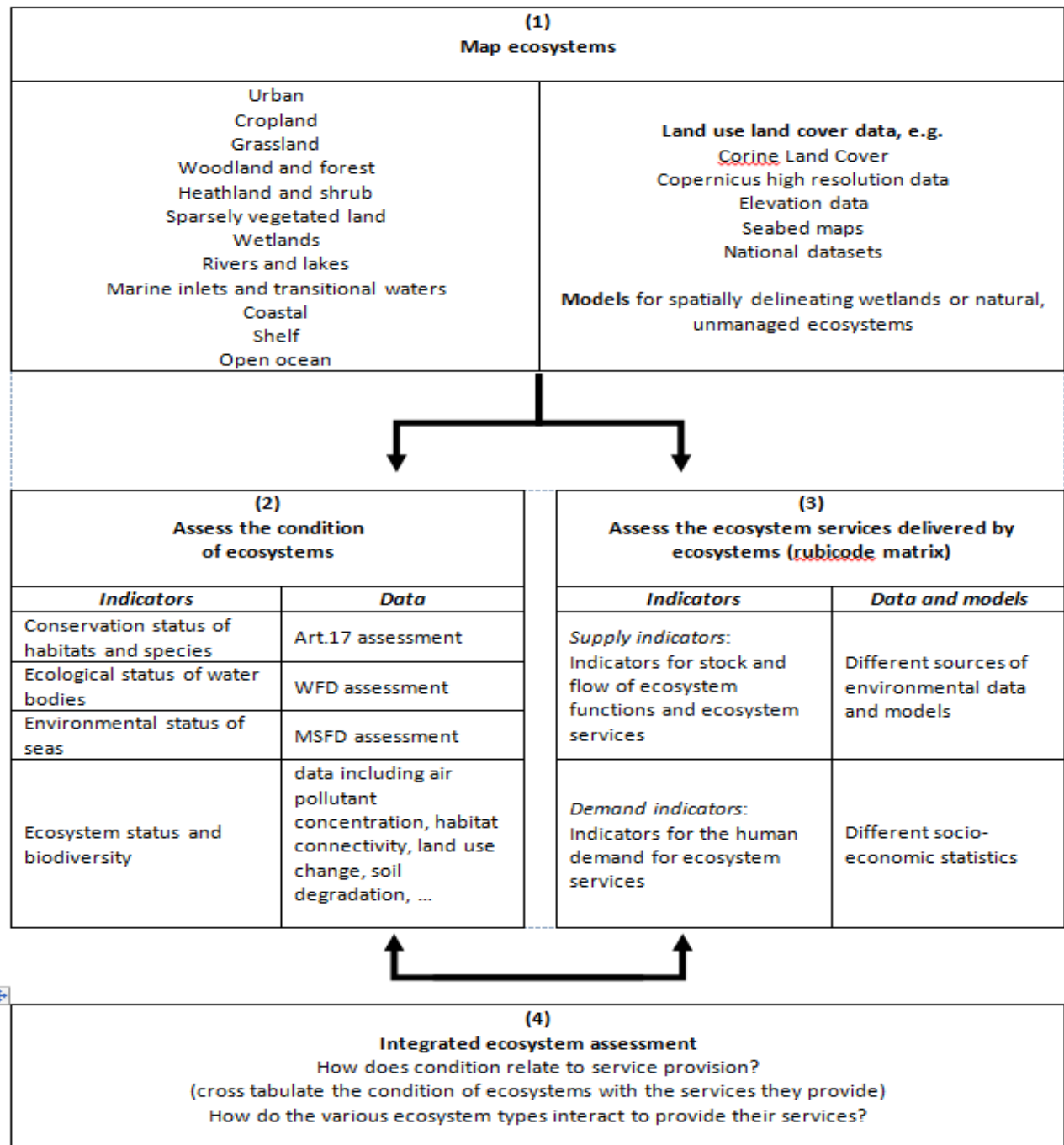
# EU and global biodiversity reporting schedule



# Common Implementation Framework of the Biodiversity Strategy 2020



# MAES information base for assessment





# 4 steps of implementation

## By 2014:

- I. Biophysical baseline mapping and assessment of the state of major ecosystems; -> **EEA track**
- II. Biophysical baseline mapping and assessment of defined ecosystem services; -> **JRC track**

## 2015-2020:

- I. Alignment of ecosystem service assessments with scenarios of future changes; -> **JRC modelling, NoNetLoss initiative (2015)**
- II. Valuation of ecosystem services for baseline and contrasting scenarios and integration into environmental and economic accounting.  
-> **Natural Capital Accounting**



# Key challenge: Ecosystem conditions

MAES Analytical framework

<http://biodiversity.europa.eu/maes>

Specific methodologies e.g. crosswalks between European marine habitat typologies

[http://biodiversity.europa.eu/maes/crosswalks-between-european-marine-habitat-typologies\\_10-04-14\\_v3.pdf](http://biodiversity.europa.eu/maes/crosswalks-between-european-marine-habitat-typologies_10-04-14_v3.pdf)

EU-wide assessment of ecosystems and conditions (MAES approach)

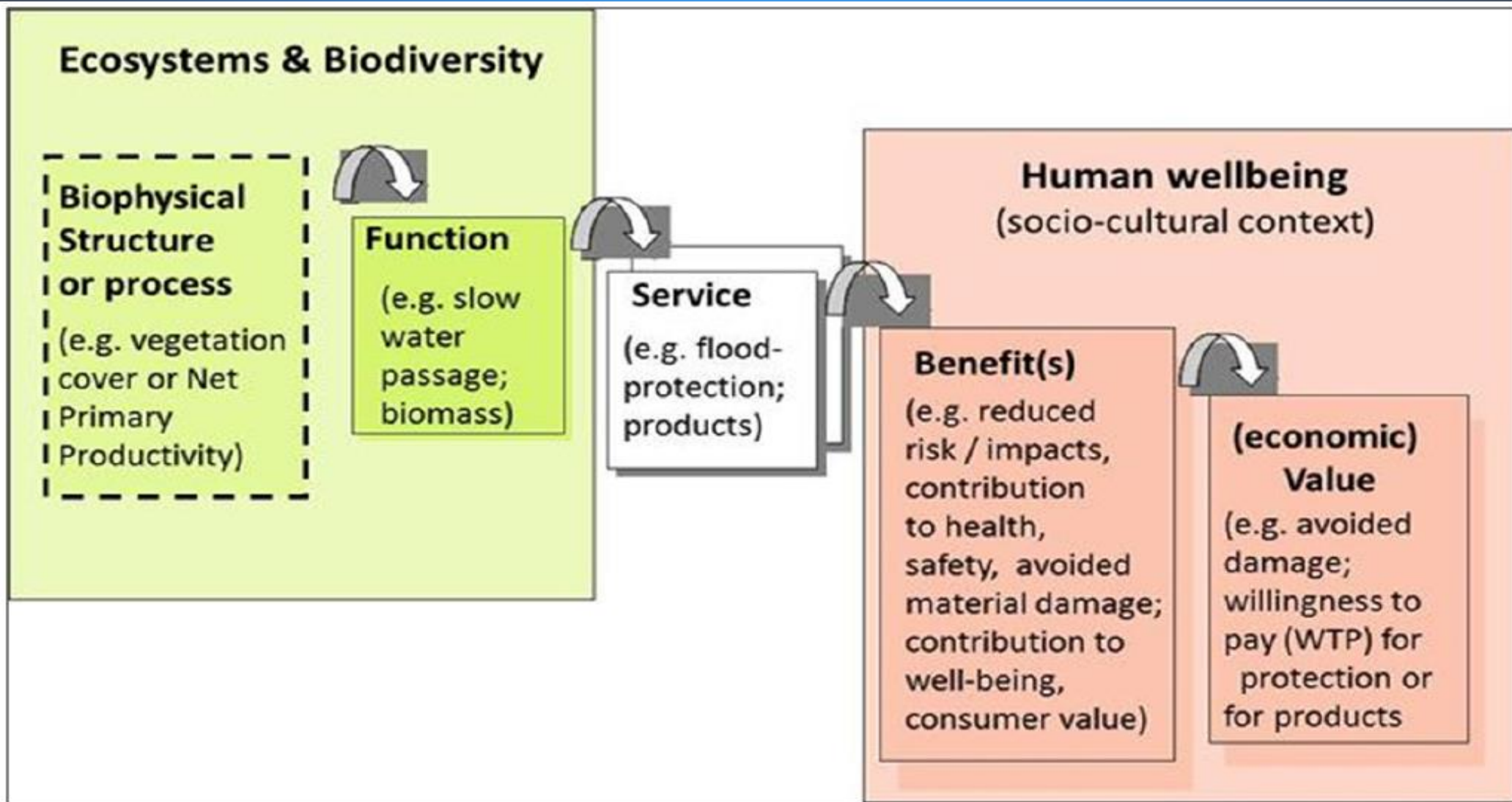
<http://biodiversity.europa.eu/maes/mapping-ecosystems/eu-wide-assessment-of-ecosystems-and-conditions>

## Relevance and main data gaps for ecosystems assessment

| Ecosystem type<br>(e.g. FOREST, RIVERS& LAKES, MARINE) | Ecosystem condition | Major drivers of ecosystem change |                |   |                  |                                   |
|--|---------------------|-----------------------------------|----------------|---|------------------|-----------------------------------|
|  | Condition           | Habitat change                    | Climate change | Overexploitation (unsustainable management) | Invasive species | Pollution and Nutrient Enrichment |



# The value chain...societal health and wellbeing

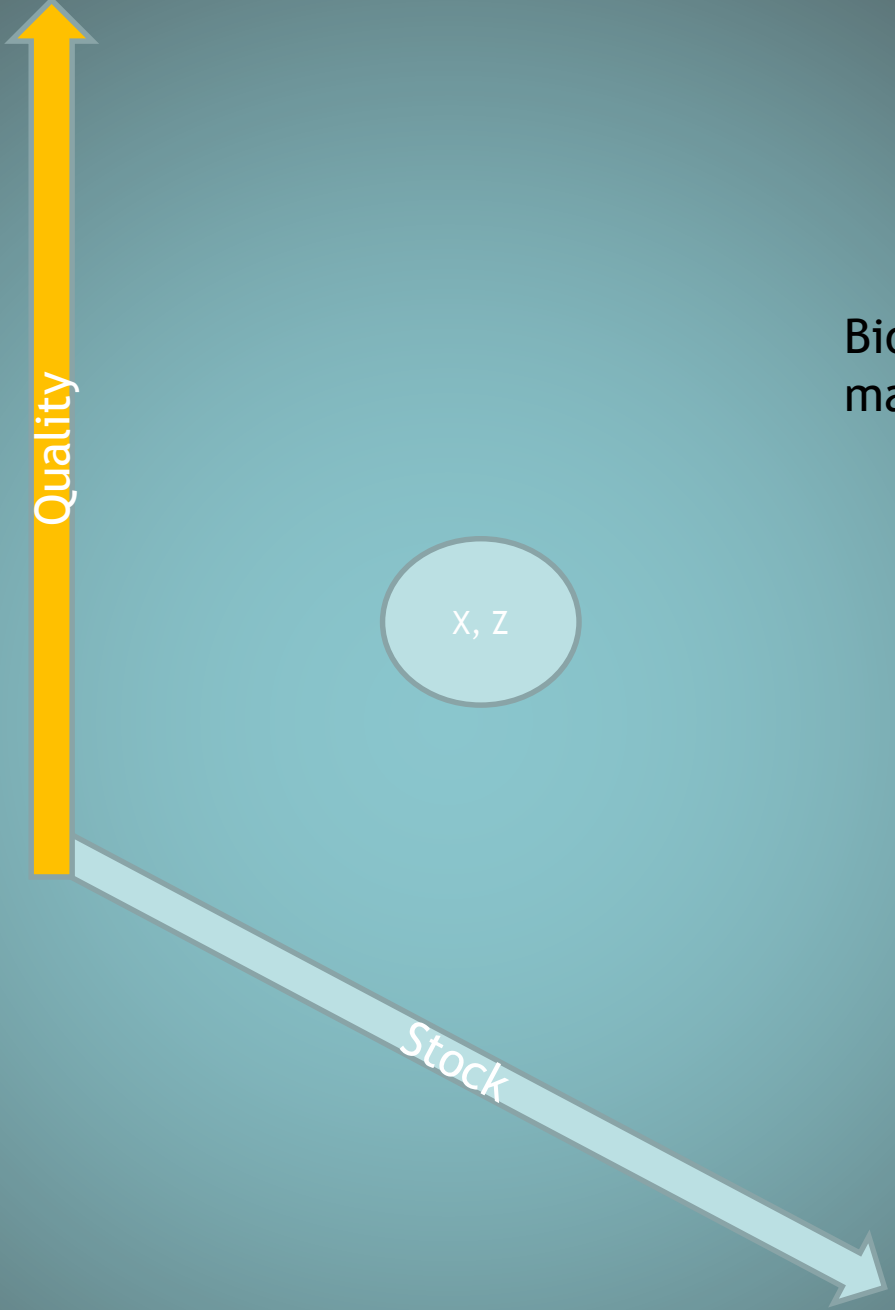


# 3 dimensions of ecosystems mapping

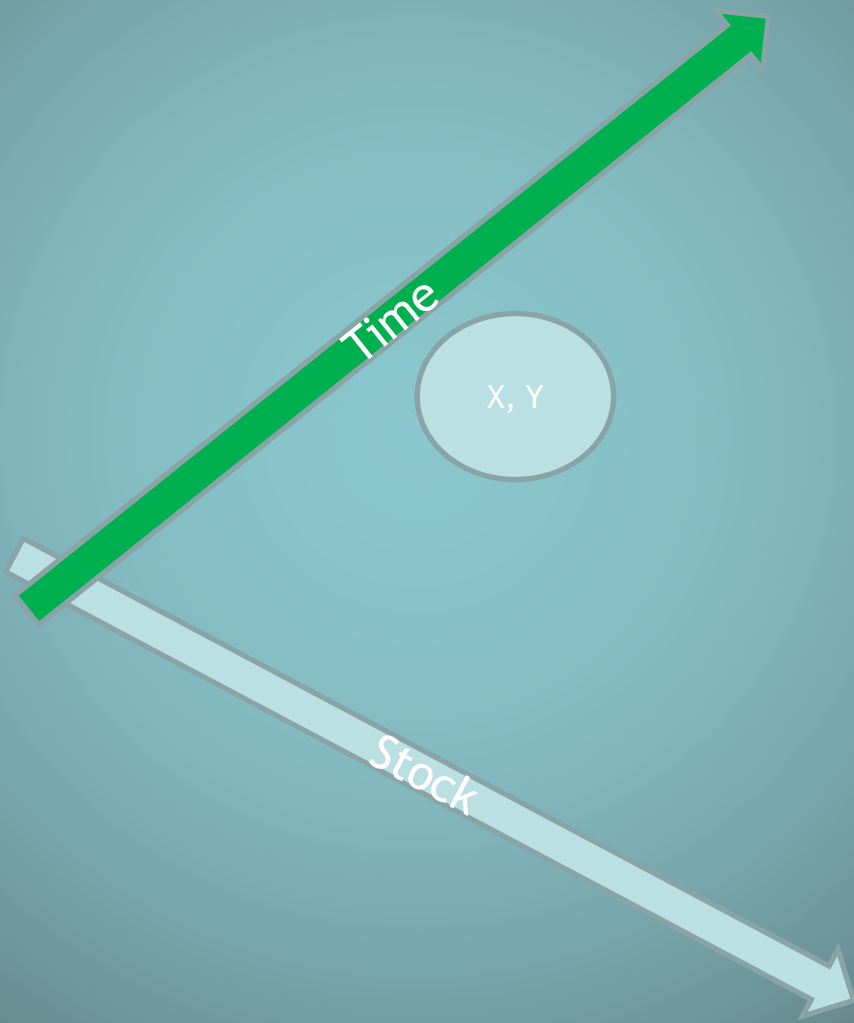
Spatial extent  
mapping



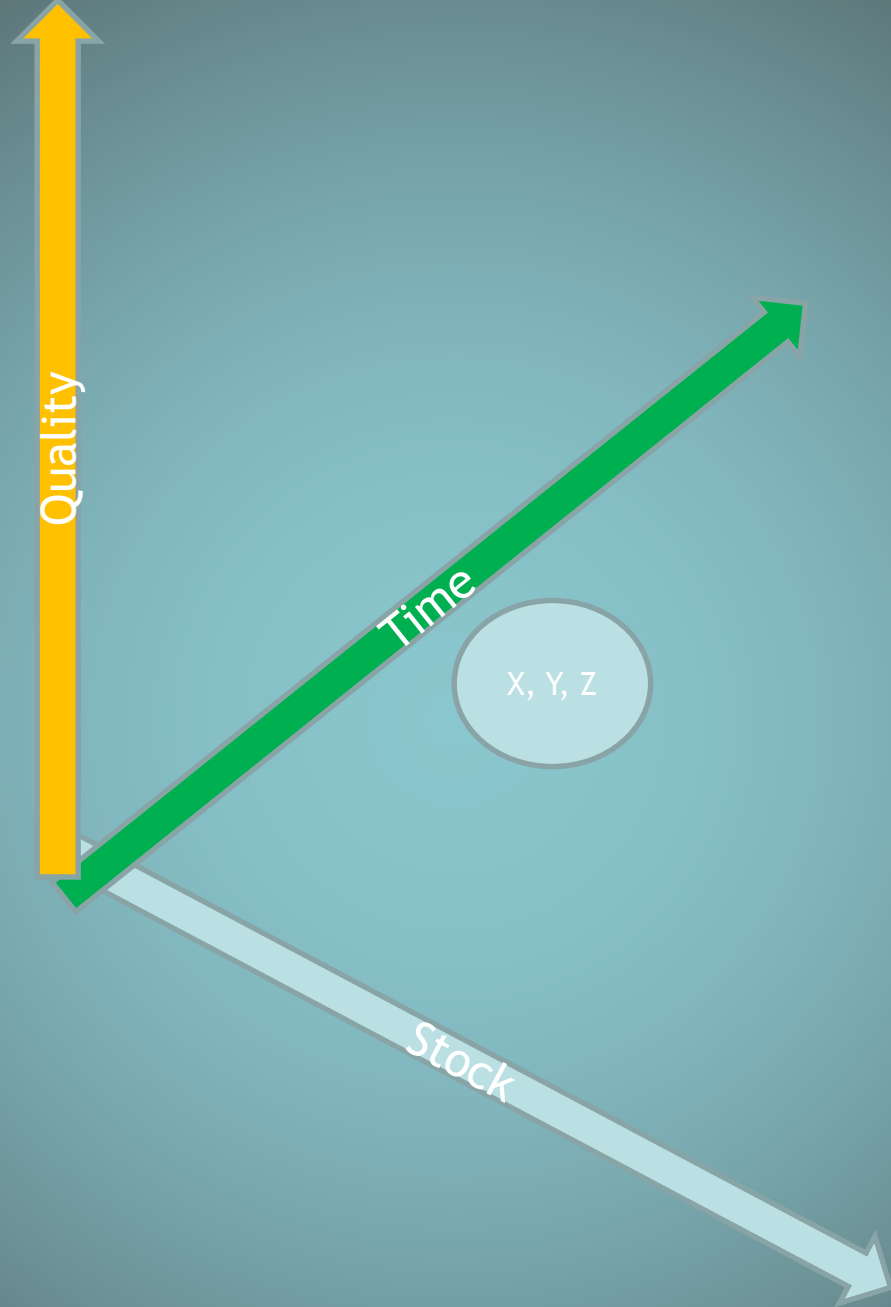




Biophysical baseline  
mapping

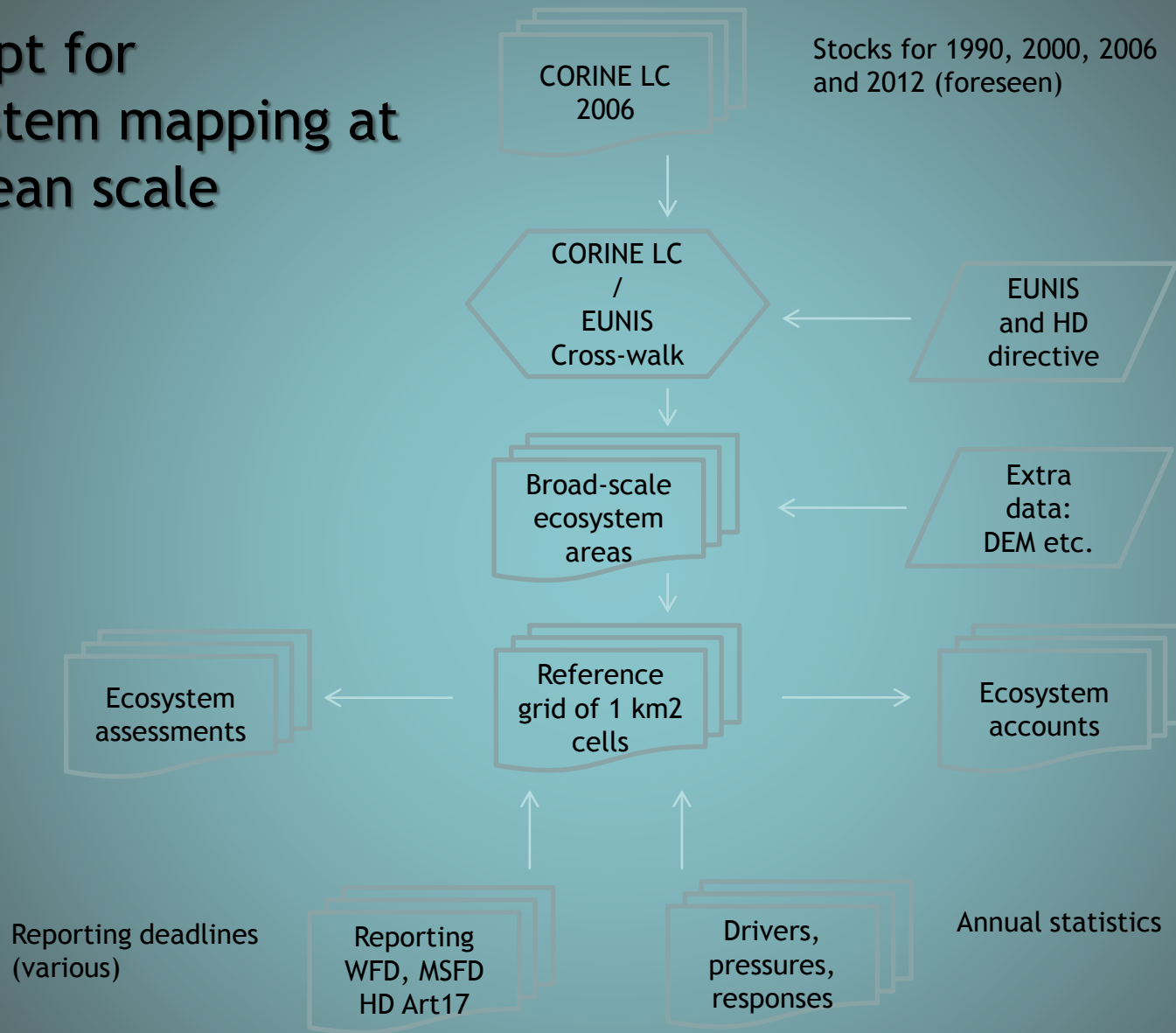


Basic change  
detection  
(a la CORINE LC)



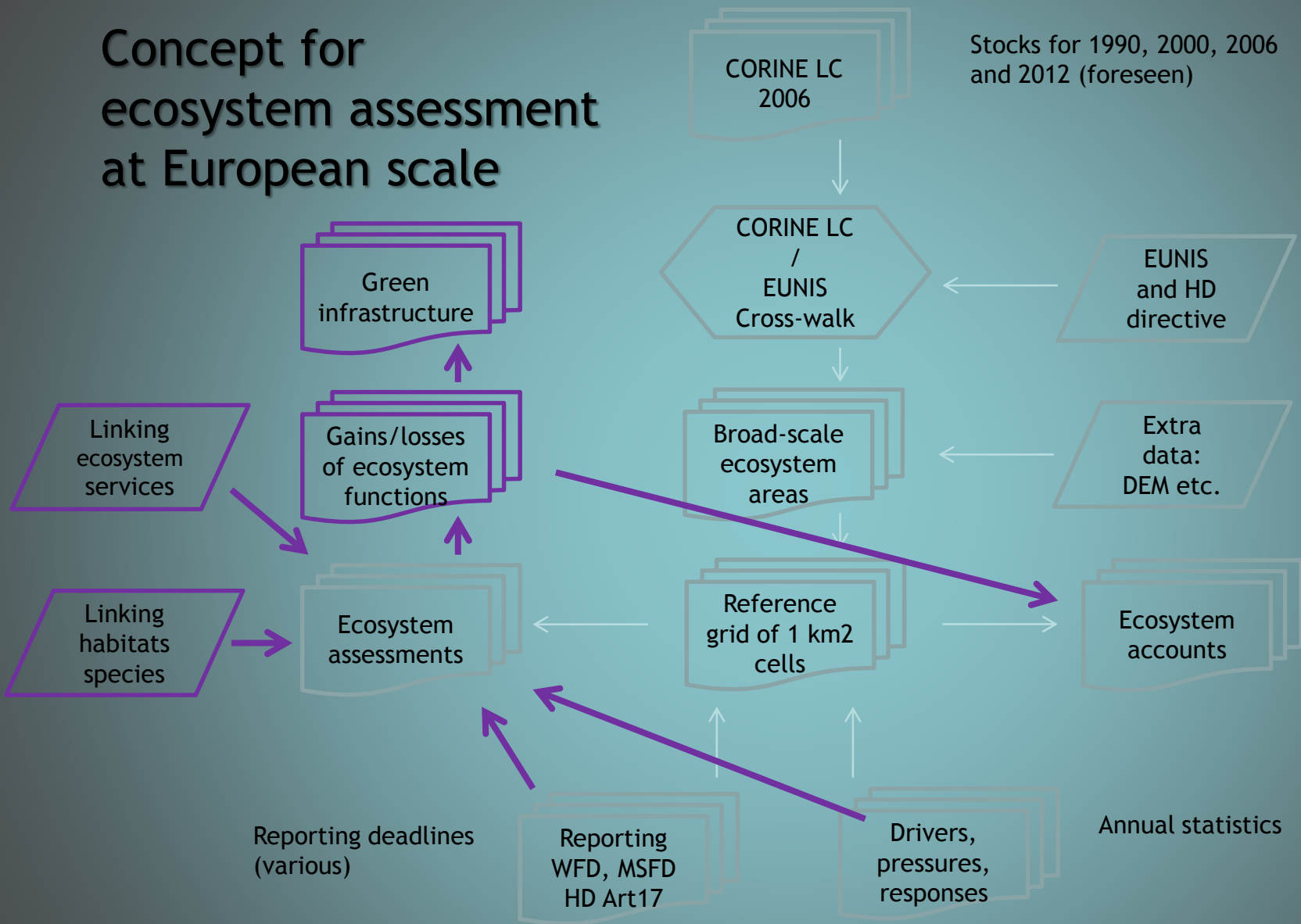
Change detection  
in policy context  
of the  
BD Strategy 2020

# Concept for ecosystem mapping at European scale





# Concept for ecosystem assessment at European scale



# Matrix approach: streamline information from reported data / information and on-going ecosystem assessment work

|                               | Terrestrial<br>(e.g. agro-ecosystems, forests, semi-natural lands) | Freshwater<br>(e.g. rivers and lakes, wetlands) | Marine (including EEZs and DOMs) | Atmosphere |
|-------------------------------|--|---|----------------------------------|------------|
| <b>Provisioning</b>           |  |   |                                  |            |
| Nutrition                     |  |   |                                  |            |
| Materials                     |  |   |                                  |            |
| Energy                        |  |   |                                  |            |
| <b>Regulating</b>             |  |   |                                  |            |
| Wastes                        |  |   |                                  |            |
| Flow regulation               |  |   |                                  |            |
| Physical environment          |  |   |                                  |            |
| Biotic environment            |  |   |                                  |            |
| <b>Cultural</b>               |  |   |                                  |            |
| Symbolic                      |  |   |                                  |            |
| Intellectual and experiential |  |   |                                  |            |
| Conservation                  |  |   |                                  |            |



# Matrix approach: streamline information from reported data / information and on-going ecosystem assessment work

| <div style="border: 1px solid black; padding: 5px; display: inline-block; color: red; font-weight: bold;">2014-2015</div> | <b>Terrestrial</b><br>(e.g. agro-ecosystems, forests, semi-natural lands) | <b>Freshwater</b><br>(aquatic ecosystems e.g. rivers and lakes) | <b>Marine ecosystems</b><br>(transitional, coastal and EEZs waters) | <b>Atmosphere</b> |
|---|---|---|---|-------------------|
| <b>Ecosystem mapping</b><br>(spatial modelling)   |   |   |   |                   |
| Land cover as base layer  |   |   |   |                   |
| EUNIS nomenclature  |   |   |   |                   |
| Enhancements (data)   |   |   |   |                   |
| <b>Ecosystem condition</b><br>(assessment)  |   |   |   |                   |
| Reporting data: status & state  |   |   |   |                   |
| Linking to CICES  |   |   |   |                   |
| Linking habitats & species to ecosystems  |   |   |   |                   |
| Impacts: gains/losses of ecosystem functions  |   |   |   |                   |
| <b>Pressures on ecosystems</b><br>(proxy for degradation)   |   |   |   |                   |
| Pollution   |   |   |   |                   |
| (Over)harvesting  |   |   |   |                   |
| Disturbing / structural   |   |   |   |                   |



# Proposal for outline of EEA report on ecosystem assessment

## **Section 1 Introduction**

- 1.1 Setting of the scene
- 1.2 Data availability at EU level

## **Section 2 Ecosystem mapping**

- 2.1 Spatial delineation
- 2.2 Towards functional mapping of ecosystems

## **Section 3 Assessing the condition of broad ecosystems**

- 3.1 Condition of ecosystems – current state-of-art
- 3.2 Pressures on ecosystems – proxy for assessing ecosystem degradation
- 3.3 Outlook and climate change impacts on ecosystems

## **Section 4 Potential for Green infrastructure implementation and restoration**

- 4.1 Role of Green infrastructure analysis
- 4.2 What-if analysis of possible decisions related to ecosystems

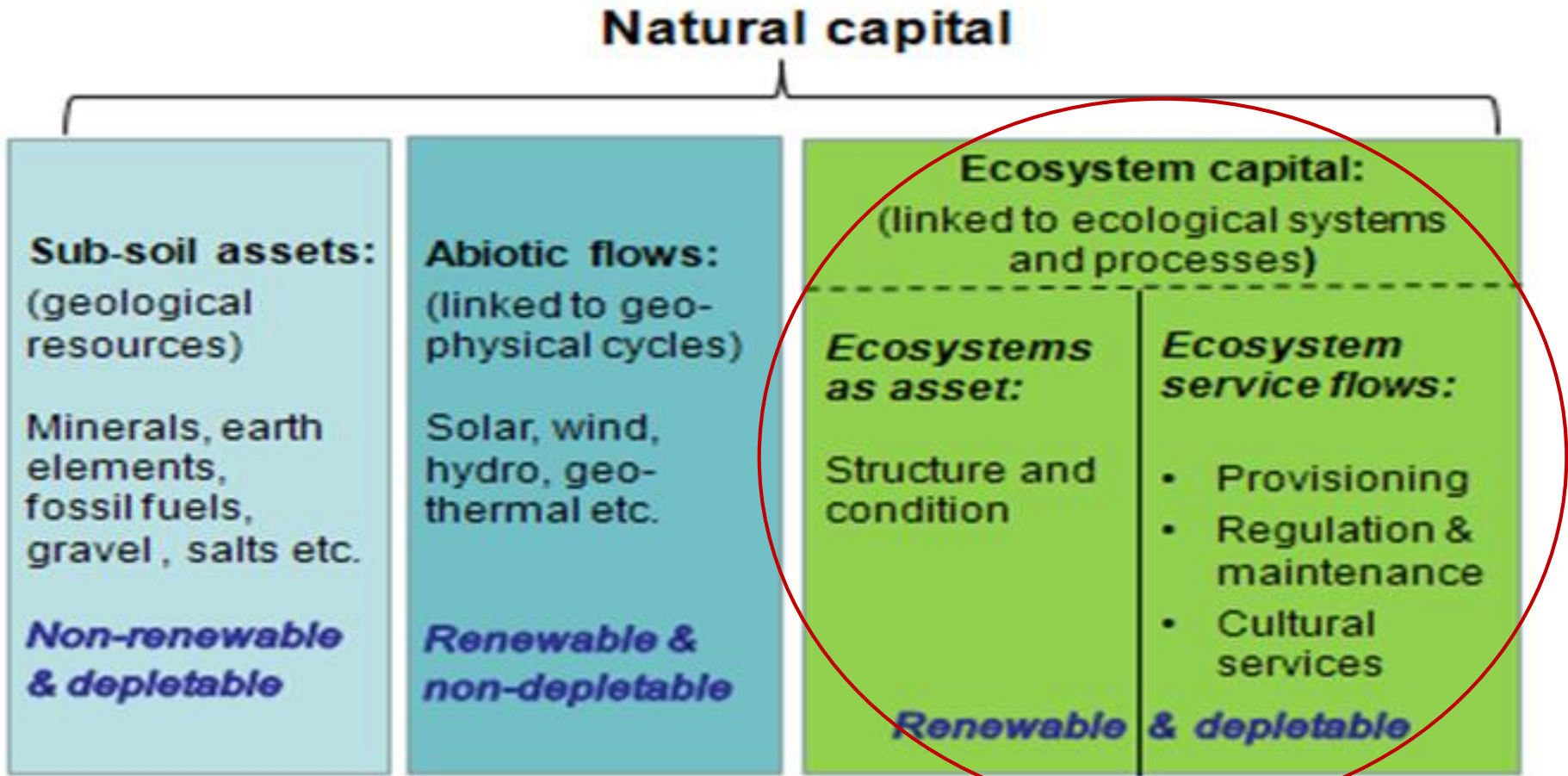
## **Section 5 Link to ecosystem capital accounting**



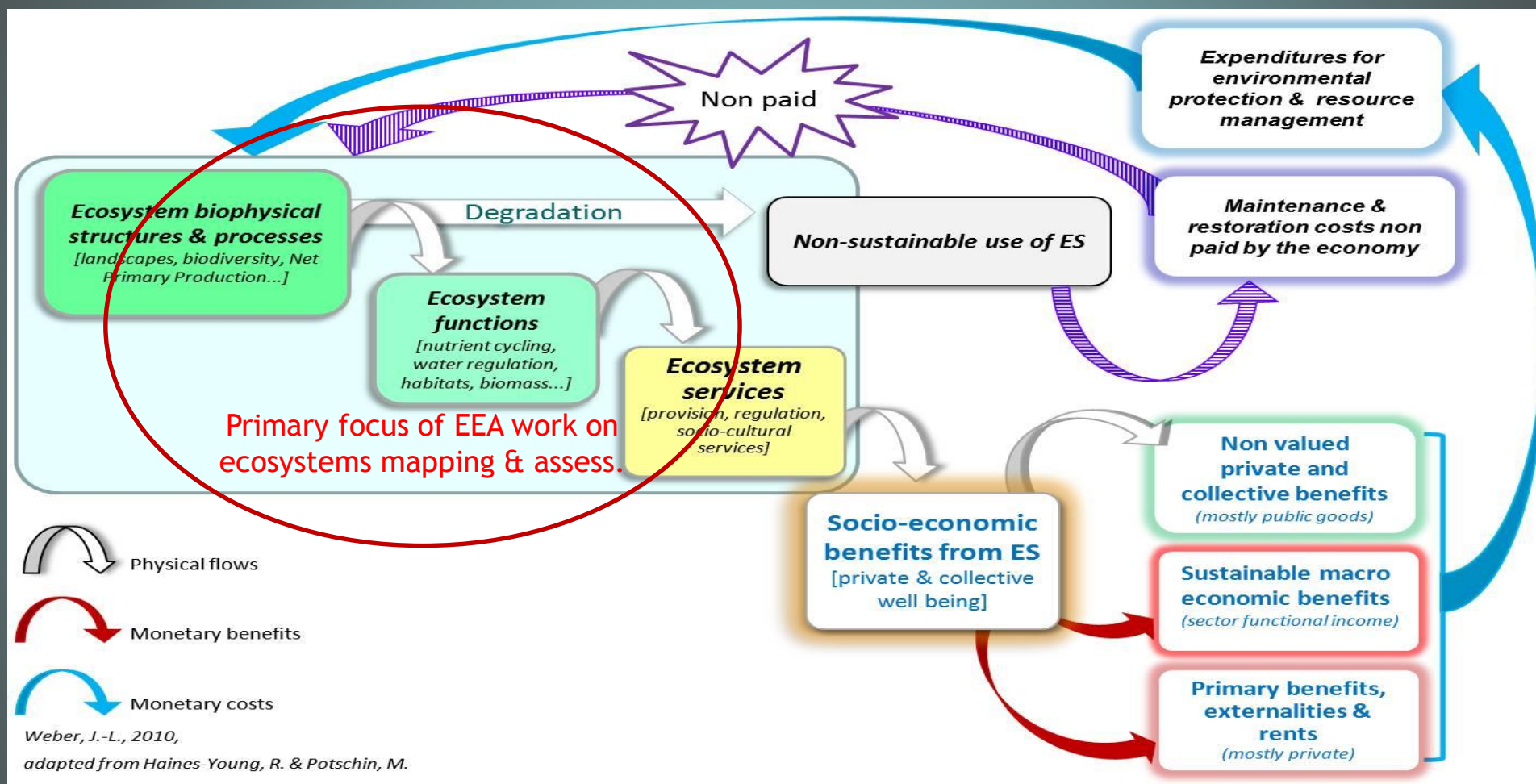


# Assets management: accounting for our natural capital

## Components of Natural Capital:



# EEA methodological approach: ecosystem accounts to inform on natural capital management



Accounts allow for e.g. measurement of key ecosystem structures, functions & services in physical units, and measurement of ecosystem state and degradation



Thank you

