Ecosystem Services 27 (2017) 82–91

Contents lists available at ScienceDirect

Ecosystem Services

journal homepage: www.elsevier.com/locate/ecoser

Governance services: Co-producing human well-being with ecosystem services

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ARTICLE INFO

Article history:
Received 10 February 2017
Received in revised form 17 July 2017
Accepted 11 August 2017
Available online 29 August 2017

1. Introduction

1.1. Gap in ecosystem service assessment frameworks?

Ecosystem services (ES) can be defined as intermediate and connecting links between an ecosystem's biophysical structures and processes on the one hand, and human benefits and values on the other (Potschin and Haines-Young, 2011). ES are commonly divided into three classes: 1) provisioning (e.g. timber and crops), 2) cultural (e.g. natural attractions) and 3) regulation and maintenance (e.g. pollination; flood control) services (Santos-Martín et al., 2013; CICES, 2013). The ES underpin human well-being (MA, 2005; Haines-Young and Potschin, 2010; Sandifer et al., 2015). Flows of ES from stocks of natural capital have been seen as crucial contributions to human well-being (e.g. TEEB, 2013). The literature has also highlighted the dependency of economic growth and resulting well-being on ES and biodiversity (e.g. Guo et al., 2010). Frameworks for global ecosystem service assessments by Millennium Ecosystem Assessment (MA, 2005), its update (Carpenter et al., 2009), and the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES, 2016; Díaz et al., 2015) have identified previously unrecognized ways through which environmental governance indirectly affects human well-being by (re)organizing interactions between ecosystems, ecosystem services, and people (see Liu et al., 2007; Raymond et al., 2013).

However, Jones et al. (2016: 152) have argued that 'Most ES frameworks illustrate a linear-cyclic view where the environment provides a range of ecosystem services, from which humans obtain goods or benefits to which a value can be attached'. Examples of such ES frameworks include those presented in MA (2005), TEEB (2010), Maes et al. (2013), and Martín-López et al. (2014). Linear-cyclic view leads to partial understanding of the complexity of interactions between ecosystems, ES, human behaviour, governance, and human well-being. In particular, it seems that the ES assessment frameworks do not clearly recognize the direct feedback from governance to human well-being. For example, the IPBES framework identifies a weak link between governance and human well-being via anthropogenic assets (e.g. infrastructure, health facilities, knowledge, technology, & financial assets) (Díaz et al., 2015). The updated MA framework draws a two-directional arrow between governance and local well-being, but does not elaborate on the direct impact (Carpenter et al., 2009). This same gap is also represented in the IPBES generic scoping report for regional and subregional assessments (Deliverable 2b). Here again the role of governance for human well-being is seen to take place only indirectly via ecosystem services: 'What are the actual and potential impacts of various policies and interventions on the contribution of biodiversity, ecosystem functions and ecosystem services to the sustainability of the economy, livelihoods, food security and good quality of life in the regions?' (IPBES/3/18, Annex III). The forthcoming global IPBES assessment will be built on the regional assessments. Interestingly, the above-mentioned gap is manifested in the research questions that the global assessment is aiming to examine. For example, it will assess 'How do biodiversity, ecosystem functioning and ecosystem services contribute to the implementation of the Sustainable Development Goals?' (IPBES/4/8, 2015). The direct role of governance for development goals including human well-being, are not recognized.

The reason the ES assessment frameworks (MA, 2005; Carpenter et al., 2009; Díaz et al., 2015) seem to be biased away from recognising the direct impacts of governance on well-being might be because the concept of ES is developed, used and promoted mainly by natural scientists. For example, the people engaged with the IPBES platform are mostly natural scientists (Reuter et al., 2016), and there is a recognized need to engage more social scientists, including sociologists, in IPBES work (Heffernan,

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http://dx.doi.org/10.1016/j.ecoser.2017.08.003
2212-0416/

2016; Larigauderie et al., 2016; Vadrot et al., 2016). Perhaps as a result of this, IPBES has been viewed as an *'epistemic selective'*, privileging particular knowledge over others (Brand and Vadrot, 2013).

Recent literature has aimed to balance natural science and ecological economics -oriented ES discussion with an increased focus on social aspects in ES production by recognizing that ES flows are an integrated result of coupled social-ecological systems and natural and human capital (Tallis et al., 2012; Jones et al., 2016). Ecosystem services *'are usually co-produced by humans using societal institutions and nature's components and processes'* (Spangenberg et al., 2015: 202). This realization has led to an open question in the ES literature about the point at which to assess the role of people and human systems in the ES cascade (the flow from the ecosystem's biophysical structures and processes to human benefits and values via ecosystem services) (Primmer et al., 2015; Jones et al., 2016). The key theoretical novelty in the present paper is to move the focus from co-production of ES by natural and social systems (Burkhard et al., 2014; Remme et al., 2014) to co-production of benefits for human well-being by ES and environmental governance. The approach in this paper aims not to replace the role of natural capital as a basis for human well-being, but to promote the idea that environmental governance instruments (Lemos and Agrawal, 2006; Wurzel et al., 2013) also have important roles that contribute directly, not only via ES, to human well-being. Exploring co-production of human well-being by ES and governance helps to produce *'an integrated understanding of how social and ecological systems are interlinked and shape each other'* to enhance human well-being (Mann et al., 2015: 278).

1.2. Governance of ecosystem services and human well-being

'Environmental [or ES] governance refers to the set of regulatory processes, mechanisms and organisations through which political actors influence environmental actions and outcomes' (Lemos and Agrawal, 2006: 298). Governance involves multiple actors, levels, and rationalities, and is concretised in instruments that structure the interaction processes by defining how ES are used and how human behaviour is regulated and incentivised (Primmer et al., 2013; Loft et al., 2015). The governance instruments are positioned under and diverge across four governance arenas: policy, markets, civil society (Lemos and Agrawal, 2006; Wurzel et al., 2013), and science and knowledge production (Miller, 2001; Pohl, 2008; Gulbrandsen, 2008; Görg et al., 2016). Furthermore, governance instruments often do not act in isolation, but form alleged policy mixes, where many instruments simultaneously affect certain areas and ES (Primmer et al., 2015), creating hybrids between multiple governance actors and instruments (Ménard, 2012).

To take into account co-production of human well-being by governance and ES, I introduce the concept of governance services, which is a novel concept in the environmental governance and ES literature. The introduction of the concept of governance services can lead to important contributions, relevant when enhancing connections between science and policy (e.g. at the interfaces such as IPBES) along with questions on the status and quality of ecosystem services, the social-ecological responses they trigger, and the emerging feedback loops (Loft et al., 2015). To back up the concept of governance services I use the emerging literature on ES governance (e.g. Spangenberg et al., 2014; Loft et al., 2015; Mann et al., 2015; Primmer et al., 2015), which is complemented with some work on environmental governance (e.g. Lemos and Agrawal, 2006; Wurzel et al., 2013). I define governance services in line with the logic of the ES cascade (Potschin and Haines-Young, 2011): governance services are intermediary links derived from governance instruments consisting of structures and processes that have benefits and values for people, thus enhancing well-being. Governance services is a novel concept in interdisciplinary environmental studies, but has been used by businesses relating to corporate governance advisory services helping companies in their institutionalization processes, including relationship building, conflict resolution and managing the operations of the company (Deloitte, 2017). In this paper I develop the governance services concept basing on literatures on environmental and ES governance, and therefore there is no connection to corporate governance services.

A wide and holistic conceptualisation of human well-being that goes beyond simple human health or the material basis for life provides leeway to holistically consider the role of governance services to promote well-being. Human well-being as understood in the present paper consists of a material basis for a good life; social relations; happiness; living in harmony with nature; freedom of choice; capacity to act; ability for self-determination; health; security; belonging; and a sense of being respected (Maslow, 1943; MA, 2005; Kofinas and Chapin, 2009; Pascual et al., 2014; Wu, 2013; Díaz et al., 2015). Four kinds of governance services corresponding to the four governance arenas are proposed in the present paper: 1) formal recognition of property rights (policies), 2) incentives (markets), 3) participation (civil society) and 4) learning (science and knowledge production). Each governance service has diverse benefits for people and co-produce human well-being in orchestration with ecosystem services.

1.3. Objectives and roadmap

The objectives of this paper are to introduce the concept of governance services, explore how ecosystem services and governance services co-produce human well-being, and to briefly discuss how an acknowledgement of such co-production can inform ES assessment frameworks. The added value of the present paper is that it brings into light the direct contribution of governance of ES to human well-being that has remained unacknowledged for example by many ES assessment frameworks.

This paper begins by proposing a governance service cascade framework starting from governance instruments with structures and processes that are embedded in and between the four governance arenas, and which form a basis for governance services. Even though each governance arena provides a distinct governance service there are also overlaps across governance services; however, the simplification is justified by the need to establish a clear picture of what the governance services are, how they are created, and how they interact with ES. The benefits of governance services for well-being and their values for stakeholders are also considered in the proposed governance service cascade. In Section 3 the co-production of human well-being by ecosystem services and governance services is explored. I also propose an analytical framework for understanding direct and indirect (via ES) contributions of governance to human well-being. Section 3 also outlines a set of examples where certain governance instruments form a basis for governance services and affect the delivery of ecosystem services, while having implications for human well-being. Section 4 concludes the paper with some suggestions for how the presented approach could complement ES assessment frameworks.

2. Governance services cascade

The ecosystem services cascade framework (Potschin and Haines-Young, 2011; Haines-Young and Potschin, 2010) has gained a footing in the ES literature, and is much cited and applied. Here a related governance service cascade is proposed (Fig. 1). The idea of a governance service cascade is built on Spangenberg et al. (2014), who point out that the ES cascade can be utilised better in planning