**Reference document on natural capital accounting**

**prepared under the *MAES* pilot study**

***Extract for expert workshop, 19 Sept. 2014***

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**Executive Summary**

**What is natural capital?**

Natural capital underpins manufactured capital, human capital and social capital. It includes biotic resources such as fish and timber as well as the regulation and protective capacities that ecosystems provide, such as climate regulation, water supply and flood protection. Natural capital is the living component of the broader term environmental capital which in addition also includes fossil fuels, minerals and wind and solar energy.

**Why is natural capital accounting important?**

Despite the importance of natural capital for human economies and societies, it is poorly addressed by the System of National Accounts (SNA), which produces the economic indicators, e.g. Gross Domestic Product (GDP), that is widely used to guide public policy and private actions. The depletion or degradation of natural capital through pollution, resource extraction and ecosystem degradation is not counted ‒ whilst the income from the resources is. As a result, a false picture of our ‘wealth’ is produced. Natural capital accounting methods seek to address this shortfall. The EU’s Seventh Environmental Action Programme (7EAP), *Living Well, Within the Limits of our Planet*, highlights the ongoing degradation and loss of natural capital. The Programme calls on improvements to the knowledge and evidence base as one of its nine priority objectives ‒ developing accounting and reporting systems is a key action.

**What has been done so far?**

The UN’s Rio Conference on Sustainable Development in 1992 called for the creation and use of integrated environmental and economic accounting methods. In response, the UN has developed the System of Environmental-Economic Accounting (SEEA), an articulated approach that is designed to fit together with the System of National Accounts. SEEA includes accounts valued in monetary terms and others quantified only in physical terms. Two separate global initiatives, *The Economics of Ecosystems and Biodiversity* (TEEB) and the World Bank’s *Wealth Accounting and the valuation of ecosystem services* (WAVES) project have developed guidance and supported pilot projects, focusing on natural capital accounting and valuation of ecosystem services.

A range of work is underway in Europe. Through Regulation (EU) No 691/2011 on European environmental economic accounts, the EU has established an overall legal framework for Natural Capital Accounts (NCA). Natural Capital Accounting is one of the six areas of the European initiative on *Mapping and Assessment of Ecosystems and their Services* (MAES).The European Environment Agency (EEA) is constructing simplified natural capital accounts, based on the SEEA, for carbon biomass, water quantity and land. At national level, a range of initiatives have been undertaken. At least six Member States (plus Norway) have launched, or are developing, national systems for NCA, with others in the planning stages. In addition, accounting methods have also been tested in local, pilot areas.

**What are the opportunities and next steps?**

Natural capital accounting can enhance the knowledge base on natural capital and improves the understanding on its state in space and time. Natural capital accounts can be used to assess whether natural capital is managed within sustainable limits, to monitor trends on depletion and degradation of natural capital and to support the implementation of EU and national policy. An initial review has identified opportunities for three key EU policy areas: water policy ‒ including the Water Framework Directive and the Floods Directive; biodiversity policy and EU Biodiversity Strategy; Cohesion Policy.

An integrated accounting approach, for example, could help to identify the potential impacts and results of programmes and projects supported by Cohesion Policy in terms of moving to a low-carbon economy and improving resource efficiency.

Several steps are needed to develop a system of natural capital accounts in Europe, including standardised data collection, a common methodology for accounting and mapping of natural capital and the further elaboration of opportunities to support decision-making or policy implementation. The further testing and implementation of NCA methodologies would require a joint action of the EU institutions and the Member States to actively develop natural capital accounts at EU and national level.

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# Taking natural capital accounting forward: Conclusions and next steps

Natural capital accounting can enhance the knowledge base on natural capital and improves the understanding on its state in space and time. Natural capital accounts can be used to assess whether natural capital is managed within sustainable limits, to monitor trends on depletion and degradation of natural capital and to support the implementation of EU and national policy. Natural capital is currently not accounted for in the System of National Accounts, which is dominated by economic indicators, e.g. the Gross Domestic Product (GDP).

This document aims to support EU countries to develop or improve their natural capital accounting at national level. The further testing and implementation of NCA methodologies would require joint action of the EU institutions and the Member States to actively develop natural capital accounts at EU and national level. It is important that the decision-making processes at the international, national, regional, local and business level take into account not only economic performance, but also the role of nature in the economy.

Several steps are needed to develop natural capital accounts in Europe. These are the development of a structured data platform, a common methodology for accounting and mapping of natural capital, and the further elaboration of opportunities to support decision-making or policy implementation. Each of the steps is further below described briefly.

***Develop a structured data platform for natural capital accounts***

Natural capital accounting is data-intensive. In a first stage, we will not develop new monitoring networks but rather use and integrate existing data with a view of developing a structured data platform for NCA.

Key issues to consider in the development of the structured data platform are technical and institutional. From a technical point of view, data is to be formatted according to agreed standards, undergoing a process of quality assurance and allowing for the timely integration of new data as proposed by Van Dijk et al. (2014). Considering the current scatter of available data and the need for multi-disciplinary and multi-sectoral data, the sharing of environmental data between institutions and different societal sectors is an essential component of the data platform. Knowledge on the priorities and information needs of end-users as well as their commitment to share data are important aspects in the design of the data platform.

***Developing a common methodology for NCA***

The development of a common methodology for NCA, in conjunction with the development of the data platform is an important step in the development of NCA. Accounting tools need to be able to address different types of natural capital stocks, different types of flows from the capital, and changes in capital, and also need to integrate under the framework of the UN System of Environmental Accounting (SEEA) accounts. Natural capital accounts need to represent both the stocks of natural capital and ability of ecosystems to supply services and the societal demand for them, i.e. to distinguish ‘ecosystem stocks’ from ‘flow’ (Schroter et al. 2014). At present some progress has been made on accounting for natural capital stocks, such as carbon, water and land; for the future the challenges is to link these with accounts for the wider set of ecosystem services that are associated with them and the modelling frameworks that can be used to support the accounting.

In the context of the EEA simplified natural capital accounts, it is aimed in first instance to develop bio-physical based accounts e.g. carbon biomass, land area, water quantities. The physical NC accounts can then in a second phase facilitate economic valuation and thus monetising of natural capital where appropriate.

***Linking natural capital accounting to ecosystem assessments***

Natural capital accounting methods are not meant to replace or duplicate what is being done through the various ecosystem assessment initiatives that are underway throughout Europe. Rather there is a mutually supportive relationship between these two important areas of work. Both aim to tackle similar questions and can clearly benefit from each other. As ecosystem assessments will be carried out first in most Member States, they are likely to establish a potentially important data platform for the subsequent accounting and valuation of natural capital and ecosystem services.

***Converting data into a common spatial reference frame***

The accounting of natural capital stocks and the benefit flows that arise from them is to spatially referenced and linked geographic accounting units such as the currently used 1km x 1km accounting grid, catchments or NUTS system for administrative regions. Given that the flows of natural capital are not limited to a particular scale, spatially referenced NCA allows for ‘multi-scale’ assessments (e.g. upstream-downstream considerations). Essentially the same approach would be applied if we start from existing statistical data sources where down-scaling to the basic accounting units might be required, or primary or modelled data where aggregation from finer-scale sources might be necessary.

The link to the mapping work also being undertaken in *MAES* is essential if we are to deal with these cross scale issues more effectively. With the development of CICES, we have a framework for representing final ecosystem services at different thematic scales, we can then present their trajectories in a consistent way. Given the concerns in the current literature, it is clear that any future guidelines would need to show how to map these services, in consistent and comparable ways.

***Elaborate opportunities for NCA to support decision-making***

Natural capital accounts (NCA) can, over time, offer extra indication of the state of natural capital and its related changes ‒ including drivers of degradation, which can help inform policies to reduce pressures, help biodiversity proofing policies and programmes and facilitate the integration of biodiversity into other policies. Member States may be converting natural capital into financial or man-made capital, without returning benefits or even sustainably maintaining their natural capital resources.

The diversity of needs and perspectives in relation to natural capital accounting is one of the challenges that we face in Europe. While such diversity must be respected, future work on NCA is to focus on identifying the commonalities that underpin this work and to ensure that experience and insights can be shared effectively. An important step to find commonalities is the development of a portfolio of real applications that can be used both to critically review methods, and show good practice in relation to natural capital accounting methods and their application.

An initial review has identified opportunities for three key EU policy areas: water policy ‒ including the Water Framework Directive and the Floods Directive; biodiversity policy and EU Biodiversity Strategy; Cohesion Policy.