



Natural capital in practice: How to include its value in Dutch decision-making processes



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ABSTRACT

Scientific and policy attention for natural capital and ecosystem services have grown fast during the last decade. As a result, awareness on the value of the stock of natural capital and the flow of ecosystem services it provides increased. Decision-makers from governments, business and nature organisations nowadays have much better insights into the opportunities its sustainable use provides, for themselves and for society. Yet, translating lessons from natural capital research to policy remains complex. In this paper, on the basis of the results of the two-year Natural Capital Netherlands programme, it is elaborated how, in practice, governments, businesses and nature organisations can include the value of natural capital in their decision-making processes. The planning and decision-making processes studied in this programme can be clustered into three domains: sustainable entrepreneurship, entrepreneurial nature management and area development. For each domain of decision-making, the approach to be followed differs somewhat and different policies should be developed to reach the situation in which it is mainstream to include the value of natural capital in decision-making. Moreover, it is shown that incorporating natural capital leads to innovation, with new market opportunities, new nature development and new collaborations between various parties as a result.

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1. Introduction

Attention for natural capital and ecosystem services has grown fast during the last decade, and its attention is still growing (see e.g. Chaudhary et al., 2015; Guerry et al., 2015; Hedden-Dunkhorst et al., 2015).¹ Knowledge about the value of natural capital is helpful to integrate the impact of changes in natural capital and ecosystem services provision into public and private decision-making (Mckenzie et al., 2014). Research on the value of natural capital and ecosystem services has evolved in a relatively short notice from a purely scientific topic to a bridging concept for interdisciplinary and global initiatives. Examples include in the first decade of the 2000s the Millennium Ecosystem Assessment (2005) and

TEEB (2009, 2010), and in more recent years for example several EU-funded projects, the Natural Capital Project, the World Bank WAVES Partnership and many other programmes and initiatives. Moreover, several national ecosystem services assessments have been published (see e.g. Wilson et al., 2014; Hedden-Dunkhorst et al., 2015). As stated by Abson et al. (2014), the concept of natural capital and ecosystem services, that encompasses both the description of how natural capital and ecosystem services evolve, can be used sustainably and interrelate with the human system, as the more normative connotation that ascribes values to different system states, now serves as a boundary object that links policy makers and different scientific disciplines together. As a result, it has found its way in a number of multilateral policies like the EU Biodiversity Strategy, the Convention on Biological Diversity and the Social Development Goals as well as in several national policies (see e.g. Verburg et al., 2016).

Nowadays, awareness on the importance of natural capital and the ecosystem services it provides is at an all-time high among the public, governments and corporate board room (Guerry et al., 2015). Yet, including the lessons from natural capital research into real world decision-making remains complex, despite of the growing literature on this theme (see e.g. Ruckelshaus et al., 2013; Oosterhuis and Ruijs, 2015; Greenhalgh and Hart, 2015; Hedden-Dunkhorst et al., 2015; Schaefer et al., 2015; and Galler

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¹ We define natural capital as the stock of physical, natural assets (such as soil, forests, water and biodiversity) and the ecological processes surrounding them that have the capacity to provide a flow of ecosystem services, i.e. services that benefit people such as climate regulation, pollination, food and drinking water (see e.g. De Knecht et al., 2014; Dicky et al., 2014; EEA, 2015). In this paper, when mentioning natural capital, we refer in most cases to natural capital and ecosystem services, where natural capital is the stock of natural assets and the ecosystem services are the flows of services from this stock. See also footnote 2 for an explanation why natural capital has been chosen as central concept.

et al., 2016). According to McKenzie et al. (2014) and Martinez-Harms et al. (2015) limited understanding of how ecosystem services knowledge is used in practical decision-making processes, is one reason. In this paper, we argue that another reason is the broadness of the range of decision-making processes in which the value of natural capital and ecosystem services can be incorporated. Possible decisions relate to the preservation of the stocks of natural capital to assure the continued provisioning of ecosystem services to society like pollination, pest control or cultural services. It can also refer to the decision to make production processes more sustainable to assure future availability of provisioning services like timber, food and water. Next to that, it can also refer to the decision to use natural capital or ecosystem services as part of a nature-based solution that contributes to solve social and economic problems related to e.g. water safety, air quality regulation or natural cooling in urban areas (see European Commission, 2014). All these decisions have similarities, but also differences, due to which there exists no standard recipe yet to assess the value of natural capital and ecosystem services and incorporate it in decision-making processes. In each new natural capital project or policy, a different type of decision is at stake, in a different policy field, and with a focus on different elements of natural capital, on different ecosystem services and on different stakeholders. For that reason, previous lessons on policy processes, policy instruments, procedures or standards cannot always be copied one on one (see e.g. Sitas et al., 2013; Schleyer et al., 2015; Polasky et al., 2015; Hedden-Dunkhorst et al., 2015; Ruckelshaus et al., 2013; Sukhdev et al., 2014). As a result, the advise the different stakeholders get from the natural capital research, sometimes seems to be one big tangle that goes in all directions without a clear line about the policy issues within which a sustainable use of natural capital is promising or the policies governments could focus on. For that reason, it is important to disentangle the different types of policy-making processes in which the value of natural capital can be included, to get a clearer picture about the domains in which its sustainable use has an added value and what this implies in practice, for decision-making processes and policies from governments, businesses and nature organisations to stimulate the sustainable use of natural capital.

In the Netherlands, the discomfort that was felt because of the tangle of decision-making processes led to the Natural Capital Netherlands (NCN) programme in which the question was raised how the value of natural capital can better be included in practice in decision-making processes from governments, businesses and nature organisations (Van Egmond and Ruijs, 2016).² For seven current projects in which the NCN-programme collaborated, it was evaluated for which types of (social) problems, by which stakeholders and in which decision-making processes the value of natural capital plays, or does not play, a role. Moreover, it was assessed how information about natural capital feeds into these processes, how the parties involved created new ways to preserve or make sustainable use of natural capital, which problems they encountered along the way, and what solutions they found.

This paper summarises the main lessons of this programme. It shows that the planning and decision-making processes studied can be clustered into three domains. These domains are called:

1. sustainable entrepreneurship, which deals with companies searching for possibilities to use natural capital sustainably,
2. entrepreneurial nature management, which deals with nature and landscape organisations that are looking for new sources of income and for ways to broaden their support base, and
3. area development, which deals with spatial planning processes that search for ways to make more sustainable use of the natural capital within an area.

The paper, moreover, discusses how the value of natural capital can be made concrete in decision-making processes in the different domains, what problems stakeholders face and what policies authorities can follow to stimulate a sustainable use of natural capital within each domain.

In this paper, first, the approach followed in the Natural Capital Netherlands (NCN) programme is discussed. Next, one by one the three domains are discussed in more detail. Finally, some general lessons are drawn.

2. Natural Capital Netherlands programme: approach

The NCN programme wanted to learn from practice. It was observed in practice that, different stakeholders adopted different interpretations of the value of natural capital, applied different methods to measure it or emphasised different elements of the natural capital. To get grip of this broad range of interpretations and applications, the programme participated in seven ongoing projects that had a window of opportunity to use natural capital differently – see Table 1.³ For each of the projects, it was assessed what kind of value stakeholders attach to natural capital, how this created new opportunities for using natural capital in a more sustainable manner or how the natural capital could help to solve the stakeholders' problems, i.e. what opportunities there were for nature-based solutions. Moreover, it was evaluated which problems the stakeholders encountered along the way, and what solutions they chose.

For all of these projects, three elements were investigated, inspired by the TEEB framework (TEEB, 2010):

1. *How to recognise the ecosystem services involved?* For this, jointly with the stakeholders and considering the problems to be solved, it was first assessed which of the ecosystem services provided by the natural capital are relevant, what is their status and trend, how much is supplied and demanded and by whom. This helped to identify the interests at stake and the potentials for a more sustainable or different use of ecosystem services – either in terms of a use with less impact on natural capital (e.g. sustainable agriculture or reduced impact logging) or in terms of ecosystem services used as nature-based solution for some of the (social) problems at stake (e.g. green dykes for water safety or vegetated field margins for pest management).
2. *How to demonstrate their values?* For this, the importance of the natural capital and the ecosystem services it provides was evaluated. Sometimes quantitatively, sometimes qualitatively; sometimes in financial terms (related to market prices), sometimes in economic terms (related to welfare effects), but sometimes more in terms of physical changes (e.g. changes in biodiversity). Because of the pluralist meaning attached to the term 'valuation' by the stakeholders, the importance of the natural capital was expressed in several ways, depending on the demands from the stakeholders.

² The Natural Capital Netherlands Programme started at the end of 2013 and ended in May 2016. The programme was financially supported by the Ministry of Economic affairs. For more information about the programme see <http://themasites.pbl.nl/natuurlijk-kapitaal-nederland/natural-capital-netherlands>. The programme takes natural capital as a central concept instead of ecosystem services as it was observed that many stakeholders use both terms interchangeably and that natural capital was seen as a less technocratic term that was easier understood by the stakeholders in the case studies. Moreover, the term is used more and more by other stakeholders, the Dutch ministries and the European Commission. In most instances, the context within which the term is used makes clear whether the stock, the flow or both is referred to.

³ In addition to these projects, we also looked at a number of projects of the recent past, in other countries and from neighbouring policy fields with comparable issues, as well as a number of existing policy measures – see Smit et al. (2014), Borgstein and Vijn (2015), Bouma et al. (2015), In 't Veld et al. (2015), Oosterhuis and Ruijs (2015), Van der Heide (2015), Bouma and Koetse (2016), Schuerhoff and Ruijs (2016), Smit and Schuerhoff (2016).

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