



NATURAL CAPITAL ACCOUNTING & CLIMATE CHANGE

Towards a Systemic Approach for Nature-based Adaptation and Mitigation

Although the idea of valuing nature in economic terms has existed for years, it has only recently become possible to integrate such information into systems that governments use to make decisions. Thanks to advances in the science and measurement used to assess nature's benefits, as well as the adoption of internationally accepted frameworks, Natural Capital Accounting (NCA) is now being applied in numerous countries.

Through NCA, decision makers can see how natural resources contribute to their economies, and how their economies in turn affect natural resources. This insight offers powerful reasons for them to protect and more sustainably manage nature.

What is Natural Capital Accounting?

Natural Capital Accounting (NCA) is a systematic process to measure stocks of natural resources and the flows of benefits they provide, enabling the integration of economic, environmental and social data into a coherent framework. The accounting-generated structured information facilitates coordination across various governmental agencies, thus enabling better planning, management and monitoring of natural resources.

The United Nations' [System of Environmental-Economic Accounts \(SEEA\)](#), an internationally accepted framework for incorporating nature into national accounting systems, governs NCA efforts in the public sector. SEEA includes the [Central Framework \(CF\)](#) and [Ecosystem Accounting \(EA\)](#).

While the CF focuses primarily on the provision of nature's goods to the economy, EA expands SEEA's measurements to include regulating and cultural functions of ecosystems, other natural flows of benefits often overlooked. EA involves more comprehensive spatial identification and mapping, resulting in a more complete picture of ecosystems and the benefits they provide to various parts of an economy.



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NCA as a Climate Mitigation Tool

NCA can provide the evidence-based target that is critically needed for efforts to mitigate climate change, as well as to inform a more holistic and resilient response to it.

The coherent, integrated and organized accounting approach enables a better understanding of the role ecosystems play in climate strategies by considering the connection among ecosystems, climate change and biodiversity. It not only complements IPCC, but also further explores the linkages between climate policies and the economy.

NCA-derived statistics (e.g., changes in an ecosystem's area and its related ability to provide global climate regulation services), combined with other socio-economic data can help to identify Nature-based Solutions (NbS)¹ for climate, furthering more sustainable, cross-sectoral economic policy and planning.



Team of Liberian biologists and CI research scientists exploring remote sections of forest to collect observations about ecosystems.

Credits: Conservation International/Trond Larsen

How We Measure Ecosystem Services

The SEEA Ecosystem Accounting (SEEA EA) framework can support climate-related measurements. These measurements are categorized into the following accounts:

- **Ecosystem Extent Account** summarizes information on the extent of different ecosystem types within an ecosystem accounting area and its change over an accounting period. This provides the basis for measurements of stocks and changes in stocks of carbon over time.
- **Ecosystem Condition Account** synthesizes information on the condition of ecosystem assets and their change over time, such as carbon supply and its changes relative to a baseline, providing valuable insights into the health (or degradation) of ecosystems.
- **Ecosystem Services Flow Account** records ecosystem services flows (physical and monetary) as contributions from ecosystem assets that benefit humans and the economy. The measurement of ecosystem services can provide an understanding of added benefits, helping to inform Nature-based Solutions (NbS)¹ for climate.
- **Thematic Accounts** are complementary accounts to those described above and designed for a specific policy-relevant environmental interests, e.g., biodiversity, climate change, oceans, urban areas.

Other accounts that are relevant for climate policies, but not related to nature include: SEEA Central Framework air emissions, energy, carbon, land, agriculture, forestry, and fisheries (AFF), as well as environmental activity accounts. Combined, these SEEA accounts directly link emissions to the SNA, and ultimately to inform the impact of climate policies to economic development.

¹ Nature-based Solutions are defined as 'actions to protect, conserve, restore, sustainably use and manage natural or modified terrestrial, freshwater, coastal and marine ecosystems, which address social, economic and environmental challenges effectively and adaptively, while simultaneously providing human well-being, ecosystem services and resilience and biodiversity benefits.' Fifth Session of the United Nations Environment Assembly (UNEA-5)

NCA in Climate Policy

There are many ways that NCA can support climate mitigation and adaptation interventions and policies. These include:



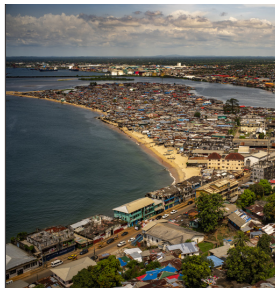
MEASUREMENT OF NATURE-BASED INDICATORS FOR CLIMATE MITIGATION AND/OR ADAPTATION

- Measurement of **trends, trade-offs and synergies** associated with land, forest, soil and marine environmental change (GHG emissions, sequestration and storage).
- Measurement of **ecosystem services benefits** (e.g., global climate regulation, coastal protection, flood regulation, crop production) measure both in biophysical and monetary terms, as well as biodiversity.



ASSESSMENT OF NATURE-BASED SOLUTIONS (NbS) FOR CLIMATE MITIGATION AND/OR ADAPTATION, AND CLIMATE-RESILIENT INTERVENTIONS

- Identification of **cost-effective opportunities** for mitigation (e.g., to avoid deforestation, restore degraded areas) and for adaptation (i.e., Ecosystem-based Adaptation (EbA)).
- Design of policies and/or interventions aligned with climate goals (e.g., sustainable agriculture, Payment for Ecosystem Services (PES), forestry/agroforestry policies, spatial planning, etc.).
- Identification of opportunities for **climate resource mobilization/investments** and actions that benefit biodiversity, ecosystems, and people, in addition to climate goals.



MONITORING AND REPORTING OF CLIMATE POLICIES

- **National policies:** development plans, State of the Environment Report, etc.
- **International Multilateral Environmental Agreements:** NDCs, SGDs, CBD post-2020 GBF, etc.



NCA & NDCs in Liberia's National Climate Action Plan

Nationally Determined Contribution (NDC) is a non-binding national plan highlighting efforts by each country to reduce national emissions and adapt to the impacts of climate change under the Paris Agreement.

Liberia, with support from the NDC Partnership, Conservation International, and other partners, recently updated its NDC efforts, showcasing the role of NCA to inform opportunities to integrate nature both on climate mitigation and adaptation. These efforts were supported through the current implementation of Natural Capital Accounting in the country, which informed both target setting and implementation planning.

Three specific areas where NCA is critically important for the Liberia NDC include:

1. *Biophysical quantification of co-benefits of different adaptation and mitigation options*
2. *Estimate of monetary value of co-benefits generated by climate action activities*
3. *Generation of spatially explicit information and maps on coastal vulnerability.*

Such information can shed light on numerous climate-driven policies, including the identification of priority sites for interventions – considering added benefits, trade-offs and synergies, cost-effectiveness of alternative options, return on investment, among other things.



President of Liberia receiving the ecosystem extent map at the 2021 National Conference on the Environment and Climate Change in Monrovia.

From left to right: Peter Mulbah, CI Liberia Country Director, Berexford Jallah, NCA Project Manager, Emmanuel T. Olatunji, GEF NCA Project Manager, President George M. Weah, President of the Republic of Liberia, and Professor Wilson K. Tarpeh, EPA Executive Director.

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