



Perceptions of the ecosystem services concept: Opportunities and challenges in the Swedish municipal context



Thomas Beery^{a,*}, Sanna Stålhammar^b, K. Ingemar Jönsson^a, Christine Wamsler^b,
Torleif Bramryd^c, Ebba Brink^b, Nils Ekelund^d, Michael Johansson^c, Thomas Palo^e,
Per Schubert^d

^a Kristianstad University, School of Education and the Environment, Sweden

^b Lund University, Centre for Sustainability Studies (LUCSUS), Sweden

^c Lund University, Department of Service Management and Service Studies, Sweden

^d Malmö University, Faculty for Education and Society, Sweden

^e Swedish University of Agricultural Science (SLU), Faculty of Forest Sciences, Sweden

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ABSTRACT

A current focus of ecosystem services (ES) implementation is on the municipal level of government where international and national legislation and policies have to be translated into practice. Given this focus, an understanding of perceptions within municipalities of the ES concept is crucial to support the implementation process. Against this background, this paper examines the perceptions of Swedish municipal stakeholders for the ES concept. A 2013 Swedish federal mandate that states that the values of ecosystem services should be considered in relevant decision-making processes, provides a timely context. Current perceptions, preconditions and awareness are explored via interviews and analyses. The results show that the views on the ecosystem services concept and its usefulness are generally very positive. Conceptual knowledge use is perceived as important as is the recognition of monetary valuation of ES. However, clarification of the distinction between implicit and explicit use of the concept by stakeholders is needed. Finally, results indicate that a deeper understanding of monetary valuation of ecosystem services by municipal staff members is connected with a more critical view on monetary valuation. It is concluded that detailed and clear definitions and guidelines are needed in order to support the process of implementing ES in municipalities.

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1. Introduction

The ecosystem services (ES) concept has been proposed as a new conceptual tool for recognizing the dependence of human societies and their development on the natural systems on Earth (MA, 2005). Ultimately, hopes for the ES concept extend to a broadening of the focus upon the fundamental human relationship with nature, a “reconnecting society with the biosphere” (Folke et al., 2011). Given this potential, the ES concept is increasingly being integrated into decision-making and management in a variety of ways by public institutions, private enterprise, and NGOs (Waage and Kester, 2013a, 2013b). For example, ES is being used as a communication tool for policy guidance and priority setting (Guerry et al., 2015; Ruckelshaus et al., 2015; Daily et al., 2009;

Luck et al., 2012) as a conservation tool for designing economic instruments, as a planning tool for urban green space (Hansen et al., 2015; Niemelä et al., 2010), and as an economic tool for assessment of land use change (Arkema et al., 2015; Bateman et al., 2013). In addition to these actions, The Economics of Ecosystems and Biodiversity (TEEB) inspired assessments of ecosystem services are being carried out on national and regional levels in a variety of different countries (Brouwer et al., 2013). These efforts illuminate the expectation for the ES concept to contribute to sustainable societal change. However, while there is great effort, there is no consensus on whether or not the attempts to integrate the concept will live up to its promise of reconnecting society and nature or to what extent the concept will raise awareness for the dependency of human well-being on natural ecosystems (Schröter et al., 2014). In fact, it has been argued that the ES concept is a distraction or diversion from longstanding conservation objectives (Ghazoul, 2007; McCauley, 2006). In addition, it has been shown that the mere uptake of the terminology of ecosystem services is not a sufficient indicator for the application of the concept

* Correspondence to: School of Education and the Environment, Man and Biosphere Health Research Group, Kristianstad University, Elmetorpsvägen 15, 291 88 Kristianstad, Sweden.

E-mail address: thomas.beery@hkr.se (T. Beery).

(Primmer and Furman, 2012), nor an indicator for the intended thematic focus on human–nature relations (Hansen et al., 2015).

A part of the critique of use of the ES concept to guide decision-making is a concern for ambiguity of the concept (Schröter et al., 2014). Nahlik et al. (2012) note that an inconsistency of terms and definitions interfere with application of the ES concept and argue that ES has become a catch-all phrase used to communicate a range of ecosystem functions, properties, and benefits. In response to this concern, Nahlik et al. (2012) identify a process by which the ES concepts moves from conceptual understanding to practical implementation. Key steps and feedback loops inform the process and create a progression, from definition to classification system to framework to implementation (Nahlik et al., 2012). The need for clarity in regard to conceptual vs. practical application of ES is an important aspect of this study.

1.1. Ecosystem service knowledge use

The utilization of ES knowledge in different knowledge use modes, namely conceptual, strategic, and instrumental, has been described by McKenzie et al. (2014) and Bremer et al. (2015). Dunlop (2014) notes that knowledge utilization as a research field dates back at least forty years and is mainly informed by the work of Weiss (1979). One way that knowledge utilization is researched is through organizing it around different understanding of the term ‘use’, and a typology of ES use may serve the effort to better understand the awareness and perception shaping the potential ES concept uptake by. These three different modes of ES knowledge utilization provide insight into stakeholder awareness and perception. McKenzie et al. (2014) provides the following descriptions and examples of conceptual, strategic and instrumental knowledge use:

- Conceptual knowledge use is defined as an iterative process of learning that “...broadens and deepens understanding, shapes thinking, and enables people to develop new beliefs and values” (p. 2). For example, the process of learning about climate change and subsequently developing values related to climate change via ecosystem-based adaptation strategies.
- Strategic knowledge use is defined as use “...to support and promote a specific intervention or policy option, or justify previously held beliefs and values” (p. 2). For example, the integration of ES into comprehensive planning in order to demonstrate environmental consequences and municipal and/or national interests and goals.
- Instrumental knowledge use is defined as knowledge flowing from “...scientists to rational decision makers who make observable decisions on technical grounds” (p. 2). For example, use of GIS technology to provide spatial data of ES for specific planning efforts.

McKenzie et al. (2014) argue that there must be a commitment to understand the “...realities of how, when, by whom, and under what conditions knowledge is used” (p. 17). This categorization provides a structure to think about how the ES concept may be communicated and ultimately better understood by various stakeholders that apply ES-related information in real decision making contexts as well as by society in general.

1.2. Ecosystem services in Swedish municipal planning

In the current Swedish environmental policy system, a set of environmental quality objectives and connected interim goals, called “milestone targets”, play an important role (SEPA, 2015). One of the milestone targets (established in 2012) relates to the implementation of ecosystem services and recognition of the

importance of biodiversity and the values of ecosystem services. The target states that: “by 2018, the importance of biodiversity and the value of ecosystem services are to be generally known and integrated into economic positions, political considerations and other decisions in society where it is relevant and reasonable to do” (SEPA, 2015). The Swedish municipalities will play a central role in this process of ES integration and their efforts are considered essential for achieving the national environmental quality objectives, since they have the major responsibility for decisions related to spatial planning and decisions on land-use. A Swedish Government Official Report (Schultz et al. 2013) suggested that obstacles to connect research on ecosystem services to work in municipalities, government agencies and businesses need to be addressed and analyzed. An investigation of awareness and perception of the ES concept is useful for further defining obstacles in connecting ecosystem services research to practice on the municipal level because it gives insight into how the concept will be applied and what measures need to be taken in order to raise stakeholder awareness. Furthermore, Hansen et al. (2015) argue that the adoption of normative foundations of the ES concept in policies and planning is crucial if the ES concept aims to reconnect humans with urban nature and the sustainable use of natural resources. It is, as Niemelä et al. (2010) notes, with regard to potential opposition towards the normative foundations of the concept such as the anthropocentric and monetary aspects, important to understand how the ES concept is perceived before it can be implemented on the municipal level.

In this paper we report the results from a study using semi-structured interviews investigating municipal stakeholders’ awareness and perceptions of the ES concept and judge its usefulness. Interviews covered a broad range of questions spanning the usefulness of the concept, impressions of the Swedish interim goal of ES implementation, and potential for the concept to modify processes and outputs into the future (see Appendix A for a list of the questions). The aim is to better understand the foundation for the integration of the ES concept into municipal planning and decision-making.

2. Methods

2.1. Study area

Seven coastal municipalities in Scania, the southernmost cultural and administrative region of Sweden, make up the geographic region included in this study: Båstad, Kristianstad, Helsingborg, Lomma, Malmö, Simrishamn, and Trelleborg. This region is interesting from the perspective of ecosystem services as it is characterized by coastal socio-ecological processes appearing nationally in Sweden and worldwide: including growing urbanization, nutrient flows from land to the sea, and increased threats to coastal zones from rising sea levels (Centre for Climate Adaptation, 2015; HELCOM, 2009; Larson and Hanson, 2013; Rauhut, 2008). The seven municipalities included in the study were not specifically chosen but rather volunteered based on expressed interest of participation in the project originating from a preceding effort. The earlier process, sponsored by the Scanian Association of Local Authorities (SALA), had a purpose of encouraging cooperation and collaboration between universities and municipalities around environmental and societal development.

2.2. Interviews

A total of 36 individual municipal stakeholders were interviewed. Purposeful and chain sampling were used to select these participants, i.e. a broad range of municipal civil servants and

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