Natural Capital Assessments & Accounting

What is natural capital and why does it matter?

The world's ecosystems are a type of capital asset: if well-managed, Earth's lands, waters, and biodiversity provide vital benefits that sustain and fulfill human life. If not well-managed, these benefits are costly to replace. Wetlands protect against flooding and purify water. Fertile soils feed fast-growing populations. Rich ocean life provides food and local livelihoods, including tourism. Healthy forests sequester carbon and provide timber. Clean air reduces numerous health risks. Individual species provide a vast array of benefits, including pollination, medicines, and cultural significance. Around the world, nature's benefits are fundamental to food and water security, poverty reduction, mental and physical health, and sustainable development.

Definitions

Natural capital refers to the world's stocks of natural assets which include geology, soil, air, water and all living things.

Ecosystem services are the benefits those assets provide to people.

Natural capital has long been poorly understood and undervalued. It is also under threat from climate change and unsustainable development practices. The prevailing paradigm pits economic development against responsible stewardship of natural resources. **Yet nature and human development are not at odds: there cannot be long-term economic health without long-term ecosystem health.**

Natural capital approaches, including natural capital assessments and accounting (NCAA), incorporate nature's benefits into decisions and can motivate investments in ecosystems, improving the well-being of both people and nature.

Natural capital assessments

Through close engagement with decision-makers, local experts, and stakeholders, natural capital assessments *quantify and map* both natural capital stocks (e.g., water-purifying wetlands) and the ecosystem services flowing to people (e.g., safe drinking water). The result is a specific value for these services (a monetary value, like avoided water treatment costs, a biophysical metric like amount of nutrient pollution removed from water, or a social value like number of people affected). Mapping allows decision-makers to strategically manage their natural capital stocks and prioritize the most beneficial locations to preserve, restore, or sustainably use the services they provide.

Assessments typically involve:

1

Deciding what types of ecosystem services to quantify (including benefits to specific sectors or communities), and where (within a specific region, whole country, etc.) through a science-policy engagement process with diverse interests

2

Gathering data about land and water use, habitat cover, key physical assets (e.g., roads, hospitals, homes, and other infrastructure) and management practices for the area of interest.

3

Modeling the ecosystem services currently provided (InVEST®, the Natural Capital Project's suite of free, open-source software tools, currently includes 20 ecosystem service models).

4

If desired, developing alternative future management and climate scenarios and projecting changes in benefits to different sectors, livelihoods, and local cultures, or examining benefits of investments in ecosystems. The results from this science-policy process can be used to build common understanding and inform policy, management, and finance decisions, including optimizations under fixed budgets.

Assessments can inform diverse decision contexts, such as:

Multi-sector development planning and permitting	• Integrated coastal zone management in Belize • Landscape restoration planning in Malawi • Infrastructure planning, such as roads
Disaster risk reduction	• Climate adaptation planning in California, USA • Coastal protection against storms in the USA • Reducing risk from landslides: see case from Nepal
Payments for ecosystem services	• Water fund in Kenya • See review of global status and trends
Sustainable agricultural production	• Developing healthy rangelands and livelihoods in Mongolia
Nature-based approaches to enhance tourism	• Biodiversity and infrastructure's impacts on tourism in the Bahamas and Belize
Urban planning	• Nature-based urban planning in the People's Republic of China (PRC) • Urban agriculture for food security, urban cooling, and water quality management in Texas, USA
Innovative finance mechanisms	• Belize's Blue Bonds for finance and development and IDB bonds in Barbados and Uruguay

Natural capital assessments in action

- After the Colombian government led a national development planning process that identified regional priorities, a team focused in on the Gulf of Morrosquillo as a pilot area. They worked with Colombia's national and local governments to demonstrate where key ecosystems, such as mangroves and upland forests, play the most important roles in reducing coastal vulnerability to flooding and erosion, storing carbon in the soils of coastal ecosystems, and providing water security to five municipalities. They provided maps indicating where safeguarding natural capital could contribute most to securing these benefits. Colombian government officials are now using these results as inputs into their development plans for aqueduct and water infrastructure expansion and securing ecosystem services for water security. Read more in this policy brief (English and Spanish).

- In Uzbekistan, researchers with the World Bank's Biodiversity, Ecosystems, and Landscape Assessment (BELA) initiative worked with the government to identify hotspots of land degradation and priority restoration areas, to improve erosion control, mitigate landslides, and reduce water security risks. The goal is to deploy nature-based solutions to restore degraded lands, enhance resilience, and foster collaboration on landscape restoration among countries in the region.

Natural capital accounting

Natural capital accounts track current stocks of natural capital and their change over time using a standardized, replicable approach for designing and evaluating policies and investments. Tracking changes in ecosystems and the flows of ecosystem services can inform diverse policy and finance decisions by providing nationally- or regionally-aggregated information in ways that support long-term evaluation of progress toward conservation and other goals.

Natural capital accounting in action

- One commonly used approach to natural capital accounting is the System of Environmental Economic Accounting (SEEA) Ecosystem Accounting, which was adopted by the United Nations Statistical Commission in 2021. SEEA provides a framework for organizing and presenting statistics on the environment and its relationship with the economy. A report on the 2022 Global Assessment includes country-level implementation of the UN-SEEA framework.

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- Gross Ecosystem Product (GEP) is an index modeled after Gross Domestic Product (GDP), that provides a clear signal of the value of nature's contribution to human wellbeing. It is defined as "the aggregate value of final ecosystem goods and services within a given area." GEP has been developed and piloted from city to national scales in the PRC, and has been officially adopted by the United Nations Statistical Commission as part of the UN-SEEA system of ecosystem accounting.

- The EU-funded Natural Capital Accounting and Valuation of Ecosystem Services (NCAVES) project advances the development of policy applications of environmental-economic accounting.

In general, implementation of natural capital accounting approaches currently involves development of rigorous, repeatable statistical metrics that follow the specific standards outlined in the UN-SEEA framework. Because of the time- and information-intensive nature of developing natural capital accounts, their use in driving policy, management, or finance decisions is not yet well-developed.

Opportunities for innovation and impact

The potential to link natural capital assessments and accounting (such as through the GEP indicator) in policy and investment frameworks is best illustrated in the PRC, and there is great interest and potential to grow uptake of such linked approaches in other countries. The People, Planet, Prosperity (3P) project is scaling up rapid natural capital approaches in 16 pilot countries to directly inform policy and finance decisions. It is led by the Natural Capital Project, the Inter-American Development Bank, the Asian Development Bank, and the World Bank's Biodiversity, Ecosystems, and Landscape Assessment (BELA) initiative, and funded by the Global Environment Facility, the Gordon and Betty Moore Foundation, and the Global Partnership for Sustainable and Resilient Landscapes (PROGREEN), a World Bank Multi-Donor Trust Fund.

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PEOPLE PLANET PROSPERITY

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