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## **Ecosystem Services Governance: Multi-actors, multi-levels, multi-rationalities**

Lasse Loft <sup>\*1</sup>, Carsten Mann <sup>2</sup>, Bernd Hansjürgens <sup>3</sup>

<sup>1</sup> Biodiversity and Climate Research Centre, Senckenberg Gesellschaft für Naturforschung, Frankfurt, Germany. \*Corresponding author: email: [lasse.loft@senckenberg.de](mailto:lasse.loft@senckenberg.de),

<sup>2</sup> Zentrum Technik und Gesellschaft, Technische Universität Berlin, Germany

<sup>3</sup> Helmholtz Centre for Environmental Research (UFZ), Leipzig, Germany

### **Abstract**

The conservation of biodiversity and the sustainable provision of ecosystem services (ES) demands policy innovations. The mainstreaming of the concepts of biodiversity and moreover of ES has resulted in a paradigm shift in its ethical and political foundations, from conserving nature for its intrinsic value to an emphasis on anthropocentric values (Jax et al. 2013). This paradigm shift has also resulted in changes in the governance of natural resources over the past two decades. A trend has been the increasing inclusion of multiple actors in a shift from more traditional state-centered governance to include civil society and private sector actors and coordination mechanisms in 'new governance'. New policy instruments, such as the creation of markets for ES, payments for ES or community based governance approaches, have gained increasing political importance as a means to secure the provision of these services and ameliorate problems ranging from biodiversity and habitat loss to climate change (Adger et al. 2003; Scherr et al. 2004). However, governance of ES and policy instruments in particular face various challenges with regards to the effectiveness and equity, which is rooted in the specificities of ES and biodiversity.

This introductory paper focuses on the identification of key challenges for the governance of ES and the underlying specificities of ES and biodiversity as a basis for further reflections on appropriate solutions. In a series of three scientific expert workshops carried out in 2013-2014, we have identified five key challenges to ES governance: 1) the (re)definition of property rights to ES, 2) the involvement of stakeholders at multiple governance level, from local to global, and 3) from different policy sectors; 4) the representation of different value systems, and 5) a lack of scientific knowledge on cause effect relations between ecosystem processes, functions, services and human well-being, responses and feedbacks.

Analysis of the economic characteristics of ES shows that most of them can be qualified as common pool resources or public goods (e.g. Ostrom et al. 1999, Kemkes et al. 2010). As a result the economic value of those goods and services has not been taken into account for a long time or was perceived as a freely available good or service (Vatn 2011). In case property rights to a good or service are poorly defined or missing a common approach in environmental economics to counter the resulting market failure is the definition and (re)allocation of property rights (Engel et al. 2008, Coase 1960). The bundle of property rights, including use rights to different ES have traditionally been tied to land rights mostly (Wolfrum 2001). In the case of ES there have been efforts of splitting up the rights contained in land use rights, as for example defining rights to carbon sequestered and stored by forests or genetic resources of plants (Loft et al. forthcoming). However, the definition of property rights is a value judgment by society, and these value judgments are subject to change (Meyer et al. 2014).

Further, biodiversity and ES are usually managed at a local ecosystem levels. However, the benefits they provide occur at multiple levels from local to global (Farley and Costanza 2010, Fisher et al. 2009). The governance of ES therefore faces the challenge of balancing the interests of multiple actors at multiple scales and levels. This calls for forms of multilevel governance that provide legitimate processes for negotiating and balancing interests between globally scattered beneficiaries of ES and local level ES providers (Nagendra and Ostrom 2012). These negotiation processes are further complicated by differences of ecological and administrative scales and responsibilities as different ES are created through biological processes that do not respect sectoral boundaries, as for example the renaturation of riparian forests may touch upon the nature conservation, forestry and agriculture sector. In this case traditional sectoral governance poses boundaries for more holistic multiple sector solution.

Governing ES gets further complicated as involved stakeholders may base their judgment about the use and conservation of ES and biodiversity on different value systems. This can, for example be observed in ongoing negotiations on the implementation of a REDD+ mechanism under the UNFCCC. While, for example, in northern America a pragmatic utilitarian perception of nature guides many decisions, in southern America the intrinsic value of nature plays an important role. As such it has made its way for example explicitly in the Constitution of Ecuador and the Law of the Rights of Mother Earth in Bolivia. Hence, governance of ES and biodiversity faces the challenge of taking multiple value (systems) into account, for negotiation and finding trade-offs.

Lastly, even though knowledge on the linkages between ecological processes, ecosystem functions and the provision of ES is mounting. There still is a major gap in scientific evidence on how these exactly link, and how they translate into human wellbeing, what responses they trigger and to which feedback loops they may lead.

This diversity of institutions, actors, levels and scales, and values needs to be integrated in a management of multiple ES. It requires governance systems that accommodate this complexity (Nagendra and Ostrom, 2012). Given these challenges to ES governance, we conclude that a relevant aspect effecting the outcomes and impacts of governance of ES has not been sufficiently taken into account to date. That is the political negotiation processes leading up to the choice, design, and implementation of policy instruments and the mixes thereof. Thus, it is important to establish participatory and adaptive processes that include relevant stakeholders' judgments and perceptions.

[Words: 902]

## **Summary**

The mainstreaming of the concepts of biodiversity and moreover of ES has resulted in a paradigm shift in its ethical and political foundations, from conserving nature for its inherent/intrinsic value to an emphasis on anthropocentric values. This paradigm shift has also resulted in changes in the governance of natural resources over the past two decades. A trend in governance has been the increasing inclusion of multiple actors in a shift from more traditional state-centered governance to include civil society and private sector actors in 'new governance'. However this new governance faces various challenges, rooted in the specificities of ES and biodiversity, like the lack of defined property rights, participation, multi-level and sectoral approaches, in transparent value judgments and knowledge gaps. This introductory paper focuses on the identification of the key challenges for ES governance and calls for improvement in the understanding of policy processes.

[Words: 144]

**Keywords:** Ecosystem services, specificities, governance, challenges

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