

FONDAZIONE PER L' AMBIENTE
NATURAL CAPITAL

Achievements, critical aspects and implementation of policies for sustainability
Webinar 29 October 2020

The Italian Natural Capital Committee (INCC) and
the Reports on the state of Natural Capital in Italy

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ITALIAN REPORT ON THE STATE OF NATURAL CAPITAL

Article 67

LAW n. 221/2015

“Environmental Measures for Promoting Green Economy and Limiting the Excessive Use of Natural Resources”
(Environmental Annex to the Budget Law)

- **Members of Natural Capital Committee (NCC):** 10 Ministers, 5 public research centers (Bank of Italy, Istat, Enea, Ispra, Cnr), 2 Regions&Cities, 10 Experts:
 - -Blasi-Santolini-Danovaro-Russo-Scarascia
 - -Bologna(Wwf)-Zampetti(Legamb)-Selvaggi(Lipu)
 - -Giovannini(U.Rome-Asvis-Oecd-exMinLW)
 - -Ronchi (F.SviluppoSostenibile-exMinister)
- **A Report on the state of Natural Capital** (to be sent on 28th February every year to the President of Council of Ministers and to the Ministry of Economy and Finance).

ITALIAN REPORT ON THE STATE OF NATURAL CAPITAL

The Report on the state of Natural Capital has to:

- provide **environmental information and data** on the Italian Natural Capital in **both physical and monetary units**, based upon UN (SEEA and SEEA-EEA), OECD and EU methodologies
- include **ex-ante and ex-post valuation of public policies** effects on Natural Capital and Ecosystem Services
- promote the adoption, at central and local level, of **environmental accounting systems and environmental budgeting**, aimed to monitoring and reporting about implementation and effectiveness of policies and measures undertaken for Natural Capital protection

ITALIAN REPORT ON THE STATE OF NATURAL CAPITAL

Sent by the Minister of Environment to the President of Council of Ministers and to the Minister of Economy and Finance

Content and Structure

Measurement of conservation state of national ecosystems

Physical assessment of ecosystems assets and services by pilot studies

Economic valuation of Natural Capital and Ecosystem Services (methods and case studies)

Guidelines for the valuation of effects of policies on Natural Capitale

Recommendations and next steps

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Main International references and initiatives

MEA (Millennium Ecosystem Assessment): launched on 2001 by UN in order to assess effects of ecosystems deterioration on global wellbeing and to derive proposals for their safeguard and sustainable management.

TEEB (The Economics of Ecosystems and Biodiversity): promoted in 2007 by Ministers of Environment at G8+5 meeting in Potsdam (Germany). Main objective is to provide a reliable methodological framework to mainstream the economic value of biodiversity and ecosystem services, traditionally disregarded, in policy making to all governance levels.

OECD Scaling-Up Finance for Biodiversity – Economic Instruments for Biodiversity

WAVES (Wealth Accounting and the Valuation of Ecosystem Services): partnership launched in 2010 by World Bank during the Conference of Parties of the **Convention on Biologic Diversity** in Nagoya and funded by European Commission.

WAVES aims to develop adequate methodologies to promote the transition of national accountability to the system of environmental-economic accounting (**SEEA**) defined by UN.

MAES (Mapping and Assessment of Ecosystem and their services): conceived within the EU 2020 Biodiversity Strategy, in particular in Action 5 requiring to Member States to implement such a mapping. MAES provides a common framework for this mapping along with **CICES** (*Common International Classification of Ecosystem Services*)

BIOFIN Initiative by UNDP with the Catalogue of financial instruments for biodiversity, natural capital & ecosystems

UK Natural Capital Committee: established in 2012 with a first mandate up to 2015, renewed up to 2020. The UK NCC, composed of scientific experts, aims to promote a long-term planning (25 years) for measurement, management and conservation of UK Natural Capital and related ecosystem services.

Inter alia, **Netherlands, Germany and Mexico** have similar initiatives to include Natural Capital within policy decisions.

Costa Rica on Ecosystems Payments

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NATURAL CAPITAL: DEFINITION

- *“Natural Capital refers to the elements of nature that produce value or benefits to people (directly and indirectly), such as the stock of forests, rivers, land, minerals and oceans, as well as the natural processes and functions that underpin their operation” (UK Natural Capital Committee)*

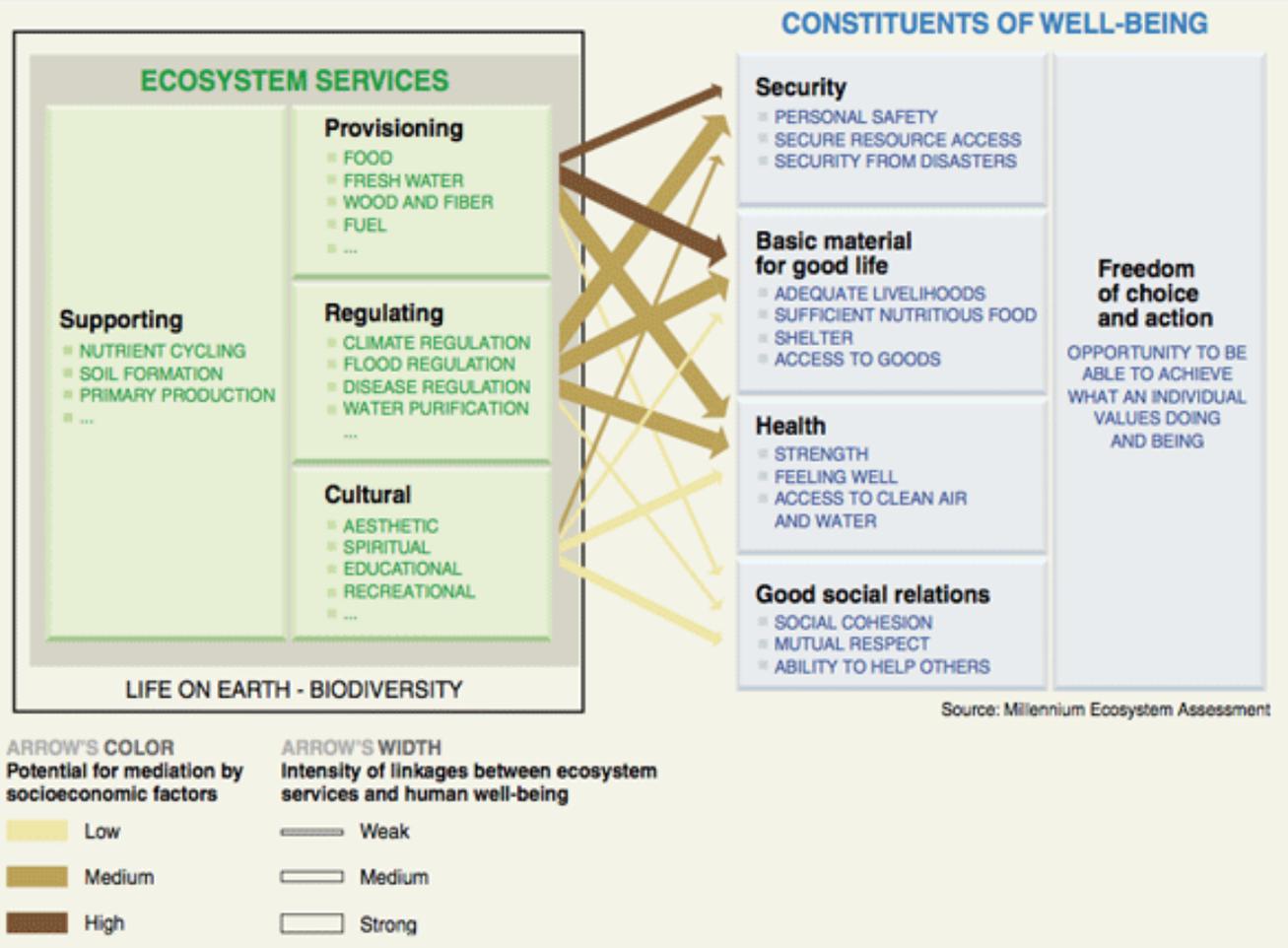
ATMOSPHERE
(air and climate elements)

WATER
(rivers, lakes, oceans, underground water, marine flora and fauna)

subsoil
(minerals, fossil fuels)

soil
(forests, plants and animals, microorganism, etc.)

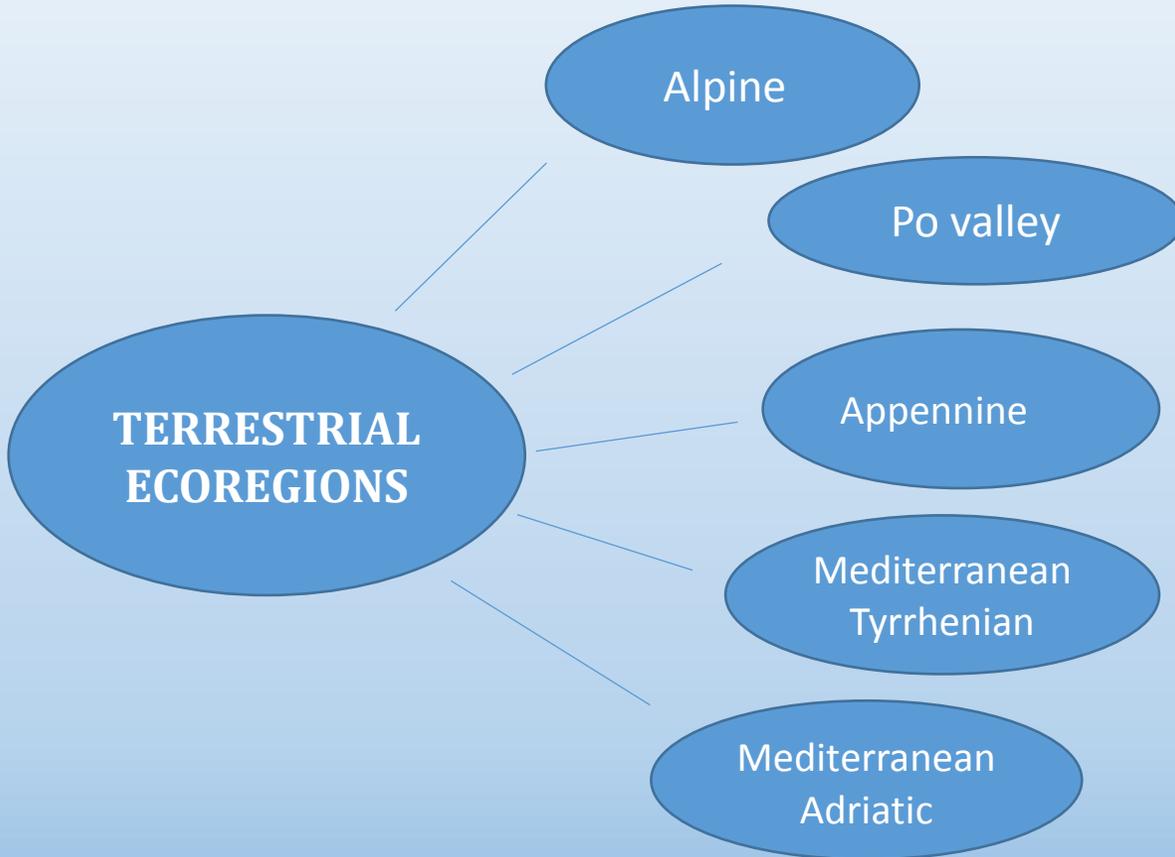
The Natural Capital stock generates a flow of “**ECOSYSTEM SERVICES**”, in turn providing essential benefits for life and contribute to improve individual and community wellbeing



Source: Millennium Ecosystem Assessment

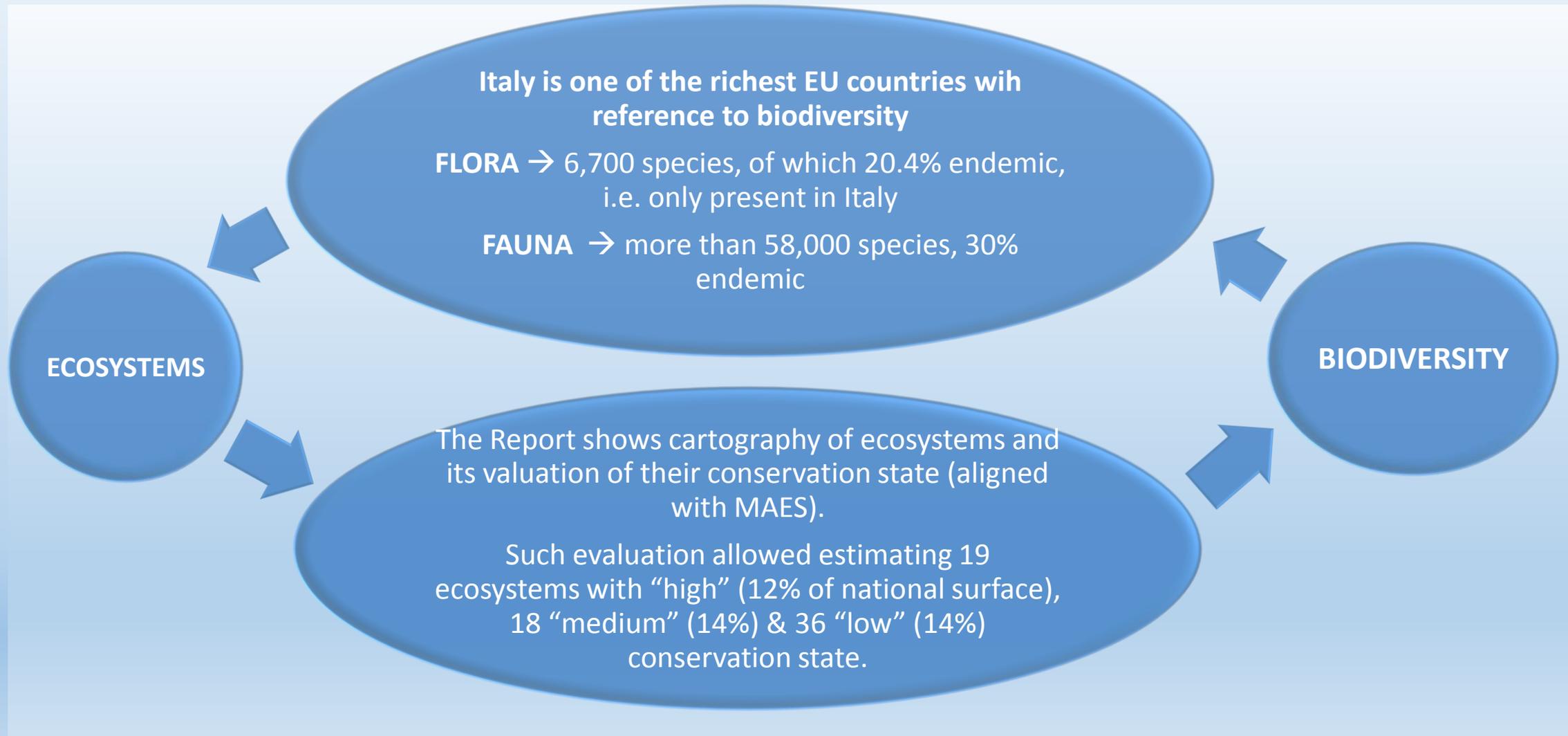
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CLASSIFICATION BY ECOREGIONS



Given its terrestrial and biodiversity complexity, the Italian Natural Capital is classified across **5 terrestrial Ecoregions**. Further, there are three marine **Ecoregions** identified in the **Mediterranean Sea**

ITALIAN REPORT ON THE STATE OF NATURAL CAPITAL BIODIVERSITY AND ECOSYSTEMS



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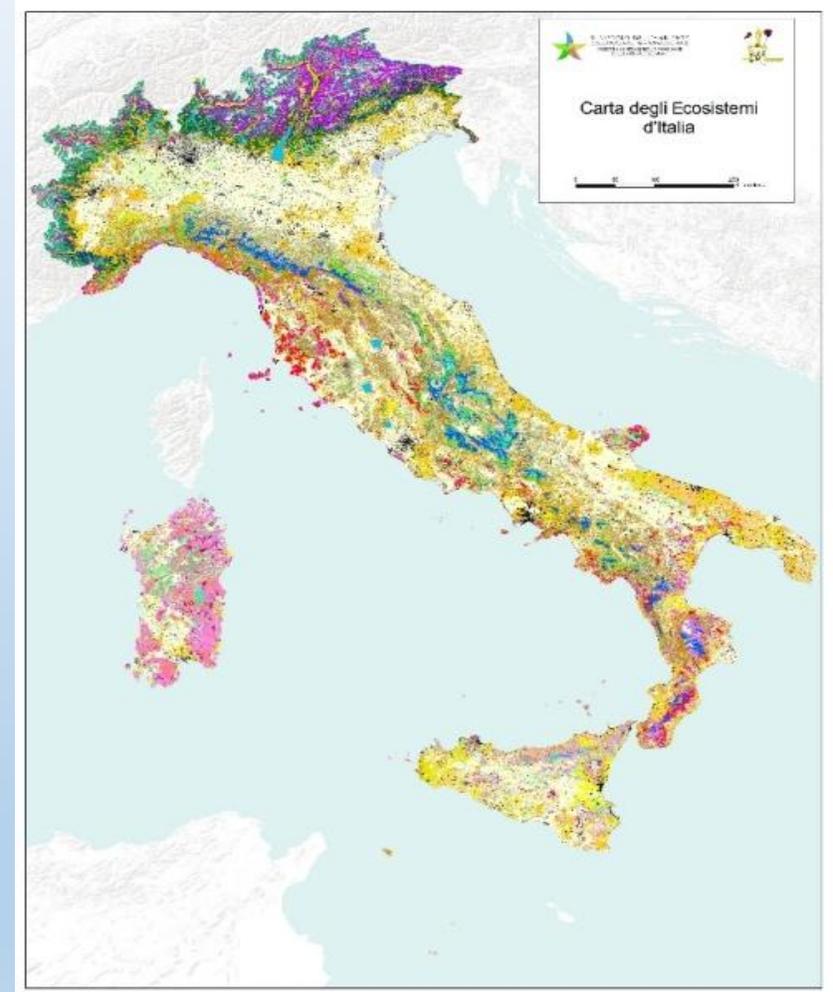
Ecosystems with low conservation state

Forest Ecosystems in River Po Valley

Coastal and Sub-Coastal Ecosystem, particularly main islands and North-Adriatic

Wetlands

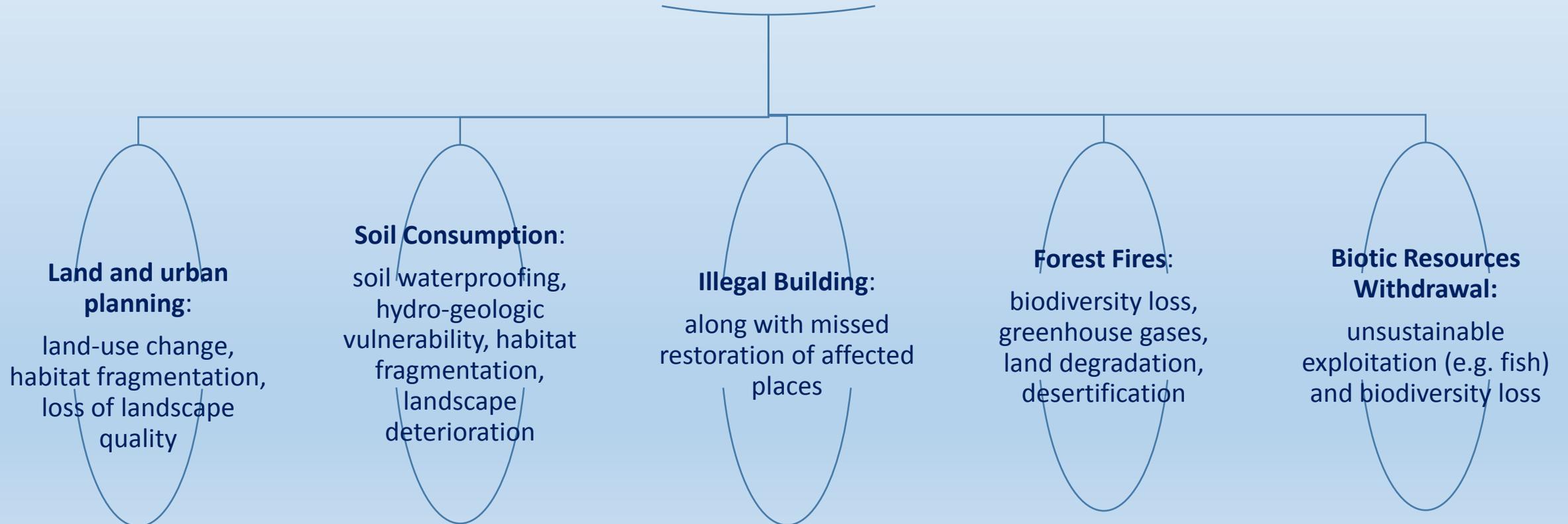
Forest Ecosystems with prevalence of oaks in plains and hills areas



Italian Ecosystem Chart. Source: Blasi et al. (2014)

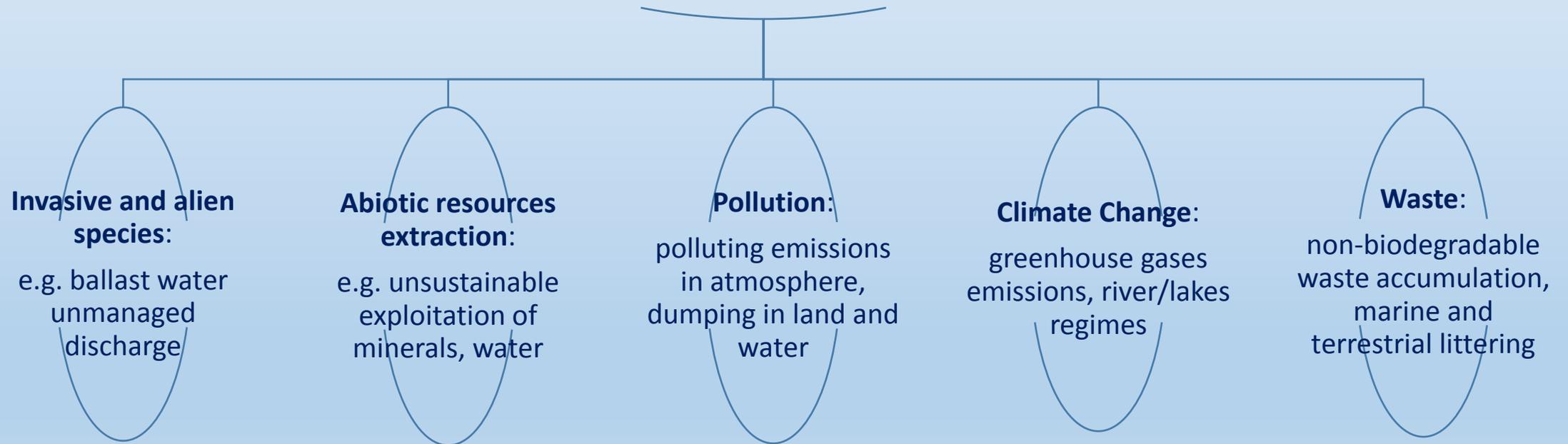
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Main pressure factors on Natural Capital and related threats (1/2)



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Main pressure factors on Natural Capital and related threats (2/2)



ITALIAN REPORT ON THE STATE OF NATURAL CAPITAL PHYSICAL VALUATION OF ECOSYSTEM SERVICES – 1ST PILOT STUDY

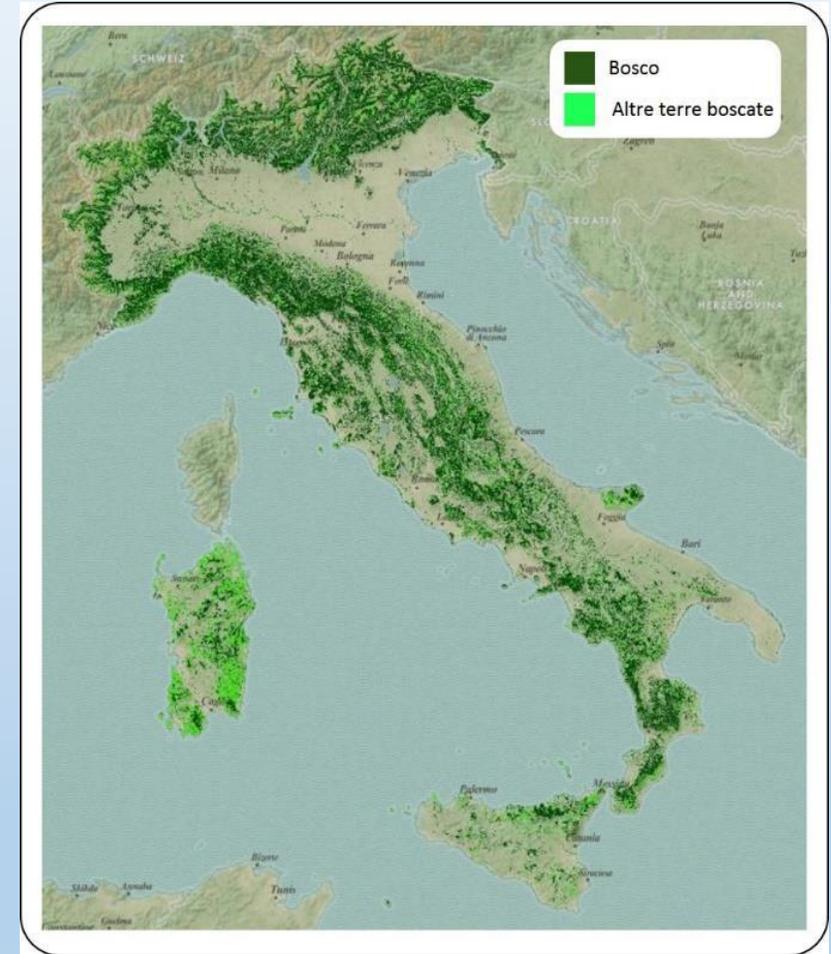
FORESTS

National Forest Surface → almost **12 million hectares** (National Forest Inventory – NFI 2015)

Woodland Density (ratio between forest extension and national surface) → about **39%** .

Global Carbon content stocked in Italian forest biomass → **472.7 Mln tons C** (~1569.6 Mln tons CO₂) (*Regulating Service*).

Amount of wood from Italian forests → **1.3 Bln m³**, about 900 Mln tons of wood biomass (*Provisioning service*).



Italian Forest surface - Source: INCC, elaboration based on NFI (2015)

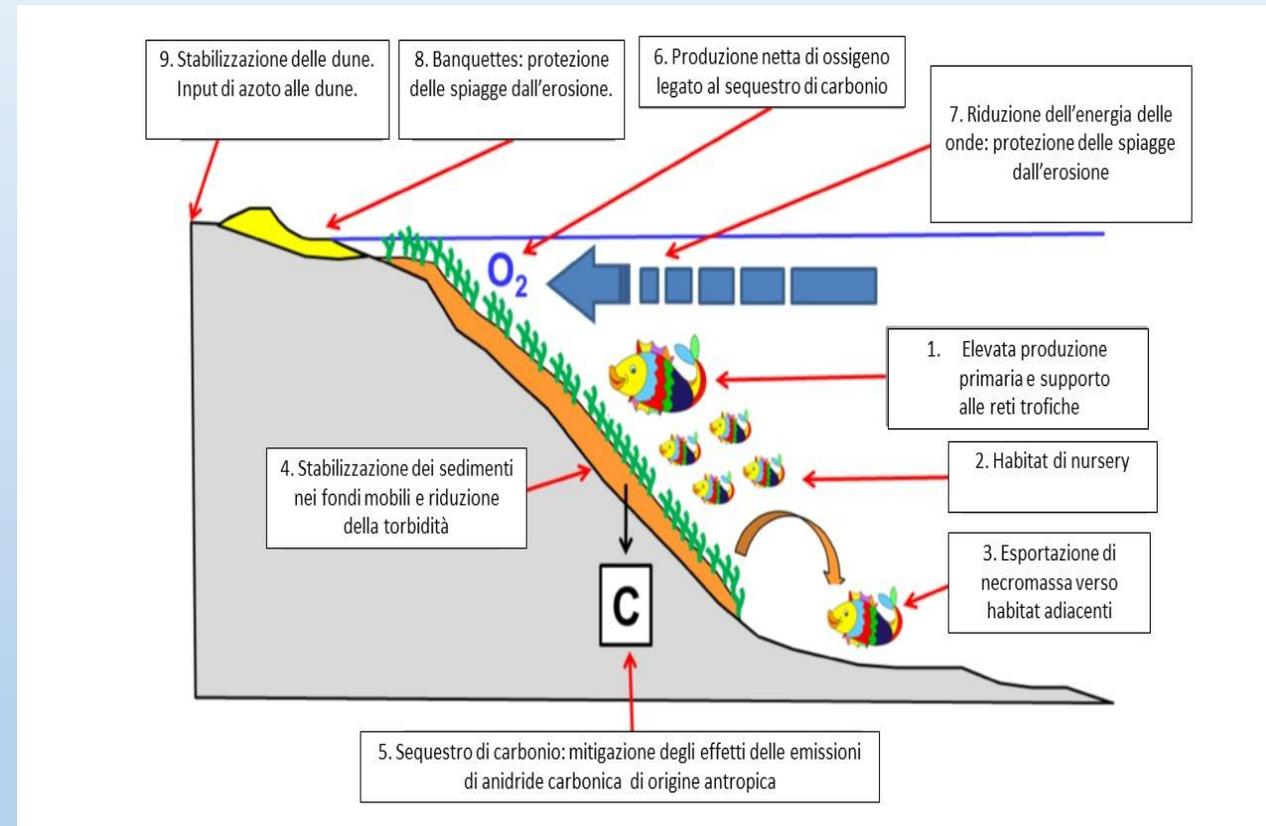
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PHYSICAL VALUATION OF ECOSYSTEM SERVICES – 2ND PILOT STUDY

Marine and Coastal Areas

Posidonia meadows, one of the largest CO₂ sink in the Mediterranean Area, every year, varying on density, allows sequestration between **6 and 175 g C / m²** (IUCN, 2012). At country level it means a range between **24,000 and 704,000 tons C / year** (*Regulating Service*).

Total amount of marine and lagoon fishing (fish, shellfish, crustacean) in 2014 is about **176,800 tons**, with a global value added from the fish and aquaculture sector equal to **920,754 Mln €** (*Provisioning Service*).



Ecosystem services provided by *Posidonia oceanica*
(Boudouresque et al., 2016)

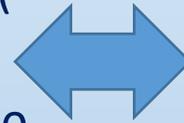
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PHYSICAL VALUATION OF ECOSYSTEM SERVICES – 3° PILOT STUDY

AGRICULTURE

Analysing IUTI (**Inventory of Land Use in Italy**) data (1990-2014) the following outcomes emerge:

- **loss of agricultural surface**, both arable land (-1,2 Mln hectares), grass and pasture land (-300,000 hectares)
- **increase in forest surface** (+500,000 hectares)
- **increase in urban surface** (+500,000 hectares)



REGULATING SERVICE

According to the data from the *Greenhouse Gases National Inventory Report 2016*, net CO₂ emissions from **Agriculture and LULUCF** (Land Use, Land Use Change and Forestry) in 2014 amount to -6,611 Gg in grassland and 3.216 Gg in cultivated land (*Regulating Service*)

Land use often involves the most fertile terrains with higher productivity, while those with lower productivity are typically left and turned back to forest.

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PHYSICAL VALUATION OF ECOSYSTEM SERVICES – 4TH PILOT STUDY



METROPOLITAN AREAS

The amount of local pollutants (**PM₁₀** and **O₃**) **removed by** three **vegetation** system (deciduous, evergreen, conifer) in 3 Italian cities (Genoa, Reggio Calabria and Rome) is: (*Regulation Service*).

- Genoa: 2,432 Mg PM₁₀ and 5,477 Mg O₃
- Reggio Calabria: 2,648 Mg PM₁₀ and 4,187 Mg O₃
- Rome: 2,319 Mg PM₁₀ and 3,951 Mg O₃

Globally, the amount of local pollutants removed in the three cities is equal to 7,399 Mg PM₁₀ and 13,615 Mg O₃.

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APPROACHES TO ECONOMIC ACCOUNTING AND VALUATION OF NATURAL CAPITAL

SEEA
System of
Environmental-
Economic
Accounting;
Statistical standard
recognized by UN

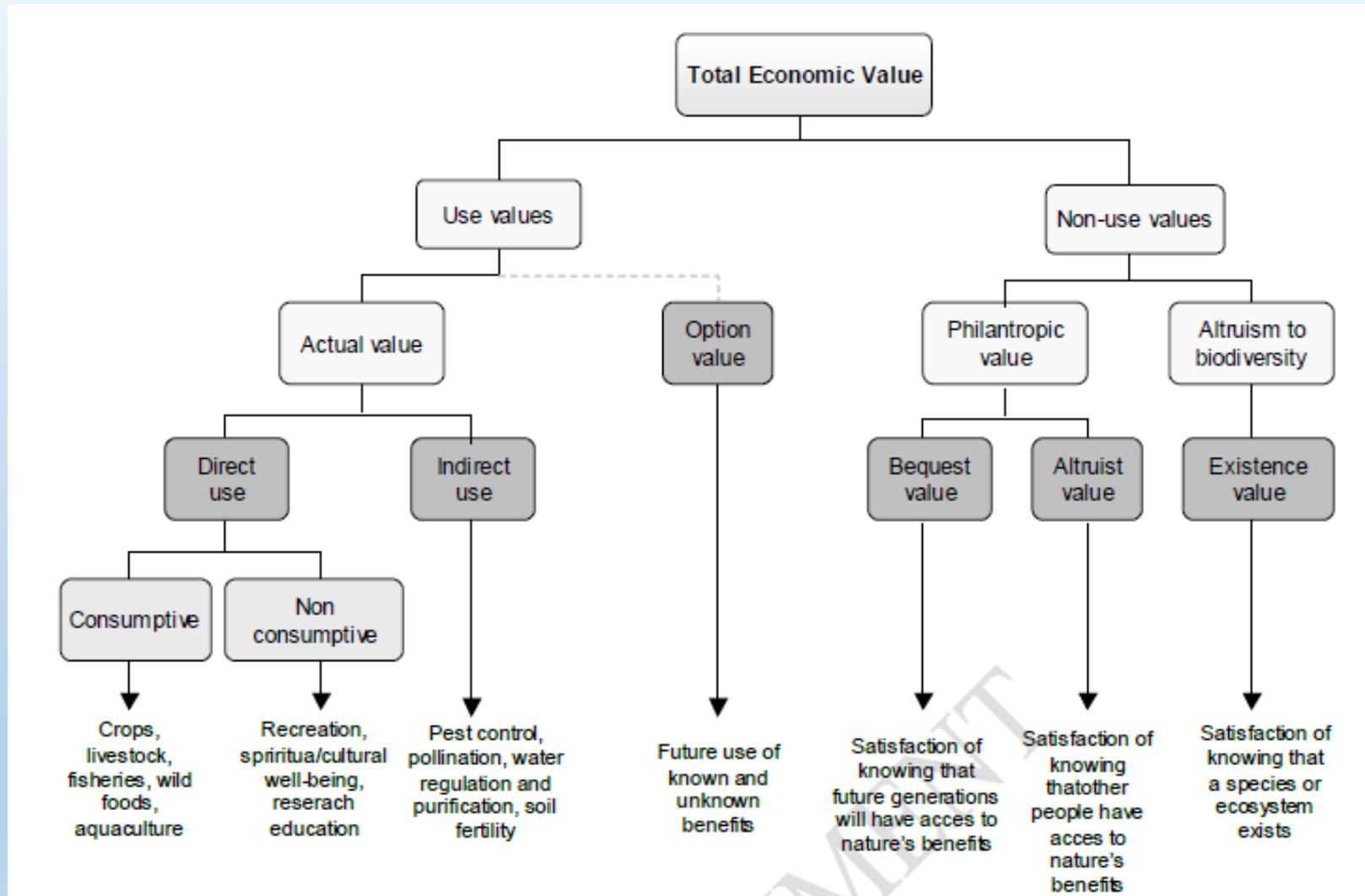
Aims to measure interconnections between economic and environmental systems. It is composed of satellite accounts, each referring to specific streams of natural resources. It has a systematic approach coherent with structure, rules and principles of the basic national accounting system.

More specific, SEEA accounts refer to three different realms: (a) **material and energy** flows within the economic system and between economic and environmental system; (b) **stock** of environmental *assets*; (c) **economic activities related to environment**.

SEEA-EEA (Experimental Ecosystem Accounting): integrated approach aiming to provide an assessment of ecosystems and ecosystem services delivered to socio-economic activities.

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APPROACHES TO ECONOMIC ACCOUNTING AND VALUATION OF NATURAL CAPITAL



Source: TEEB (2010), The Economics of Ecosystems and Biodiversity Ecological and Economic Foundations, ch. 5

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APPROACHES TO ECONOMIC ACCOUNTING AND VALUATION OF NATURAL CAPITAL

METHODS AND CASE STUDIES (THANKS TO ISPRA-ROME AND JRC-ISPRA)

Land Consumption

Evaluation of the **economic value of 10 ecosystem services loss due to change in land use** occurred between 2012 and 2015. Main impacts related to: crop productivity loss (424 Mln €/year), carbon capture and sequestration (up to 145 Mln €/year) and erosion protection (> 100 Mln €/year).



Marine and Coastal Areas

Evaluation of the **economic value of carbon sequestration** (up to 129 Mln €/year) and **coastal erosion protection** (up to 402 Mln €/year) provided by *Posidonia meadows*.

Evaluation of national value of **cultural services** derived by coastal ecosystems (27 Bln €/year).



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APPROACHES TO ECONOMIC ACCOUNTING AND VALUATION OF NATURAL CAPITAL

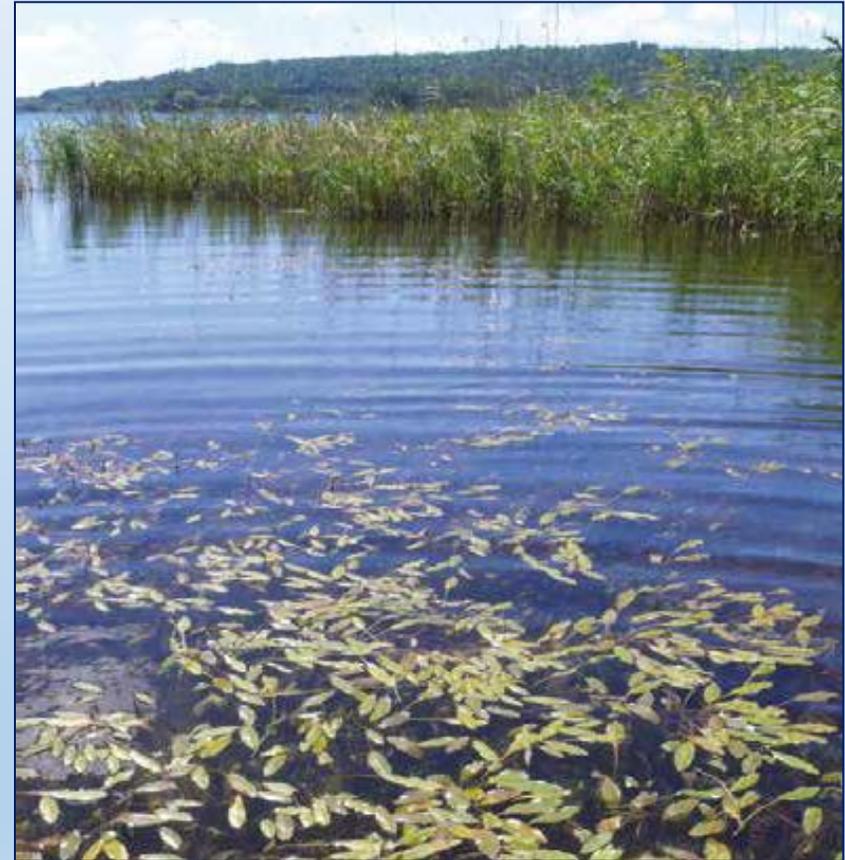
METHODS AND CASE STUDIES

Wetlands

Evaluation (*ex ante*) of the economic value of **9 ecosystem services connected to two options for creating wetlands** in the Sacca di Goro basin (Ferrara province in Emilia Romagna region): the largest impact is on mortality reduction of clams due to the decrease in nutrients discharge (up to 8.3 Mln €/year).

Country-wide Ecosystem Services

Evaluation of the economic value of **8 ecosystem services referred to 6 ecosystem types**, globally estimated equal to 338 Bln € (23% of GDP).



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GUIDELINES FOR THE ASSESSMENT OF EFFECTS OF PUBLIC POLICIES ON NATURAL CAPITAL (excerpt)

- Developing an **accounting system explicitly considering Natural Capital and ecosystem services** at the different governance levels
- Creating a **coordinated system of data collection and statistical analysis** for pressures on Natural Capital
- Enhancing **technical skills in the public sector** for assessment related to Natural Capital and Ecosystem Services (mapping, physical quantification, economic assessment)
- Proposing **institutional responsibility** aiming to build a normative procedure for the ex ante sustainability assessment of public policies
- Integrating Natural Capital within the current procedures of **ex ante assessment of plans, programs and projects**
- Supporting **Environmental Fiscal Reform** and other economic instruments (e.g. EHS removal) for Natural Capital protection
- [EHS-EFS (SAD-SAF) - FFS - BHS]
- [Biodiversity Harmful Subsidies - French Sainteny R. - German Uba R.]
- [CBD Aichi targets - SDGs - Leaders Coalition Declaration]

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Recommendations and Next Steps

Increasing knowledge base for physical and economic assessment of Natural Capital and Ecosystem Services aiming to the adoption of a Natural Capital National Action Plan

Make the *Economic and Finance Document* and the new measures to be included in the *National Reform Program* preliminarily subject to a coherence assessment with respect to the relevant goals up to 2030 concerning the Natural Capital within the context of the UN Agenda 2030 and the *NSSD*.

Strengthening the system of marine and terrestrial protected areas, highlighting their contribution in terms of biodiversity and ecosystem services protection

Establishing a Natural Capital and ecosystem services accounting system, integrated with the standard national and public sector accounting, and coherent with the international methodologies

Enhancing the application of Minimum Environmental Criteria for Green Public Procurement, by including – according to the approach of life cycle assessment – also those costs for natural resources consumption and pollution suffered by communities.

Take-aways

- INCC: 3 Reports in 2017, 2018, 2019, a Declaration on Natural Capital in 2020. Pushing for bringing Natural Capital into Public Decision-Making
- Need to bring it also into Private Decision-Making (company reporting, EU NFR Non-Financial Reporting Directive, disclosure in EU SF Strategy, ...)
- Link to Super-Year 2020 (2021): CBD, NCD, UN-FCCC, ...
- Link to statistics, environmental accounting, ... (beyond GDP, ...)
- Link to economics and public finance (EFR, BHS, Biodiversity Finance, ...)
- Not only protect, preserve & safeguard, but also increase & enrich NC ...
- Recognizing the 4th Capital (Herman Daly), the forgotten capital

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