

**Copenhagen side event**

**Climate change, GDP and measurements of prosperity**

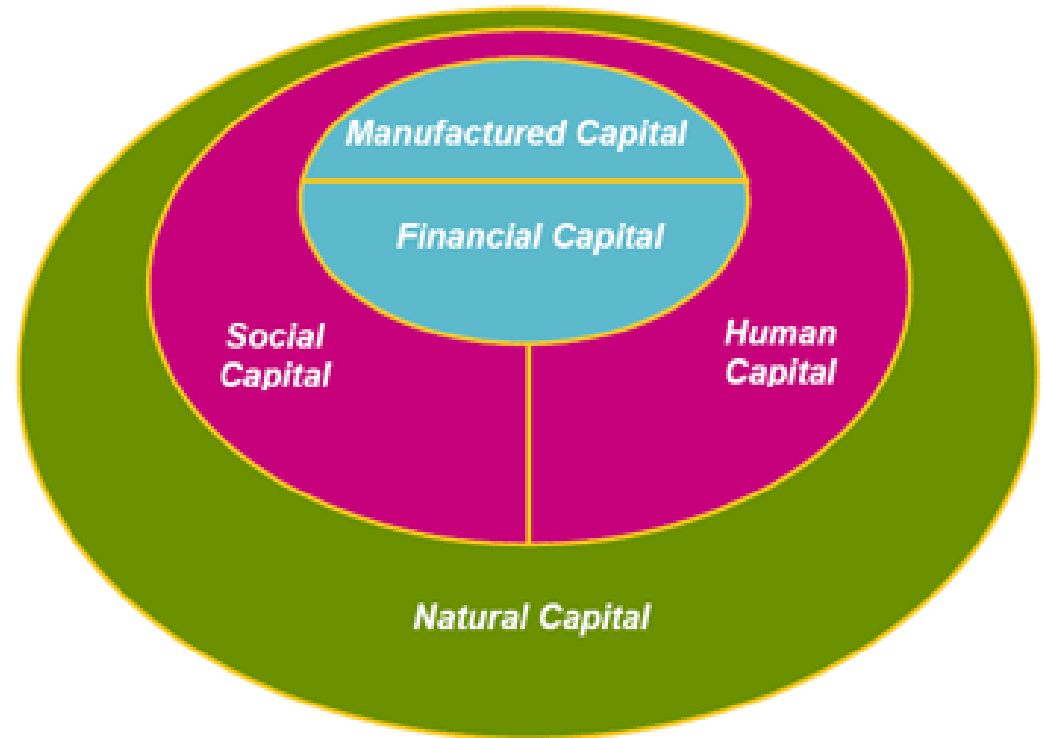
# **'Beyond GDP' accounting and climate change**

**Professor Jacqueline McGlade**

**Executive Director, European Environment Agency**

## Stocks of assets that determine our production of goods and services

- Manufactured capital
- Financial capital
- Social capital
- Human capital
- **Natural capital**



Source: Forum for the Future



# 'Our economic compass is faulty'

Pavan Sukhdev

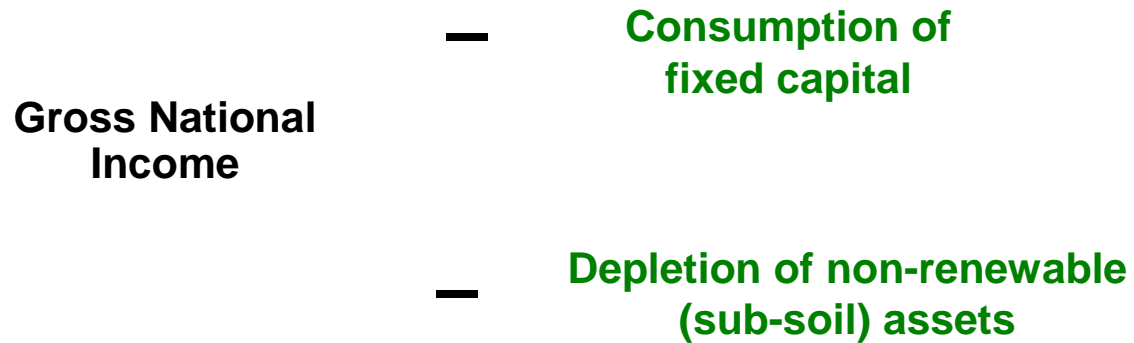
Study Leader, The Economics of Ecosystems and Biodiversity

# Integration of changes in ecosystem capital stocks into national accounts

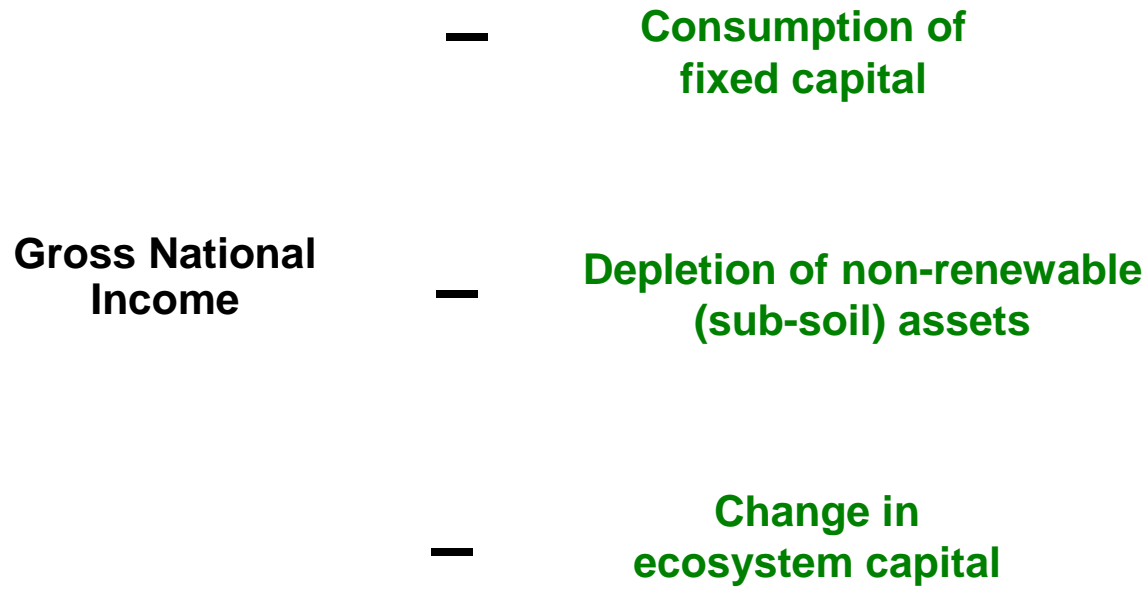
$$\text{Gross National Income} - \text{Consumption of fixed capital} = \text{Net National Income}$$



# Integration of changes in ecosystem capital stocks into national accounts



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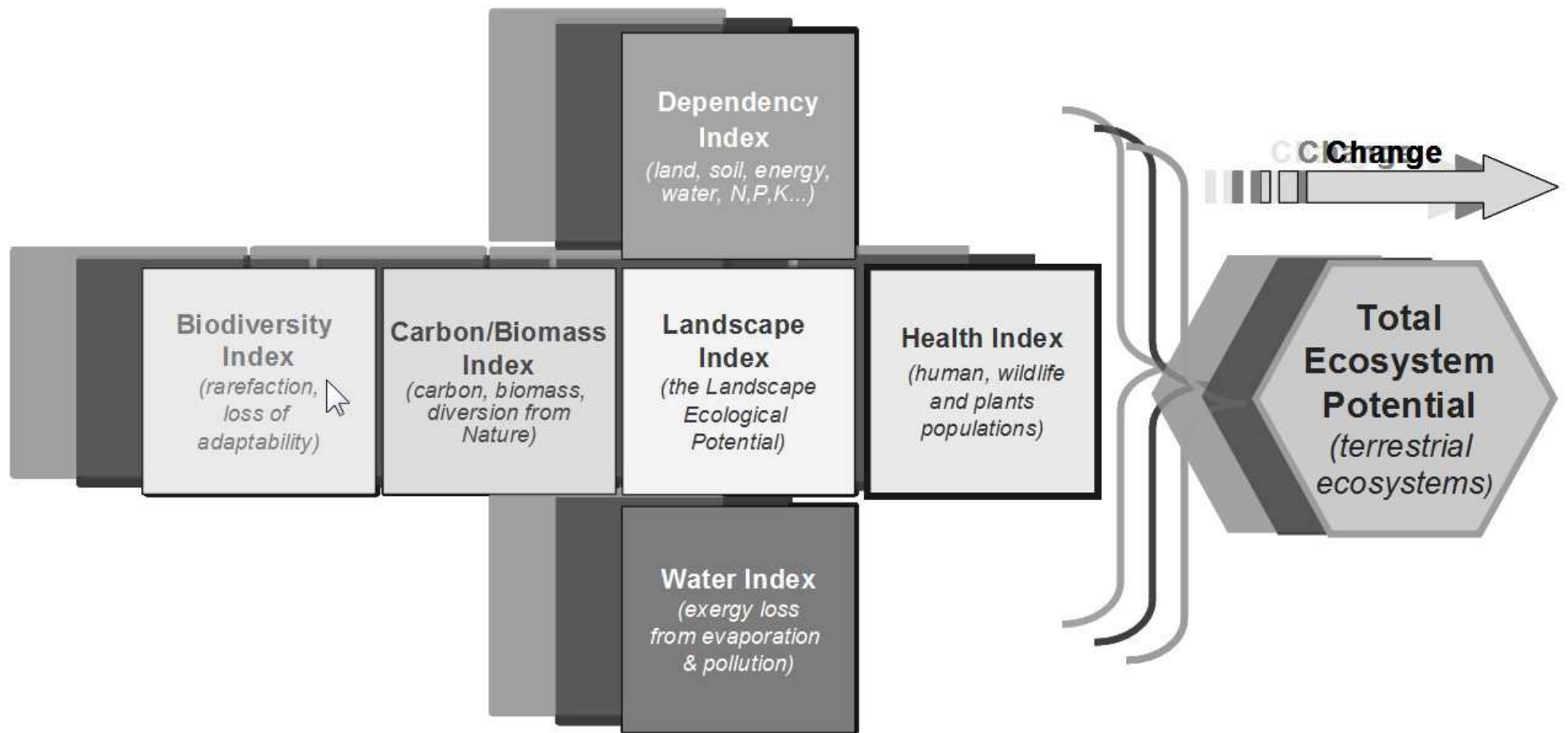


# Integration of changes in ecosystem capital stocks into national accounts

$$\text{Gross National Income} - \begin{matrix} \text{Consumption of} \\ \text{fixed capital} \\ \text{Depletion of non-renewable} \\ \text{(sub-soil) assets} \\ \text{Change in} \\ \text{ecosystem capital} \end{matrix} = \text{'True National Income'}$$

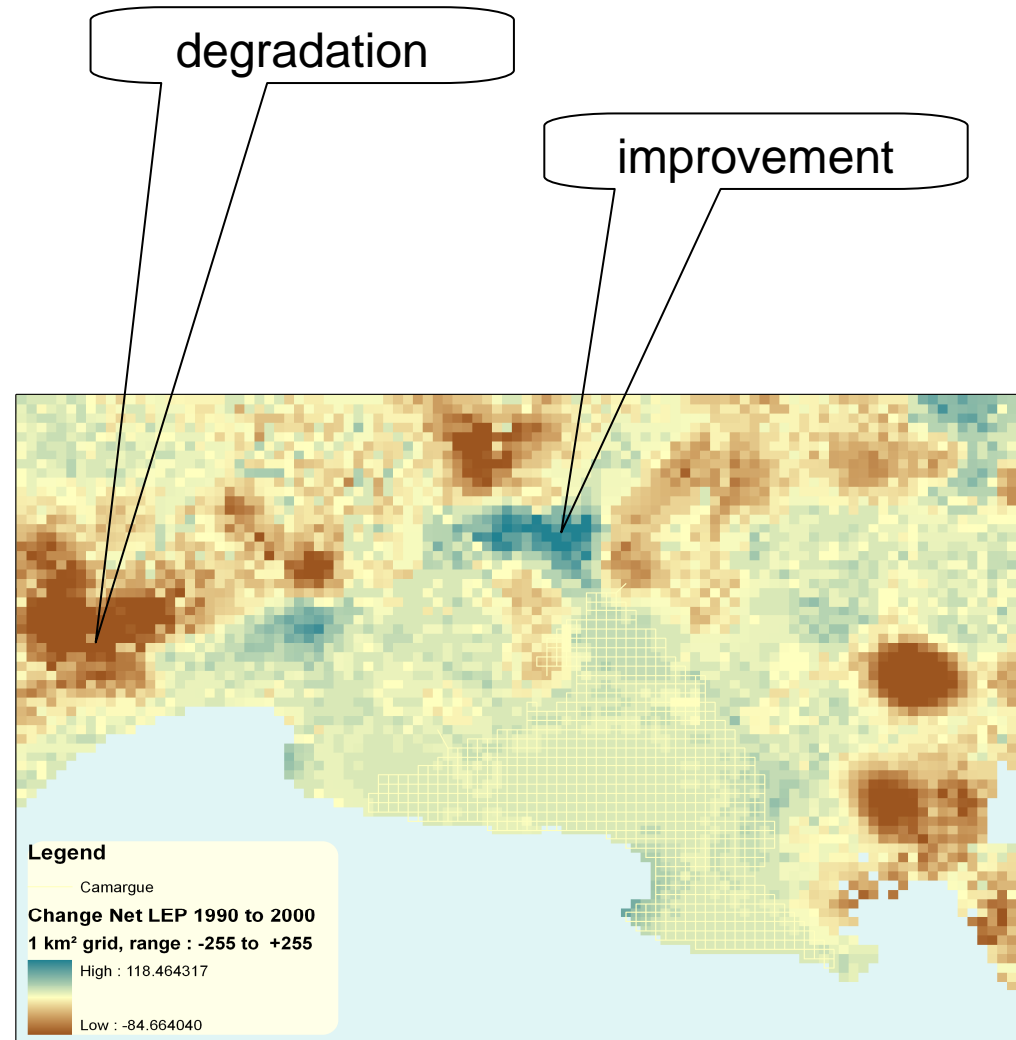
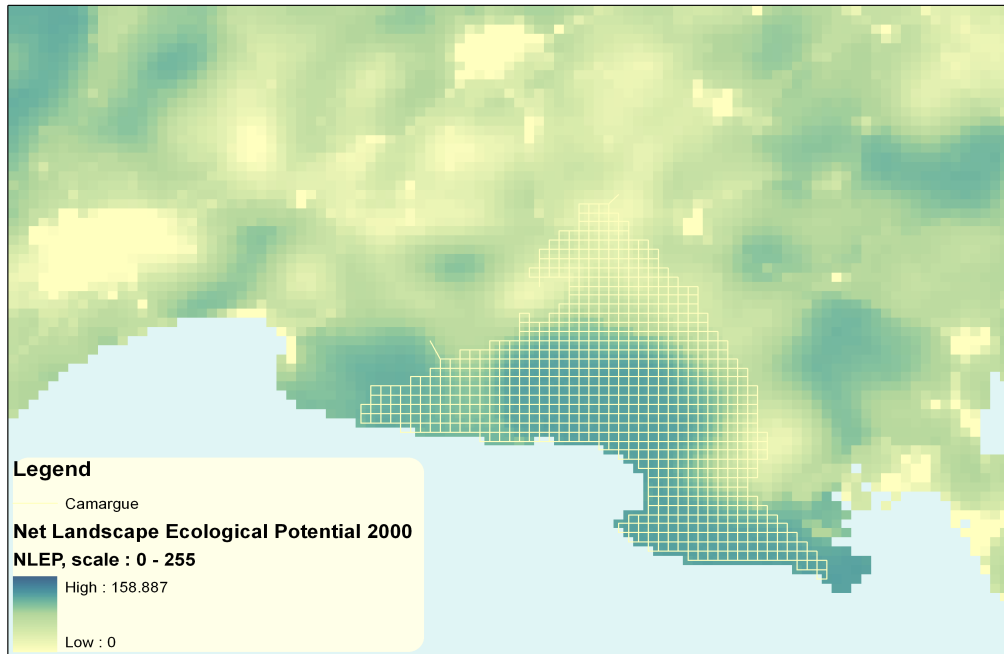


# Total Ecosystem Potential for terrestrial ecosystems, computed on the basis of indexes

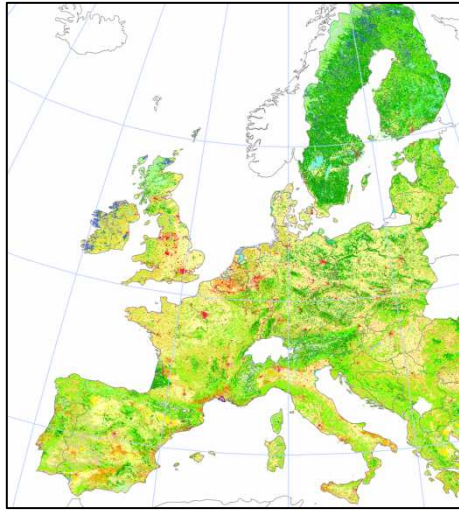




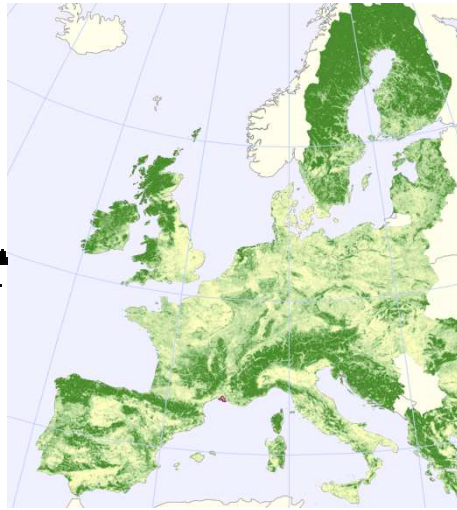
# Landscape Ecosystem Potential and **change**



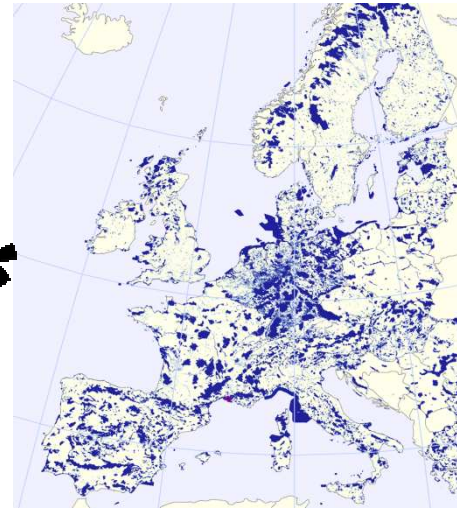
# Land Ecosystem Account: Landscape Ecological Potential



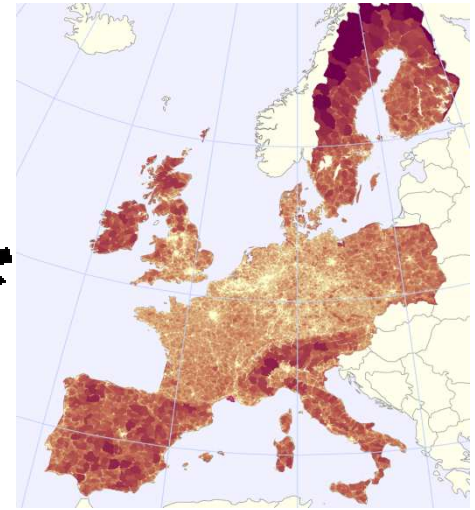
Corine land cover map (CLC  
*is derived from satellite  
images*)



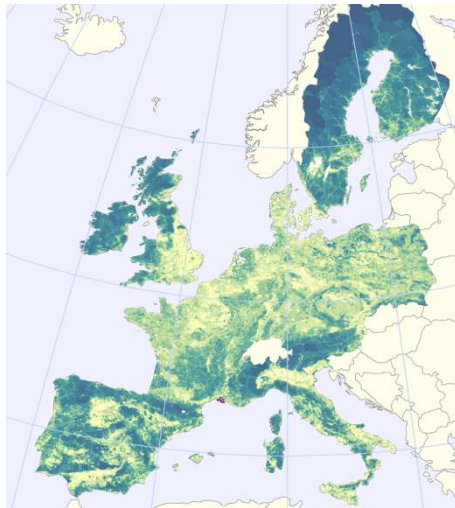
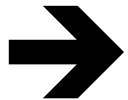
Green Landscape Index  
*(derived from CLC)*



Nature Value (*Naturilis,  
derived from Natura2000  
designated areas*)

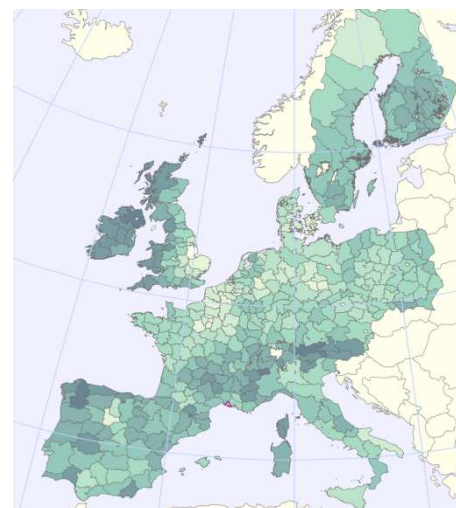


Fragmentation (*Effective  
Mesh Size (MEFF) derived  
from TeleAtlas Roads and  
CLC*)



**Landscape Ecological Potential  
(LEP) 2000, by 1km<sup>2</sup> grid cell**

and



**LEP 2000 by NUTS 2/3**

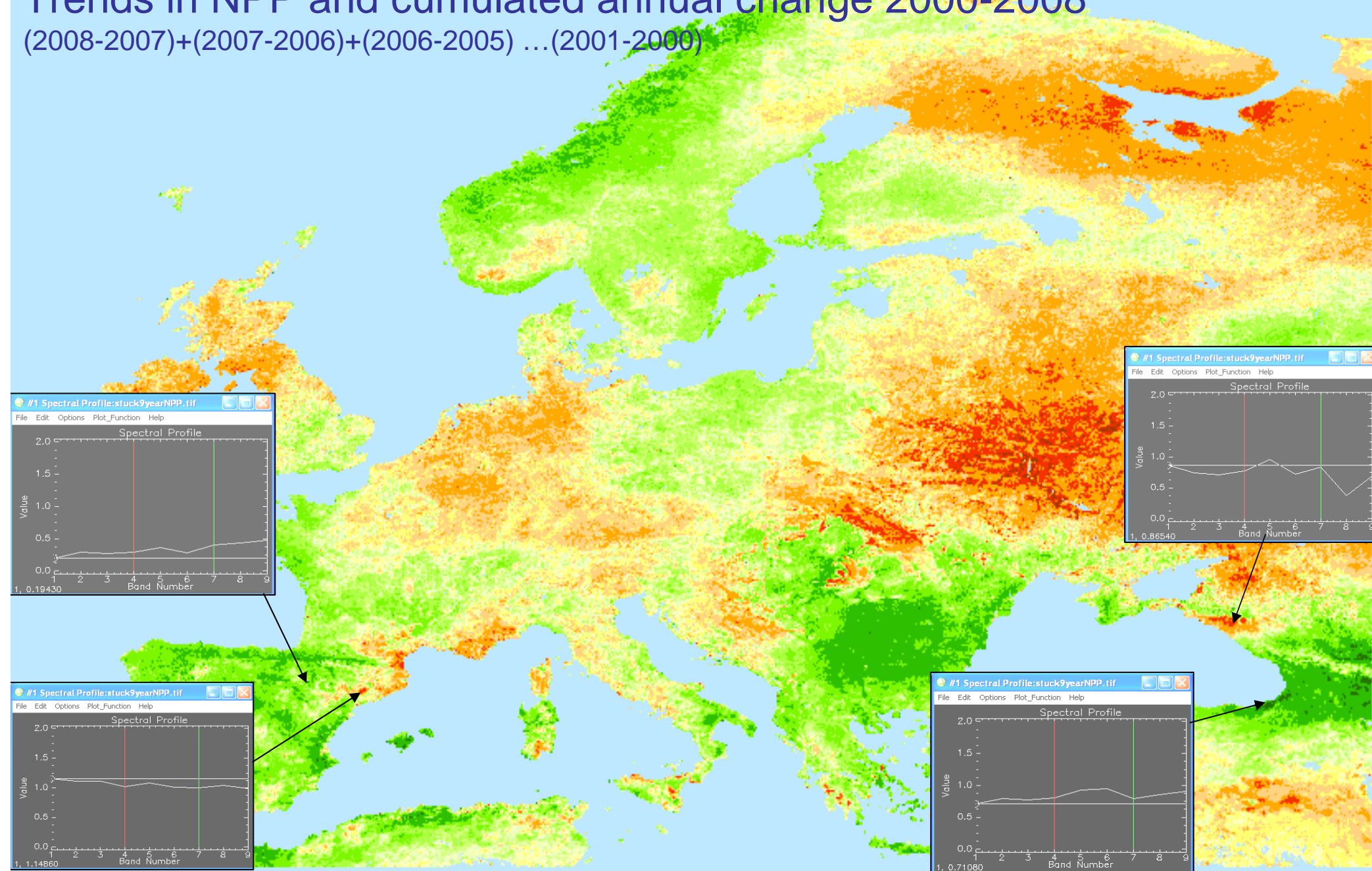
European Environment Agency





# Trends in NPP and cumulated annual change 2000-2008

$(2008-2007)+(2007-2006)+(2006-2005) \dots (2001-2000)$

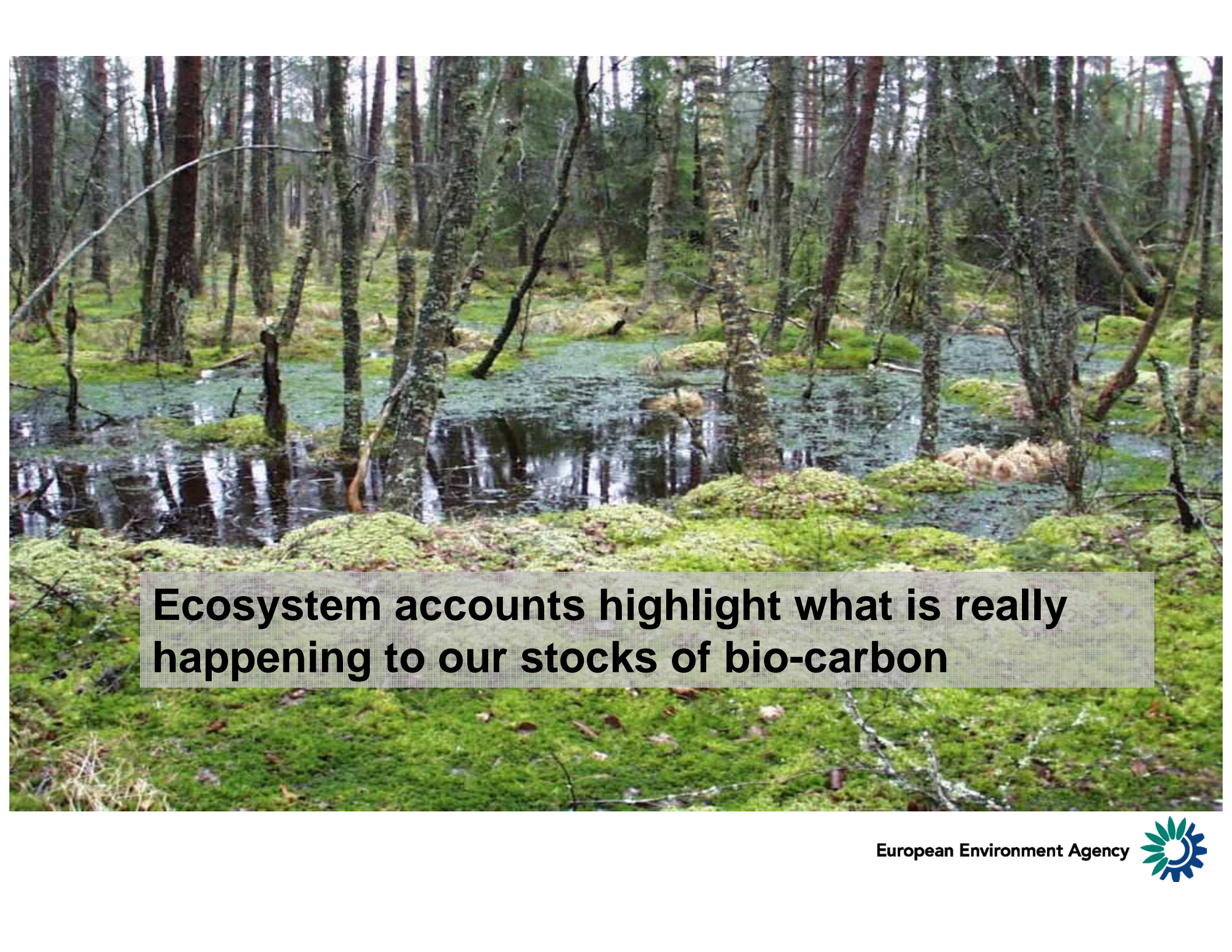


# Priorities for fast-track implementation of ecosystem accounts

Expenditure accounts	Sectors	Land protection & management	Water protection & management	Carbon/ biomass Protection & management	Biodiversity protection	Health protection	Agriculture & fishery subsidies
Basic physical balances	Sectors	Land Use (surfaces & commodities)	Water resource, supply & use	Carbon/ biomass resource, supply & use	<i>Fishing, hunting, harvesting of wild species (non cultivated)</i>	<i>LCA: impacts of chemical,, on human and wildlife health</i>	<i>Virtual land, water, and carbon use (domestic and in imports)</i>
	Services	Land functions & ecosystem services	Water functions & ecosystem services	Carbon/ biomass functions & ecosystem services	<i>Biodiversity related ecosystem services</i>	<i>Human morbidity/ environment &amp; food security</i>	<i>Dependency from regulating ecosystem services</i>
	Spatial Units	Land cover stocks & change	Water bodies resource & abstraction	Carbon/ biomass resource and extraction/ harvesting	Natural and semi-natural habitats & species distribution	<i>Distribution of critical areas for health</i>	<i>Water, C, energy, NPK, subsidies</i>
Health counts	Spatial Units	Landscape patterns	Water quantity & quality	Carbon/ Biomass, productivity	Biodiversity factors	<i>Ecosystem health factors</i>	<i>Net external balances by socio-ecosystems</i>
Indexes	Spatial Units	<b>Landscape Index</b>	<b>Water Index</b>	<b>Bio-carbon Index</b>	<b>Biodiversity Index</b>	<b>Health Index</b>	<b>Dependency Index</b>

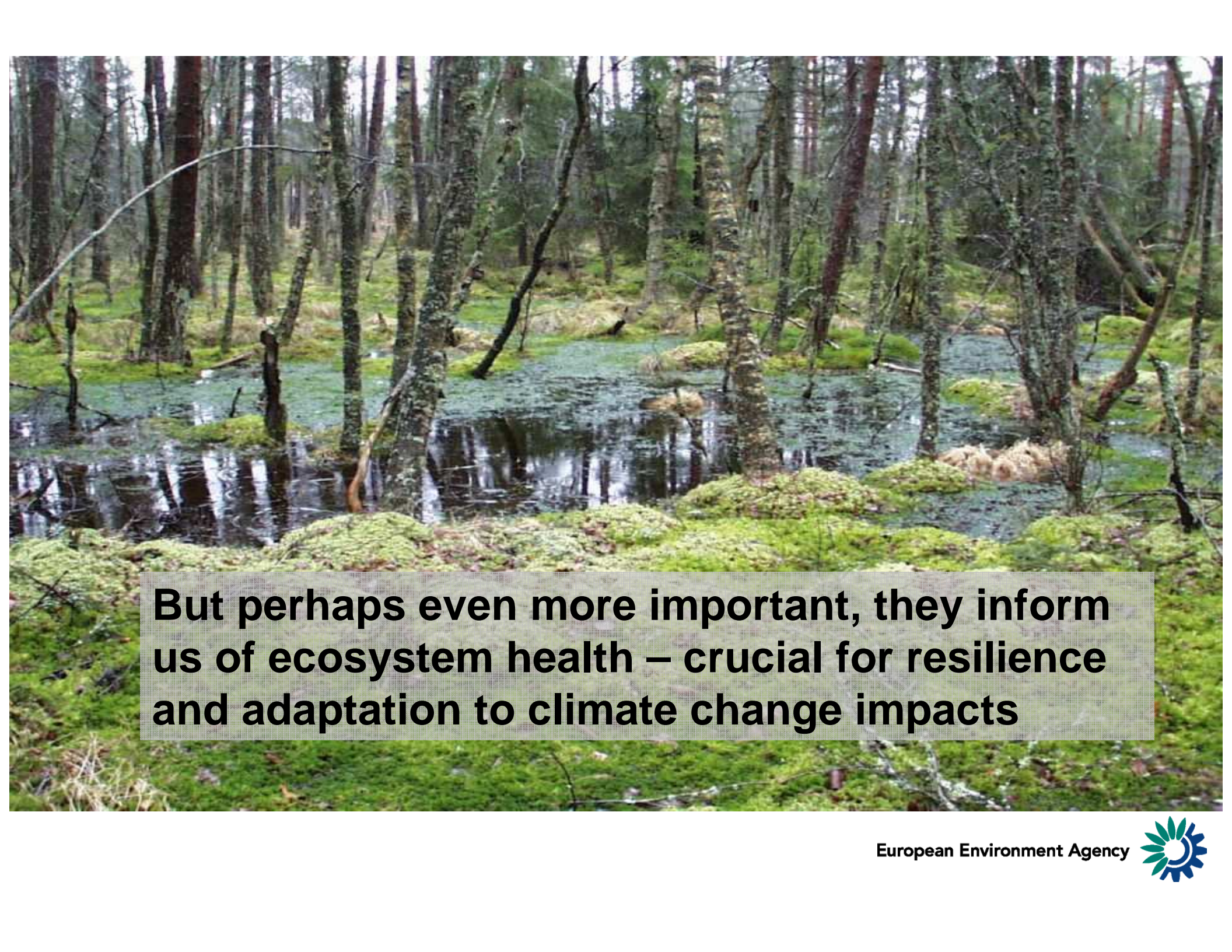




A photograph of a forest stream with moss-covered banks and trees. The water is calm, reflecting the surrounding greenery. The banks are covered in thick, vibrant green moss. Several trees with thin trunks stand along the stream, their reflections visible in the water. The overall scene is a lush, natural environment.


**Ecosystem accounts highlight what is really happening to our stocks of bio-carbon**





**But perhaps even more important, they inform us of ecosystem health – crucial for resilience and adaptation to climate change impacts**



A photograph of a small green seedling with two leaves growing out of a large pile of various Euro coins. The coins are of different denominations and colors, including gold, silver, and copper. The background is a plain, light color.

Only by communicating in the same language as national accounts can environmental and social perspectives earn the same status

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$$\text{Gross National Income} - \begin{matrix} \text{Consumption of} \\ \text{fixed capital} \\ \text{Depletion of non-renewable} \\ \text{(sub-soil) assets} \\ \text{Change in} \\ \text{ecosystem capital} \end{matrix} = \text{'True National Income'}$$





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**Thanks very much for your  
attention**

**Professor Jacqueline McGlade**

**Executive Director, European Environment Agency**