Ecosystem Services 30 (2018) 137–148

Contents lists available at ScienceDirect

Ecosystem Services

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

Changing governance, changing inequalities: Protected area co-management and access to forest ecosystem services: a Madagascar case study

Caroline Ward *, Lindsay Stringer, George Holmes

Sustainability Research Institute, School of Earth and Environment, University of Leeds, Leeds LS2 9JT, UK

ARTICLE INFO

Article history:
Received 16 June 2017
Received in revised form 22 January 2018
Accepted 30 January 2018

Keywords:
Protected areas
Co-management
Ecosystem services
Access
Madagascar
Conservation

ABSTRACT

Access, in reference to Ecosystem services (ES), is defined as the capacity to gain benefits from the environment. There has been a global shift in natural resource governance, particularly increased co-management of protected areas (PAs). Yet there has been little research on how this change may be affecting access to ES. We aim to fill this research gap by considering: (a) what ES are considered most important, (b) what factors are important in determining whether a person can access ES, and (c) how rules and regulations regarding ES access are decided and enforced.

Qualitative and quantitative data were collected using questionnaires, focus groups and interviews with stakeholders in a case study PA in Madagascar, co-managed by local community associations (VOIs) and an NGO. Data analysis was framed around the IPBES framework and access factors.

Respondents considered provisioning services most important, but also valued cultural and regulating services. Institutions and social identity had the largest impact on access to ES. VOI members and individuals who knew VOI committee members had greater access to ES than non-members. Findings show that co-management may be shifting ES access inequalities rather than reducing them, and we outline a number of challenges relating to PA co-management.

1. Introduction

Ecosystem services (ES) are the benefits people obtain from ecosystems (Millenium Ecosystem Assessment, 2005). It is well established that ES underpin human well-being, providing material things necessary for daily life, regulating the environments we live in, and contributing towards spiritual well-being (Millenium Ecosystem Assessment, 2005). Many different frameworks have been developed to conceptualise these links, incorporating social and natural sciences, and objective and subjective measures (Agarwala et al., 2014; Díaz et al., 2015; Fisher et al., 2014; Millenium Ecosystem Assessment, 2005). Yet, there continue to be debates about how best to measure the links between the natural environment and human well-being, especially because these relationships are dynamic. One factor frequently missing from these frameworks is an understanding of what may affect access to ES, as people are only able to realise ES benefits if they can access them. It is important to understand this in order to better evaluate environmental management interventions and their impacts on human wellbeing. This paper addresses this research gap.

Access, in reference to ES, can be defined as the capacity to gain benefits from the environment (Ribot and Peluso, 2003). The degree to which any individual benefits from ecosystems will depend on a complex range of mechanisms shaping access, including social relationships, institutions, capabilities, property rights and various capitals (Table 1). Daw et al. (2016: 11) identify access as key to "*the ability of people to benefit from [ES], whether or not that ability is realised*". Increasing stocks or quality of an ES will therefore have little effect on the well-being of people living nearby if they do not have access mechanisms to benefit from it (Daw et al., 2011). Conceptualising the unequal distributions of benefits has an established history within the social sciences. For example, Sen's (1981) entitlements approach to the analysis of famines showed that people may still experience famine when food is available, due to social, economic and institutional mechanisms affecting their access. Leach et al. (1999) highlight the importance of endowments, the rights and resources individuals have, and entitlements, the means to use a resource. There has been limited application of these frameworks to ES access, but previous studies have illustrated that social and institutional

* Corresponding author.
E-mail address: eecwa@leeds.ac.uk (C. Ward).

https://doi.org/10.1016/j.ecoser.2018.01.014
2212-0416/

Table 1
A summary of factors affecting access to ES (adapted from Ribot and Peluso, 2003) and relating to IPBES framework (Díaz et al., 2015).

Factor	Definition	Relation to IPBES framework	Relation to ES
Institutions	Laws, customs, conventions and authorities Access can be affected by both formal (e.g. laws) and informal (e.g. social custom) rules Access may be affected by laws denoting property ownership, permits and licenses	Institutions and governance (socio-political)	Ownership of land, paying for permits and local customs can all affect access to ES In the case of joint resource management, forest rights are sometimes not fully transferred to local people, allowing other agents greater control over allocating access
Physical assets	Technology, capital, markets and labour Physical ability to access resources may require tools, infrastructure, financial capital, access to markets and labour	Anthropogenic assets (built, human, financial) Institutions and governance (technological)	Many provisioning services cannot be extracted without the use of tools Financial capital may be required to buy permits or legal rights to access
Social identity and relationships	Identity, relationships and power Access is often affected by an individual's social identity (e.g. gender, age etc.), status within society (e.g. community leaders, village chiefs) and relationships with others. All mechanisms of access are forms of social relations	Anthropogenic assets (social, financial, human) Institutions and governance (socio-political)	Relationships with PA managers or committee members may allow easier access and more leniency towards rule breaking or the opposite for some groups
Knowledge	Direct knowledge relating to access (i.e. how, where, what), and also perceived knowledge status e.g. expert status, can give privileged access to resources, or authority to control resource-use	Anthropogenic assets (human) Institutions and governance (cultural)	Knowledge of where a particular provisioning service may be found (e.g. medicinal plants) Within strict PAs 'experts' or researchers may only be allowed access

mechanisms, alongside knowledge, were more important than economic or rights-based mechanisms in determining access (Hicks and Cinner, 2014). This has led to calls for increased incorporation of social data relating to ES, to improve understanding of how people use and value ES (Dawson and Martin, 2015). Addressing such calls is particularly important given trends towards increasing areas under conservation protection and the development of new mechanisms for their governance.

Protected areas (PAs) are a popular way to conserve ES and constitute "*. . .a socially constructed set of rules that. . . allocate access to and use of natural resources among stakeholders*" (Mascia and Claus, 2009: 17). By definition, PAs will affect ES access for local communities. This change in access may be positive or negative, and may be felt differently by different groups within communities (Schreckenberg et al., 2010). Often there are trade-offs between different services, resource-use objectives and societal goals, current and future generations, and between different beneficiaries (McShane et al., 2011). In developing countries this can lead to local livelihood costs, which may not be distributed equally, while the benefits are shared globally or at least at supra-livelihood scales (Oldekop et al., 2016). At the same time, at international level the Aichi targets not only aim to increase protected area coverage, but also to ensure these are "*equitably managed*" (CBD and UNEP, 2010).

Various interventions have been introduced in order to recognise the unequal distribution of costs and benefits of maintaining ES. Once such response is shared governance or the co-management of PAs, where the power, responsibility, decision-making and enforcement is shared between the state and other non-state actors, including NGOs, local communities and private companies (Berkes, 2010; Borrini-Feyerabend et al., 2012). Co-managed PAs aim to provide both socio-economic and ecological benefits. Frequently, local communities are involved as a partner in co-management in order to increase their representation, empower marginalised groups, increase trust, and promote social learning. Overall, evidence suggests that co-managed PAs are more likely to reduce costs and provide benefits for local communities than other governance approaches (Oldekop et al., 2016; Persha and Andersson, 2014). Yet, not all co-managed PAs have succeeded in meeting these aims (Persha and Andersson, 2014). This study adds to the evidence base in this area by examining which forest ES are considered most important by local communities in Madagascar, what factors are important in determining ES access, and how rules and regulations regarding ES access are decided and enforced. As local participation in governance increases, it is important that we understand how aspects of governance may impact people's access to ES, and whether this is equitable for those living nearby.

1.1. Conceptual framework

Conceptualising the links between the natural world and human well-being is crucial to improve environmental management whilst understanding the impacts this may have on local communities. This is particularly the case for the world's poorest, whose well-being is often most depending on ES, and where the impact of environmental change is often differentiated not only across age, livelihood, and gender, but also across culture and socio-economic status (Dawson and Martin, 2015).

There have been many different frameworks designed to outline the relationships between the natural world and human well-being, drawing upon environmental sciences, economics, psychology, sociology, and anthropology (e.g. Díaz et al., 2015; Millenium Ecosystem Assessment, 2005). Due to the complexities and dynamics of these relationships, new frameworks are constantly emerging as our understanding changes. Existing frameworks have been extensively reviewed within the literature, with critiques focussing on: a need for an interdisciplinary approach, integration of subjective and objective dimensions of well-being, equal inclusion of all ES categories (particularly cultural), integration of the diversity of values given to ES and consideration of ecosystem 'disservices', which have negative impacts on human well-being (Agarwala et al., 2014; Fisher et al., 2014; Pascual et al., 2017).

One of the more recent frameworks to emerge is from the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES; Fig. 1). IPBES was established in 2012 as an independent intergovernmental body open to all member countries of the United Nations (UN), with the goal of "*strengthening the science-policy interface for the conservation and sustainable-use of biodiversity, long term human well-being and sustainable development*" (IPBES Secretariat, 2017). The IPBES framework was constructed through