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Methodological and Ideological Options

An Empirical Analysis of Institutional Demand for Valuation Knowledge

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ABSTRACT

The ecosystem services literature rests on the premise that an increased understanding of ecosystems, ecosystem services and, in particular, the value of ecosystem services will feed to decision-making. Yet, there is little evidence for the assumed demand and applicability of valuation knowledge in real-life policy and decision-making processes, and the use of such knowledge has received little in-depth analytical attention. Motivated by these observations, we have conducted an empirical analysis of ecosystem service value knowledge use. Our analysis of policy actors' experiences and expectations regarding value knowledge in Finland's peatland policy draws on ten interviews with eleven policy actors. Focusing on the usefulness and uses of valuation knowledge, we analyze the ways in which values are framed and value knowledge is expected to influence the rights to use ecosystem services. Our analysis shows that policy actors expect a better understanding of ecosystem service values to support the consideration of benefits. Yet, what they view as crucial knowledge needs aligns with their sectoral or organizational position as well as the interests they represent. Hence, valuation does not provide a solution to distributional debates or conflicts over rights, but it can have an important function as the provider of background knowledge.

1. Introduction

The ecosystem services literature makes the assumption that, as new knowledge is produced, the increased understanding of ecosystems, ecosystem services and in particular the estimated value of ecosystem services will feed into decision-making (De Groot et al., 2010; Potschin and Haines-Young, 2011). Similarly, research efforts directly targeted at policy are justified with the assumption that insufficient understanding of the value of ecosystem services constitutes a major bottleneck for integrating ecosystem service considerations in decision-making and policy (e.g., MEA, 2005; TEEB, 2010; IPBES, 2016). Yet, there is little evidence for the assumed demand and applicability of valuation knowledge in real-life planning and decision-making processes. Environmental philosopher John O'Neill has provocatively said already in 1997: "Environmental managers manage without prices" (O'Neill, 1997, p. 546). Advocates of ecosystem services valuation should be interested in challenging such claims, but it appears that they have little to draw on. In an extensive review of ecosystem service valuation knowledge use, Laurans et al. (2013) find that only a minimal fraction of analyses of ecosystem service values have paid any attention to operational use of valuation knowledge. This observation has motivated our study.

The expected uses of ecosystem services valuation knowledge include awareness-raising, evaluating the status and trends of ecosystems,

ranking different alternatives for decision-making as well as policy instrument design, litigation and compensation (TEEB, 2010; Gómez-Baggethun and Barton, 2013; Schröter et al., 2014). Echoing these potential uses, Laurans et al. (2013) organize the intended uses of valuation analyses into informative, decisive and technical. The limited detailed empirical analyses of ecosystem knowledge use have, however, shown that the intentions and expectations for the use of valuation knowledge exceed what is observed in practice (Fisher et al., 2008; Laurans et al., 2013). Indeed, decision-makers rarely apply the concept of ecosystem services even if they are aware of it (e.g., Plant and Ryan, 2013; Rinne and Primmer, 2016) and it has even been found that those who have worked with the concept see less applicability than those who lack direct experience with its application (Albert et al., 2014). Recent systematic analyses have shown that settings, in which the ecosystem service assessment has been designed in collaboration with the potential users and users consider the produced knowledge legitimate, are more likely to generate use for the produced ecosystem service and value knowledge (Ruckelshaus et al., 2015; Posner et al., 2016; Dick et al., 2018). Despite the unclear diffusion of knowledge on ecosystem services and their values, decisions on ecosystem services are made every day, based on those knowledge sources and knowledge management practices that decision-makers have readily at hand (Primmer and Furman, 2012; Primmer et al., 2015).

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The literature that is critical of monetary valuation emphasizes the difficulties in measuring and comparing different value dimensions and the problems of placing a price tag on biodiversity. Examples are found in economics and philosophy already in the 1990s (Vatn and Bromley, 1994; O'Neill, 1997; Martínez-Alier et al., 1998). The rise in ecosystem services research has resulted in further criticism against valuation, highlighting incommensurability and problems of commodification (Gómez-Baggethun et al., 2010; Kallis et al., 2013; Schröter et al., 2014; Chaudhary et al., 2015). This criticism draws attention to the difficulty in capturing the complexity of ecosystems (Norgaard, 2010) as well as different assessment or valuation domains, or value plurality (Martín-López et al., 2014; Chan et al., 2016). Value plurality and incommensurability are indeed somewhat related. In both cases, values might reflect goals that cannot be measured on a uni-dimensional scale – even with the smartest analytics – and hence trade-offs cannot be defined on a single utility function. However, while incommensurability means that a common measurement unit does not exist, the notion of value plurality might allow some deliberation or negotiation (Smith, 2003). Such deliberation could reveal that values might be experienced by different beneficiaries or stakeholders in ways that cannot be assessed without addressing the rights of these groups to the ecosystem services (Fisher et al., 2008).

The above criticisms can be read as indications of the need for caution and transparency in developing and interpreting the assumptions, methods and outcomes of valuation. Another recent critique is even more pronounced and confrontational. Renown ecologists have voiced a strong plea against pricing, drawing on a mix of arguments on intrinsic value and the inherent anthropocentric and utilitarian nature of the ecosystem services concept (Morelli and Møller, 2015; Silvertown, 2015). In particular, these ecology-driven papers convey concerns over valuation knowledge being used by decision-makers and influencing practice, however without systematic analysis of the use of this knowledge.

From the critical literature, and from more decision-making and governance oriented analyses we know that value expressions and measurements range from verbal statements of worth to quantitative and single-metric monetary estimates (e.g., Spash, 2007; Kenter et al., 2015; Schulz et al., 2017). They reflect individual preferences and socially construed meanings (Vatn, 2005, 2009), which do not necessarily coincide. Indeed, the values of individual decision-makers have been shown to only partially align with the dominating collective values (Primmer et al., 2017). In practice, decision-makers are likely to hold values shared in their immediate professional context and advocate the interests of their organizations (Oliver, 1991; Scott, 2013). While the ecosystem services literature has addressed organizational interests and values rather sporadically, the ability or inability of valuation to consider public interests and the public good character of ecosystem services has been a major target of analysis – and criticism – in valuation studies (Spash, 2007; Gómez-Baggethun et al., 2010). Whose values are represented in decision-making and who would benefit from valuation is an important consideration when designing applicable valuation studies.

As a response to the criticisms, increasingly integrated approaches to valuation are developed, engaging stakeholders and drawing on the accumulating conceptual work in the area (IPBES, 2016; Jacobs et al., 2016; Pascual et al., 2017). Placing ambitious normative targets on valuation, Kallis et al. (2013) suggest that valuation should harness sensitivity to value plurality and a consideration of ecosystem services as public goods and, further, advance environmental improvements and a more equal distribution of rights to ecosystem services. Although this kind of ambition might seem radical, it goes hand-in-hand with the older consideration of whether valuation knowledge can be used at all (Vatn and Bromley, 1994; O'Neill, 1997). Local inclusiveness of valuation will, however, need to be built on a solid understanding of who the relevant stakeholders are: whose interests should be secured, and whose interests would need to be strengthened?

Against this backdrop, we have designed an empirical study to analyze the demand for value knowledge in a specific policy setting. The context is a Proposal for Supplementing Peatland Protection (Ministry of the Environment, 2015) in Finland, a country where more than a quarter of the land surface is mire or peatland. This carefully designed program followed the Peatland Strategy, preceding a Government Decision-in-Principle (Government of Finland, 2012) that addressed peatland ecosystem services explicitly. The later prepared Peatland Protection Program was tabled by the Minister of the Environment in 2014, and the controversy that followed this political move grew further with the following government's ambitious bioeconomy goals that implied a rise in the use of bioenergy, relying also on peat as a source for fuel (Government Programme, 2015). Finnish peatlands have been shown to produce a range of ecosystem services, which have sustainability thresholds and can be in conflict with peat mining in particular (Kosenius et al., 2014). The inhabitants of peatland-rich areas value the partly incompatible uses in divergent ways, reflecting their interests towards either conservation, or production, of peat and timber (Tolvanen et al., 2013). The actors involved in preparing the Peatland Strategy and the ensuing Peatland Protection Program included relevant ministries, agencies and NGOs representing ecological, economic and social goals, or interests. Our study takes these national level policy actors to represent the potential institutional demand for value knowledge.

We seek to understand the ways in which the actors involved in the policy processes described above have used ecosystem service value knowledge for informative, decisive and technical purposes, and their expectations regarding the use of value knowledge in future planning and decision-making processes. We examine the assumption that lack of ecosystem service value knowledge is a bottleneck for integrating ecosystem services in decision-making and, in particular, pay attention to different societal interests related to ecosystem services.

The qualitative analysis of interview data aims to answer two descriptive questions:

1. How are ecosystem services and their values framed in national peatland policy?
2. What expectations do policy actors place on value knowledge?

Drawing on these, and searching for connections between theory and practice, the analysis aims to answer also an analytical question:

3. In what ways can value knowledge influence the allocation of rights to ecosystem services?

In the following, we describe the decision-making context in which our analysis takes place, and our research design. We then report the interview results and discuss our findings against the ecosystem service and valuation literature, and draw conclusions about the match between valuation analyses and the needs of decision-making.

2. The Ecological and Institutional Context: Peatlands

With peatland and mires representing clearly over a quarter of Finland's land surface, the over 9 million hectares host a range of different land-uses. Two thirds of the peatland area is used for forestry and 0.3 million hectares are in agriculture use. This area is largely drained but the drainage of the least productive forested peatlands will not be maintained in the future (Government of Finland, 2012). Although new draining has almost stopped, the existing ditches generate impacts on surrounding peatlands, and their maintenance continues to influence the water balance, maintaining an altered ecosystem (Nieminen et al., 2017). Half of the peatland habitat types, in particular the fertile ones, are endangered because they have been attractive for conversion (Auvinen et al., 2007; Government of Finland, 2012; Ministry of the Environment, 2015). Current protected areas cover 1.2 million hectares

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