Ecosystem Services 6 (2013) 117–121

Contents lists available at ScienceDirect

Ecosystem Services

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

Short communication

Community participation in payment for ecosystem services design and implementation: An example from Trinidad

Maurice A. Rawlins [a,*], Leon Westby [b,1]

[a] Department of Life Sciences, The University of the West Indies, St. Augustine, Trinidad
[b] The World Bank, 1818 H Street, NW Washington, DC 20433, United States

ARTICLE INFO

Article history:
Received 1 March 2013
Received in revised form
26 August 2013
Accepted 17 September 2013
Available online 14 October 2013

Keywords:
Payment for ecosystem services
Community participation
Ecosystem management

ABSTRACT

The inclusion of communities in the design and implementation of payment for ecosystem services (PES) schemes is not a widely publicized practice in spite of the many accepted benefits that arise from the full participation of communities in interventions which affect them. The results of a pilot PES project in the Caura Valley, Trinidad presented in this paper, show that even with the highly technical aspects of valuing ecosystem services as a requirement for PES schemes, communities can be involved in the design and implementation of such schemes. Based on an examination of the Caura community during the design and implementation of the PES project, we suggest that the successful design of the PES scheme in Caura was based on the community's active participation in the development of the project concept, the ecosystem service infrastructure, and the management framework for the PES. The paper concludes with research recommendations for improving the design and implementation of PES schemes.

1. Introduction

It is now commonplace for rural communities to be self-directed, and either take the lead or significant action in the management of their environment or the natural resources on which they depend (Rodela, 2012; Porter-Bolland et al., 2012; McDougall et al., 2013). This is largely due to the recognition of communities as important stakeholders in influencing the outcomes of environmental management and development interventions (Agrawal and Gibson, 1999; Danielsen et al., 2010), and consequently significant emphasis has been placed on the participation of communities in these processes (Dougill et al., 2012; Stringer and Paavola, 2013). The extent of participation in such interventions spans a wide continuum of involvement ranging from passive dissemination of information to active engagement in decision-making processes depending on the specific objectives of participation (Reed, 2008: 2419). We define participation for the purpose of this study as the deliberate inclusion of individuals and groups in processes (Arnstein, 1969). Practitioners have developed a wide range of participatory approaches for different levels of stakeholder engagement (Lynam et al., 2007), many of which have widely-accepted normative and pragmatic benefits of empowering stakeholders through the co-generation of knowledge and increasing the participant's capacity to use this knowledge (Greenwood et al., 1993); promoting social learning (Blackstock et al., 2007); decision-making that is fair and holistic and encompasses a diversity of values and needs (Richards et al., 2004); and making research more robust through providing higher quality information inputs (Reed, 2008). While many of these claims to the benefits of participation are widely accepted, Reed (2008) notes that the claims are yet to be tested. Emphasis has been placed on including stakeholders as early as possible from project concept development and planning to implementation and monitoring and evaluating outcomes in order to increase the quality and robustness of decisions (Reed, 2008: 2422).

One area of environmental management where the extent of participation of communities is limited is in payment for ecosystem services (PES) schemes (Kosoy et al., 2008; Bosselmann and Lund, 2013). PES schemes are broadly represented in the literature as any kind of market-based mechanism for conservation, for example compensation of ecosystem services, eco-certification, and entrance or user fees (Arriagada and Perrings, 2009). Increasingly, PES schemes have focused on the creation of markets through the establishment of property rights for ecosystem services, where within this market there exists suppliers (producers) and buyers (beneficiaries) of ecosystem services (Xuan et al., 2012; Banerjee et al., 2013). The definition by Wunder (2005) helps to differentiate a market based type of PES scheme, that is PES are defined as "voluntary transactions where a well-defined environmental service is being bought by at least one ecosystem service buyer from one ecosystem service provider if and only if the ecosystem service provider secures ecosystem service provision" (Wunder, 2007:50).

* Corresponding author. Tel.: +868 484 5825.
E-mail address: mauricerawlins@yahoo.com (M.A. Rawlins).

[1] Disclaimer: The views expressed in this article do not reflect the position or opinions of The World Bank.

2212-0416/$ - see front matter © 2013 Elsevier B.V. All rights reserved.
http://dx.doi.org/10.1016/j.ecoser.2013.09.004

The market-based PES concept is contingent on the valuation of the ecosystem services being traded, which therefore creates limits to (1) the types of ecosystem services that can be involved in PES schemes, as many ecosystem services especially regulating and supporting services cannot be easily valued (Carpenter et al., 2009), and (2) who can be involved in designing PES schemes as a certain amount of technical capacity is required for valuation of ecosystem services (Wattage, 2011; Fisher et al., 2011). Kosoy et al. (2008) also note that PES projects and programmes often have evolved as top-down, managerial policies and projects, which precludes high levels of participation. An examination of the literature on community participation in PES reveals that the participation of communities in PES schemes tends to be limited to the implementation phase of the PES scheme, and even here communities have traditionally been involved only in the supply of the ecosystem services and not in the management of the implementation of the scheme which involves monitoring of the ecosystem services that are being supplied by producers, and paying producers for the services that are provided (Grieg-Gran et al., 2005; Pagiola et al., 2005; Wunder, 2007; Kolinjivadi and Sunderland, 2012; Xuan et al., 2012; Cremaschi et al., 2013).

This article adds to the dearth of studies on community involvement in PES schemes, and through a description of the Caura community's involvement in the planning and implementing of the PES scheme, shows that even with market-based PES schemes communities can be involved in the design of such schemes and that such involvement helps to establish a potentially successful PES scheme. We acknowledge that the research is limited in the assessment of the sustainability of the PES scheme; for this reason we encourage more research along these lines and within other communities.

2. Ecosystem management in the Caura Valley

The Caura Valley is situated within a mountain range in Trinidad called the Northern Range. There are two main ecosystems in the Caura Valley – seasonal evergreen forest and a mountainous headwater river – which provide a variety of ecosystem services to the local Caura community, as well as the national community. The Caura community is best described as a rural community, with a population of approximately 776 persons. Unemployment in the Caura Valley is high and livelihood opportunities are few and mainly centered on small-scale agriculture, craft making, and other informal sector opportunities, which do not provide steady or sufficient incomes (TCPD, 2011).

In the past two decades, the forest and river ecosystems in the Caura Valley have undergone changes in extent and functioning that have influenced their ability to provide ecosystem services (TCF, 2012) due to competition from a mix of residential, agricultural and recreational land use activities existing in the Valley. The consequences of the reduction in ecosystem services are borne by residents of the Valley, and even by persons living outside of the Valley. In response to threats to ecosystems in the Valley, residents there have been involved in a number of initiatives to protect the forest and river systems for the past three decades (Alamu, 2011 pers. comm. July 08). Reforestation of specific areas of the Valley has been undertaken, as well as the cutting and maintenance of fire trails to prevent the spread of forest fires as a part of government-led initiatives. There have also been a number of environmental projects funded by development agencies including the UNDP GEF Small Grants Programme (SGP), the FAO, and the European Union which have been led either by the local village council or the local farmers' organization.

3. Developing a PES project in the Caura Valley

In May of 2011, members of the Caura Valley decided to embark on a PES pilot project. With assistance from a doctoral student/project officer at a local NGO and funding from the UNDP GEF-SGP, the Caura community designed and implemented - over the course of eighteen months - a pilot PES project. In the following section, we describe the methods used for developing the PES project.

3.1. The Caura valley PES concept

Over a four-part workshop series facilitated by the doctoral student, Caura community members determined the ecosystem services in the Valley that were under threat, and activities that could be undertaken to protect and restore these ecosystems. The concepts of ecosystems and ecosystem services as defined in MA (2005) were explained by one of the community members and a list of ecosystems and services in the Caura Valley was generated by the participants. Participants were asked to reflect on the concept of risk, and what it meant in the context of ecosystems and ecosystem services (ES). From these reflections and subsequent discussions, the participants were able to identify different threats to the ecosystems in the Caura Valley. An impact matrix was used to help participants prioritize the most important threats to ecosystems (Abbasi and Arya, 2000). Using the priority list of threats to the ecosystems, the participants were encouraged to think about activities that could be undertaken within the community to protect and restore ecosystems. It was agreed by the participants that in the context of the PES, activities should incorporate and facilitate long-term job-creation toward the development of sustainable livelihoods. From this list of activities, the group came to consensus that wildfire management was very important for the Caura Valley, and that fire trails could be developed to manage the spread of wildfires. The group determined that the fire trails could also be used as hiking trails, and that an enterprise based on community members providing tour guiding services to hikers could be developed toward long-term job creation.

3.2. Developing the PES project

Using the ideas put forward by the community, a project team comprising four members of the Caura Village Council (President, Secretary, Treasure and PRO), a resident ethnobiologist and community champion, and the PhD student compiled the information for a pilot PES project called the Fire Guardianship Project.

3.2.1. Developing the ecosystem service infrastructure

Twelve community members, called Eco-protectors participated in the Fire Guardianship Project, and with the assistance of the Forestry Division developed and maintained approximately 6 km of fire trails. Development of the trails involved cutting and removal of vegetation, and subsequent raking and clearing of vegetation for trail maintenance. A work schedule was established for the Eco-protectors based on the duration of the project, the funding that was available, the activities that needed to be undertaken, and experiences of community members with experience in fire trail development. In order to encourage ownership of the project, the Eco-protectors were given the opportunity to determine daily work schedules that were appropriate for them.

3.2.2. Valuing the ecosystem service provided

The use of the fire trails as hiking trails creates a recreational ecosystem service (Haines-Young and Potschin, 2011). Pricing