



DEALING WITH MYTH-PERCEPTIONS: how to reduce communication and perception gaps before Rewards for Environmental Services negotiations can start?

HIGHLIGHTS

Rewards for environmental services (RES) schemes should become a sustainable mechanism, not a project-based one per se. At its initial development, all the main stakeholders involved – poor rural people who are the major environmental service providers, environmental service beneficiaries and intermediaries – usually face a number of questions: Is RES a realistic expectation that will benefit all stakeholders? Will poor rural people be wasting their valuable time and resources in pursuit of rewards, only to be disappointed?

Conservation efforts still rarely achieve a stable or increasing supply of environmental services. Many other factors, including ‘extreme’ events (such as dry years and natural disasters) can influence supply. This also raises a number of questions: What services should be targeted? Do these services qualify for market-based recognition? What interventions can be technically supported and planned?

RUPES has developed a logical sequence of steps that: (1) are quick and inexpensive; (2) integrate across disciplines; (3) clarify criteria and indicators of environmental service functions; (4) address the complexity of the landscape and how this landscape provides environmental services; and (5) test the limits of science in providing clarity on environmental services as a basis for ‘realistic’ agreements. A realistic agreement is an agreement that ensures real impacts on both environmental service provision and benefits for both their providers and beneficiaries. These steps, or tools, are Rapid Hydrological Appraisal (RHA), Rapid Agrobiodiversity Appraisal (RABA), and Rapid Carbon Stock Appraisal (RACSA). In addition, we present the Rapid Tenure Claim Appraisal (RATA) to identify competing perceived legal claims among stakeholders, which is commonly found in developing countries.

At the end of these rapid appraisals, an ‘honest broker’ or intermediary will have to advise the local and external stakeholders with respect to the agricultural use of the landscape concerned, as well as any issues about watershed functions, biodiversity conservation or carbon sequestration and whether it is worth pursuing ‘negotiations’ on environmental service rewards. This synthesis note describes the problems faced in the development of RES and solutions that these tools provide, including case studies based on RUPES experiences.

1. Realistic design and improvement of environmental services can result in sustainable RES schemes.
2. Developing an RES scheme has very high transaction costs; therefore, there is a need to apply rapid, participatory and economically viable environmental service assessments to ensure good design and as the basis for communication among main stakeholders that leads to fair negotiation and long-term environmental service agreement.
3. The RHA, RABA, RACSA, and RATA tools can provide the environmental service intermediaries or ‘honest brokers’ a sound understanding of what the negotiation process should try to achieve.

1. Scan perceived environmental service values of all stakeholders, any threats to environmental services and opportunities to reduce such threats, and current conditions of trust among stakeholders.
2. Commission rapid appraisals of environmental services and tenure. These will appraise local, public and scientists’ ecological knowledge of the way environmental services depend on land use and of opportunities for realistic enhancement of the services that can be understood by main stakeholders.

SECTION I. LOGICAL STEPS FOR A REALISTIC RES AGREEMENT

RUPES experience has shown that the overall likelihood of achieving negotiated reward mechanisms depends on four aspects (figure 1):

Value – shared perceptions of the way identifiable environmental services are influenced by upland land use and affect downstream interests;

Threat – the existence of trade-offs between the local utility of upland land-use decisions and these identifiable environmental services;

Opportunity – the presence of community-level institutions that effectively constrain individual land-use decisions and that can secure compliance with agreements;

Trust – between local communities, governments and external actors as a basic condition for negotiations and compliance by all partners to agreements.

More realistic expectations of quantitative indicators for baseline, current and future scenarios may help the negotiations (especially indicators that help identify the differences between the current situation and a range of plausible scenarios for change).

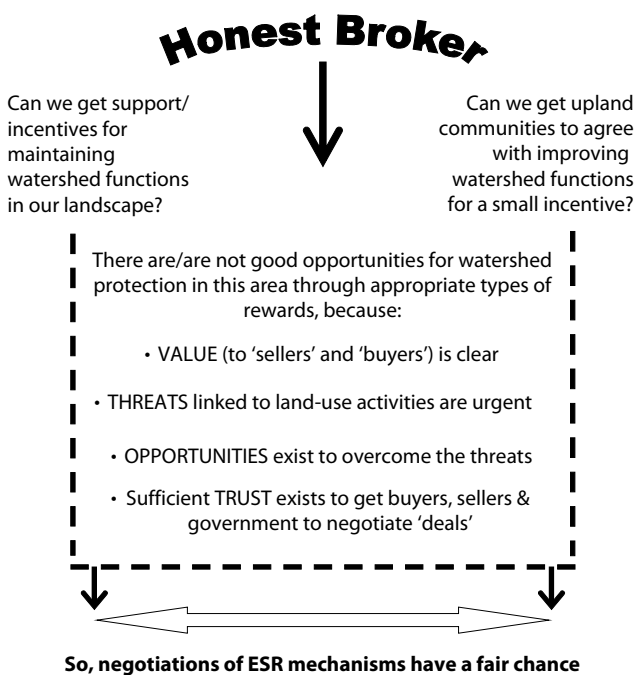


FIGURE 1. Rapid Environmental Appraisal towards better alternative options and negotiation for RES scheme.

The appreciation of the various quantitative indicators probably differs by stakeholder group and needs to be understood from the perspective of ‘local–upland’, ‘local–lowland’, ‘public–policy’ and ‘ecology–environmental service provision’ to facilitate the negotiation process.

The rapid environmental services appraisal approaches have been further developed to address the hypothesis that communication may be constrained by gaps between three types of knowledge (local, public and scientific) on provision of these services. In addition, knowledge is often expressed in languages that have little in common and using concepts that may be considered ‘myths’ by other stakeholder groups.

Where negotiations between multiple stakeholders are an essential part of any RUPES mechanism, clarity is needed on which environmental service function is the focus, how it is provided, who can be (or claim to be) responsible for providing this service, how it is being impacted upon at present, and how rewards can be channelled effectively to enhance or at least maintain the function – addressing any negative impacts and enhancing the positive ones.

If scientists (hydrologists, modellers, environmental-impact assessors, etc.), local communities, other relevant stakeholders and policy makers are to work together effectively to discuss environmental service provision issues, and jointly develop RES schemes to address these issues, attempts must be made to close the gaps between the three groups’ perceptions, as shown in figure 2.

Programmes or projects do not work without smooth communication, especially when multiple groups and layers of stakeholders are involved. Communication requires information so that all can work towards at least a common understanding of the alternative views, and (at best) consensus, in order to move forward effectively.

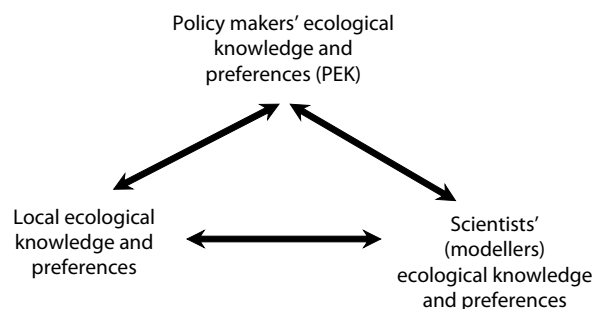


FIGURE 2. Desirable situation where the three knowledge domains are connected and interact

SECTION 2. RAPID HYDROLOGICAL APPRAISAL¹

Agriculture usually implies impacts on the complex of 'watershed function' problems compared to a virgin natural forest. Forest protection as part of watershed management is often considered to provide downstream economic benefits. This conservation effort may well exceed the local benefits of agricultural use. In this case, traditional land use rights of people in the uplands might become alternative rewards to ensure that land-use decisions in the uplands will align with larger-scale conservation efforts. From the perspective of environmental service beneficiaries, increasing demand for continued flow of water that gives substantial economic benefit to external stakeholders (for example, hydro-electricity companies), increases the popularity of the concept of payments for watershed protection services (see RUPES Synthesis Note No.4 "Conditional Tenure")².

The 'rapid hydrological appraisal' tool builds on the concepts and tools of participatory rural appraisal, but delves more deeply into the perceptions of various stakeholders on:

- the severity of 'watershed problems' in relation to land use;
- the positive contributions made by specific land-use practices that help minimize the problems;
- the potential basis for forms of 'environmental service rewards' that provide incentives for supporting 'protective' activities as alternatives to more 'degrading' ones.



Nepenthes sp. at Sibulan-bulan, North Sumatra, Indonesia



A waterfall near Singkarak, West Sumatra, Indonesia

SECTION 3. RAPID AGROBIODIVERSITY APPRAISAL³

Agriculture usually implies a loss of biodiversity. Yet, seen at a larger temporal and spatial scale, many agricultural landscapes still contain substantial parts of the original biodiversity of pre-human vegetation – and allow for the expansion of flora and fauna of more open habitats. In other words, agriculture tends to operate in a 'trade-off' zone, where intensification tends to have financial benefits but ecological costs. Reward mechanisms that help 'internalize' the global benefits at the levels of the farmer and decision maker are therefore relevant and necessary. Beyond this general need for rewards, however, it has been realized that location-specific appraisal is needed to develop reward mechanisms that are effective, efficient and transparent.

RABA was developed under the assumption that effective natural resource management, including biodiversity conservation, can only be achieved if there is a synergy between three different types of capital – human (threat), natural (values) and social (opportunity and trust).

Nested solutions for providing watershed function – Case study of Singkarak^{4 5}

A 'rapid appraisal' was conducted, during a six-month period, of the hydrological situation in the Singkarak Lake Basin in West Sumatra (Indonesia) in the context of the development of payments for environmental services that are aimed at rewarding the upland poor for protecting and/or rehabilitating watershed functions.

The main issue that became the focus of the study is the relationship between the hydroelectricity project (HEPP, PLTA Singkarak), the fluctuations in the level of the lake, the water quality in the lake and the land cover of the catchment areas that contribute water to the lake. Payments made by the PLTA to the local government can, in part, be seen as rewards for maintaining or improving environmental services. The '*nagari*' (village) of Paninggahan (which almost coincides with one of the lakeside sub-catchments) has become an action-research site for the RUPES project to test the modalities of RES schemes. In discussions, it became evident that there was no full and shared understanding of the relationships between land cover and the environmental services provided.

The main conclusions of the consultations are that there is broad agreement on objectives, such as the need to maintain a clean lake, productive landscapes on hills and irrigated plains that meet the expectations of the high population density, as well as produce electricity for two provinces of West Sumatra and Riau.

There is a widely held perception that the current landscape is not meeting all these expectations: the PLTA is not able to provide as much electricity as was expected, the fluctuations in the level of the lake are a concern to the people surrounding the lake, the water quality of the lake is also a concern, the population of the local fish (*ikan bilih*) is declining, and previous efforts to rehabilitate the *Imperata* grassland in the area have not been very successful.

Much of the debate is focused on proposed solutions and especially on the relative merits of reforestation and the alternative ways to achieve land rehabilitation. While for many policy makers reforestation (either using the local *Pinus merkusii* or other fast-growing tree species) is the main approach, villagers in Paninggahan are convinced that streams dry up in the dry season after reforestation with pine trees, while the natural forest is providing regular stream flows.

Overall, the water-balance model suggested that the possible performance of the PLTA is only mildly influenced by land cover within the range of scenarios tested. Compared to the current land-use mosaic, an increase of 5 per cent or a decrease of 5 per cent in maximum electricity production can be expected, while the variation between 'wet' and 'dry' years in the period 1991–2002 was much larger. Details of PLTA lake management matter a lot. A change in mean annual rainfall under the influence of global climate change will have a strong effect on PLTA performance. Declining water quality in the lake leading to weed infestation will offset any gains in water supply that could result from land degradation. Reforestation with fast-growing evergreen trees will have a mildly negative effect on water usable by the PLTA.

A basic assumption for payments for environmental services is that the supply of these services does depend on the activities of those 'rewarded'. For the PLTA, this assumption is not supported by much evidence that the scheme will result in 'real' environmental benefits demanded by the beneficiaries. Payments made by the PLTA may have various types of rationales:

- Compensation for damage caused by the HEPP project to the farmers along the Ombilin river, whose waterwheel irrigation systems are disturbed, and to farmers with rice fields surrounding the lake affected by increased flooding;
- Shared responsibility for maintaining the water quality in the lake as the HEPP project modifies outflow rates and increases debris accumulation;
- Payments of tax to local government;
- Goodwill-enhancing payments to the local community;
- Payments for environmental services conditional on the delivery of these services.

At this stage, the evidence for the last bullet above is relatively weak, and the scale (a single '*nagari*') is almost insignificant for an "avoided degradation" scheme. Efforts of all lakeside '*nagaris*' will be needed to deal with the issues of lake water quality, and equal attention will need to be given to rehabilitating the other inflows to the lake.

Conserving old rubber agroforest – Case study of Bungo⁶

Bungo District in Jambi Area – a RUPES action research site focused on rewards for biodiversity conservation from old rubber agroforest (RAF) – is situated in the south-west of Sumatra. The area is the headwaters of the Bungo River catchment area, one of the contributing watersheds to the Batanghari River, the longest river in Sumatra. Apart from its high value of biodiversity, the ecological importance of Bungo District can be seen from its relative proximity to the existing government-designed natural reserves. From the community perspective, this ecosystem can become one alternative for sustainable livelihood options.

The RABA identified the following synergy issues:

- Value
 - o Sumatra is a biodiversity hotspot; lowland forest not effectively protected; RAF becomes an area that has escaped ecological changes occurring on its surroundings and so provides a suitable habitat for local species.
 - o The tree diversity of RAF is equivalent to that of natural secondary forest.
 - o RAF provides farmers with a good daily income
 - o RAF is good buffer-zone habitat and still forms 'stepping stones', or corridors bridging national parks
- Threat
 - o Rapid deforestation and ineffective protection of surrounding forests
 - o Conversion to monoculture seems to be more profitable, but leads to loss of agrobiodiversity
 - o Financial benefit as the main motivator in conversion
 - o Policy at district and sub-district levels discourages conservation and continuation of RAF, and favours transmigration, oil palm and mining
- Opportunity
 - o Villagers are reluctant to participate in top-down transmigration programme, perceiving that it can lead the loss of indirect products and services of RAF and raise conflicts with outsiders
 - o Farmers see RAF not only from a financial point of view but also from an ecological one
- Trust
 - o Policy threat from existing government plans: transmigration, oil palm, mining, etc.
 - o Potential collaboration between local government and communities

The overall RABA recommendation is that there are good opportunities for biodiversity conservation in RAF landscapes through rewards for targeted areas. One of the reasons is that local people are willing to negotiate with outsiders if the benefits are clear.



Kalahan reserve area envisioning carbon market. Kalahan, the Philippines

SECTION 4. RAPID CARBON SEQUESTRATION APPRAISAL⁷

There is enormous interest in how smallholder farmers could participate in the carbon market, particularly the voluntary carbon market. However, gathering information on the current carbon storage of a certain landscape is tedious and costly; there is also the misconception that only scientists can carry out the work.

A better understanding of the relationship between carbon stocks and land-use practices is required in the context of the global C balance.² The impacts of the ongoing processes of land-use change (brought about by the decision of the local farmers to increase their farm production) need to be assessed and efforts made to store more carbon in terrestrial ecosystems.

While tree-based agriculture is generally seen as an option that can at least partially reduce the current net carbon emissions into the atmosphere from the use of fossil fuel and land conversion, there is considerable variation in land management within the broad class of 'agroforest' systems, but a shortage of quantitative studies.⁸

RACSA was developed to address the concerns about the need for more measurable elements of carbon markets involving local communities and impact of various land management approaches on carbon stocks. Elements for employing RACSA are:

- a. Socio-economic survey at household level aimed at understanding current land-use patterns and available alternatives;
- b. Carbon stocks measurement at plot level in representative land-use categories;
- c. Analysis of current land use and recent land cover change using remote sensing analysis; and
- d. Landscape simulation modelling (FALLOW Model) to explore how different scenarios are likely to change the drivers of land use and how land-use changes are likely to affect both livelihood opportunities and landscape-level carbon stocks.

Opening access to the carbon market for the local community - Case study of Kalahan, in the Philippines⁹

In Kalahan – a RUPES action research site focusing on carbon market – the total area used for the study was about 22,040 hectares (ha), covering the Kalahan reserve area of about 14,730 ha with five *barangays* (villages). Based on rapid surveys and secondary data, four main livelihood options were identified: agricultural farming systems, non-timber forest products (NTFP), and off-farm and cattle-raising activities. There are two main agricultural farming systems: permanent and swidden. Payments for labour for permanent and swidden upland rice-based and swidden sweet-potato-based farming systems are about 317 PhP (US\$7.9) per person daily, 120 PhP (US\$3) per person daily, and 40 PhP (US\$1) per person daily, respectively. Payoffs to labour of NTFP and off-farm activities are about 251 PhP (US\$6.3) per person daily and 150 PhP (US\$3.75) per person daily, respectively.

For carbon stock measurements, the Kalahan Educational Foundation has estimated around 38,383 tons of carbon dioxide, based on the forest inventory in the 62 blocks (about 10,000 ha).

Based on the landscape simulation model between 1989 and 2001, Kalahan was experiencing an annual increase in forest area (146 ha) and an annual decrease in agricultural/grassland area (92 ha). Using the FALLOW model with the margin of error of about 7 percent, it was predicted that within the next three decades (2001-2030), the landscape (at its baseline setting) would experience an annual decrease in forest area (85 ha) and an annual increase in agricultural/grassland area (85 ha), mostly due to population pressure (annual growth rate of about 1.78 percent). This would consequently deplete biodiversity, carbon stocks and sediment filtering capacity at annual rates of about 0.4 species, 53 Giga gram (or 530 billion gram), and 177 Gg, respectively. Within this period, secondary expenses (expenses other than the basic needs) of the people would increase at a relatively very low annual rate of PhP 110 (almost US\$3) per capita. Thus, a scenario study was done to explore 'future options' for improving peoples' welfare in Kalahan while avoiding further depletion on its ecosystem services by: (1) improving NTFP productivity and markets; (2) providing better off-farm jobs; and (3) promoting tree-based systems (i.e. cacao, coffee and mahogany) through extension, subsidies, market improvement and giving legal tenure rights to farmers to access grasslands.

The results of the scenario study suggest that if Kalahan is concerned only about biodiversity, without having any concerns about people's welfare and other ecosystem services, then providing better off-farm jobs would be the best choice. If the concern is about carbon or watershed functions only, without having any concerns about peoples' welfare and biodiversity, then promoting small-holder tree-based systems (i.e. coffee or cacao) or providing better off-farm jobs would be the best choice. If the concern is about all ecosystem services, but still without any concerns about people's welfare, then again promoting small-holder tree-based systems (i.e. mahogany) or providing better off-farm jobs would be the best choice. And, if the concern is about people's welfare, with or without having any concerns about ecosystem services, providing better off-farm jobs or promoting small-holder tree-based systems (i.e. coffee or cacao) would consistently be the best choice.

SECTION 5. RAPID TENURE CLAIM APPRAISAL¹⁰

Most forest lands are under the control and management of the state, and many communities' rights to these forest lands are often neglected by forest laws. In contrast, the legality and legitimacy of the state to claim forest land is viewed as not 'clear and clean' by the communities. Illustrations of this situation can be found in several developing countries. For example, in Indonesia, only around 10 percent of the 120 million ha classified as forest zone has been demarcated through forest gazettement and delineation processes, leaving 108 million ha unclear in terms of the nature of rights attached and resulting in local communities' claims to forest zones being unprotected. Another similar situation occurred in the Brazilian Amazon, where around one third of

the forests have uncertain ownership status. Studies conducted in Indonesia and the Brazilian Amazon revealed the same problem of traditional land rights often not being codified, leaving local populations defenceless against a change in the legal status of open-access lands. Many stakeholders have different perceived legal claims to forest land resources and these different claims bring conflicts over who has the rights to control and manage the forest land resources.

RATA is built upon participatory rural appraisal methods explores in-depth the competing perceived legal claims among the stakeholders.

1. On what bases/reasons do the stakeholders have legal claim over the forest land resources?
2. Do they have policies to support their claims?
3. Are there any policies that can bring these different claims to the negotiating table?

A risky game: putting aside the people's rights and livelihoods? – Case study of Batang Toru Area

The Batang Toru Area, as one of RUPES learning sites, can be reached in 12 hours from Medan, the capital of North Sumatra Province. Administratively, it is located within three regencies: North Tapanuli, Central Tapanuli and South Tapanuli. In 2005, the Head of the South Tapanuli District (*Bupati*) proposed to the central government that area be designated a national park, covering a total of 148,570.3 ha. The proposal was made in order to prevent the extinction of orangutan (one of the protected species in Indonesia) and preserve its habitat from deforestation and degradation through illegal logging, forest fires, dwellings and shifting cultivation. However, little information on the land tenure issue was covered by this proposal.

A four-month RATA study tried to provide information regarding land tenure and legal claim issues. The legal claim, articulated to the proposed national park, uses the 1920s gazettement processes in some part of Batang Toru Area. Despite the government's claim to all of the area as state forest zone, no further gazettement process has been conducted in other parts of the Batang Toru Area. The unfinished gazettement processes might lead to the condition of open access and conflicts. The designation of state forest zone in North Sumatra receives much resistance from local governments because certain areas of the state forest designation zone have already been allocated by the local governments to other land-use activities such as crop estates and dwellings. Resistance has also been recorded in North Tapanuli and Central Tapanuli, leading to the possible failure of the proposed national park.

Contrary to the government's claim, people's access to and use of the forest in Batang Toru Area were legalized by other government entities. About 17,391 ha of land in the proposed national park were registered as customary land by the National Land Agency, making people's access to and use of this area well protected, based on land title. Based on spatial analysis, around 32,573 ha are actually under the control of local people and should be classified as agroforest. If this contested claim is not resolved, conflict might result if the proposed national park is approved.

Such claims will need to be resolved. A number of policies, such as village forest (*hutan desa*) and community forest¹¹ (*hutan kemasyarakatan* – HKM), may help to reduce the potential for conflict. However, creating a national park within the Batang Toru Area may still lead to land conflicts due to the many stakeholders involved and their differing types of access to and use of this area, especially the local communities. Another concern is the different interpretation between the Ministry of Forestry and the National Land Agency on property rights in Batang Toru Area. Both government entities should negotiate and resolve their divergent views on the extent of customary land rights, especially since the way the title documents are issued by them may also jeopardize the legitimacy of their documents.

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Acknowledgements:

This note was prepared under the RUPES Project, supported by grants from IFAD, the Ford Foundation and European Union. Within IFAD, this note benefited from comments and continuous support of Carla de Gregorio (Grant Coordinator Asia and the Pacific Division of IFAD) and Martina Spisiakova (Knowledge Management Officer Asia and the Pacific Division of IFAD). The Trees in Multi-use Landscapes in Southeast Asia (TULSEA) Project supported by the Federal Ministry for Economic Cooperation and Development (BMZ) is contributing to the further dissemination of this RUPES Synthesis Notes.

The RUPES Project:

Throughout the world, upland people, many of them poor, earn their livelihoods from land and landscapes that, when properly managed, provide valuable environmental services to others. However, management practices that maintain or increase environmental services often carry a cost to upland people in terms of time and/or income. Regulations and prescriptions of land use aimed at securing environmental services are often ill-designed and exacerbate rural poverty. RUPES aims to work with both potential users and producers of environmental services to find conditions for positive incentives that are voluntary (within the existing regulatory framework), realistic (aligned with real opportunity costs and real benefits) and conditional (linked to actual effects on environmental services), while reducing important dimensions of poverty in upland areas.

At each of the six RUPES action sites, local institutions partner with the World Agroforestry Centre (ICRAF) to implement action research aimed at developing effective reward mechanisms in the local context. The sites are Muara Bungo, Singkarak, and Sumberjaya in Indonesia; Kulekhani in Nepal; and Bakun and Kalahan in the Philippines. National policy dialogues are aimed at making policy frameworks more conducive to positive incentives.



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