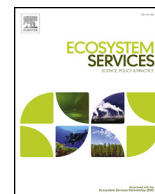




ELSEVIER

Contents lists available at ScienceDirect

Ecosystem Services

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

Identifying governance challenges in ecosystem services management – Conceptual considerations and comparison of global forest cases



Thomas Falk^{a,*}, Joachim H. Spangenberg^{b,c}, Marianna Siegmund-Schultze^{d,e}, Susanne Kobbe^f, Til Feike^g, Daniel Kuebler^h, Josef Settele^{b,i,j}, Tobias Vorlaufer^k

^a International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), Innovation Systems for the Drylands Program, Bld. 212, 502324 Patancheru, Telangana, India

^b Helmholtz Centre for Environment Research – UFZ, Dept. Community Ecology, Halle/Saale, Germany

^c Sustainable Europe Research Institute SERI Germany, Cologne, Germany

^d Technische Universität Berlin, Environmental Assessment and Planning Research, Germany

^e Federal University of Pernambuco, Recife, Brazil

^f Department of Animal Ecology and Conservation, University of Hamburg, Biocentre Grindel, Hamburg, Germany

^g Julius Kühn-Institut (JKI) Federal Research Centre for Cultivated Plants, Institute for Strategies and Technology Assessment, Kleinmachnow, Germany

^h Institute for World Forestry, University of Hamburg, Hamburg, Germany

ⁱ German Centre for Integrative Biodiversity Research (iDiv), Halle-Jena-Leipzig, Leipzig, Germany

^j Institute of Biological Sciences, College of Arts and Sciences, University of the Philippines Los Baños, College, Laguna 4031, Philippines

^k University of Marburg, Chair of Development and Cooperative Economics, Marburg Centre for Institutional Economics (MACIE), Germany

ARTICLE INFO

Keywords:

Social-ecological systems

Action situations

Institutional fit

Forest ecosystems

Case comparison

Online diagnostic tool

ABSTRACT

Ecosystems around the world generate a wide range of services. Often, there are trade-offs in ecosystem service provision. Managing such trade-offs requires governance of interdependent action situations. We distinguished between (1) enhancing action situations where beneficiaries create, maintain, or improve an ESS and (2) appropriation action situations where actors subtract from a flow of ESS. We classified ESSs in order to identify focal action situations and link them to ESS governance types which are likely to strengthen sustainable ecosystem management. The classification is applied to six forest cases in Asia, Africa and Latin America.

Our results confirm that ecosystem management, which more strongly supports the provision of public goods and common pool resources, is often under strong pressure to be transformed into systems that mainly provide private goods. This can be partly explained by incentive constellations in the action situations of public goods and common pool resources. Therefore, governance has to be adapted to specific ESSs. ESS governance needs to identify institutions which best fit to different ESSs and to harmonize them for all the ESSs provided by the system. Our approach helps to understand why institutions fail or succeed in maintaining ESSs.

1. Introduction

Beneficiaries at local, regional and global scales enjoy provisioning, cultural, regulating, and supporting ecosystem services (ESSs) as aspects of ecosystems that are utilized to produce human well-being (MEA, 2005, Fisher et al., 2009, Raudsepp-Hearne et al., 2010). In particular, poor, rural households depend on provisioning ESSs such as food, fuel, grazing biomass, timber, and medicine. In addition, the poor are the most vulnerable to ecosystem disservices such as pest infestation or flooding and to ecosystem losses such as diminishing forest resources. The social-ecological interactions relevant to the governance of ESSs are, however, not yet sufficiently understood (Reyers et al., 2013,

Ban et al., 2015, Cook et al., 2016). Finding ways of managing ecosystems that strike a balance between enhancing the provisioning of ESSs while limiting losses is still an unresolved challenge.

Alternative management and governance choices at various scales lead to different combinations of actual and potential ESSs. Often, there are trade-offs where optimizing one ESS results in gains and losses of other ESSs (Tallis et al., 2008, Howe et al., 2014, Ban et al., 2015). Decisions favouring the provision of bundles of ESSs with lower societal welfare value at the expense of bundles of ESSs with higher value result from (i) insufficient knowledge about ESS values and interactions (Rodríguez et al., 2006, Costanza et al., 2017) and/or (ii) diverging interests, with some people not having full control over the costs they

* Corresponding author.

E-mail address: t.falk@cgiar.org (T. Falk).

<https://doi.org/10.1016/j.ecoser.2018.07.012>

Received 11 January 2018; Received in revised form 18 July 2018; Accepted 28 July 2018

2212-0416/ © 2018 Published by Elsevier B.V.

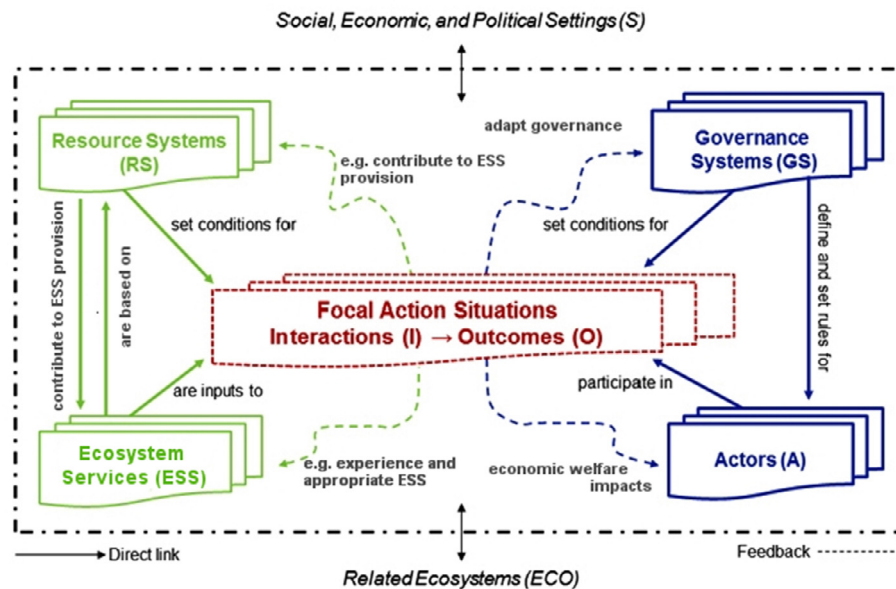


Fig. 1. SES framework with ESS link. Based on McGinnis & Ostrom (2014).

experience from other people's actions or of people enjoying benefits but not contributing to their creation (Ostrom, 1990). The latter challenge creates incentives for short-sighted individual actions at the expense of society's welfare. Avoiding such suboptimal actions requires appropriate governance responses. Whether and which problematic incentive situations occur depends on features of the ESS. Equally, which governance responses are most promising to improve decisions also depends on features of the ESS. Our first contribution to the ESS governance discussion is the classification of ESSs in order to link them to ESS governance types which are likely to strengthen their sustainable management.

Natural resource governance studies often focus on a single resource used by rather homogeneous groups of people (Howe et al., 2014). ESS research teaches us, however, that ecosystems provide multiple opportunities for generating a broad range of benefits to people (e.g., OECD, 2003, MEA, 2005, Maynard et al., 2015, IPBES, 2015, Barnaud et al., 2018). There are both competing and complementary ESS bundles, which affect different stakeholder interests (Raudsepp-Hearne et al., 2010, Maynard et al., 2015). Our second contribution to the ESS governance discussion is to create awareness about the fact that ecosystem governance must simultaneously address different types of ESSs which require different governance responses. As a result, ecosystem governance is typically a mixture of different types of interacting institutions.

Our analyses contribute to a better understanding of why institutions fail or succeed in maintaining ESSs (Carpenter et al., 2009). It enriches the ESS discourse by illustrating the linkages of ESSs with human agency and governance and contributes to the understanding of making the ESS concept operational for policy makers and the sustainability science community (Ruckelshaus et al., 2015, Costanza et al., 2017, Barnaud et al., 2018). This paper is driven by the motivation to guide policy makers and the sustainability science community in the process of identifying sustainable ecosystem governance frameworks. Our study addresses, however, issues of stakeholders beyond this target group. Stakeholders are defined as all those that affect or are affected by the ESS governance and management. They encompass individuals, groups, and organizations.

We will first present the conceptual background of our approach before applying it to cases in Asia, Africa and Latin America, with forests as the example land-use type. This will demonstrate the potential for the approach to support comparative studies.

2. Analytical framework and its justification

To disentangle the governance challenges related to ESSs, we distinguish action situations (AS) related to ecosystem management understood as social spaces where people and organisations interact with each other in relation to ecosystems and ESSs (Ostrom, 2009). Natural resource governance research distinguishes between provisioning and appropriation ASs (Hinkel et al., 2015, Costanza et al., 2017). In the ESS context, we slightly refine them and differentiate between (1) enhancing ASs, where people support the creation, maintenance, improvement, or degradation of ESSs through investments, management or restoration, and (2) appropriation ASs, where people subtract from available ESSs. Each ESS has its own ASs and the interplay of enhancing and appropriating ASs of all ESSs in the system needs to be governed. We understand ecosystem governance as the combined societal processes organising the appropriation and enhancing ASs of all ESSs in a specific social-ecological system (inspired by Ostrom, 2009, Woodhill, 2010, Loft et al., 2015). Governance concretizes in institutions understood as formal and informal norms, rules, and laws (Loft et al., 2015, McGinnis and Ostrom, 2014).

ESS governance is effective when the interplay of its institutions understood as norms, rules, and laws successfully organises the societal processes to support the production of desired outcomes (Cole et al., 2014, Barnaud et al., 2018). To be effective, governance needs to be adapted to the social-ecological system (SES) context (Ostrom, 2007, Mann et al., 2015). No governance regime is intrinsically superior to the other (Williamson, 2000, Ostrom, 2007, Woodhill, 2010). Instead, institutions need to fit to the context (Fisher et al., 2009). For ESS governance this means that the characteristics of ESS affect the likelihood of different types of institutions to produce outcomes. We call the combination of ESS and institution which most likely produces desired management outcomes the institutional fit of the ESS (Cox, 2012, Loft et al., 2015). The ESS-specific institutions organising the enhancing and appropriating ASs of all co-produced ESSs in a specific social-ecological system build an interconnected bundle of norms, rules and laws.

We refer to the SES framework (Ostrom, 2007, 2009, McGinnis & Ostrom, 2014, Fig. 1) as an attempt to capture the complexity of social-ecological systems. We believe that a focal link between the ESS and SES thinking are the Resource Units in the SES framework. To highlight this link, we replaced in Fig. 1 McGinnis' and Ostrom's (2014) Resource Units by Ecosystem Services. Making this adaptation requires to

Download English Version:

<https://daneshyari.com/en/article/6556232>

Download Persian Version:

<https://daneshyari.com/article/6556232>

[Daneshyari.com](https://daneshyari.com)