

Combining Forces on public and private sector work on natural capital

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Sharing a common aim: conserving and enhancing 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

In the early 1970s, reflections from economists such as Schumacher (1973) about the need to recognize the fundamental role of natural goods and services in sustaining society’s growth and welfare underpin our drive today to view the natural environment as a capital, *our natural capital*. A natural 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 understanding their relationship with nature by measuring and valuing 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.).

Indeed, many decision-makers have a common vision of nature as an 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). None of these approaches provides a perfect solution, and all of them are in a continuous process of improvement. Starting from a shared vision for the joint management 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. Indeed, collaboration between leading organizations working on the development of natural capital approaches will be beneficial to identify complementarities, synergies and gaps between them and identify ways of moving forward together. Such a collaboration should aim at expanding the use of natural capital approaches to better understand our relationship with nature and so, contributing to a world in which we all better conserve and enhance our natural capital.

Combining Forces on natural capital

The Natural Capital Coalition is a unique collaboration initiative that provides the space to advance natural capital thinking by bringing together organizations from all of the different worlds within the natural capital space, including: conservation organizations, academia and research, business sector and finance community, standard setters, sector associations and governments. The essence of the Coalition is progressing on natural capital thinking through collaboration of all these different worlds.

Recognising the potential to connect thinking from across the private and public sectors, as well as other key stakeholders, discussions between experts involved in the Natural Capital Coalition, and from the SEEA community have led to establishing the Combining Forces initiative, which was launched in November 2017 at the third World Forum on Natural Capital (<https://naturalcapitalcoalition.org/projects/combining-forces-on-natural-capital/>).

‘Combining Forces’ is a banner to bring together the public and private sectors’ thinking on natural capital. The objective is to foster a greater mutual understanding of different approaches to the assessment of natural capital and to combine efforts towards the greater aim of ensuring that nature is accounted for and included in decision-making. Currently, 25 organisations have pledged their support for the initiative and are signatories to the Combining Forces Joint Statement. At the core of the Combining Forces approach is the belief that single and disparate voices on natural capital will not be sufficient to make the systemic changes in decision making that are needed.

This paper summarises the ongoing developments with respect to natural capital within the private sector, introduces the Natural Capital Protocol as the main framework for aligning natural capital approaches within the private sector, and highlight connections and opportunities for connecting work on the SEEA with the work in the private sector. There are substantial opportunities for the concepts, definitions and measurement approaches of the SEEA to inform discussion for businesses and industries, and vice versa. The paper concludes by describing the range of work planned as part of the Combining Forces initiative.

Deep diving into the ‘landscape’ of natural capital approaches

The discussion on how to measure and assess natural capital to inform national governments and policymakers started in the late 60s. 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. The information is also collected regularly and, thus, allows countries to measure trends over time. Since the early 70s, many different approaches to integrate natural capital into national accounts and aggregated indicators (wealth, savings, etc.) have been proposed. They can be classified into three main categories: natural resource or asset accounts, physical flow accounts and environmental expenditure accounts.

The United Nations have been working since the early 1990s on harmonizing proposals for integrating natural capital into national accounts, whilst ensuring compatibility with existing standards in the System of National Accounts. The result is reflected in 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.

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 business response to the challenge of climate change with a focus on the measurement of GHG emissions and associated carbon accounting. This work has tracked the parallel developments at national and international levels to measure these flows. Beyond GHG emissions, companies have increasingly looked to measure other impact drivers including water use, energy use and pollution.

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

- i. **Recognising 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. **Incorporating valuation:** Valuation is the process of estimating the relative importance, worth or usefulness of natural capital, its incorporation does not imply valuation in monetary terms. 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 important, worth or usefulness of something that we make a change and can inform decisions.
- iii. **Describing systems:** Natural capital highlights how everything is connected and allows trade off and comparison between different environmental, economic and social factors.

Natural capital assessments are thus intended to inform internal business decision-making process. Companies are using assessments to inform specific decisions (e.g. conducting a cost-benefit analysis on an investment project or product). Increasingly, they are gathering information in a more

systematic way, considering a broader scope at company level, and collecting information on specific issues. Further, there are different options to integrate natural capital into their internal processes, for example, through their environmental management system, financial accounting, management accounting and company disclosure. Some of the most commonly cited examples include the environmental profit and loss accounts by companies as Kering (2016), Novo Nordisk (Høst-Madsen et al., 2014), Vodafone Netherlands (2016) and Arla Foods (Schmidt and de Saxcé, 2016).

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 as relevant. More flexible evaluation approaches may be used (e.g. cost-benefit analysis). When the analysis has a broader scale (e.g. assessing country patterns or company net impact), standardized accounting frameworks are usually used, in part to track evolution along time.

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

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.

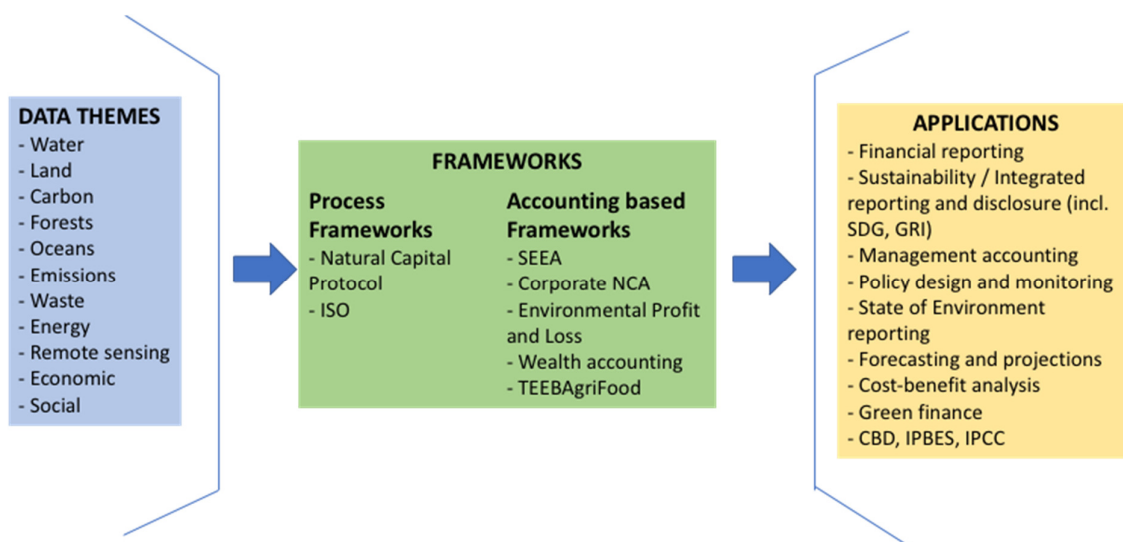
In the area of public disclosure, there are accounting frameworks proposed by initiatives such as the Global Reporting Initiative (GRI) and the International Integrated Reporting Council (IIRC), which include a broader perspective to the integration of information, not only about natural capital, but also about financial, human and social performance. These frameworks do not articulate how to go about making decisions that are then reported on, 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) and the adoption and use of the Protocol at scale will contribute to the progress on Integrated Reporting, specially through data handling (Dickie *et al.* 2016).

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

Not all approaches perform the same role in the support of decision makers. Figure 1 below proposes three roles – Data, Frameworks, Applications - and gives examples of different approaches or initiatives that perform these roles. The intention is to start to clarify the landscape of approaches that can be confronting to those engaging with natural capital.

The challenge confronted in the Combining Forces initiative is to describe the gaps and barriers to linking approaches, to find potential synergies between different approaches and to outline relevant opportunities. The focus in the remainder of the paper is on the linkages between two key approaches - the Natural Capital Protocol and the SEEA.

Figure 1: Roles in Natural Capital Assessment



Zooming in on the Natural Capital Protocol

The Natural Capital Protocol (hereafter the ‘Protocol’) is a significant step forward in providing a standard process to underpin the recognition of the role that natural capital plays in supporting business activity. By establishing a common platform for the consideration of natural capital in all sectors, the Protocol embodies the collaborative spirit that is essential in seeking to understand the connection to natural capital and the appropriate responses to ensure sustainability.

The Protocol describes a process for assisting companies, large and small, to understand their relationship with natural capital and assess the magnitude of their dependencies and impacts on natural capital. The Protocol describes a standard process for incorporating natural capital into decision-making and also contributes to standardizing the language used by practitioners in the private sector.

The Protocol describes nine steps to support a discussion of natural capital for a business. The steps cover the ‘why’, ‘what’, ‘how’ and the ‘what next’ stages of a discussion (see below). In developing the Protocol, it was acknowledged that the relationship of individual businesses to natural capital is highly varied, from agriculture and forestry, to retail and finance. Given these sectoral variations, the development of distinct approaches for each could be justified. However, in keeping with the inclusive and aligned spirit of the Protocol, a single series of steps is described to ensure all sectors, especially when seen through a supply chain lens, have a common language to discuss our common natural capital. This supports a shared understanding of the relative importance, or materiality, of natural capital to companies.

The Why: Framing a discussion on natural capital is an essential part of the process that underpins subsequent measurement and reporting for accounting purposes. A general understanding and agreement that “the environment is important” is not sufficient to build a business case. The Protocol identifies a range of possible rationales for undertaking natural capital assessments including:

- Reducing operating costs and reducing supply chain risks;
- Identifying efficiency gains;
- Reducing environmental fees and charges;
- Improving access to finance and attracting investment;
- Identifying new revenue streams and increasing ability to attract and retain employees; and
- Supporting a social license to operate.

The What: The Protocol Stage 2 requires a discussion to clearly define what will be the focus for a particular assessment. Given the breadth of possible connections to different forms of natural capital in different locations, a business will likely focus on a limited number of environmental stocks and flows in the first instance and, over time, build a broader coverage. Examples of environmental stocks and flows include water, energy, GHG emissions, soil, wetlands, rivers, forest and timber resources, biodiversity and ecosystem services.

The How: The Protocol’s third stage involves the practical aspects of gathering data and developing estimates of environmental stocks and flows and, as appropriate, relevant valuations in monetary terms. A wide variety of methods and techniques are available, in part reflecting the broad range of environmental stocks and flows, but also reflecting a lack of progress towards commonly agreed approaches. The Protocol does not prescribe any specific measurement or valuation approaches. Rather it focuses on describing the measurement alternatives that will depend on the focus area and the purpose of the assessment.

What next?: The final stage of the Protocol requires interpretation and communication of the estimates from Stage 3 and the incorporation of the results into future planning and decision-making. This final step may be the most challenging.

Exploring synergies between the Protocol and the SEEA

The Protocol does not prescribe specific measurement approaches for the many dimensions of natural capital. Indeed, the application of the Protocol can be (and in general it is) accompanied by the use of additional guidance on measurement and valuation of the many different dimensions of natural capital assets to assess their stocks and flows. The accounting concepts, structures and principles from the SEEA represent a complementary and very valuable guidance for Protocol users.

While the SEEA does not provide a process by which companies can work through the relevance of natural capital, it does provide a complementary, robust and consistent basis for the scoping and measurement of natural capital at the corporate level. Importantly, the integrated, conceptual basis of the SEEA also embodies the four key principles of the Protocol, namely relevance, rigour, replicability and consistency.

The rationale for using the SEEA within a Protocol context is that it can:

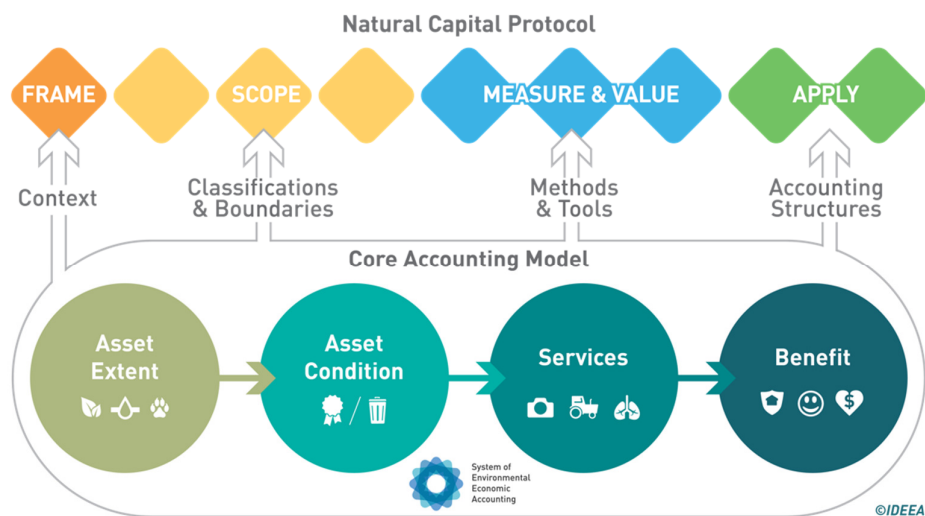
- Use existing, internationally agreed findings on the measurement and reporting of environmental stocks and flows;

- Support comparison and benchmarking within and across businesses and countries;
- Integrate internal management and decision making around natural capital;
- Support the use of public environmental information datasets at corporate level; and
- Encourage consistency in information used at public and private levels.

Further, the progress on the development and implementation of the SEEA around the world may be used to highlight the increasing importance that governments are placing on improved and high-quality environmental information to support policy directed at environmental improvement and sustainable development. This may provide a general motivation for companies to start a discussion on natural capital and link to sustainable development objectives.

The following paragraphs outline how the core accounting model of the SEEA can be used to support the implementation of the four stages of the Protocol process. As shown in the figure below, four key connections are envisaged – context, classifications and boundaries, methods and tools, and accounting structures.

Figure 2: Connecting the SEEA accounting model and the Protocol



Source: IDEEA Group

Framing stage: An important aspect of assessing the relevance of natural capital for an individual business is understanding the environmental context in which it operates. For example, is an investment located in a region suffering water scarcity or declining soil fertility? What is the benchmark for an industry in terms of energy use, water use and GHG emissions? Have there been rapid changes in land use in recent years in a particular province that are impacting on biodiversity and ecosystem services? Answering these questions requires information that is consistent at different scales allowing local businesses and multi-national operations to be placed in appropriate context. The SEEA methods and principles provide clear guidance on the collection of information that

can support an informed discussion of the why, and can be used to identify the natural capital issues of most significance in a specific location, region or country.

Scoping stage: Once the target for a natural capital assessment has been established, the precise scope of the assessment needs to be determined. This scope of the assessment may focus internally or include broader upstream and downstream aspects of the business' supply chain. Further, the geographical scope must be determined – is the assessment for a specific establishment or operational unit in a given location, or are all business locations within scope?

The core accounting framework of the SEEA is well suited to supporting these areas of discussion since it is designed to capture all production and consumption activity (i.e. all possible supply chains) and to encompass environmental stocks and flows across all regions. While the SEEA is economy wide and national in scope, the accounting principles can be applied to the measurement of environmental stocks and flows at the level of individual businesses and for specific spatial areas, e.g. individual farms. Again, the classifications underpinning the SEEA in terms of the types of economic activity and geographical areas, can be used to provide checklists to support standardised discussion and framing.

Measure and value stage: Building on its definitions and classifications, the SEEA can be used to support the implementation of the Protocol through its description of measurement approaches for different environmental stocks and flows. While these methods have been developed with economy wide measures in mind, they are strictly formulated to ensure consistent measurement over time and comparable measurement across countries and regions. Indeed, many of the measurement approaches will rely on the aggregation of information collected from individual businesses. While some refinement of the methods may be needed for application at the business level, in most instances the SEEA guidance provides an excellent starting point for measurement and implementation of the Protocol.

Special note is required concerning valuation. The Protocol and the SEEA have a similar perspective on monetary valuation of environmental stocks and flows. Both frameworks see the relevance of monetary valuation in some, but not all circumstances, and see significant importance in the organisation of information on the underlying stocks and flows to support decision making with respect to natural capital. Providing this robust and commonly agreed information base is fundamental since there are a number of additional, and sometimes diverging, concepts and perspectives that emerge when valuation takes place.

Another important role that the SEEA can play arises when a business aims to measure multiple components of natural capital, e.g. land use and GHG emissions. Often each type of natural capital is measured independently using dissimilar data sources and methods. This often results in studies that cannot be compared in a meaningful manner for decision-making within the business. This may result in competing or inefficient (not cost effective) policies and approaches being implemented.

On the other hand, since the SEEA encompasses all components of natural capital (including biodiversity), it provides a means to utilise multiple data sources in a consistent way and establishes a common, underlying data infrastructure for assessment. This data organization role of the SEEA may be one of its greatest benefits, particularly as businesses seek to expand beyond their initial areas of focus and work to embed a range of natural capital measures in their business operations. From a business perspective, this supports a lower cost approach that is adaptable to business needs over the long term.

Application stage: For the communication of estimates, for example to highlight trends with relevant stakeholders, the SEEA supports the consistent derivation of indicators (the SEEA framework is being used to support measurement of a number of SDG indicators) and also provides accounting structures

to show extended financial and non-financial reporting of balance sheets and operating statements. Depending on the audience and their requirements these may be usefully adapted for use at a business level.

For the use of results in decision making and action, beyond the reporting of information, the SEEA framework can be used to support the environmental extension of a range of analytical models and approaches such as cost benefit analysis, trade-off and scenario analysis (including input-output, general equilibrium and other economic modelling), return on investment measurement and risk assessments. Since the SEEA has been designed to integrate environmental data with economic and financial data, it is ideally suited to translating environmental information into a language and format that can be readily understood in a standard, financially-based decision making situation.

There are also a range of ways in which the Protocol and the progress on natural capital assessment by the private sector can contribute to the SEEA and public sector natural capital decision making processes:

- **Guidance on decision-making process:** The SEEA provides a robust, comprehensive and consistent accounting framework to help statistical officers to develop integrated national environmental and economic accounts. The SEEA framework has been accompanied also by the '*SEEA Applications and Extensions*', which provides additional guidance on how to use the information from the accounts to support public decision making process. On the other side, the Protocol can be considered a more a 'process framework', intended to support decision makers from the private sector in understanding the benefits of integrating natural capital into their processes and identifying the type of assessments and information needed. The simplicity and clarity of the Protocol framework is something that attracts, not only private, but also policy decision makers. The Protocol is proven to be accessible and easily applicable by a broad variety of users. As the Protocol is a process framework that follows a basic logical process taken by any decision maker, this positive experience could also be useful to open the discussion within the SEEA community and public officers on how useful could it be to develop some guidance on the process, based on the reference of the Protocol, and adapted to the language and aims of public decision makers.
- **Valuation of non-monetary transactions:** The SEEA has done a great contribution on assessing exchange values of natural capital assets. However, the SEEA offers some limitations on assessing welfare values as these do not reflect market transactions. On the other side, the Protocol encompasses the use of welfare valuation approaches as a way to have additional information for decision makers. The private sector is well-advanced in applying welfare valuation approaches, such as the ones used by some companies to build their Environmental Profit and Loss Accounts. The methodological progress reached in the private sector on welfare valuation can contribute to the discussions in the context of the SEEA revisions on how to obtain relevant information for public decision makers.
- **Data and information sharing:** Practitioners in the private sector benefit from the access to data resulting from the use of the SEEA framework. Similarly, having a better understanding of needs and alignment in accounting frameworks could benefit the public sector to have better access to data from the private sector about their impacts and dependencies of businesses operating in their territories. There is also a common interest in identifying, and managing jointly, several natural capital risks and opportunities identified either by the public or the private sector. As an example, the private sector natural capital assessments have made

significant progress in analyzing natural capital supply risks across value chains. From a public perspective, the output of these assessments are relevant to identify their exposure to risk, such as reallocations across economic activities. Exploring these connections could benefit both sectors to better manage a range of natural capital risks and opportunities.

Moving forward on Combining Forces

These sections have outlined just some of the ways in which linkages can be made between private and public sector approaches to natural capital. The challenge recognised in the Combining Forces initiative is to better identify and understand these linkages, to select and design opportunities for joint work and to promote the joined-up rationale for work on natural capital. To give a sense of some possible areas of future focus, initial discussion has highlighted the following synergies:

- I. **Harmonization of frameworks and concepts:** Working together in developing harmonized accounting frameworks and approaches to implementation.
- 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 data and 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 the need to support and boost the development of natural accounts at corporate level to help them build aggregate national pictures.

To work towards finding these synergies and opportunities the Combining Forces initiative is commencing a program of workshops and webinars in which diverse groups are brought together to share experiences and perspectives on natural capital. The first such workshop was held in Melbourne on 11 September and the first webinars will be held on 1 October. Regional workshops are planned in the coming months using the Natural Capital Coalition's network of 30 regional hubs. It is intended that through an ongoing process of feedback from these workshops we can establish some clear findings in terms of opportunities, synergies and barriers to advancing collaborative work on natural capital.

To support the understanding of the Combining Forces space, a thought leadership piece has also been commissioned to provide a clear articulation of the state of play and to summarise, through research and interview, the top opportunities, gaps and challenges. Together with the feedback from the workshops this should provide a clear research agenda. The Combining Forces initiative will also look to identify and publish case studies where there are examples of work that combines private and public sector approaches, for example the use of the SEEA for individual businesses.

Combining Forces is intended to function as a platform for engagement. In this respect, an important requirement is for work on Combining Forces to align with a range of other projects being undertaken by the Natural Capital Coalition. These include the Government Dialogue on Natural Capital and the Data Information Flow, and work on assessing biodiversity and the oceans. There are already connections being made across sectors on these projects but these will need to be promoted and reinforced. It will also be relevant to establish connections to past and future work of the Coalition in promoting natural capital thinking in industry sectors such as food and beverages, textiles and clothing, forestry and finance.

A discussion on this topic at the London Group is especially timely given the relevance being placed on engagement with the private sector in a number of international projects including the UNSD/UN Environment project on ecosystem accounting (NCAVES), the World Bank WAVES partnership and the EU Business @ Biodiversity Platform. The upcoming natural capital week in Paris (starting on 26 November, 2018) will provide another excellent opportunity to further advance the discussion.

Bibliography

CDSB (Carbon Disclosure Standards Board) (2015) *CDSB Framework for reporting environmental information & natural capital*.

De Boo, A.J. Bosch, P.R., Gorter, C.N., and Keuning, S.J. (1993) An Environmental module and the complete system of national accounts. In: A. Franz and C. Stahmer (eds.), *Approaches to environmental accounting*, Physica-Verlag, Heidelberg. Dickie, I., Royle, D. & Anderson, S. (2016) *Integrated Reporting and Natural Capital Accounting*. JNCC Report No: 587, May 2016. ISSN 0963 8901

EUROSTAT (1999) The European framework for integrated environmental and economic accounting for forests - Results of pilot applications.

EUROSTAT (2002) SERIEE - Environmental protection expenditure accounts - Compilation guide. Luxembourg. Office of Official Publication of the European Communities.

EUROSTAT (2002a) The European framework for integrated environmental and economic accounting for forests - IEEAF

EUROSTAT (2002b) Accounts for recreational and environmental functions of forests - Results of pilot applications.

Hamilton, K. (2000) Genuine saving as a sustainability indicator. Environment Department papers; no. 77. Environmental economics series. Washington, D.C.: The World Bank.

Hanley, N. (2000) Macroeconomic Measures of Sustainability. *Journal of Economic Surveys*. Vol 14 (1): 1-30

Heal, G. and Kristrom, B. (2005) National income and the environment. In K. G. Mäler & J. R. Vincent (ed.) *Handbook of Environmental Economics*. Volume 3, chapter 22: 1147-1217. Elsevier.

Høst-Madsen, N.K, Damgaard, C.K., Szeler, A., Jørgensen, R., Mikkelsen, K.D., McManamon, D., Bullock, S. Taylor, J., Sireyjol, A., Schmidt, J. (2014) Novo Nordisk's environmental profit and loss account

Kering (2016) Environmental Profit and Loss Accounts (E P&L), 2015 Group results

NCC (Natural Capital Committee) (2015) *Developing Corporate Natural Capital Accounts*. Summary Report for the Natural Capital Committee by EFTEC, RSPB and PwC.

Mäler, K.G. (1991) National accounts and environmental resources. *Environmental and Resource Economics*: Vol. 1, Issue 1: 1-15

Nordhaus, W.D. and Tobin, J. (1972) Is Growth Obsolete? In: National Bureau of Economic Research (ed.) *Economic Growth*, No. 96, New York.

Obst, C. (2015) *Links between the Natural Capital Protocol and other accounting frameworks*. Institute for the Development of Environmental Economic Accounting. June, 2015.

OECD (1993) *Pollution abatement and control expenditures in OECD countries*. OECD Environment Monograph, Paris.

Schmidt, J.H. and de Saxcé, M. (2016) *Arla Foods Environmental Profit and Loss Accounting 2014*. Environmental project No. 1860, 2016. Danish Environmental Protection Agency, Copenhagen

Schumacher, E.F. (1973) *Small Is Beautiful: A Study of Economics As If People Mattered*.

Spurgeon, J.P.G (2014). Comparing Natural Capital Accounting approaches, data availability and data requirements for businesses, governments and financial institutions: a preliminary overview. Final report to the EU Business and Biodiversity Platform, performed under the ICF contract.

UN United Nations (2015) *Global Assessment of Environmental-Economic Accounting and Supporting Statistics*. Prepared by United Nations Statistics Division
https://unstats.un.org/unsd/envaccounting/ceea/meetings/tenth_meeting/BK9e.pdf

United Nations, European Commission, Food and Agriculture Organization of the United Nations, International Monetary Fund, Organisation for Economic Co-operation and Development and The World Bank (2014a) *System of Environmental-Economic Accounting 2012 – Central Framework*.

United Nations, European Commission, Food and Agriculture Organization of the United Nations, Organisation for Economic Co-operation and Development and The World Bank (2014b) *System of Environmental-Economic Accounting 2012 – Experimental Ecosystem Accounting*.

UNU-IHDP (United Nations University – International Human Dimensions) and UNEP (United Nations Environmental Programme) (2014). *Inclusive Wealth Report 2014. Measuring progress toward sustainability*. Cambridge: Cambridge University Press.

Vardon, M., Bass, S., Ruijs, A. and Ahlorth, S. (eds.) 2017. Business and national accounting for natural capital towards improved understanding and alignment

Vodafone Netherlands (2016) *Environmental Profit and Loss Methodology and Results*.

WAVES (Wealth Accounting and the Valuation of Ecosystem Services (WAVES) (2017) *WAVES, 2016 Annual Report*. World Bank Group.

World Bank (1997) Expanding the measure of wealth: indicators of environmentally sustainable development. Environmentally sustainable development studies and monographs series; no. 17. ESSD Environmentally & Socially Sustainable Development Work in Progress. Washington, D.C.: The World Bank.