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How auctions to allocate payments for ecosystem services contracts impact social equity

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ABSTRACT

Conservation auctions are used in Payments for Ecosystem Services (PES) scheme implementation as they are an efficient way to identify participants. Ensuring a fair implementation process is important when considering an equitable PES scheme. Currently the implications, such as impacts on social dynamics and participant perceptions, of auctions at both the individual and community level are poorly understood. Using a case study a long-standing and well-established PES scheme in Sumberjaya, Indonesia, we aim to explore the relationship between farmer characteristics and their perceived auction fairness/satisfaction and impacts on the community social dynamics. We find that a fair auction process allowing all to participate leads to perceived fairness at the individual level. However, at the community level, we find that individuals perceive more social impacts. Our results also find that information quality is the main factor in increasing fairness and reducing community impacts. Our results suggest that while it is possible to have an equitable implementation process, ensuring procedural equity may potentially compromise contextual equity. These results can aid in the implementation of PES schemes and shed some light into which characteristics to identify within potential participants and communities to avoid social disruptions.

1. Introduction

Payments for Ecosystem Service (PES) schemes have become an attractive and widely used instrument for environmental conservation. Ensuring that PES are equitable, fair and just for all involved is of growing interest in the PES literature (Corbera et al., 2007; Adhikari and Agrawal, 2013; Martin et al., 2014). Equity within PES builds upon the literature of environmental justice. Environmental justice has developed at a crossroad of research, social movements and public policy (Sze and London, 2008). Justice considerations are important for any type of environmental conservation intervention because these interventions may impact the distribution of benefits and responsibilities among individuals. To minimize the negative impacts that conservation interventions may have on social systems, it is thus essential to consider the capacity of individuals to participate in decision making and to recognize their identity/culture/history (Sikor, 2013). Sen (1999) expands the concept of justice highlighting the importance of expanding beyond distributive terms and considering instead how these distributions can impact an individual's wellbeing. This framing of justice focuses on how goods can be transformed into the capacity for individuals to prosper, rather than looking into utility and resources alone (Nussbaum, 2003; Schlosberg and Carruthers, 2010). Environmental justice incorporates and builds upon these. (Walker, 2009a) explores how environmental justice has grown horizontally into different contexts and vertically with more emphasis placed in both global scale issues and local scale. This is echoed by (Schlosberg and Carruthers, 2010) who emphasize that environmental justice must not only focus on the individual but at the wider community level, where in practice environmental injustice is experienced by a whole community.

A comprehensive consideration of justice beyond the distributional dimension is especially important to ensure that PES schemes are equitable for the participants and that they perceive the scheme to be equitable is important, as ignoring social equity can produce negative consequences on the schemes ecological objectives (Pascual et al., 2014). The multi-dimensional nature of equity is captured in (McDermott et al., 2013), framework of equity, there are three dimensions of equity: procedural, distributional and contextual equity. Procedural equity relates to the stakeholder's ability to participate in a scheme, gain recognition and access benefits. Procedural justice, like procedural equity, is intertwined with information, access and power (Walker, 2009b).

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Distributional equity relates to how the benefits within the scheme are distributed to participants. Both of these dimensions are directly influenced by the contextual equity, such as the surrounding social conditions (McDermott et al., 2013; Pascual et al., 2014). Where contextual equity not only functions at the stakeholder level but also has influences at the community and larger organizational levels. Important to highlight is the differences in agro-ecological zones and how different configurations of forests will change people's involvement with the landscape (van Noordwijk et al., 2014). For example, communities that live on the edge of a forest compared with communities that practice an agroforestry system. Identifying and understanding the landscape in practice is a key step in recognizing the specific contextual institutions at play within a given system.

Within PES, the stakeholders involved are a vital component in all aspects of the scheme. Due to this their views/opinions have the power to determine the schemes' success (Petheram and Campbell, 2010), because if the scheme is not considered legitimate by stakeholders at all levels it may risk being unsuccessful. Because the outcome of an environmental or conservation intervention can be influenced by how just people perceive it (Sikor, 2013), incorporating justice into conservation is a key consideration for pragmatic, ethical and moral reasons. This is the case even though conservation initiatives can be both successful and have inequitable outcomes for people (Brockington, 2003). PES schemes have the potential to produce negative social impacts onto the participants. If some individuals can gain access while others are not, this can create an unequal power balance and/or support existing inequalities within a community leading to negative consequences on the other dimensions of equity. A scheme may also lead to land restrictions on more powerless actors unless explicitly prioritized, (Mahanty et al., 2012) and undermine pre-established resource distributions (Kosoy and Corbera, 2010). Gaining, controlling and maintaining access to resources is enabled by power and power relations (Ribot and Peluso, 2003). In some cases, power asymmetries among stakeholders can pervade PES negotiations and agreements (de Francisco and Boelens, 2014). For instance, in the case of Costa Rica's national PES scheme, it was found that the payments were being received by wealthy farmers with higher education levels and larger farms (McDermott et al., 2013; Muradian et al., 2010). This is particularly important when within the same community, certain individuals will be recruited into the scheme and others will be left out. This is a potential consequence when scheme proponents have limited time and budgets in their projects to address equity concerns.

One way to minimize the potential issues surrounding procedural equity and the other equity dimensions (contextual, distributional) is to ensure a fair scheme implementation. An equitable PES design and implementation that has both fair participation and has identified stakeholders for their inclusion into decision making, is highlighted as central to equitable process at the local level (Gregory, 2011). To ensure an equitable implementation process it is important that the complex livelihood constraints are identified and acknowledged (Gregory, 2011). Falling under procedural equity (using (McDermott et al., 2013) framework), identifying more marginalized groups who may be potentially excluded from the decision making process, for example ethnic minorities and women, is key. Within procedural equity it is important to acknowledge power whereby an individual with power may be able to influence the practices an ideas of others (Lukes, 1986). Unequal power relations can create inequity (McDermott et al., 2013) and, importantly, the different forms of power, visible, hidden, and invisible (Lukes, 2005) are combined during a PES scheme implementation (de Francisco and Boelens, 2014).

Furthermore, selecting PES scheme participants from an efficiency perspective only may result in only the lowest costing service suppliers being engaged, which may lead to unfair selection (Narloch et al., 2013). Conservation auctions have been seen as an efficient instrument to reduce costs and maximise conservation outcomes (Jack et al., 2009), where ecosystem service suppliers will bid for specific contracts allocated by the ecosystem services seller who will buy the lowest bids (Ferraro, 2008). Using auctions can be a way of identifying the suppliers at the least cost and while having a fair implementation process. This is the case if poorer households are explicitly prioritized to be involved in the auction (Jindal et al., 2013). Participants within the auctions may see the process as fair, because the bidding is not influenced by the power or hierarchy in the village (Leimona and Carrasco, In Press). Auctions may be a way of ensuring distributional and procedural equity, where the distribution between individuals is equal and based on the individual's lowest willingness to accept and, procedurally, all individuals are represented equally throughout the bidding process. One potential issue of auctions however, is where individuals may not understand the bidding process and under or over bid for their service (Harstad, 2000). To overcome this within the auction implementation process, certain measures can be taken to ensure that all individuals understand the auction and there is available support. An example are practice rounds before the auction to give individuals more opportunities to understand how the allocation of contracts works (Leimona et al., 2010).

The PES contracted auction participants and the non-contracted auction participants' perception of the auction is a key determinant if the scheme is to be judged as socially legitimate (Narloch et al., 2013). Furthermore, the perception of conservation interventions can improve the implementation, monitoring and evaluation of the actions at hand (Bennett, 2016). Our study aims to see how the characteristics of the farmers might affect their perception of the auction fairness, satisfaction and the auctions impacts on social dynamics. This is explored at both the individual and community level.

This will be completed with three separate objectives:

1) To identify the characteristics of winning and losing farmers'.
2) To identify at the individual level, the farmers' perceived fairness and satisfaction of the auction in relation to their characteristics.
3) To explore at the community level, the rated auction impacts on social dynamics and how these interplay with the farmers' characteristics.

1.1. A PES case study in Indonesia

Starting in the late 1990s Indonesia underwent a large decentralization process. This led to an increase in pro-democracy and political reform across the country resulting in a rise of new demographic institutions and growth of civil society organizations (Dasgupta and Beard, 2007). Parallel to this was a shift towards increasing community-based projects within Indonesia, such as the World Bank's Urban Poverty Project. Within the decentralization process, local and traditional community groups pushed for their forest rights to manage the resources within their area. However, the benefits from forest exploitation often incentivized communities to demand a share of the profits from local governments and private contracting companies. This often lead to unresolved issues of land tenure and land ownership (Moeliono et al., 2008) and increased forest loss throughout Indonesia. Often palm oil plantations were used as a vehicle by the Indonesian government for rural-socio economic development. However, some environmental systems, such as the Upeti irrigation system, managed to continue through the regime change in the 1990s (Suhardiman and Mollinga, 2016).