



PROPERTY RIGHTS, ENVIRONMENTAL SERVICES AND POVERTY IN INDONESIA

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Fighting poverty, protecting the environment

IN 1999, MR. ADING SUWARNA, THE LEADER of the village of Tribudi Syukur in Sumatra, Indonesia, heard from a local forest officer about a new community forestry program providing farmers with long-term licenses to use degraded protected state forest land for coffee production. The requirements were that the farmers protect the remaining forest, plant environmentally-beneficial agroforestry trees in their coffee plantations, and use appropriate soil and water conservation practices.

This program offered a new and potentially more effective approach to achieving sustainable forest management in Indonesia. Several times in the previous two decades, coffee farmers in Tribudi Syukur and many other communities had been forcibly evicted from state forest land areas, their plantations destroyed, and trees planted by the government. Such efforts did not produce lasting protection or restoration of the forest areas, which were ravaged by subsequent fires and illegal encroachments. The new community forestry, or *Hutan Kamasyarakatan* (HKm) program, sought a different approach: reward farmers with increased tenure security in already degraded areas in exchange for their cooperation in protecting the remaining forests and managing the land they use more sustainably.

Mr. Ading Suwarna organized a group of 493 farmers to apply for a license from the HKm program. With assistance from a forest officer they were able to

complete the application, including a detailed map of the areas proposed for protection and sustainable use and a specific management plan. In 2000, this group of farmers obtained their license and began their forest-management activities, including organizing a local group of rangers to monitor remaining forest areas, obtaining and planting agroforestry seedlings, and conducting regular meetings.

The impacts of this program on the sustainability of forest use and on poverty in Indonesia are not yet known. Tribudi Syukur's experience suggests that providing such rewards in exchange for environmental services is a promising approach, but it raises several issues worthy of investigation. How do people become aware of and gain access to such a program? Are only "well-connected" villages with knowledgeable leaders able to take advantage? How do community members organize themselves to apply and achieve the management objectives of the program? Do they build upon prior successes in organizing collective action within the community? Who gains and who loses from these activities? Do such programs actually provide sustainable environmental benefits, and what impacts do they have on poverty? Providing answers to such questions is the goal of this BASIS project.

Empowering rural users of resources

Forest conservation in developing countries stands a better chance of success if local inhabitants see

economic opportunity in protection rather than destruction of natural areas—this idea has gained credence in recent years. The past decade has seen growing interest in compensating local people directly for providing environmental services such as biodiversity conservation, carbon sequestration and watershed protection. While high-profile payment for environmental service (PES) programs have emerged in Costa Rica and other Latin American countries, they remain uncommon elsewhere in the developing world.

Environmental service reward mechanisms generally entail a shift in the traditional attitude toward rural natural resource users. Traditionally, rural people living in or near protected areas have been viewed as troublesome squatters; evicting them or sharply curtailing their land use activities were seen as the best way to improve land management. A subsequent approach, known as integrated conservation and development programs (ICDPs), sought to build goodwill with local people by bringing them development benefits in the hope of shifting the local economy away from protected areas, but it did not directly link benefits to provision of environmental services. Rewarding people for environmental services builds on the idea of creating goodwill and takes the additional step of making the receipt of benefits contingent on protection of the resource.

While this represents an improvement over previous approaches to protecting environmentally-sensitive ecosystems, PES introduces challenges of its own. Problems of identifying and measuring environmental services are difficult in many contexts, and hopes for using PES to benefit poor people are balanced by fears that it might bypass poor land users or even further marginalize their access to land and resources. Challenges related to high transactions costs of dealing with small landholders and unclear property rights in areas with high conservation value would need to be overcome. It is usually easier and less expensive to make and enforce contracts with a few large landowners rather than thousands of smaller ones, and it is easier and more affordable for large landowners to set aside large areas of land in a long-term contractual arrangement than for smallholders who need to meet subsistence production needs. Secure, officially recognized land tenure is typically required to enter into contractual relations, but poor farmers often lack such recognition. These constraints have been found to exclude smallholders from environmental service markets in many countries. In Costa Rica, for ex-

ample, in some areas the largest 3% of landholdings accounted for the majority of contracts. Moreover, where land rights are unclear, there are concerns that PES systems might lead powerful people to usurp otherwise marginal lands and evict poor land users.

A range of PES mechanisms are operating in developing countries, particularly in Latin America, but they are still nascent in Asia. With funding from the International Fund for Agricultural Development, the World Agroforestry Centre (ICRAF) established the RUPES (Rewarding Upland Poor for Environmental Services) project in 2001 to address possibilities for these mechanisms in Asia, with particular emphasis on potential for the upland poor to benefit. RUPES works with international, national and local partners in building working models of best practices for environmental service agreements adapted to the Asian context. It conducts action research at sites across Asia to examine the provision of environmental services, who benefits, who pays, and the institutional and policy environment needed to enable fair and equitable distribution. RUPES takes an inclusive view on payment, including rewards that provide upland farmers with enhanced land tenure security in exchange for adhering to land use agreements. RUPES calls such arrangements Rewards for Environmental Services (RES).

Who benefits?

BASIS researchers are working with RUPES to examine RES experiences in Indonesia, focusing on (1) the social-spatial placement of RES mechanisms, (2) the within-village distribution of costs and benefits of RES mechanisms, particularly those related to enhanced property rights, and (3) the most appropriate institutional arrangements to enhance the benefits of RES for the poor. The research program operates in the Sumberjaya subdistrict, where RES mechanisms are being used for forest and watershed rehabilitation and protection services.

The central hypothesis of this research is that environmental service reward mechanisms may provide marginalized social groups with new opportunities for generating income, obtaining more secure rights to land and water, and inclusion in environmental governance processes. There are two ancillary hypotheses. First, due to limited spread of information and incomplete appreciation of the opportunities, there is a tendency for RES mechanisms to be located in

communities with high levels of interaction with the outside world, with their actual ability to efficiently provide the environmental service only a secondary criterion. Second, there is a tendency for the benefits of RES to be captured by advantaged households within communities. The research will investigate these hypotheses, with a goal of determining ways in which RES mechanisms can be designed to reduce or overcome these tendencies.

Discussions with farmers in Sumberjaya reveal their conviction that HKm offers them the opportunity for a secure livelihood. Some suggest that it will bring them into the mainstream of society, no longer living as outlaws who have to bribe forest officers to continue earning their living on restricted public land. They describe the steps they are taking to manage previously deforested land in a sustainable manner and protect remaining natural forests, acting for the first time as partners with the government. This situation suggests that land rights can be used as an environmental service reward mechanism. It presents an opportunity to test the hypotheses. In the Sumberjaya context, this translates into several key research questions.

- Can secure land tenure through HKm be utilized as a reward mechanism to encourage farmers to utilize land resources sustainably and protect natural forest areas? What impacts does it have on watershed and forest protection?
- Are HKm agreements placed in better-connected communities as opposed to those where they hold the greatest promise to deliver environmental services?
- If HKm agreements change the allocation of land, labor and capital, who gains or loses from these changes? Are the benefits of HKm captured primarily by better-off people in the communities where it has been implemented? What particular issues arise when the reward mechanism involves secure land rights as opposed to monetary payments?
- What institutional mechanisms can be used to help mitigate unintended negative outcomes or spread the benefits of HKm more widely? For example, what types of rewards are most preferred by potential providers of environmental services, and how do preferences vary within and across communities? What strengths and weaknesses characterize alternative institutional arrangements concerning transactions costs, communication, conflict management, and enforcement of rules?

What institutional changes could be introduced that might strengthen the link between receiving the reward and providing the environmental service?

Study design

The questions to be addressed in this study require a combination of qualitative and quantitative research methods, which will be integrated with ICRAF's biophysical modeling work and the action research under RUPES. In Sumberjaya, community- and household-level interviews are being undertaken to generate data for analysis. At the community level, investigations focus on the processes that determine how communities learn about the program, form into the groups that are required to apply for the program, go through the application process, obtain the license, and carry out their responsibilities. The emphasis in this portion of the research is on questions related to bridging and bonding social capital. Bridging social capital is the network of social relationships that brings access to economic opportunities and special programs. Do communities with good connections to the right people gain access to HKm before others? Bonding social capital is the set of social relationships that enables groups to work collectively in an effective way. Are there identifiable factors that characterize those groups that have come together to benefit from HKm and delivered on their responsibilities?

Household level econometric analysis will focus on HKm's effects on people's land use and wellbeing. Utilizing a random sample of people using different types of land, such as privately owned land and forest land with and without HKm agreements, the investigation will focus on differences in the extent to which they adopt environmentally beneficial agroforestry systems, and differences in benefits they obtain as indicated by crop income and land values.

This analysis will be based on measurable indicators of performance, such as the density and species composition of agroforestry plantations, adoption of certain conservation practices, and levels of crop income and land value. It will seek to understand how the land use systems have changed since the late 1990s when people first returned to these lands after being evicted by the government. Analysis also will seek to relate these changes to a variety of factors, not only the ownership status of the land but also various personal and location-specific characteristics that might affect the outcomes of interest.



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The investigation of alternative institutional mechanisms to make RES work successfully will be conducted through a combination of group- and individual-level analysis. Key informant and group interviews will be conducted with potential suppliers of environmental services (upland farmers), intermediaries (e.g., NGOs and the Forest Department) and potential demanders of environmental services (e.g., the hydroelectric power company) to determine the types of mechanisms most likely to be compatible with the incentives and expectations of different stakeholder groups, the key attributes of those mechanisms, and the characteristics of the respondents likely to shape their preferences.

After developing profiles of a number of feasible RES mechanisms, a survey will be administered to a subsample of the households involved in the survey described above. An econometric model will be estimated that relates preferences for different RES mechanisms to attributes of the mechanisms and respondent characteristics as explanatory variables. Results will illustrate attributes of greatest importance in each study site and the way that preferences vary across key subgroups, including people of different welfare and livelihood characteristics.

Policy implications

Compensating land users for delivering environmental services offsite is a promising new approach for protecting natural resources. It offers improvements over past command and control systems, which created enmity between local people and the authorities without achieving great success, and ICDPs, which built better relations but failed to create strong incentives to protect natural resources. Despite its advantages, however, early experience with RES mechanisms shows numerous challenges.

In particular, making a rewards system work to connect the payment with service delivery is tricky. Too often better-off people capture most of the benefits. Continued experimentation is needed to overcome these challenges. In addition, environmental services mechanisms are very rare in Asia. This BASIS research offers the opportunity for an early analysis of the ways in which Asian nations might proceed with environmental service schemes that draw from the Latin American experience while continuing to develop new innovations.



Suggested Reading

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