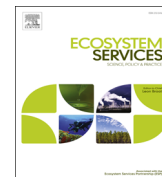




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# Fairly efficient, efficiently fair: Lessons from designing and testing payment schemes for ecosystem services in Asia



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## ABSTRACT

Payment for ecosystem services (PES) is commonly defined as a market-based environmental policy instrument to efficiently achieve ecosystem services provision. However, an increasing body of literature shows that this prescriptive conceptualization of PES cannot be easily generalized and implemented in practice, and that the commodification of ecosystem services (ES) is problematic and may lead to unfair situations for relevant PES actors. This paper synthesizes case studies in Indonesia, the Philippines and Nepal to provide empirical observations on emerging PES mechanisms in Asia. Lessons learned show that fairness and efficiency objectives must be achieved simultaneously in designing and implementing a sustainable PES scheme, especially in developing country contexts. Neither fairness nor efficiency is a primary aim but an intermediate 'fairly efficient and efficiently fair' PES may bridge the gap between PES theory and practice to increase sustainable ES provision and improve livelihoods.

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## 1. Introduction

The real value of ecosystem services (ES) to human well-being is only partially included in market economics (De Groot, 1992; Turner et al., 1994). Currently, conventional markets fail to reflect the full or true value of services (the 'welfare effect') such as pure water (eliminating the need for artificial purification) or natural pollination in enhancing crop yields. Conventional markets also rarely treat or even neglect negative effects of economic activities on ES or in economic term, externalities, most of which are, public goods. As one of several possible policy responses, market-based instruments, such as payments for ecosystem services (PES), have been developed to capture at least some of the financial value of these services through the monetisation and commodification of ES (Gómez-Baggethun et al., 2010).

Initially, the PES concept was strictly defined as a market-based environmental policy instrument to achieve environmental protection in the most efficient way (Engel et al., 2008; Pagiola et al., 2005). Efficiency means producing the greatest social value (determined subjectively by individuals and measured by economists either in markets or by using non-market valuation methods) for the least possible (social) cost. In short, efficiency is achieved when net value is maximised, ideally resulting in positive net benefits.

This is based on the principle 'you get what you pay for' for positive effects from the flow of ES (Wunder, 2007). The 'efficiency' line of argumentation on PES among scientists and practitioners is that a PES instrument should not be burdened by additional social equity goals in achieving the environmental quality, natural capital conservation and cost effectiveness goals of sustainable ES provision. The ideal PES schemes based on environmental and cost-efficiency principles should "integrate ecosystem services into markets and should be like any other market transaction" (Farley and Costanza, 2010). This is supported by the assumption articulated by Coase (1960) over 50 years ago that effective legal structures and enforceable policy rights exist to overcome the problems of current market failures. Nevertheless, recent literature shows that the Coasean and pure market approach that dominate the conceptualisation of PES cannot be easily generalised or implemented in practice (Muradian et al., 2013, 2010). The concept also disregards equity issues because the aggregate of gains and losses by different economic agents is counted as more important than how they are distributed in society (Pascual et al., 2010).

Kosoy and Corbera (2010) further argued that the commodification of ES is problematic because it promotes efficiency over fairness. Case studies in Latin America showed that social values beyond financial payments induced participation in PES (Kosoy et al., 2007) and the monetisation of ecosystem services were mostly rejected by the PES recipients (Asquith et al., 2008). However, a potential combination of equity and efficiency may be possible (Pascual et al., 2010). Thus, there is a clear need to adjust Coase's argument and

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incorporate the context and perspective of local stakeholders (Adhikari and Boag, 2013; van Noordwijk et al., 2013), particularly when PES schemes are applied in the context of developing countries with skewed wealth distribution, contested property rights, low law enforcement and weak institutions (Neef and Thomas, 2009). A recent review by Wunder (2013) highlighted the importance of taking the ecological-economics perspective (Costanza et al., 1997, 2004; Farber et al., 2002) in analysing the applicability of PES focusing on “the insistence on the importance of equity and the diversity of institutional contexts”. Moreover, in the perspective of developing countries, the inclusion of a poverty-alleviation, rural empowerment and social justice goals might be considered when a PES scheme deals with historical imbalances in the power, right and wealth status between ES suppliers and beneficiaries (Swallow et al., 2009).

It is essential to embrace the perspective of multidimensional poverty in analysing local perspectives on PES outcomes beyond their household income increment (van Noordwijk et al., 2004). In many cases, poverty defined simply as the inadequacy of income is still common in the literature on human deprivation. However, this view lacks the understanding that income influences people’s ways of living and also contributes to the impoverishment of life (Sen, 2000). The perspectives on poverty inescapably surpass the notion of welfare utility and encompass a broader range of capabilities (Kahneman et al., 1997; Sen, 1999; Wegner and Pascual, 2011), including the capabilities of pursuing individual happiness (Frey and Stutzer, 2002; Kubiszewski et al., 2013). Therefore, it is important to seek evidence and support the theory of plural dimensions of human well-being when incorporating poverty reduction elements to the PES design and implementation (Wegner and Pascual, 2011).

The broad understanding of PES in Asian countries is, however, still limited, particularly regarding the analysis of how to balance efficiency and fairness involved in changing land use, socio-cultural values and the behaviour of relevant stakeholders. In current discussions, efficiency refers to ES additionally gained by clearly linking land-use practices contracted under a PES scheme and ES provisions and the cost effectiveness of the scheme. Fairness refers to pro-poor aspects of PES, where marginalised actors of the potential scheme, be they men or women, have non-biased (or preferential) opportunities in participating, planning, designing, implementing and monitoring the scheme, and getting benefits from it. Fairness also embeds stakeholder perceptions on what is fair beyond quantifiable equal distribution. Much of the discussion on PES is about the degree to which and the way ‘efficiency’ and ‘fairness’ objectives can be reconciled.

While there are multiple and partly contrasted views on the theoretical basis (‘theory of change’) of how individual and collective human behaviours can be influenced to internalize the environmental externalities, a growing body of empirical evidence of apparently contradicting findings needs to be contextualized to frame ‘theories of place’ of which approach might work where, and to which degree. Here, we review experience in Asia to contribute to such theories. Our main hypothesis is that practices in developing countries mostly rule out fair PES if the PES definition is strictly applied as a market-based or commodification of ES. The case studies in Indonesia, the Philippines and Nepal presented in this paper aim to contribute to the debate that successful PES implementation needs to simultaneously achieve efficiency and fairness objectives if it is to provide sustainable solutions that achieve both an increase in ES provision and the enhancement of livelihoods (natural, human, physical, social and financial capitals).

### 1.1. Reward or payment? Environmental or ecosystem services? A contribution to basic definitions

The solution of environmental problems in developing countries (including the overexploitation of natural capital as well as the loss of biodiversity and ecosystem quality as a result of pollution),

specifically in Asia, requires the emphasis of the dual goals of poverty alleviation and environmental conservation (Tinbergen, 1976; UN, 1992). PES is seen as an instrument to help achieve these goals (Muradian et al., 2010; Pascual et al., 2010; van Noordwijk and Leimona, 2010). Proponents of fairness dimensions as elements that need to be added to effectiveness and efficiency prefer the use of the broader concept of ‘rewards’ (RES) rather than ‘payments’ for environmental services (Gouyon, 2003; Swallow et al., 2009; van Noordwijk et al., 2004). The notion of RES focuses on the “multiple goals of ecological sustainability, just distribution and economic efficiency and favours a variety of payment mechanisms to achieve these goals, both market and non-market” (Farley and Costanza, 2010; Muradian et al., 2010). RES proposes the integration of anti-poverty elements into economic instruments to enhance environmental services with the basic argument that poverty alleviation has to be included in any portfolio to protect the environment, especially in developing countries.

The term ‘RES’ also offers broader recognition to ES providers, not only focusing on financial transactions between stakeholders but also including in-kind rewards, such as access to land, access to markets, capacity building and the recognition of identity and rights (van Noordwijk et al., 2004). Swallow et al. (2009) introduced the term ‘compensation and reward for environmental services’ to refer to “a range of mechanisms linking ecosystem stewards and environmental service beneficiaries, including the mechanisms normally included under the term payment for ecosystem service”. They noted that the relationships between ecosystem stewards, environmental service beneficiaries and intermediaries may be more complex than a simple transaction, with agreements that are not wholly voluntary, and payments that are not wholly conditional. In general, the paper uses ‘payments for ecosystem services’ as a more common term and argues that the current trend shows that ‘payment for ecosystem services’ have been used to explain some cases with pro-poor elements on its design. Therefore, shifts from the original concept of PES have existed and will be strengthened by this paper.

Furthermore, we also acknowledge these arguments using the terms ‘payments for environmental services’ and ‘payments for ecosystem services’. Environmental services and ecosystem services are two important concepts widely used in the academic and empirical literature to discuss environmental policy, sometimes as synonyms, sometimes with different delineations. The concept of ‘services’ in both terms refers to the flow of benefits obtained by people. Ecosystem services are interpreted as the flow of benefits from natural capital (including all species) to human beings (MA, 2005; Wegner and Pascual, 2011). Ecosystem services include ‘provisioning’ services for which markets may exist and function well, plus regulating, cultural and supporting services that tend to be ‘externalities’ of decision making. Some authors use the term ‘environmental services’ for ecosystem services beyond provisioning (van Noordwijk et al., 2012). Others have defined environmental services as the broader concept of all human benefits derived from natural and/or actively managed landscapes, which involve natural capital as part of their production function, often alongside social and human capital and aspects of built-up infrastructure. In this view, ecosystem services are considered a subcategory of environmental services, provided by ‘natural’ subsystems (Muradian et al., 2010; Swallow et al., 2009) or even “a systematically different category” (Derissen and Latacz-Lohmann, 2013).

In theory, the notion of environmental services is “input-based and focused on the efforts undertaken by actors to generate environmental improvements and improved natural capital”, and the notion of ecosystem services is “outcome-based and focused on the well-being benefits provided to society from natural capital” (Greiner, 2010). As the debate continues, we envisage the model of ecosystem services from the Economics of Ecosystems and Biodiversity (TEEB) diagram as a conceptual improvement of the Millennium Assessment

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