A framework for integrating systematic stakeholder analysis in ecosystem services research: Stakeholder mapping for forest ecosystem services in the UK

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ABSTRACT

The concept of ecosystem services offers a useful framework for the systematic assessment of the multiple benefits ecosystems deliver. However, the anthropogenic focus of the concept also requires a detailed understanding of the stakeholders interested in the goods and services ecosystems provide. Indeed, linking ecosystem services to stakeholders and systematically mapping their potential stakes in these is essential for effective, equitable and sustainable ecosystem governance and management because it specifies who is in the system and why. This paper endeavours to provide a better appreciation of systematic stakeholder analysis in ecosystem services research by, first, presenting an illustrative stakeholder analysis example, using a key natural resource in relation to ecosystem services: forests in the UK. In this exploratory study, a qualitative approach was adopted, using a literature review and interviews to identify the stakeholders with a stake in the provisioning, regulating and cultural ecosystem services of forests, to distinguish their characteristics, and to examine their relationships towards each other on different levels. The illustrative example then informed the design of a conceptual framework for the systematic application of stakeholder analysis in ecosystem services research. The comprehensive framework consists of a three-phase model entailing the planning phase, the execution of the actual stakeholder analysis phase, and, finally the subsequent actions. The framework incorporates stakeholders and ecosystem services on a geographical, institutional and ecosystem level. Systematic stakeholder analysis can be used to develop future activities linked to ecosystem services, including new policy or instruments, stakeholder engagement activities, and decision-making processes.

1. Introduction

Since the publication of the Millennium Ecosystem Assessment in 2005 (MA, 2005), the ecosystem services concept has become popular amongst academics, policy-makers, and practitioners (Seppelt et al., 2011, La Notte et al., 2017). The increasing use of ecosystem services thinking, however, requires not only the assessment of the goods and services different ecosystems provide, but also a detailed understanding of those who have a stake in such services and why. Until recently, most empirical ecosystem services research has focused either on the identification (e.g. Harrison et al., 2010, Vlami et al., 2017), mapping (e.g. Egoh et al., 2008, Kandziora et al., 2013), assessment (e.g. MA, 2005, NEA, 2011), or quantification or valuation of ecosystem services (e.g. Hein et al., 2006, Liv and Opdam, 2014). Those who did include stakeholders in their work tended to do this in a more general, unsystematic way, and mostly on a regional or local case study level (e.g. Bagstad et al., 2014, Garrido et al., 2017). However, in many cases, stakeholder interests in ecosystem services tend to intersect local, national and international levels. In the past, many efforts at governing and managing ecosystems and the goods and services they provide sustainably have been unsuccessful because the various stakeholders involved and their perspectives and potentially conflicting interests have not been given sufficient attention (Grimble et al., 1994). The governance, management, and use of ecosystem services involve a wide range of stakeholders with distinctly different but frequently interrelated stakes, which need to be taken into account as they may be fundamental.

Stakeholder analysis enables the systematic identification of these stakeholders, the assessment and comparison of their particular sets of interests, roles and powers, and the consideration and investigation of the relationships between them, including alliances, collaborations, and inherent conflicts. It examines "who these interested parties are, who has the power to influence what

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happens, how these parties interact and, based on this information, how they might be able to work more effectively together" (Reed et al., 2009, p. 1947) to address environmental and/or natural resource management issues. Indeed, linking ecosystem services to stakeholders and systematically mapping their potential stakes in these will be essential for equitable and sustainable ecosystem governance and management. The findings of systematic stakeholder analysis can be used to recommend or develop future actions, such as new policies or policy instruments for ecosystem services or stakeholder engagement strategies. It can also aid land use planning linked to ecosystem services or support the design of communication tools for their management. Thus, I argue that making explicit the linkages between different stakeholders and their stakes in ecosystems and the various goods and services they provide, should be one of the main purposes of an ecosystem services framework. The increasing use of ecosystem services thinking requires a thorough understanding of the various stakeholders involved in ecosystem services, making a more systematic use of stakeholder analysis necessary.

2. Background

Systematic stakeholder mapping or analysis (hereafter used synonymously) is a particularly useful approach to assess the stakes of various interested parties in a system in more detail (Grimble et al., 1994). In recent years, this type of analysis has become increasingly popular in various fields and academic disciplines, including environmental management and governance, and is now regularly used by businesses, regulators, policy-makers and international organisations (Friedman and Miles, 2006, Reed et al., 2009). Its roots are in management theory and in political science, where it has evolved into a systematic tool with clearly defined applications and methods (Brugha and Varvasovszky, 2000). Stakeholder analysis can be seen "as a holistic approach or procedure for gaining an understanding of a system" and changes in it, "by means of identifying the key actors or stakeholders and assessing their respective interests in the system" (Grimble and Wellard, 1997, p. 175). Freeman (1984) initially distinguished stakeholders in a business context as "any group or individual who can affect or is affected by the achievement of an organisation's objectives" (p. 46). In a natural resource management context, Grimble et al. (1995) defines stakeholders as "all those who affect, and/or are affected by, the policies, decisions, and actions of the system" (p. 3). They can be individuals, or "any group of people, organised or unorganised, who share a common interest or stake in a particular issue or system" (Grimble and Wellard, 1997, p. 175). Stakeholder interests often tend to cut across political administrative, social and economic units at international, national, regional and local levels and are likely to include governmental departments, commercial bodies, national and international planners, professional advisers, communities, and individuals (Grimble and Quan, 1993). Stakeholder analysis enables the systematic assessment and comparison of their particular sets of interests, influences and roles, and the examination of relationships between them (Reed et al., 2009).

In natural resource management, stakeholder analysis represented a particularly valuable tool since it typically involves a wide range of stakeholders, using the same resource for different purposes (Reed et al., 2009). Initially, stakeholder analysis within natural resource management has mainly been used in developing countries (e.g. De Lopez, 2001, Mitchell, 1990, Grimble et al., 1995). There, the emphasis has largely been on participation and conflict resolution (IUCN and Lewis, 1995), following a more general trend towards the development of normative participatory approaches in resource management (Mitchell, 1990, De Lopez,

2001). Crucially, many past efforts at managing the environment and natural resources sensitively have failed because the various stakeholders involved and their potentially conflicting interests and perspectives have been given inadequate consideration by national policy-makers and regional or local planners (Grimble et al., 1994). This has frequently led to local resistance of policies and/or projects which then became unsuccessful (Grimble et al., 1994). Hence, it is essential to understand the different perspectives of the various actors involved and to specify who has an interest in the resource base and the goods and services it provides, to what level, and why (Reed et al., 2009). One of the earliest works on stakeholder analysis in a natural resource management context has been published by Grimble et al. (1994); it focuses on tree resources and environmental policy in Cameroon and Thailand. The article introduces a classification system which categorises broad stakeholder groups along a continuum from the micro to macro level. In more recent years, stakeholder analysis has become firmly established as a core component of natural resource management (Reed et al., 2009). A number of approaches have been used in different sectors, such as forestry (e.g. Sandström et al., 2016), marine planning (e.g. Maguire et al., 2012), energy policy (e.g. Elgin and Weible, 2013), water infrastructure (e.g. Lienert et al., 2013), and conservation management (e.g. Prell et al., 2010).

In many parts of the world, the important forest resource tends to involve a particularly large and diverse range of stakeholders, often with competing interests in different forest ecosystem services (Raum and Potter, 2015). Some may also exert considerable influence over forestry. In the UK, the stakeholder landscape linked to forestry appears to be complex and dynamic. Its complexity lies in the breadth of current and potential future interests involved, and in the way in which these interests span public and private domains from the national to the local level (Dandy et al., 2017). A systematic mapping of these stakeholders would allow a better understanding of their multiple stakes in ecosystem services which, in turn, could aid the design of equitable and sustainable ecosystem governance and management strategies because it provides a detailed understanding of who has a stake and why. However, although there have been several studies that have made extensive use of stakeholder analysis tools in relation to tree pests and diseases (e.g. Mills et al., 2011, Marzano et al., 2015), relatively few studies appear to have looked specifically at forest stakeholders within the ecosystem services framework. Those who have, have tend to concentrate on local case studies, often involving local communities (e.g. Agbenyega et al., 2009, Asah et al., 2012, Garrido et al., 2017), using stakeholder analysis in a general, somewhat unsystematic way. Garrido et al.'s (2017) study, for instance, has compared how stakeholders from different sectors perceived ecosystem services from the wood-pasture Dehesa landscape of northern Spain. The study compares civil, private and public sector stakeholders on the local and regional level. Agbenyega et al. (2009) applied, for the first time, an explicit ecosystem services framework to perceptions of woodlands in the UK. The authors classify the diverse range of functions and services generated by four community woodlands in Eastern England and link these with particular stakeholder interests and preferences (Agbenyega et al., 2009). However, comparatively little is known about the stakeholders in/of forest ecosystem services on the UK macro to micro level, leaving a considerable knowledge gap.

Building on this state of understanding, this paper intends to provide a better appreciation and promote discussion of a more systematic use of stakeholder analysis in ecosystem services research. Therefore, it aims to (1) present an illustrative stakeholder mapping example, using a key natural resource, namely forests, in the UK. An exploratory qualitative approach was adopted to provide a better understanding of current stakeholders in forest ecosystem services, their particular stakes, characteristics, and