





LANDSCAPE LABELLING APPROACHES TO PES: BUNDLING SERVICES, PRODUCTS AND STEWARDS

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ABSTRACT

Landscape labelling is a new Payment for Ecosystem Services (PES) concept that seeks to combine elements of PES with product certification at a landscape scales. Landscape labelling proposes that managed rural landscapes which deliver valuable ecosystem services be awarded a 'landscape label', by which products derived from this landscape could be differentiated and value added, in the global market. A principal objective of landscape labelling is to deliver benefits to communities, rather than individual landowners, based on the continued delivery of ecosystem services as evaluated at landscape scales, rather than at the scale of private landholdings. In so doing, landscape labelling also seeks to overcome some of the existing challenges to the implementation of PES schemes, including evaluating opportunity costs and ecosystem service delivery, high transaction costs, difficulties in ensuring conditionality and limited inclusivity leading to inequitable distribution of benefits. The global export trade in many agricultural commodities derived from tropical smallholdings (including coffee, cacao and rubber) offers opportunities for the implementation of landscape labelling that is specifically targeted to benefit smallholders within a landscape mosaic. As such, landscape labelling would provide management with incentives to continue to meet the ecosystem service criteria required for certification. The label, with its associated conditionality criteria, could serve as a mechanism for securing additional payments for ecosystem services, which, under a landscape certification scheme, would be delivered to community-based organizations for investment in community and social projects that would benefit a far wider range of people than is possible in the current PES model.

INTRODUCTION

New approaches to the management of complex environmental problems have been conceptualised within the Millennium Ecosystem Assessment (MEA, 2005). The concept of ecosystems as providers of essential goods and services for the support of human well-being lies at the heart of the MEA. Ecosystem services are the multiple benefits that people receive from the natural environment and include: water purification and flood control by forests, carbon sequestration, pollination and prevention of soil erosion and sedimentation. Linking these ecosystem functions with human livelihood quality provides a basis for including conservation and environmentally-sensitive management in land-use decisions. How to successfully incorporate ecosystem service approaches within landscape management has yet to be clearly defined though. One promising approach is to pay

Linking ecosystem functions with human livelihood quality is key to ensuring sound land-use management

landowners for the ecosystem services that their lands provide. Thus, Payment for Ecosystem Services (PES) schemes compensate (or reward) landowners for management that provides conservation or ecosystem service benefits to other parties, but which necessarily constrains their own revenue-generating opportunities. However, there remain a number of limitations that are common to most such approaches, principal among them being a clear definition of land-tenure, high establishment and transaction costs, low inclusivity of participation (and distribution of reward payments) and limited or uncertain ecosystem service provision. These problems have constrained the uptake of PES schemes and further undermined their potential in meeting poverty alleviation and development needs that are often concurrent with demands for habitat conservation.

In this chapter, a new concept for PES is proposed that seeks to overcome some of the problems associated with the current generation of PES schemes. This approach is called 'landscape labelling' and it extends existing PES ideas through their integration with the related concepts of product certification and which are applied collectively at a landscape scale, rather than the individual farm unit (Ghazoul *et al.*, 2009). This approach is described by highlighting its advantages over current systems, as well as its potential disadvantages that remain researchable challenges for its implementation. The idea is introduced to advance the debate on PES concepts in the hope that more effective ways of implementing PES concepts that achieve multiple benefits of conservation, ecosystem service provision and poverty alleviation can be realistically developed. As a concept, it is expected that landscape labelling will be challenged, refined and even ultimately rejected, in the hope that this process will accelerate the development of future PES schemes that are able to overcome many of the associated problems, as described below.

PES AND PRODUCT CERTIFICATION

PES rewards landowners for management activities that provide ecosystem services. Another market mechanism is that of product certification, which seeks to achieve environmental protection through market-based mechanisms, such as price premiums or improved market recognition. Both PES and certification provide financial incentives to landowners to manage their land such that environmental benefits are maintained (see also Chapter 1 "The role of PES in agriculture").

PES is essentially a voluntary transaction where an ecosystem service is purchased by a buyer from an ecosystem service provider (i.e. the seller). Current PES schemes require three steps: (a) an assessment of the range of ecosystem services generated in a particular area; (b) an estimate of the economic value of these benefits to different groups of people; and (c) the establishment of a regime or institution that is able to capture this value and reward landowners for preserving the delivery of the ecosystem services.

The development, application and acceptance of PES schemes face operational challenges at each of these steps, principally in the form of the evaluation of opportunity costs and ecosystem service delivery, high transaction costs and difficulties in ensuring conditionality (see also Chapter 4 “Cost-effective targeting of PES”). Overcoming these barriers is a precondition that can be facilitated by investing in ecological and economic valuation and by building community and institutional capacity. Even when these conditions are met, a PES scheme may ultimately be undermined by the failure to distribute benefits widely, leading to societal conflicts over land use (Pagiola *et al.*, 2007).

POVERTY ALLEVIATION AND EQUITY

The main objectives of PES are usually to secure environmental protection, but some have also been developed with the intention of alleviating poverty in rural areas. There are substantial challenges to the alleviation of poverty through PES-type approaches (Grieg-Gran *et al.*, 2005; Pagiola *et al.*, 2008; Wunder, 2008). At present, the beneficiaries of payments derived from most PES schemes are landowners who can enter into contractual agreements with institutions making the payments (companies, government agencies, NGOs, etc.). In this respect, PES schemes are often inappropriate mechanisms for poverty alleviation because they exclude the landless (i.e. those who tend to be the poorest of the poor). PES schemes often also exclude smallholders due to high transaction costs, uncertainty of formal land titles and their limited impact on ecosystem services (Engel *et al.*, 2008; Grieg-Gran *et al.*, 2005; Pagiola *et al.*, 2008; Wunder, 2008).

PES schemes are often inappropriate mechanisms for poverty alleviation because they exclude the landless

Consequently, land-based criteria for participation in PES could exclude billions of poor people worldwide. Out of necessity, the landless poor are often the agents of environmental degradation; thus, they are not only excluded from benefiting from PES schemes, but they are also placed in direct conflict with landowners who will seek to retain any financial rewards they enjoy under PES, which requires maintaining landscape quality for the continued delivery of ecosystem services. Implementation of most PES schemes is, therefore, strongly targeted and exclusionary (Wunder, 2008).

Transaction costs are often the biggest single barrier to participation of the poor in PES schemes (Smith and Scherr, 2002; Wunder and Albán, 2008). High transactions costs limit uptake to large landowners and exclude smallholders (Wunder and Albán, 2008). Buyers of ecosystem services are also disinclined to incur the costs of negotiating with many individual smallholders and, therefore, may specifically exclude small farmers from participation (Wunder and Albán, 2008).

It is also far from clear whether tropical rural communities, be they poor or otherwise, actually wish to engage in such schemes or not (Ghazoul, 2007a, 2007b, 2007c). PES must cover the opportunity costs of participation, which extend beyond income to encompass broader assessment of livelihood benefits and risks (Benitez *et al.*, 2006; Ghazoul, 2007a, 2007c; Wunder, 2008). Opportunity costs may be high or at least perceived to be so, particularly given increasing agricultural commodity prices linked with high demands for food and biofuels (Koh and Ghazoul, 2008). Problems associated with insecure land tenure and suspicion of outside agencies that offer contracts in return for restricting land-use options are further barriers to participation (Pagiola *et al.*, 2007).

VERIFICATION

Ultimately, the success of PES schemes rests on their ability to deliver what they promise to the buyers of the services. Implementing conditionality may represent a substantial proportion of the costs associated with PES and may also exceed local community capacities. Furthermore, the reliability of poor farmers as service suppliers may be low if they are unable to exclude outside factors. This is particularly likely when tenure rights are complex or uncertain, as is the case for many community-managed forested lands in India. Even if the delivery of services from the relevant landholdings is confirmed, the former pressure on the services may simply be displaced elsewhere (i.e. leakage) (Wunder and Albán, 2008). An alternative to quantified guarantees of ecosystem service provision is the use of proxies of service functions, such as land cover attributes (as has been adopted by the watershed protection model in Pimampiro, Ecuador) (Wunder and Albán, 2008), although such proxies must obviously be based on scientific justification of the validity of the proxies themselves (see also Chapter 3 “Opportunities and gaps in PES implementation and key areas for further investigation”). The advent of high resolution and relatively inexpensive remote sensing technologies, coupled with the spread of computer technology and internet access even to remote parts of the developing world, particularly India, provides considerable opportunities for the development of proxies for ecosystem services at the landscape scale.

LANDSCAPE LABELLING

The scientific community is grappling with the challenges of developing locally equitable, cost-efficient and trustworthy PES schemes. A new PES-type approach, called ‘landscape labelling’, has the potential to overcome many of these challenges by:

- ❖ Combining PES with certification of products derived from landscapes that demonstrably deliver benefits through ecosystem services;

- ❖ Delivering the benefits of PES schemes to all stakeholders contributing to a successful certification process through social and infrastructural investments;
- ❖ Making available an easily accessible format at the national and international level by which relevant information on ecosystem service provision (represented by a 'landscape label') can be verified.

Before elaborating on this concept further, it should be noted that landscapes cannot be objectively defined *a priori* as a geographic area with hard boundaries because human-dominated landscapes include not only the biophysical components of a geographical area, but also social,

*A landscape label
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payments to be made
to community-based
organizations for
ongoing compliance*

political and psychological components of that system (Aldrich and Sayer, 2007). In the context of landscape labelling, the 'landscape' is determined through agreements among and by the participation of local communities who then define the area encompassed within a landscape label scheme and, hence, the spatial extent of the landscape itself. What constitutes a community also requires definition, although this can only be done once the context is understood. Nevertheless, the landscape scale, as interpreted here, envisages that several communities would be encompassed, though

these communities would share a sense of 'belonging' to the landscape as they define it. In summary, a landscape entering a landscape labelling scheme would be defined by geographic, cultural and social boundaries.

It is proposed that managed rural landscapes recognised to be delivering ecosystem services (against relevant criteria and based on local and regional evaluation by appropriate institutions) should be acknowledged as such by granting the use of an exclusive 'landscape label' that is applicable across the whole landscape. A landscape label would represent the delivery of various ecosystem services and, thus, be the conduit through which payments for ecosystem services are made to appropriate community-based organizations to ensure the continued delivery of these services. The landscape label could also be used to identify a good as originating from an ecosystem service-providing region, as well as serving to symbolise the wide variety of ecosystem services provided by the landscape. A landscape label could also represent and indeed publicise the cultural and symbolic attributes of the landscape, as defined by local communities, thereby helping to define its heritage value and uniqueness for people beyond the landscape. This, in turn, would provide greater recognition to communities and help to empower them in negotiations with outside agencies (including government or companies) and also promote landscape recognition that could serve to generate new livelihood opportunities through, for example, tourism (Garcia *et al.*, 2007).

A landscape labelling approach, therefore, provides a mechanism by which payments for ecosystem services are delivered to the community on the basis of effective landscape

management, while individual landowners and producers additionally benefit from the raised market recognition of their products through the use of the landscape label as a certificate of good land and environmental management. Thus, a landscape label potentially permits producer communities to improve market recognition, secure premium payments, gain access to niche markets and attain market benefits for minor products by association through the label with more commercially important products. The derived benefits can, in turn, secure an incentive for managing the landscape in such a way as to continue to meet the ecosystem service criteria required for certification. Landscape labelling has many other benefits in terms of reducing transaction costs, improving inclusivity and equity, more cost-effective assessments of conditionality, allowing more flexibility in response to changing market environments and providing social pressure to limit free-riding. It also has several potential problems though, which will be explained further below.

Landscape labels potentially permit producer communities to access new and more lucrative markets for products and services

Exploring the feasibility of the proposed landscape labelling scheme and the plausibility of the expectations outlined above assumes that ecological, social and economic knowledge can be properly integrated, that appropriate community-based institutions are established, and methods for easy and rapid verification of ecosystem service delivery and conditionality criteria are developed. Each of these issues is explored in detail later in this chapter, but first concepts that are somewhat related to the landscape labelling approach but fall short of its whole vision are described.

PRECURSORS TO LANDSCAPE LABELLING

The concept of landscape labelling has been preceded by other approaches that also seek to raise recognition of products, services and values generated by landscapes and thereby provide pathways for improved economic well-being of landscape inhabitants. Three such approaches are described below and the similarities and limitations of such approaches compared to landscape labelling are outlined. Firstly, ICRAF's *Rewarding Upland Poor for Environmental Services* (RUPES)¹ initiative is explored, which seeks to make PES schemes available to poor smallholders that are often excluded from PES schemes through a lack of capital, knowledge or insufficient land. Then, Geographic Indications are discussed, used to differentiate specific types of product from similar competitors with which they might be confused. RUPES is most closely associated with PES, while Geographical Indications (GI) is more akin to certification; while both have

1 <http://rupes.worldagroforestry.org>

similarities to landscape labelling, neither go as far as landscape labelling in what they seek to achieve. The Biosphere Reserve concept is the most closely aligned to landscape labelling, but again differs in a number of important respects.

Community-based PES

Reward schemes based on payments for ecosystem services that target poor smallholders do exist, as exemplified by ICRAF's two initiatives: *Rewarding Upland Poor for Environmental Services* (RUPES) programme and the similar *Pro-poor Rewards for Environmental Services in Africa* (PRESA) (ICRAF, 2008). Both RUPES and PRESA highlight social mobilisation, which represents community-based action to socially and politically empower communities to engage in PES schemes. Community-based institutions should, therefore, include accountability of local representation for decision making and conflict management. This requires that these organizations are sensitive to gender issues and represent the interests of the poorest members of society, as well as being able to reach agreement and consensus over issues of conflict. RUPES experience in the Kulekhani watershed (Nepal) has shown that the likelihood of achieving broadly acceptable PES systems for smallholders depends on shared perceptions of ecosystem services and opportunity costs, on representative community institutions that manage the implementation of PES scheme and trust between communities, regional and national governments and external actors as a basic condition for negotiated agreements. Indeed, conflict between local political parties is the main reason for the current delays in the selection and funding of PES-funded projects (see Case Study 9 "A community-based PES scheme for forest preservation and sediment control in Kulekhani, Nepal"). Similar to these schemes is the Mexican *Payments for Hydrological Environmental Services Program* (PEHS) (Muñoz-Piña *et al.*, 2008), but this differs from RUPES in that it targets legal landholders who, while undoubtedly poor, are still better off than the many smallholders with uncertain tenure or the landless poor.

Geographical Indications

A Geographical Indication (GI) identifies a good as originating in the territory, a region or locality in that territory, where a given quality, reputation or other characteristic of the good is essentially attributable to its geographical origin. It serves as a marketing tool, adding value to agricultural products creating a unique identity for the products, based on the locality where they originate from and acknowledging the role of specific knowledge and natural resources of the production process (Addor and Grazioli, 2002).

GI was initially developed in early 20th-century Europe to protect consumers by offering reliable information about the goods they buy. It was thought that GI could also afford protection to producers, by fighting against reputation theft and unfair competition. A second generation of GI was extended to foster rural development by maintaining economic opportunities in rural areas (see Case Study 2 “Geographical indication (GI) certification in Ukraine”). The third and present incarnation of the GI, as adopted and adapted by several developing countries, including India, has extended the concept to the environment and the cultural and biological diversity associated with local production (Bérard and Marchenay, 2006; Garcia *et al.*, 2007). With GI protection, producers are able to command premiums for their products, especially if perceived and/or actual quality differences exist, including product differences attributable to their unique geographical origin, as opposed to varietal origins (Agarwal and Barone, 2005).

Each of these schemes presents some advantages over existing systems in terms of delivering benefits to a wider range of ecosystem providers and providing new opportunities through improved product and product locality recognition. Each, however, retains some of the problems commonly associated with PES. GI is simply a certification scheme that certifies producers of specific goods from locations that give reputation to the product and, therefore, excludes landless or smallholders who are unable to overcome the transaction and investment costs to participate. GI also differs from landscape labelling in that it offers no payment for any ecosystem services. RUPES seeks to overcome such problems by offering PES schemes to aggregated smallholders, but landless poor often gain no benefit (although see the specific case of Kulekhani, Nepal) and smallholders remain entirely dependent on ecosystem service buyers as they gain no additional recognition for their agricultural products though their participation.

Biosphere Reserves

The United Nations Educational, Scientific and Cultural Organization (UNESCO) Biosphere Reserves combine a core protected area with zones where sustainable development is fostered by local individuals and enterprises. A certification scheme backed by UNESCO confers international visibility (UNESCO, 2008). Designation of a locality as a Biosphere Reserve by UNESCO raises awareness among local people, other citizens and government authorities of the value of the landscape for nature conservation and sustainable development. The biosphere label is often also used to market a variety of goods produced within Biosphere Reserves, though this is not linked to any verified environmental criteria. Rather, the UNESCO biosphere label is used more similarly to that of a GI, though rather than being product specific, it can instead be adopted by almost any product marketed as emanating from the Biosphere Reserve (an example of this would be cheese from the Entlebuch Biosphere Reserve in Switzerland). In this way, the

biosphere label provides publicity for the biosphere region and can be used to promote the products emanating from it. Because the label raises the profile of the region and its landscape as a whole, it therefore stands to benefit many producers living in the Biosphere Reserve, as well as other types of business, such as tourism. There are, however, no coherent mechanisms for payments to be made to the community for specific ecosystem services. Thus, Biosphere Reserves provide benefits through increased recognition of products and product locality. They are not directly or verifiably linked to assessments of the ecosystem services provided by the landscape though; however, it is implicit in the designation that landscape environmental quality is high.

THE ADDITIONALITY OF LANDSCAPE LABELLING

Landscape labelling borrows ideas from each of these approaches and combines them with new ideas into a single approach. This approach has many of the advantages of the above-mentioned schemes, as well as several additional advantages, but also inevitably has some associated disadvantages or obstacles that will remain challenging for its implementation. To assess the potential of landscape labelling, its features will be explored in more detail. In this respect, eight features that are believed to be advantages over existing PES systems are examined below.

Inclusivity and equitable distribution of benefits and poverty alleviation

A major constraint of current forms of PES is that they are generally limited to large landowners who can provide quantifiable and verifiable services and who can overcome the transaction costs of participation. This excludes landless people and smallholders for whom participation is not possible due to lack of capacity or because they are specifically excluded due to insufficient land size. For example, the Ecuadorian PROFAFOR² scheme operates only with landowners that have a minimum of 50 hectares (Wunder and Albán, 2008). This can lead to problems in that the PES may become a source of conflict between landowners and the landless. This can arise in several ways (see also Chapter 5 “Social and cultural drivers behind the success of PES”).

To secure PES payments, landowners may exclude the landless from extracting resources from areas that were previously accessible to them. This could lead to leakage in that resource users may be forced to extract the resources elsewhere in the landscape. A landscape approach will help to detect and prevent leakage from within the boundaries of the landscape, but not necessarily beyond its boundaries.

² <http://www.profafor.com>

Landscape labelling provides a label that signifies effective ecosystem service provision by a landscape, rather than by a single farm and implicitly recognises that landscape structure is a function of management and use by all community members (see also Chapter 3 “Opportunities and gaps in PES implementation and key areas for further investigation”). It is on this basis that payments are made by ecosystem service buyers to community-based organizations. These payments are invested into social and community projects or initiatives. Thus, landscape labelling provides the potential to secure benefits to all community members including the landless poor. While these benefits are indirect, they may be important in providing improved access to markets, better education and healthcare, micro-insurance, etc. (Table 8).

Landscape labelling is also inclusive in that the use of a landscape label is not restricted to a particular product, as is the case with GI, but associated with the wider landscape. Hence, any product that is derived from that landscape can use the label to signify that it has been produced under a management system that continues to provide ecosystem services. This provides benefits in terms of market recognition and potentially also price premiums to all farmers regardless of the type of product they are producing. Indeed, the concept may be advanced further by extending a label to non-agricultural products, such as artisanal commodities or other small industries. Theoretically, provided the landscape as a whole continues to deliver ecosystem services according to the criteria by which the landscape label was awarded, there is no reason why a label could not be used by any kind of industry within the locality. This may even allow environmentally-damaging industries to continue their activities, thereby resolving any conflicts that might otherwise arise, provided that their further expansion does not undermine the validity of the landscape label according to the criteria by which it was granted.

Transaction costs

As noted previously, transaction costs may seriously limit the uptake of PES. Transaction costs are particularly important for ecosystem services that can be independently and unambiguously delivered and quantified by many discrete landowners (e.g. carbon sequestration). Watershed, landscape beauty and biodiversity services can be more easily adapted to smallholder participation because the service buyer is forced to engage with collectives of smallholders at a much larger scales (Wunder, 2008; Wunder and Albán, 2008). Negotiation with many such smallholders clearly incurs high costs; the success of the RUPES scheme is in its ability to engage individuals through collective action (see also Chapter 4 “Cost-effective targeting of PES”).

Landscape labelling differs from RUPES and other PES schemes in that contracts are negotiated with representative community organizations, rather than individuals, and verification is based on landscape scales, rather than on individual farm units. It is expected that this will reduce

considerably the number of interactions and, therefore, the costs, although it is possible that costs will simply be displaced to the community institutions, which would incur the costs of negotiating among their members regarding participation in the landscape labelling scheme.

Bundled service provision

The opportunity of a landscape approach allows the local communities, buyers of ecosystem services (at a range of scales), conservationists and others to identify and value a wide variety of services and landscape values concurrently. Once identified, the variety of services can then be incorporated into management. This contrasts with current buyers of ecosystem services who

*Landscape labelling
also has great
potential for bundling
several ecosystem
services together
across the landscape*

often target one or a limited number of services (e.g. carbon sequestration, water provision, etc.) within a landscape, leading to potential trade-offs with other services that are either not recognised or are undervalued. Landscape labelling allows for a wide variety of services to be recognised and maintained across the landscape, depending on local, national and international demands.

In addition, current PES schemes do not distinguish the appropriateness of land for particular service provision. Thus, planting trees may provide soil preservation services in some locations, but may be inappropriate in wetlands that regulate water flows. Through community participation, an integral part of landscape labelling and the flexibility afforded by a landscape approach, a wide range of ecosystem services can be incorporated into management that takes account of the appropriate distribution of service-providing habitats.

Conditionality

The success of a product certificate is dependent on the trust that consumers place in what the certificate represents. If forest cover is accepted as an appropriate proxy for ecosystem service delivery, then as a coarse measure of the certificate's validity an opportunity for self verification is provided by widely available software, such as Google Earth™. Thus, remote sensing that provides information on changes in land cover distribution could be made readily accessible through existing technologies and platforms, by which consumers can verify the veracity of any landscape label, at least in coarse terms. Such platforms could also raise awareness of the region in general, with further knock-on benefits to producer communities.

Nevertheless, ensuring adherence to landscape labelling requirements is likely to be complex, necessitating interaction and agreement between many individuals, villages and community-

based institutions. This represents another way in which transaction costs may be shifted from the buyers of services (who would otherwise have had to verify service provision by individual landowners according to specific contractual obligations) to the sellers, in the form of community organizations. Verification by buyers needs be little more than an analysis of remote sensing images at appropriate time intervals with occasional ground-truthing, while it remains up to the communities to ensure that obligations are being met and conflicts associated with such obligations are appropriately managed.

Market recognition

A landscape label provides clear recognition of not just the landscape, which would itself be beneficial for promoting tourism and other income generating opportunities, but also in improving product recognition in the regional, national and global markets. This offers opportunities for increasing market share and differentiating products from competitors; it also allows for minor products to benefit by association with commercially important products that use the same label. Landscape labels, therefore, need not deliver price premiums to be beneficial, but simply provide uniform market recognition for a wide range of products.

Community management and social pressure

The success of community-wide schemes is dependent on effective institutional structures that provide appropriate negotiation and communication pathways among the variety of community organizations. A diversity of community-based organizations and interests is typical of many rural landscapes and ensuring effective interaction among such organizations is one of the most serious challenges to the implementation of landscape-level PES processes.

Indeed, the success of the landscape labelling approach rests on the effective functioning of such organizations, as well as cooperation between them. Payments to support a certified landscape are expected to be made to appropriate community institutions that will be responsible for making investment decisions. Conflicts between community-based organizations and corruption within them are perhaps the most important threats to the successful implementation of landscape labelling. Nevertheless, there is considerable awareness and knowledge regarding empowerment of and collaboration among community-based organizations and examples of collaborative networks to secure wider community benefits are known. These include the Model Forest Trust system, which in the district of Kodagu has been developed into a network of stakeholders that share

The success of landscape labelling depends on cooperation between several community-based organizations within a given landscape

the common goal of sustainable landscape and forest management with a view to preserving ecosystem services and local livelihoods (see Case Study 8 “Geographical Indications and landscape labelling in Kodagu district, India”).

Flexibility in decision making

Another limitation of PES is that landowners are contractually bound to restrict their activities on their land and are, therefore, limited in the extent to which they can respond to changing commodity markets. This restriction of their management choices makes landowners somewhat wary of PES. However, assessing ecosystem service provision at the aggregated scale of the landscape allows greater flexibility regarding land-use decisions and allows for development when opportunity costs at a particular location are high, so long as this development is offset elsewhere within the landscape. This raises the potential for a landscape-wide offset market,

Assessing ecosystem services at the aggregated landscape scale allows greater flexibility in land-use decisions at the farm level

permitting landowners to offset certain environmentally-damaging activities and thereby retain the benefits of landscape labelling. Such flexibility is likely to make landscape labelling more attractive to wide participation, as there is the recognition that high opportunity costs can be accommodated through reforestation or improved forest protection elsewhere within the landscape where opportunity costs are lower. This presupposes that ecosystem services continue to be successfully provided to the standard which is required to maintain justification for the associated payments.

This is the nub of conditionality, which is itself a prerequisite for a successful PES scheme. Thus, offsetting is more likely to work if there is appropriate planning about where development might take place such that impacts are minimised and where restoration for offsetting should be implemented to maximise resulting ecosystem service benefits. This will undoubtedly raise the costs of implementation and the actual degree of flexibility afforded by offsetting will be shaped by these considerations.

Inclusion of non-market values and local community perceptions

It is possible that a landscape label could represent more than just goods and services that have market value, but also non-market values, including the cultural and spiritual importance of landscape features, as well as natural heritage, notably biodiversity. Many tropical landscapes are rich in biodiversity that has little direct economic value or may harbour species that have local religious or spiritual symbolism, but little significance for buyers of ecosystem services.

Additionally, to avoid conflicts among landowners and the landless it is important that landscape labelling recognises local values and local use of habitats (see also Chapter 3 “Opportunities and gaps in PES implementation and key areas for further investigation”). If such values are incorporated in a landscape labelling approach, it can then serve to minimise or avoid conflicts between landowners seeking to protect their forest under landscape labelling conditions and the landless who extract resources from such habitats.

BARRIERS TO THE UPTAKE OF LANDSCAPE LABELLING

Barriers to the adoption of landscape labels may also include a lack of awareness among the farmers about the concept of labelling or ecosystem services provided by the landscape. Producers may also not appreciate the importance of PES conditionality, i.e. the need to maintain service provision to continue receiving PES payments and to justify an associated landscape label. Such barriers, however, are common to all PES schemes.

There remain several unresolved, or at least poorly resolved, concerns with regard to landscape labelling specifically, including dealing with ‘free-riders’, managing conditionality, avoiding leakage, ensuring effective functioning of community institutions and dealing with disturbances beyond the control of the communities (e.g. atmospheric pollution, climate change). Community relations (e.g. between producers and other community groups) may become strained as any PES necessarily restricts the range of livelihood options available to producers. The linking of a PES (that benefits the farmer) to a certificate (that benefits the wider community) could improve such relations by ensuring that the two groups have common goals. Peer pressure may act to minimise free-riding, but may also create and exacerbate conflicts. Opt-out agreements for individual landowners allow for flexibility in decision making, but may erode the landscape labelling concept if too much flexibility is allowed. Leakage is less likely in a landscape labelling approach because the assessment for the delivery of services is made at the scale of the entire landscape, although this would not account for displacement beyond the boundaries of the landscape.

Another important issue that needs further consideration is the decisions that should be taken by buyers for ecosystem services under conditions of non-compliance. When ecosystem service provision is attributed not to a single individual, but to the entire community, then in the event that ecosystem services fail to be delivered the expected course of action would be to reduce or stop payments. This raises important concerns regarding the morality of such an interruption in that the landscape labelling payments could be providing widespread community benefits, including poverty alleviation.

The landscape labelling approach has yet to fully deal with a number of key aspects before it can be adopted at a wider scale

Although not all these issues can be addressed in detail within the scope of this paper, nor is it clear how they should be addressed, it is hoped that the description of the concept generates discussion that will lead to the development of improved PES systems that provide the advantages listed above without, ultimately, the disadvantages that are readily recognised.

The landscape labelling concept differs from other PES approaches in that it specifies a landscape-wide PES scheme and invests funds into community-based projects that have the potential to benefit a far greater number of people than might otherwise be the case, yet also allows for additional benefits to landowners through product differentiation. Payments made to community-based institutions to support community projects (e.g. micro-insurance, micro-credit, education and health infrastructure, improved transportation and communication networks, etc.) benefit a much wider range of community members, regardless of societal status and instigate social pressure acting against free-riders. Additionally, by building capacity among community-based networks (such as in the Kodagu Model Forest Trust) and, ultimately, by raising awareness of the landscape in the wider social and political environment, it offers possibilities to improve communities' abilities to achieve official recognition of traditional management practices and land rights. There are clear benefits over existing PES schemes and yet there are also major obstacles to be investigated and overcome if landscape labelling is to make a useful contribution in real terms. Through this paper it is hoped that new ideas could be generated and a discussion fostered by which PES approaches overall can be advanced and improved.

Table 8

Comparison of current PES concepts with landscape labelling

PES (<i>sensu</i> Wunder, 2005)	Landscape labelling
Moderate establishment costs	High establishment costs
High transaction costs borne by participating individuals	Low transaction costs (although high transaction costs may be deferred to community-level organizations)
Low equity (participation in PES usually limited to large landowners)	High equity (allows participation by all community members)
Voluntary at individual level	Voluntary at community level (individual non-participants effectively become free-riders)
Environmental quality managed by individual landowner (possibly leading to exclusion of other resource users)	Environmental quality managed by landowners and community members and mediated through community-based organizations
Service provision at farm scale (aggregated units may be insufficient to provide large-scale ecosystem services)	Service provision at the landscape scale (encompassing all ecosystem services provided by the landscape)
Relatively few services provided	Relatively many services provided
Little flexibility in land use at farm scale (individuals contractually bound to limited land uses)	Large flexibility in land use at farm scale, provided criteria are met at the landscape scale
Conditionality verified at farm scale	Conditionality verified at landscape scale through combination of remote sensing and ground-truthing
Financial reward paid directly to landowner (limited distribution of PES benefits)	Financial rewards realized through a variety of mechanisms, but mainly through community-based institutions for social projects (wide distribution of PES benefits)
Little potential for poverty alleviation	Large potential for poverty alleviation
Values limited to interests of ES buyers	Potential to encompass many landscape and environmental values, including cultural and symbolic features
Independent of community-based institutions	Very dependent on effectively functioning community-based institutions
Financial rewards received for provision of ecosystem services only	Financial rewards received for ecosystem services and potentially through product certification
Little potential for wider landscape recognition	Large potential for wider landscape recognition
Top-down enforcement of individual contractual obligations	Bottom-up (peer pressure) and top-down (ES buyer pressure) enforcement of community contractual obligations
Entirely dependent on buyers of ES for funding	Certification offers some independence from ES buyers
Clear boundary definition	Landscape boundary definition requires negotiation and agreement

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GEOGRAPHICAL INDICATIONS AND LANDSCAPE LABELLING IN KODAGU DISTRICT, INDIA

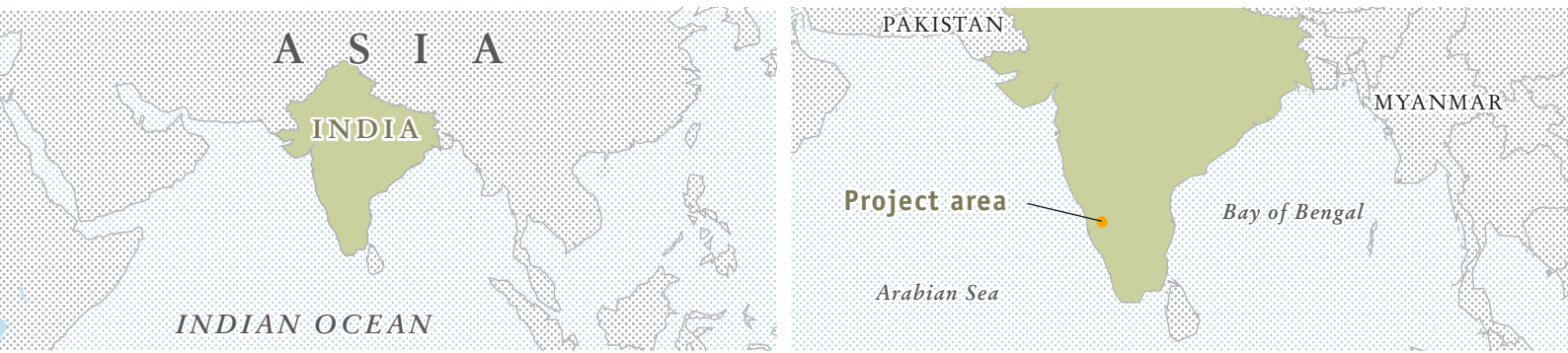
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The district of Kodagu (informally known as 'Coorg') in the state of Karnataka is a major coffee-growing region located in the mountain range of the Western Ghats, India. It produces nearly two percent of the world's coffee (Coffee Board of India, 2008), mostly in agroforestry systems under native tree cover. The district has 150 inhabitants per km² and despite this high density, still harbours important populations of flagship species, such as the tiger (*Panthera tigris*) and the Asian elephant (*Elephas maximus*).

Before the development of coffee, rice was the main crop, cultivated in terraced fields in the lowlands. Adjoining the rice paddies fields were large tracts of wet evergreen and moist-deciduous forests. These forests provided farmers with a variety of goods and services, for example, the transfer of fertility from forests to farmland in the form of green manure, provision of firewood, timber and non-timber forest products. With the development of the plantation economy, the rice paddies and the forests became less valuable. From 1977 to 1997 there was a 30 percent loss of forest cover in Kodagu, while the area under coffee doubled, predominantly at the expense of privately owned forest fragments (Garcia and Pascal, 2006). Today, coffee plantations occupy 33 percent of the district; the transformation of Kodagu has wider implications for ecosystem services, such as biodiversity, scenic beauty and the cultural significance of this landscape (Figure 25 and 26).

Four major ecosystem services are provided by the coffee agroforestry landscape: (a) it contributes to the ground water recharge; (b) it acts as a carbon sink compared to other cultivated land uses; (c) it maintains high levels of biodiversity; and (d) it has aesthetic values that are appreciated by a burgeoning tourist population.

Geographical Indications and coffee certification schemes, or even a landscape labelling approach, could link sustainable management and environmental benefits of coffee agroforests with appropriate remuneration for producers through better access to markets and PES, and improve livelihoods for coffee farming communities, while conserving natural resources in a major coffee agroforest region located in a world hotspot for biodiversity.



GEOGRAPHICAL INDICATIONS (GI) IN KODAGU¹

India protects its origin-based products and associated traditional knowledge through the promotion of Geographical Indications, with a *sui generis* protection system that is looked upon as a model for other countries. Conflicts over Basmati rice and Darjeeling tea have created a nationwide awareness and, in accordance with the World Trade Organization (WTO) agreement on TRIPS, India passed the Geographical Indication of Goods Act in 1999, which entered into force in 2003.

The Department of Horticulture of the Government of Karnataka filed an application for a GI Coorg orange, which was registered in 2004. The Coorg orange (*Citrus reticulata*) is an ecotype of mandarin. It is a small tree that grows well in evergreen, subtropical, hilly tracts at 600-1 200 metres above sea level. The Coorg orange was frequently associated with coffee, but diseases and lack of interest by farmers who were eager to involve themselves in more lucrative cash crops (coffee and pepper) has almost entirely wiped out the crop over the last 50 years. The Department of Horticulture has sought to protect and revive the Coorg orange traditional crop variety and to provide high quality (disease-free) plant material, bringing economic development to the region. The GI is being used to protect the ecosystem where the orange is grown and protect the association between the product and its origin locality.

The GI may have prevented the Coorg orange from disappearing, but it is doubtful that the GI on Coorg orange will have an impact on the biodiversity and landscape dynamics of Kodagu owing to: (a) the way the GI was initiated, via a government agency speaking on behalf the producers, rather than the producers themselves; (b) the fact that the specification was not drafted with the objective of maintaining and fostering multifunctionality within the landscape; and (c) the lack of local awareness about the GI tool or the ecosystem services provided by the landscape.

¹ Garcia *et al.*, 2007



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**Current pages
(from left to right):**

- State-controlled forests, rice paddies, coffee plantations and forest patches constitute the landscape of Kodagu district.
- Large-scale conversion of forests to coffee plantations has eliminated important ecological corridors between forest remnants causing serious human-elephant conflict in Kodagu district.

The Coorg green cardamom GI, filed this time by the Spices Board, is also registered and suffers from the same drawbacks. As of today, there is no GI on coffee, despite this being the most prominent product of the area, with a well established reputation and the geographical name being used by private companies to market generic coffee powder.

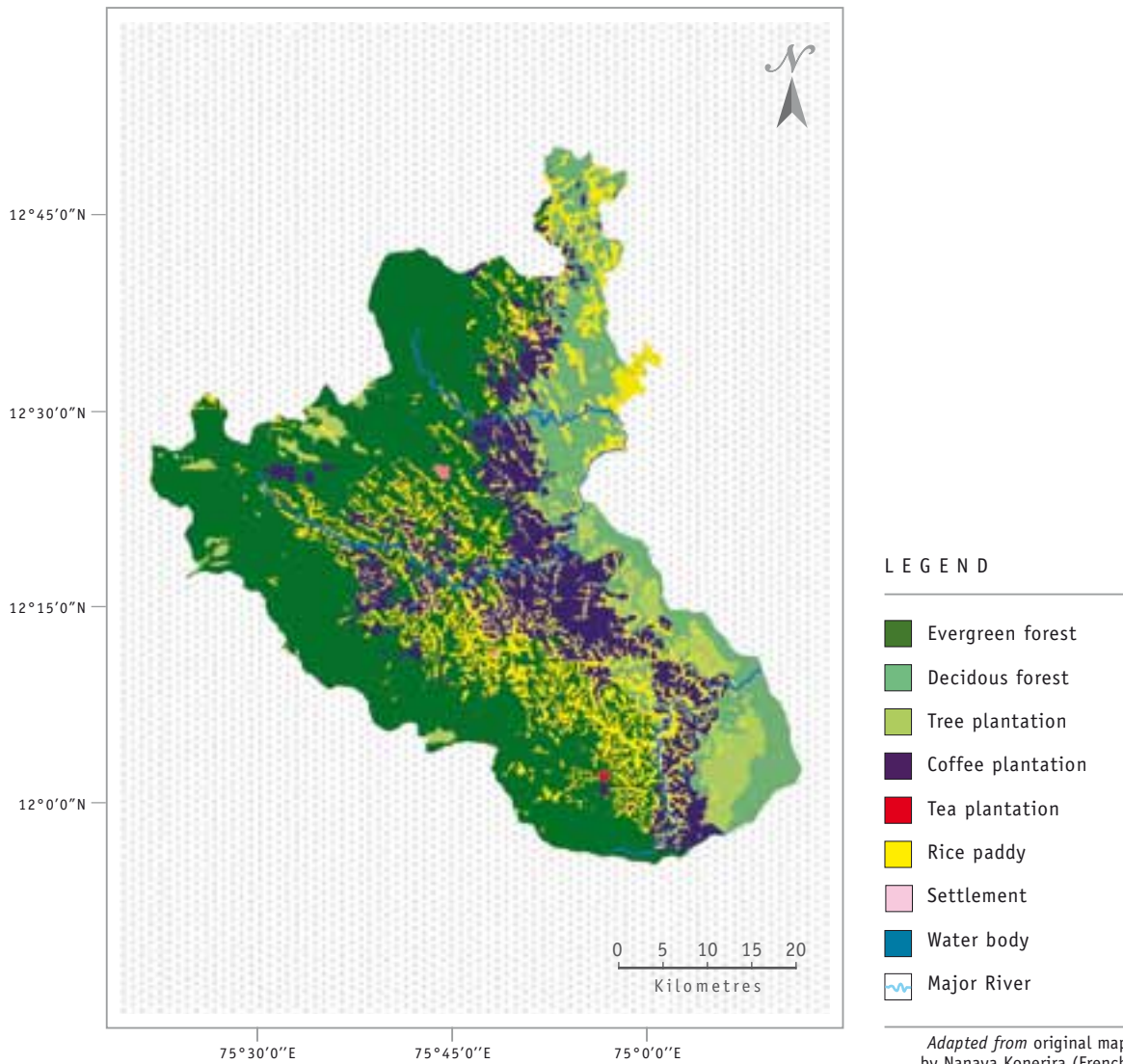
For a GI to be successful it needs to secure income for the producers and for this it needs to be filed or at least appropriated by the producers. For a GI to be successful in protecting biodiversity, environmentally-sound practices need to be embedded in the specification of the GI. However, choosing environmentally-sound practices entails opportunity costs that need to be taken into account lest the GI becomes no longer profitable and, therefore, defeats its original purpose.

COFFEE CERTIFICATION SCHEMES IN KODAGU

Despite the high levels of biodiversity that have been documented in the coffee agroforestry landscape of Kodagu, eco-labelling of coffee was absent from the region until 2008. The majority of Kodagu's farmers are smallholders and to source sufficient volumes of quality coffee produced in a sustainable manner has been a challenge for any certification scheme. Under the EU-funded Coffee Agroforestry Network (CAFNET) project, an initial group of six farmers were certified by the Rainforest Alliance and/or UTZ-certified in 2009 and so secured better prices for their coffee. Currently, 90 farmers are under review for certification, based on a voluntary process led by the farmers themselves with support from the two leading coffee trading companies in Kodagu. The cost of the certification is borne by these companies, though the Coffee Board of India recently announced a subsidy scheme to encouraging certification programmes among growers. The CAFNET project facilitates these activities by helping the farmers document their management practices and biodiversity, improve their record-keeping and design internal controls.



Figure 25
Land cover of Kodagu district in 1977





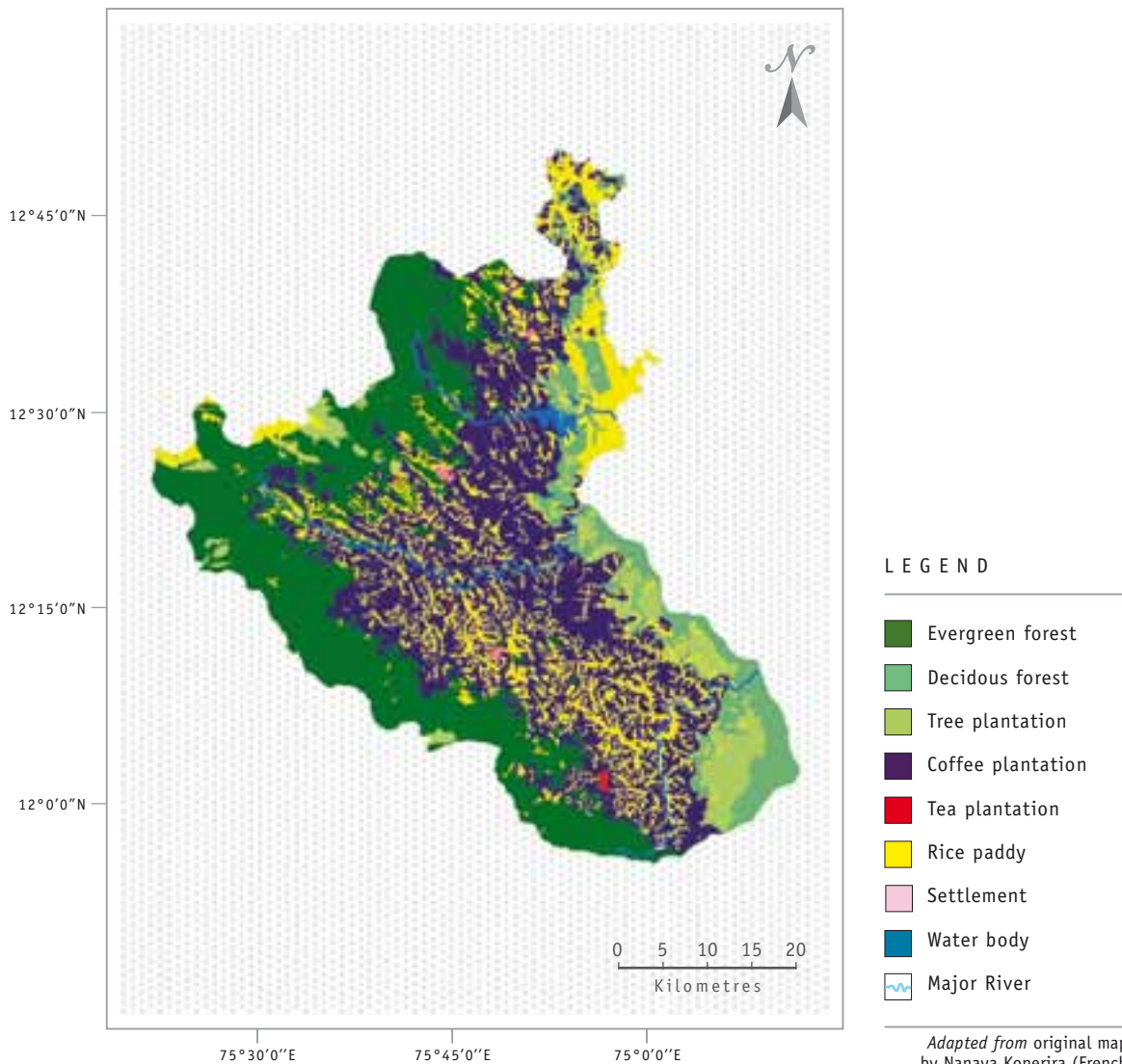
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Current pages

(from left to right):

- Heavily pruned forest trees allow the cultivation of shaded-coffee cultivation.
- Example of a sacred forests near the source of the Kavery River in Kodagu district, where one sacred forest is found for every 300 hectares, giving to the landscape a strong cultural value.
- Cardamom (*Elettaria cardamomum*) used to be the main cash crop of Kodagu district long before large-scale coffee cultivation was introduced by the British.

Figure 26
Land cover of Kodagu district in 2007



Adapted from original map
by Nanaya Konerira (French
Institute of Pondicherry)



LANDSCAPE LABELLING IN KODAGU

Landscape labelling is a concept that combines ideas drawn from PES with product certification concepts. Kodagu potentially delivers a wide range of ecosystem services that benefit the local, regional and global community and yet is undergoing a transformation that is likely to undermine the ability of the landscape to provide these services. A valuation of the ecosystem services provided by the Kodagu landscape could provide the basis for a bundled payment for these ecosystem services. Payments under such a scheme would be conditional upon the continued delivery of the services which (for most services) is a function of the aggregated land uses across the landscape and the payments would be made not to private landowners, but to community-wide institutions such that the benefits of PES are realized at the community level. Because a landscape label implicitly recognises that the appropriate scale for ecosystem service assessment is that of the landscape, the recognition afforded by a landscape label could be applied to any commodity produced by farmers within the landscape. A landscape label is, therefore, not product specific. It also relieves individual farmers from the costs of adoption and verification, although such costs would be transferred to the community organizations receiving the payment. Such organizations are, however, better positioned to negotiate with ecosystem service buyers (companies, NGOs, government organizations, etc.) and secure subsidies.

Were a Kodagu landscape label to emerge, the Kodagu brand would achieve enhanced recognition and increased market visibility through the use of the landscape label as a symbol of effective environmental management. Other products from Kodagu could, under landscape labelling, legitimately use the same Kodagu brand name signifying their origination from a landscape that is delivering a wide variety of ecosystem services. Through this, they could gain market recognition by association, as well as recognition of the ecosystem service values they represent. Finally, services and specifically eco-tourism would benefit from the increased recognition and the standards of quality the label could enforce.



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Current pages (from left to right):

- The homestays agroforestry system is increasingly attracting visitors from Bangalore.
- Honey from Coorg (the English name of Kodagu) has a good reputation but, without Geographical Indication, most of what is sold is a blend of different origins.
- Gathering firewood is one of the main needs of local people and agroforestry can reduce the pressure on natural forests.

Finally, intangible values could be embedded in the landscape label, to reflect the specific cultural and religious values attached to the landscape and specifically its sacred forests and pilgrimage sites, such as the source of the Kavery River. This would empower local communities in their actions to conserve such features in the face of external development pressures (Garcia and Pascal, 2006).

Landscape labelling in Kodagu could be implemented through the Kodagu Model Forest Trust (KMFT), a partnership of organizations representing diverse groups that have interests in the environment and management of the Kodagu landscape. It includes as its members organizations representing landholders, NGOs, the Karnataka Forest Department, community groups, research institutions. Furthermore, it encompasses groups that represent a variety of stakeholders ranging from government representatives, farmers and village representatives, as well as scientists and other experts. While it does not yet include representatives from the landless poor and tribal communities, there is the potential to develop the network in this direction. Hence, landscape labelling payments for ecosystem services could be made to a community-based institution, such as KMFT, which would be responsible for the investment of such funds in social and development projects and infrastructure to the benefit of all people living within the landscape, not only to private landowners.

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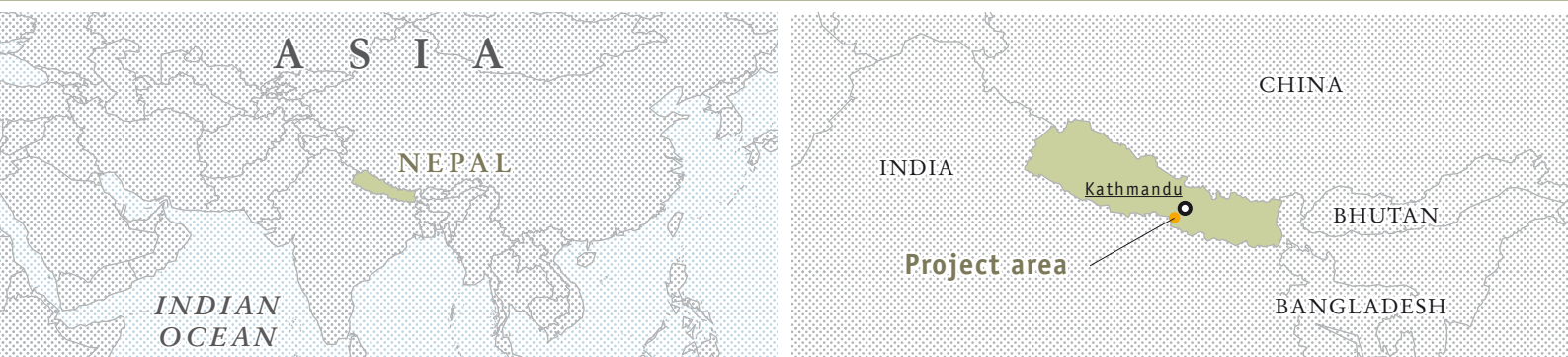
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A COMMUNITY-BASED PES SCHEME FOR FOREST PRESERVATION AND SEDIMENT CONTROL IN KULEKHANI, NEPAL

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Kulekhani, which in Nepalese means 'mine of water', is a 12 500 ha watershed in Makwanpur district about 50 km southeast of Kathmandu, Nepal. More than 46 000 people from 8 600 households in eight villages live in the catchment area. Poverty persists in numerous villages in the catchment area and many households practice a subsistence economy based on sloping land agriculture (on an average of 0.6 ha of land per household), livestock rearing and the use of forests for fuelwood, fodder and litter. Intensive agriculture for commercial vegetable production and paddy rice is increasing. Forests, although legally owned by the state, were traditionally managed by local communities. In 1957, the government, aiming to protect and increase forest cover, nationalised forests, marking their boundaries, restricting access and employing forest guards for patrolling them. Ironically, this nationalisation policy led to major deforestation partly due to inefficient protection measures and the exploiting attitude of local communities who felt expropriated from their forests. Thus, in the 1980s, to try to re-establish some level of forest protection, the government launched a national community forestry programme, in which the government granted user rights of the forest to a group of households. The community forestry programme has been hailed as a success in the country. In Kulekhani, 95 percent of the forests are now community managed and forest cover is recovering well.

In 1982, on the site of the Indra-Sarobar Lake, the Kulekhani reservoir was built to collect monsoon rain and channel water from the reservoir to the hydropower plant downstream. Later, a second hydropower plant was added below the first plant (Figure 27). The Kulekhani hydropower plants now provide 17 percent of the total hydroelectricity generated in Nepal. Eighty percent of the annual rainfall falls during the four monsoon months (June-September). Annually, the watershed receives between 1 500 and 1 700 mm of rain, but annual variation can be high. In July 1993, 542 mm of rain fell within a 24-hour period, resulting in many landslides and massive sedimentation in the reservoir.



A hill above the reservoir, that was partially excavated for earth for the dam, was washed into the reservoir. The reservoir, designed to have a 100-year lifespan based on projected sediment rates, had its life expectancy reduced to a third in a single day!

Given the economic importance of the Kulekhani hydropower plants and the need to properly manage the catchment area, the government promoted participatory watershed conservation programmes in which local people were employed to build sediment-trap dams to intercept any sediment before it reaches the reservoir and adopt measures to control gullies. The government planted large pine monocultures on both state forest and village lands and encouraged people to plant pine trees on their agricultural terraces by providing farmers with free seedlings.

In 2003, the RUPES programme of ICRAF, in collaboration with Winrock International, initiated work to establish a PES scheme between the upland communities in the Kulekhani watershed and the Kulekhani hydropower plant. By law, all hydropower plants must pay royalties to the government which, in turn, channels the money at various levels to development activities. According to prevailing government regulations (the Local Self Governance Act of 1999 and the Financial Ordinance of 2004), 12 percent of the government-collected royalties should be used in the district that houses the hydropower plant (38 percent is allocated for other districts in the development region and the remaining 50 percent is for other development regions of the country). Hence, the Makawanpur District Development Committee (DDC) receives 12 percent of the royalties paid by the Kulekhani hydropower plants to the government. Usually, however, this money would be used as a part of the regular budget for Village Development Committees' (VDCs) projects and the money is not specifically for meeting the needs of upland communities. Thus, within this regulation framework, a PES scheme could be established in different ways:

- The hydropower company could directly pay a portion of its revenue from electricity sales to the upland people for their ecosystem services;
- The government of Nepal could allocate a portion of its hydropower royalties from the Kulekhani hydropower plants to the upland communities;

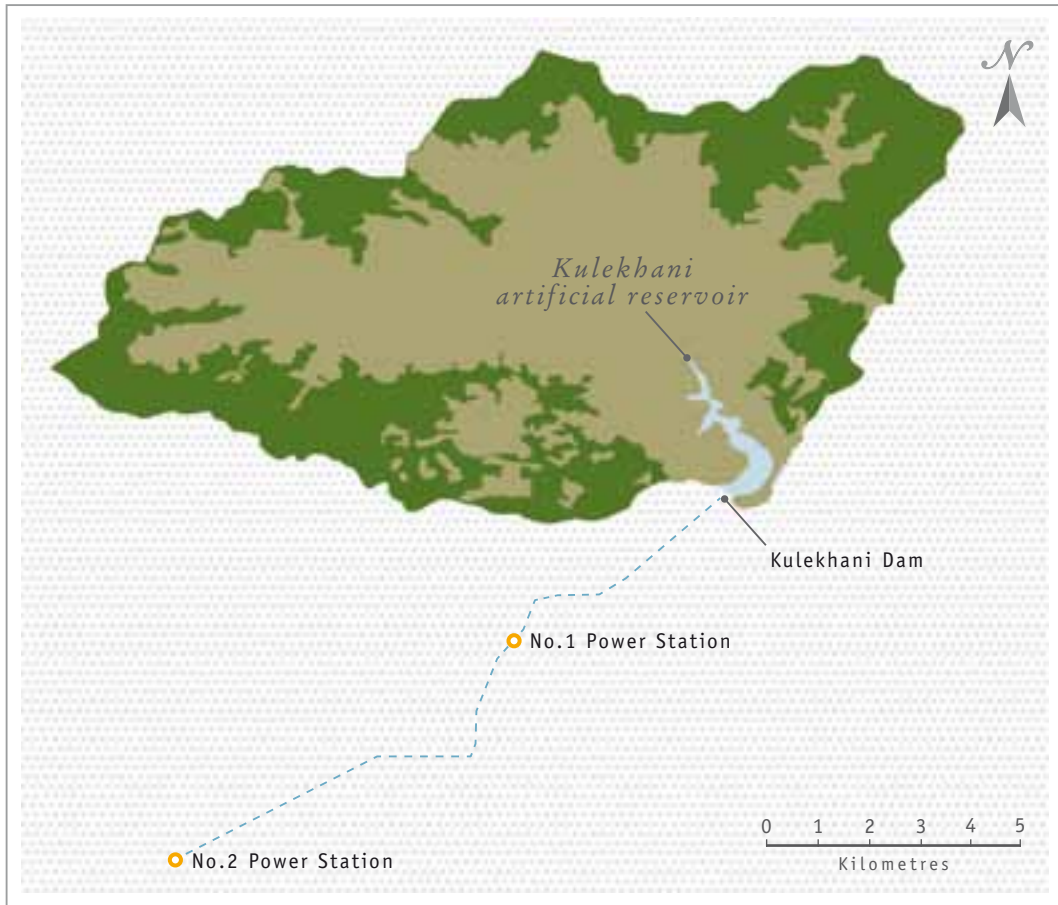


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Current pages (from left to right):

- The 7 km-long Kulekhani artificial reservoir collects all the water drained from the 12 000 hectare Kulekhani Watershed.
- Terracing permits farmers to grow crops on steep slopes on soils that once deforested would otherwise have long since washed away without such measures.
- Palung village next to the Kulekhani River, which receives water from eight sub-watersheds: Palung, Kitini, Kunchhal, Bisingshel, Tubikhel, Simlang, Nalibang and Tasar.

Figure 27
Land cover of the Kulekhani Watershed in 2005



LEGEND

 Forest	 Water body	 Power Station
 Agriculture		 Water pipe

Adapted from ICRAF unpublished report



- c. Makwanpur district could set aside a portion of its hydropower royalties from the central government for the upland communities.

Under the prevailing laws and as advised by major stakeholders, a mediated scheme between Makwanpur DDC and upland communities was considered the most feasible option. Based on the work of Winrock International and RUPES, in 2006, the Makwanpur DDC passed a regulation that specified allocation of the 12 percent royalty received from the government. Known as the Hydropower Royalty Distribution and Use Directive 2062, the DDC must now spend half of the 12 percent royalty in the hydropower plant-affected area, while the remaining half can be used in other areas of the district. The regulation further specifies that of the 50 percent allocation to the affected area, 20 percent is for the upstream watershed area (catchment), 15 percent for the surrounding area (affected by power plant infrastructure) and the remaining 15 percent for the downstream area (because of reduced water in the river due to the water diverted to the turbines). The upstream catchment community, thus, receives a bigger proportion of the royalty than the other areas; the money is deposited in the Environmental Management Special Fund (EMSF), managed by the DDC. The money can be used to support conservation and development programmes proposed by watershed communities. The EMSF is considered a payment to upland watershed communities for providing ecosystem services. The EMSF received about USD 3 000 in 2006-2007, about USD 5 000 in 2007-2008 and about USD 10 000 in 2008-2009. The 2009-2010 allocation remains pending though due to local conflict. The Makawanpur DDC directive has since been accepted and circulated by the government to be implemented in all districts of the country.

Established with support from RUPES, the Kulekhani Watershed Conservation and Development Forum was active in raising awareness amongst local people about ecosystem services, the role of communities and the choices made by the government in the previous decades that are currently affecting their livelihoods. The planting of pine trees on a large scale in the catchment area has been criticised by the local people, as it means there is less fodder for livestock.



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Current pages (from left to right):

- Reforesting the upper Kulekhani catchment with pine trees to reduce soil erosion has been actively pursued by the government, although residents now lack enough fodder resources for their livestock.
- Intensively cultivated vegetable plots on the lowland along the river system.
- The Kulekhani watershed has a population of over 100 000 inhabitants for whom agriculture is the major livelihood source.

Protection of young plantations and community forests has also resulted in people switching from free-roaming cattle to stall-feeding of their animals and from traditional fallow rotations to permanent-field agriculture.

The Kulekhani experience demonstrates that a PES scheme can be issued at the community level and is not necessarily constrained by individual choices and land tenure issues. The long-tradition of forest management at the community level was certainly a major strength in this type of implementation. The major weakness was instead related to the indirect payment scheme, mediated by a government body (Makwanpur DDC), which has made the project vulnerable to local conflicts and political instability. As such, although the local bodies (i.e. DDCs and VDCs) were empowered by the 1999 Local Self-Governance Act and the 1992 Decentralisation Act, with authority, responsibility and accountability in management and distribution of local resources, the current conflict in the use of the available budget is hampering the effective ongoing implementation of the PES scheme.

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