



Combining forces on Natural Capital

Why... Talking about 'natural capital'?

'The illusion of unlimited powers, nourished by astonishing scientific and technological achievements, has produced the concurrent illusion of having solved the problem of production. The latter illusion is based on the failure to distinguish between income and capital where this distinction matters most. Every economist and businessman is familiar with the distinction, and applies it conscientiously and with considerable subtlety to all economic affairs – except where it really matters: namely, the irreplaceable capital which man has not made, but simply found, and without which he can do nothing'

Schumacher, 1973

Economists such as Schumacher (1973) recognised the fundamental role of natural goods and services in sustaining society's growth and welfare. These reflections underpin the modern drive to view the natural environment as capital, *our natural capital*. A capital approach reinforces the consideration of nature as an asset that provides the basis for economic and social development. And consequently, the understanding that depletion (a reduction in quantity) and degradation (a reduction in quality) of natural capital harm future potential growth and society's welfare. To assure a sustainable relationship between society and natural capital, both governments and companies have made progress in the measurement of natural capital stocks (amounts of resources at a moment of time) and flows (provision of natural goods and services during a period). This information has been used to integrate natural capital into decision making in two different contexts:

[i] in public sphere, governments measure natural capital to assess sustainable patterns of resource consumption and changes on society's welfare, and

[ii] in private sphere, corporates measure natural capital to better manage their natural capital risks and opportunities (operational, regulatory, etc.).

Decision-makers in both the public and private sphere have a common vision of nature as a capital asset that needs to be assessed and integrated into decision making. Nevertheless, the perspectives and contexts of decision-making differs and thus, the way of assessing and gathering information between them sometimes differs as well (Spurgeon, 2014, Vardon *et al.*, 2017).

Starting from a shared vision of natural capital, the contribution of both public and private approaches to the development of natural capital assessment and accounting can and should be complementary. The objective of this note is to identify common elements and possible synergies between both approaches, to facilitate a dialogue between key stakeholders, and to recognize the complementarities and dependencies between the public and private sphere. The outcome of this dialogue will be to boost progress on assessment and integration of natural capital into decision making in an aligned, harmonized and more efficient way through collaboration and a common understanding and language. This will be a valuable contribution to global processes including the implementation of the Sustainable Development Goals.

What... Approaches to assess natural capital

The discussion on how to measure and assess natural capital to inform national governments and policymakers started in the late 60's. This discussion focused attention on the need to improve national accounts and their aggregate indicators (GDP, etc.) to better reflect the contribution of natural capital to growth and welfare (Nordhaus and Tobin 1972, Mäler, 1991, Hamilton, 2000, Hanley, 2001, Heal and Kristom, 2002, UNU-IHDP and UNEP, 2014). Policy makers use national accounts as the basis for decisions as they provide a systematic framework to collect information and show connections between sectors and agents of the economy. Also the information is collected periodically and, thus, allows countries to measure trends over time.

Since the early 70's, many different approaches to integrate natural capital into national accounts and aggregated indicators (wealth, savings, etc.) has been proposed. They could be classified into three main categories:

- a) *Natural resource or asset accounts*¹: They are intended to measure to what extent the natural resource consumption pattern of a country is sustainable overall. These accounts are focused on measuring stocks of natural resources and their evolution along time. These accounts encompass statement for a large range of resources including: timber, mineral, energy, land, soil, water, aquatic and other biological resources. These accounts can be measured in physical terms (e.g. volume of wood in forests, m³) and/or monetary terms (e.g., market value of wood stored in forests, \$). When they are expressed in monetary terms, the resources are valued based on market exchange prices.
- b) *Flow accounts*² (or satellite accounts), which are mainly focused on accounting for inputs of natural resources consumed by the economy (e.g. energy and water) and outputs from the economy (e.g. air pollution, water discharges or waste generation). Compared to the previous ones, these accounts provide information for all economic sectors, keeping the same structure as conventional national accounts. When accounting for the outputs, these accounts provide information about different impact drivers (pollutants, discharges, wastes, GHG emissions, etc.) expressed on physical units and, thus, not measuring which are the changes on the state of natural capital derived from them and neither the value of these impacts on population welfare (health, yield, etc.). Within flow accounts, there are also some 'experimental' or more innovative initiatives trying to value the flow or use of other non-market ecosystems services used by the economy.
- c) *Environmental activities accounts*³: this statement gathers information about total expenditures on environmental protection (prevention of degradation), environmental restoration and environment related transactions (such as taxes, subsidies or penalties).

¹ In this field, EUROSTAT (1999, 2002a, 2002b) made a significant contribution to the development and scaled use of the forest accounts.

² These accounts are based on the pioneering proposal of Dutch statistical office to build the National Accounting Matrix including Environmental Accounts (NAMEA) (De Boo *et al.* 1993).

³ These accounts received a strong support from the OECD (that in the early 90's published the Pollution abatement and control expenditure accounts in OECD countries) (OECD, 1993) as well as EUROSTAT with their guidance (EUROSTAT, 2002).



The United Nations have been working since the early 90's on harmonizing existing proposals to integrate natural capital into national accounts, whilst ensuring compatibility with existing standards in the System of National Accounts. The result was the publication of the System of Environmental-Economic Accounting, the SEEA (UN *et al.*, 2014a, 2014b). This accounting framework is now considered to be the global standardized approach to integrate natural capital into national accounts to help policy makers in their decision-making process. The World Bank has supported the application of the SEEA in different countries, through their WAVES program, resulting in a large list of country case studies and policy applications of the information (WAVES, 2017).

In the private sphere, the use of the concept of natural capital is more recent, but is developing fast. Much initial focus was on the measurement of GHG emissions and associated carbon accounting. This work has tracked the parallel developments at national and international levels. Beyond this companies are increasingly looked to measure other impact drivers including water use, energy use and pollution.

Almost forty different approaches for business application of natural capital evolved during the first 15 years of the 21st Century. This plethora of approaches led to some confusion as to which approach to follow. To address this, many of those involved came together to form a space for collaborative action. Originally this was TEEB for Business, highlighting the links to this seminal work and later became known as the Natural Capital Coalition. The Natural Capital Coalition harmonized the existing approaches into one overarching framework (Natural Capital Protocol) which was launched in July 2016. The Protocol helps business identify, measure and value their impacts and dependencies on natural capital, going well beyond a focus on impact drivers. This information allows them to better manage their risk and opportunities.

Some of the key distinctive elements of a natural capital approach for businesses compared to previous management sustainability approaches are:

- i. **Dependency:** Moving from measuring impacts to also include dependencies. All businesses depend on natural capital and associated ecosystem and abiotic services. Understanding and valuing the underpinning role of natural capital is crucial to manage business on the long term. The impacts are the negative or positive effects of business activities and they can occur at any point of the value chain. Business had some large experience in measuring their direct impacts but expanding their scope of analysis to the whole value chain is helping them in having a wider view to better manage their risk across their entire value chain.
- ii. **Valuation:** Valuation is the process of estimating the relative importance, worth or usefulness of natural capital. The aim is to determine the value of different consequences of the business activity, including: [i] consequences of impacts on the business, including cost of inputs (e.g. purchase cost of timber) and outputs (e.g. increased cost of emission permits) [ii] consequences of business impacts on society (often referred as externalities) and [iii] consequences of business dependencies (e.g. natural flood and erosion control). It is only when we understand the relative importance, worth or usefulness of something that we make a change and can inform decisions.
- iii. **Systems:** Natural capital highlights how everything is connected and allows trade off and comparison between different environmental factors.



Natural capital assessments are intended to inform internal business decision-making processes. Companies use the assessment to inform specific decisions (e.g. conducting a cost-benefit analysis on an investment project or product). They are gathering information in a more systematic way, considering a broader scope at company level, and collecting information to inform specific decisions. These companies have different options to integrate natural capital into their internal processes, through their environmental management system, financial accounting, management accounting, company disclosure, etc. Some of the most commonly cited examples include the Environmental Profits Accounts by companies as Kering (2016), Novo Nordisk (Høst-Madsen et al., 2014), Vodafone Netherlands (2016) and Arla Foods (Schmidt and de Saxcé, 2016).

In the area of public disclosure, there are accounting frameworks proposed by initiatives such as the Global Reporting Initiative (GRI) and the International Integrated Reporting Council (IIRC), which include a broader perspective to integrate information, not only about natural capital, but also about financial, human and social performance. These frameworks do not articulate how to go about making decisions to then be reported and are not designed such that an extended definition of profit or a complete balance sheet for a corporation could be calculated (Obst, 2015). The Climate Disclosure Standards Board has produced specific guidance on disclosing natural capital impacts and dependencies (CBSD, 2015).- The adoption and use of the Protocol at scale will contribute the progress on Integrated Reporting, especially through data handling (Dickie et al. 2016).

There is also work ongoing to standardize the private sector approach through the International Standard Organization (ISO). ISO is developing a guideline document, the ISO 14007 - Determining Environmental Cost and Benefits guidance, that will be complemented by the more advanced work on the ISO 14008 - Monetary valuation of environmental aspects and impacts principles, requirements and guidelines.

HOW... Applications for decision making

Decisions cannot be taken without information. Decision makers collect and structure sets of information based on their needs and the information systems already in place. In the public sphere, historically information about natural capital has been quite fragmented but, in the advent of the SEEA, progress is being made in better integrating available data and indicators. In addition, policymakers also conduct *ad hoc* assessments to evaluate the consequences of specific policies (e.g. cost-benefit analysis of large infrastructure projects or Environmental Impact Assessment of long term planning documents or government strategies). Similarly, corporates can use *ad hoc* frameworks or more standardized accounting approaches. In the organizations within the Natural Capital Coalition, it seems that there is a common use of *ad hoc* frames but some companies are progressing towards a more structured and systematic collection of information at the company level, sometimes reported publicly.

The use of standardized economic accounting frameworks (either national accounts of countries or financial accounting of corporates) has facilitated the comparison

between different countries and companies, leading to processes of transparency that foster national and international decision-making and private investment processes. However, what really matters is the analysis and interpretation of information for decision making. Decision making process and context in both public and private spheres differ in some respects which results in some differences in the outputs of natural capital assessment on public and private domains. Some of these differences are related to the different focus of interest around:

a) Stocks and flows

Policy makers focus a lot of attention on assessing the sustainable pattern of natural resource use because future economic growth of countries depend on it. This is the reason to have placed a lot of efforts on the development of the *Natural resources accounts* and on the analysis of the stock of natural resources. On the contrary, corporates are more familiar with the impacts and dependencies and, consequently, the analysis of flows. One of the main reasons behind it is the fact that corporates do not generally have direct property rights over natural resources but instead their main risk and opportunities rely on the management of the flows of impacts and dependencies. However, some of corporates also own natural resources (e.g. forest, fisheries) and they also develop natural capital accounting frameworks to assess the stock and evolution of their natural assets, such as the *Corporate Natural Capital Accounts* (NCC, 2015).

b) Prices and values

Within the sphere of national accounting frameworks, the information of *natural resource accounts* expressed both in physical and monetary units, the former ones based mainly on market prices. This information is enough to allow policy makers to assess the sustainability pattern of national consumption of these resources. Similarly, the national *flow accounts* provide information in physical units or monetary units, also based on market prices. This information is used by policy makers to identify which are the main polluting and consuming sectors and controlling the effectiveness of some policies. This type of account has not progressed in assessing the consequences for populations (externalities) and the values of those impacts. Only the 'experimental' ecosystem flow accounts are progressing in attempting to also reflect the non-market values of some ecosystem services (regulatory services, etc.).

On the side of the corporates, as said before, and thanks to the natural capital approach, businesses are moving from estimating impacts drivers (measured in physical units) towards valuation of consequences, either to business or to society. The valuation of consequences to society is intended to measure the changes of welfare of population affected by the impact drivers. This valuation is helping corporates to understand better the consequences of their activities and so, managing better their risk and opportunities by, for example, identifying the main impacts of their operations and key stages of their value chain in which to focus their environmental management practices. Corporates can also opt for just assessing the consequences of impacts on the business, case in which the market prices are used and values are not estimated. When assessing consequences of dependencies, the valuation approach is similar to the one proposed by the experimental ecosystem services accounts proposed in the national accounting context.

c) Narrow and broader scale



The scale of analysis can also influence the way in which public and private decision makers structure the information of their natural capital assessments. When the analysis is done with a narrow scale (e.g. assessment of consequences of a production plant (in the case of corporates) or a law (in case of governments)), standardized accounting framework are not needed. More flexible evaluation approaches are used and the information is structure based on them (e.g. cost-benefit analysis). These kinds of assessment are generally urgent on time as they need to fit within the deadline of the decision process. Also, information describing the past and present situation (as it is done on accounting frameworks) is not always enough and quite often forecasts and projections are also required.

When the analysis has a broader scale (e.g. assessing country patterns or company net impact), some standardized accounting frameworks are usually used and are useful to track evolution along time.

Policy makers have experience in conducting natural capital assessments at a narrow scale, and experience of integrating natural capital into national accounts for broader (macro) decision making. On the contrary, as companies have only just started to adopt this approach quite recently, they are starting to assess natural capital at narrow level of scale (e.g. product or project level). Companies now are progressively starting to scale up towards a broader level (company assessments).

What next... Combining forces

There are some common elements to the assessment of natural capital for both public and private decision makers:

- The assessment of ecosystem services is common for corporates, considered as a dependency by businesses, as well as for governments attempting to understand the non-market values provided by national ecosystems to identify and design conservation policies.
- The focus on environmental protection expenditures. In the case of national accounts, the accounts on environmental protection and management expenditures collect this information. In the case of corporates, the assessment to determine the consequences of impacts for business is largely focused on this kind of expenditures.
- The interest in natural resources is shared in the case of governments and natural resource using companies (forestry, agriculture, tourism, etc.).
- The ongoing measurement of various impact drivers (GHG emissions, water use, energy use, waste, etc.) which are of interest to both governments and companies and have direct connections to environmental outcomes.

Based on this analysis, some synergies in which future efforts coming from both public and private sphere have been identified as areas for future collaboration and combining forces to make progress on:

- I. Harmonization of frameworks and concepts: Working together in developing harmonized accounting frameworks. Corporates can benefit from the large work done on creating a standardized framework (SEEA). Using this framework as a reference for building corporate accounting statements, using common definitions and concepts, etc. This will help companies to accelerate

- the process of moving from managerial accounting to external accounting frames reported to inform financial institutions, shareholders, consumers, etc.
- II. Methodological progress: sharing knowledge on areas where national accounting approaches have made good progress (such as ecosystem services accounting) as well as transferring know-how on assessing the value of impacts to society that companies are familiar with, will benefit both stakeholders involved in the public and private sphere.
- III. Source of mutual information: information of natural capital from national accounts offers a good source of information for natural capital assessments at corporate level. Similarly, public bodies should realize about the need to support and boost the development of natural accounts at corporate level to help them building total figures at national level.

Summary of approaches

	Private	Public
Harmonized approach	The Natural Capital Protocol	System of Environmental-Economic Accounting (SEEA)
Focus of analysis	Assessment of business impacts and dependencies on natural capital	Assessment of depletion and degradation of natural capital at national and sector level, measurement of environmental pressures and policy responses
Purpose	To help generate trusted, credible and actionable information to inform decisions	Support policy-makers on assuring future growth and society's welfare, including management of sector and thematic issues (e.g. forestry, water)
Standardization	The Protocol is a generally accepted global standardized framework for business	The UN SEEA Central Framework is the global standardized approach, compatible with the System of National Accounts.
Measurement	Companies focused mainly on measuring flows of natural capital.	SEEA measures both stocks and flows.
Monetary valuation approach	Companies use prices and/or values (changes on welfare), depending on the perspective of their assessment (business vs. societal).	Market prices is the most common monetary valuation approach used in SEEA. There is also a more experimental approach to promote the assessment of non-market values of ecosystem services.
Scale	Companies are starting to assess natural capital at narrow scale (e.g. product or project level). There are also a few companies gathering information in a more systematic way, considering a broader scope at company level	Policy makers have some experience in conducting natural capital assessments at a narrow scale, and experience at integrating natural capital into national accounts for broader (macro) decision making. Ecosystem accounting can be applied at fine spatial scales.
Uptake	The number of actual case studies and applications is growing (see the Natural Capital HUB) but tracking this progress is difficult as the	In 2014, out of 85 responding countries, 54 countries already had environmental-accounting programmes in place and 15 countries were planning to compile

	purpose of natural capital assessment is to inform internal decision making and so, this assessments are not always reported. C. 30,000 copies of the Protocol are in circulation.	them in near future (UN, 2015). WAVES program of the World Bank provides a good overview of more recent experiences in nine countries (WAVES, 2017).
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Lead authors

Dr Marta Santamaria, Technical Director, Natural Capital Coalition

Mark Gough, Executive Director, Natural Capital Coalition

Contact Point

Dr Marta Santamaria Marta.Santamaria@naturalcapitalcoalition.org

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