Negotiation-support toolkit for learning landscapes

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47 Conservation auction and environmental services enhancement (Con$erv)

Beria Leimona

Procurement auctions have been designed to efficiently allocate conservation contracts and reveal hidden information on the opportunity costs of supplying environmental services. The Conservation Auction and Environmental Services Enhancement (Con$erv) uses a step-by-step approach to go beyond an economic interpretation focussed on prices and efficiency to encompass the social dimensions of learning, perceptions and fairness, which also require attention and, in so doing, offers an opportunity for deeper analysis of the motivations of stakeholders.

Introduction

Payments for ecosystem services (PES) have become part of the portfolio of policy options to retain, recover or enhance environmental services, including the provision of watershed functions. It assumes voluntary participation by farmers and rural communities in performance-based contracts, with clear conditionality.

An important aspect of implementing a PES scheme is transparency regarding the conditions under which incentives or rewards can be granted. Balanced information and shared power of transaction are the basis for any ecosystem services' agreements, with risks and benefits understood by all parties.

Procurement auctions on conservation contracts have been widely implemented in the USA, Australia and Europe (Stoneham et al 2003). The award of contracts on the basis of competitive bidding is a method frequently used in procuring commodities for which there are no well-established markets (Latacz-Lohmann and van der Hamsvoort 1997, Ferraro 2008), such as in markets for environmental services.

Contract procurement auctions have emerged as an alternative mechanism for deriving information from providers of environmental services on the level of payments or incentives that will cover their expected costs minus co-benefits when joining a conservation program. From experience so far, other perspectives on the interactions before, during and after the auction can add to the understanding of actors' behaviours as well.

Objectives

The primary objective of a conservation auction is the efficient allocation of limited funds (for example, those planned for watershed rehabilitation) among prospective PES participants and exposure of hidden information on the opportunity and implementation costs of supplying

environmental services. A secondary objective is to be aware of the learning dimensions of the auction process and its relation to the motivation of actors and the perceived communication between them.

Steps

The steps presented here use watershed services as the focus; with some modifications, they can be applied to biodiversity conservation or enhancement of landscape carbon stocks.

1. Identify the sample population and potential auction participants at the watershed level, starting from a prior analysis of the issues that need to be tackled and after securing a budgetary envelope for contracts.
2. Design the conservation contract to be offered in the auction. For this, basic information is needed.
   a. What problems would be solved by the conservation project?
   b. Do local farmers have a shared understanding of the issue and potentially untapped knowledge that can help to solve the key watershed problems in innovative ways? (build on RHA tool)
   c. What are proven conservation techniques that can serve as a benchmark for performance-based contracts and/or activity-based contracts?
   d. What are the farmers' preferences for terms of payment, as emerges from a conjoint analysis?
   e. When should the contract begin? What contract duration is desirable?
3. Test and select some elements of the auctions through two types of experiments: a laboratory auction experiment with students and field-framed experiments with farmers.
4. Conduct a natural field experiment and monitor the success and completion rate of the contract by farmers who won the auction in the period of the contractual agreement.

   Include social scientists and techniques in the process to obtain a broader perspective on motivational aspects and learning curves.

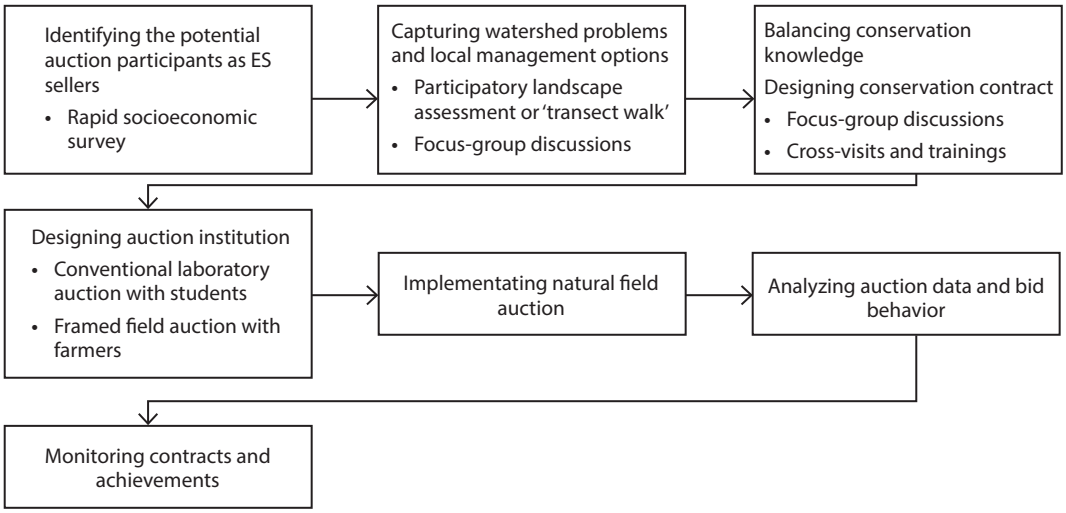

Figure 47.1. Con$erv research steps

Case study: Con$erv in Indonesia

The setting of this case study was the Sumberjaya watershed in Lampung, Indonesia, where soil erosion had broad implications for on-site and off-site damage. The most direct on-site effect was the loss of top soil from the coffee farmlands that dominated the watershed, resulting in low agricultural productivity. Off-site effects included siltation, water-flow irregularities, a reduction in irrigation, water pollution and agrochemical runoff. The soil sediment reduced the capacity of a reservoir located downstream of the watershed, adversely affecting irrigated agriculture and hydro-electricity generation.

Most of the farmers in the research sites were Sundanese, originating from West Java, and Javanese, originating from Central and East Java. Each farmer owned an average of 1 hectare or less. The farmers' livelihoods depended on coffee farming, either as owners of coffee gardens or as labourers to other farmers.

Based on the hydrological survey of the sub-watershed, we selected two sites, Way Ringkih (Site 1) and Way Lirikan (Site 2), with high sedimentation rates. In addition to this biophysical consideration, we set qualifications for selecting eligible participants for the auction project. The farmers had to own their land and be actively managing it themselves. These stipulations were made in order to avoid conflicts on signature of contract and regarding payment and to ensure that the farmers did not neglect the land after signing the contract. Farmers on private land need incentives to manage their land sustainably.

There were 44 and 45 households eligible in the sub-watersheds respectively. The Way Ringkih sub-watershed consisted of two *talang* (hamlets in the local language): Talang Harapan and Talang Kuningan (Site 1). The Way Lirikan sub-watershed consisted of one talang: Talang Anyar (Site 2). As part of a wider project, World Agroforestry Centre scientists had previously facilitated participatory water-monitoring activities in Way Ringkih and Way Lirikan. These activities gave additional benefits that contributed to the measurement of the study's environmental impact.

Our study resulted in a set of auction rules for determining how limited watershed rehabilitation funds could be allocated. We examined the applicability of such an auction design in an Indonesian rural setting by testing: 1) auction design factors, such as participants' understanding of auction rules, the ease-of-use of these rules, the appropriateness of the participants' bid offered during the auction, and the fairness of the auction process; 2) social factors, such as impact on the relationship between contracted and non-contracted farmers, general interpersonal relationships between communities, and information exchange amongst farmers; and 3) environmental factors, such as awareness of soil and water conservation and the rate of contract completion.

Our results show that a sealed-bid, multiple round, second-price Vickrey auction with a uniform price can be applied in a situation where most of the auction participants have a low education level, low asset endowment, small plot size, and where market-based competitiveness is not common. The auctioneer set a limited budget of USD 2000 (approximately IDR 20 000 000) per auction for a total of USD 4000, which is the average budget provided by the potential buyer, a neighbouring hydropower company, for its annual corporate social responsibility fund. In total, 82 farmers participated in two auctions. Of these, farmers were awarded contracts that provided for soil conservation activities on 25 hectares. The contract price per hectare was USD 172; the mean bid was USD 263.

Our finding was that farmers' bids to be involved in conservation contracts are more dependent on their learning process during the auction than on observable factors such as their socioeconomic background, their awareness of conservation or their status in local social capital. We also found that introducing a procurement auction as a market-based approach to rural communities did not harm their social relationships and was an applicable method in a rural setting such as the one tested here (with ample experience in market interactions in commodity production and without a long history of local rule development, as is common for indigenous groups). Nevertheless, this learning process did not guarantee the successful accomplishment of a conservation contract. The rate of contract accomplishment was moderate and this may be influenced by many other factors, such as the leadership of the farmers' groups and their institutional arrangements for conducting conservation activities.

The implication of the findings is that designing a proper conservation auction method and estimating the 'right' value for contracts form only minimal requirements for the success of any conservation contract.

A further indication that the auctions are not only about establishing a 'right' price was obtained where contracts similar to the ones that emerged from the auction were tested in other locations with similar conditions. High acceptance of such contracts suggested that the price was higher than necessary and lower implementation rates suggested that the process of bidding had shaped motivation.

Key references

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The landscape scale is a meeting point for bottom–up local initiatives to secure and improve livelihoods from agriculture, agroforestry and forest management, and top–down concerns and incentives related to planetary boundaries to human resource use.

Sustainable development goals require a substantial change of direction from the past when economic growth was usually accompanied by environmental degradation, with the increase of atmospheric greenhouse gasses as a symptom, but also as an issue that needs to be managed as such.

In landscapes around the world, active learning takes place with experiments that involve changes in technology, farming systems, value chains, livelihoods' strategies and institutions. An overarching hypothesis that is being tested is:

> Investment in institutionalising rewards for the environmental services that are provided by multifunctional landscapes with trees is a cost-effective and fair way to reduce vulnerability of rural livelihoods to climate change and to avoid larger costs of specific 'adaptation' while enhancing carbon stocks in the landscape.

Such changes can't come overnight. A complex process of negotiations among stakeholders is usually needed. The divergence of knowledge and claims to knowledge is a major hurdle in the negotiation process.

The collection of tools—methods, approaches and computer models—presented here was shaped by over a decade of involvement in supporting such negotiations in landscapes where a lot is at stake. The tools are meant to support further learning and effectively sharing experience towards smarter landscape management.

World Agroforestry Centre
ASB Partnership for the Tropical Forest Margins
AARD
Federal Ministry for Economic Cooperation and Development
Norad
IFAD Enabling poor rural people to overcome poverty
CGIAR Research Program on Forests, Trees, and Agroforestry