"Marketing" Environmental Services: Lessons Learned in German Development Co-operation

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by Jörg HARTMANN, KfW and Lorenz PETERSEN, GTZ[1]

Abstract

Along with disenchantment over lacking effectiveness and efficiency of traditional policy instruments in natural resources management comes growing interest in alternative approaches. One of these is Payments for Environmental Services (PES): Economic incentives instead of command and control. The concept is intuitively appealing: by offering payments to private land owners as compensation for providing positive externalities like clean water, the public can change the financial rationale behind land use decisions that would otherwise be based only on private costs and benefits.

The logic behind payments for environmental services is not new. For decades farm subsidies have been justified by real or perceived environmental benefits from agriculture. Development agencies have provided subsidies to farmers for afforestation or similar projects. What is new is the explicit use of the concept of payments for environmental services (PES) in developing countries, particularly in Latin America. The increasing recognition of the environmental functions of forests, and the services their owners provide to the public at the local, national and global level, has led to great expectations. At the same time scarce resources have increased pressure to fine-tune PES for improved efficiency and effectiveness.

In German Development Co-operation, funded by the Federal Ministry for Economic Development and Cooperation (BMZ) and implemented by both the German Development Bank KfW and GTZ, the German Agency for technical Co-operation, a number of such programs have been operational in Latin America since the mid-1990s. In this paper, we will be looking at experiences with this programme portfolio in the forest and water sectors and will be discussing a set of issues that seem to be determining success and/or failure in this kind of programme.

Based on our analysis creating win-win situations is not as straightforward as the appealing World Bank definition suggests "…that those who provide environmental services should be compensated for doing so and that those who receive the services should pay for their provision." (Pagiola and Platais, 2002) "Double dividends" in terms of environmental benefits combined with poverty reduction as a result of payments for environmental services are not easily achieved. Trade-offs exist and ask for maximum clarity in the hierarchy of objectives. Aiming to further improve the effectiveness of PES and based on the results of our assessment, we will be intensifying the dialogue with partner countries targeting its use more clearly and defining more specifically the role development co-operation should play.

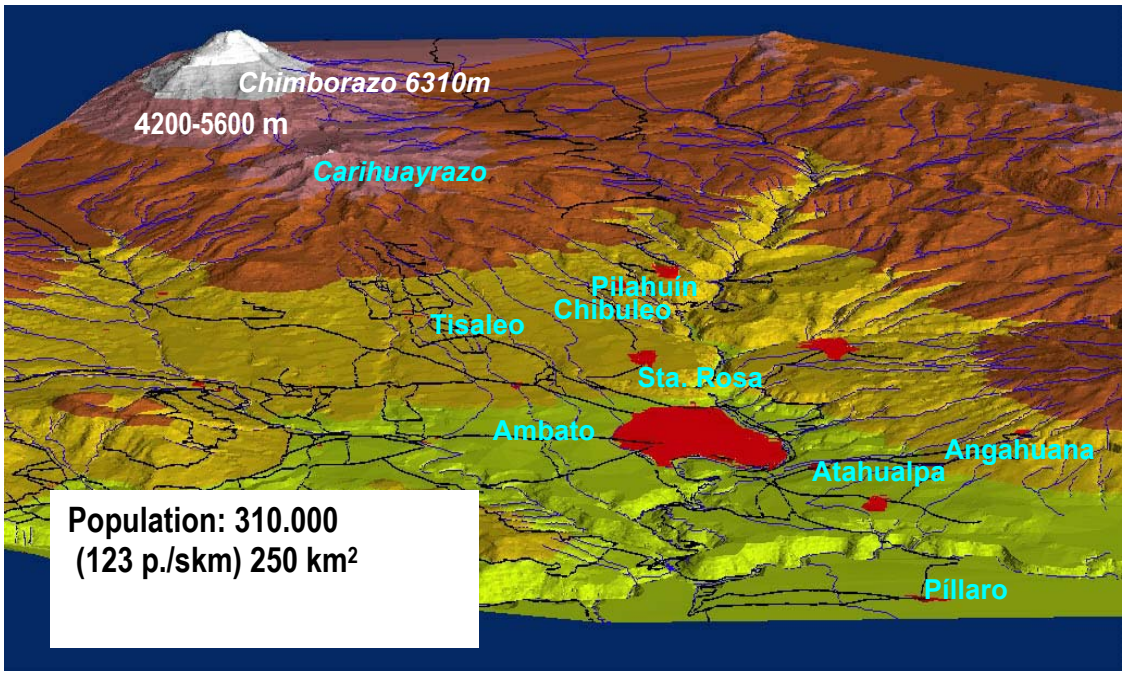
[1] Views expressed in this paper are those of the authors and do not represent positions of KfW German Development Bank and GTZ Deutsche Gesellschaft für Technische Zusammenarbeit.

1. Rationale and Reasoning

The idea that people pay for what they consume or use is straightforward and commonplace in most parts of today's world. This logic quite obviously does not apply where users or consumers cannot be excluded from using and consuming as is the case with many goods and services ecosystems provide. Conceptually this is a situation of positive externalities and market failure. In practice this means that someone benefits without having to pay. It also means that there is no incentive to "produce" ecosystem services on the level there is demand for them. Supply and demand are not meeting because there is no functioning market mechanism.

The Tungurahua province in Ecuador is an example. Both water quality and quantity are areas of serious concern. Around 70% of the population within that watershed live in the lowlands (2100-2800m) covering only 11% of the watershed's surface. Conversely, the highlands, where most of the water resources are coming from cover 47% of the watershed's land with only 5% of its population.

Tungurahua Watershed, Ecuador



Land degradation in the highlands, water scarcity and conflict in the lowlands were rife when a "Comisión Ejecutiva Provincial" comprising officials from the province, representatives of NGOs, indigenous organisations with support from the German "PROMACH" programme met for the first time to get a scheme started that would address these problems by paying for environmental services - based on the premise that land use regimes in the highlands matter for both water quality and quantity in the lowlands (KOSMUS and WIRSIG 2004).

Projects like this one are the foundation for the analysis undertaken in this paper. We try to summarize experiences in German development cooperation funded by the Ministry of Economic development and implemented by its technical (GTZ) and financial co-operation (KfW) agencies. Our aim is to define success factors and critical conditions that must be in place for PES to work. Based on this analysis we make an attempt to depict perspectives of this instrument in resource management and the role German Development Cooperation could play to foster incentives for sustainable resource use.

2. Background and stage of development

2.1 …in the "developed" world

The logic of rewarding or compensating landowners for the alleged or actual environmental services they perform is not new. Agriculture in most developed countries has enjoyed a considerable level of governmental support justified partly by environmental concerns. The biggest agricultural producer worldwide, the United States started vast soil conservation programmes right after the famous "dust bowl" in 1934 when drought and wind erosion hit large parts of the country (particularly Kansas and Oklahoma) and land- as well as leaseholders in the Southwest had their livelihoods devastated (Rasmussen 1985 p. 3-8, Griffin and Stoll 1984). Since then soil and water conservation programmes in the US have continued more of less to this day with budget allocations correlated more to the economic situation in the farm sector than specific environmental services provided or problems addressed with congressional budget allocations correlated more to the economic situation of farm sector than environmental objectives (Petersen 1995)

In the European Union, the importance of "Environmental Services" provided by agriculture increased as the discussion on reducing production related subsidies ("Decoupling") proceeded over the last 20 years. On a political level, there seems to be a consensus today, that agriculture is more than production of agricultural commodities but rather "multifunctional" in its impact and relevance on landscapes, protection of environment and biodiversity as well as achieving rural development goals (OECD 2001). Since 1992 agri-environmental programmes are at the core of the Common Agriculture Policy of the European Union providing incentives for farmers to implement environmentally beneficial land use practices. The annual financial volume of agri-environmental programmes in Germany alone (funded from EU, federal and state budgets) amounts to 870 million USD[2] (DLG and WWF 2002). Up to the year 2003 and related to the 15

[2] At current exchange rates

former EU member states total expenditure in the EU add up to 30 Billion USD.[3] This "second pillar" of the Common Agricultural Policy (CAP) will be further strengthened in the context of the ongoing EU Farm Policy reform process (COM 2003).

In most cases of such agroenvironmental programmes, farmers receive compensation for less intensive ways of arable farming or pasture management, based on presumed income losses and the costs of implementation. "Less intensive" in this context means with reference to what is considered "good agricultural practice" - a term that required substantial efforts to define in a way that makes operational sense but is crucial for the practical side of payments for environmental services in agriculture: eligible for "compensation" are only those practices that go beyond "good agricultural practice" and its existing regulatory framework. The critique against most agroenvironmental programmes not only in the EU but also in the US and other developed countries refers to the missing link between measures and their actual environmental impacts. Because farmers are being compensated on the basis of what they do rather than what effect this has in environmental terms, the incentive to reach formulated environmental objectives is indirect at best. Efficiency is low if payments are based on average yield losses and not differentiated regionally. In addititon, many programmes lack acceptance by farmers – this might be due to the fact that in most cases farmers have not been involved in the design process of payment schemes (Wilhelm1999).

2.2 …in the developing world

Compared with the situation in developed parts of the world, interest in payment schemes for environmental services in the South is more recent and regionally focused on Latin America and the Caribbean. A majority of practical applications have been looking at managing water resources at the level of watersheds aiming to introduce market mechanisms for the compensation of upstream landowners to maintain or modify a particular land use like in our example in Tungurahua. On the "supply side" the discussion in developing countries has been focusing on the "multifunctional" character of forests and their contribution to biodiversity conservation, carbon sequestration, watershed protection as well as landscape beauty.

Strong interest from donors, NGOs and partner countries in PES is the result of a variety of factors not all of them completely free from inherent contradictions. Generally, donors see market-oriented approaches to environmental management as a means to improving efficiency and effectiveness in the implementation of environmental objectives. Making markets work where so far positive externalities prevail would also involve the private sector much more in the

[3] At current exchange rates

provision or rather compensation for the provision of desirable ecosystem services. The World Bank definition of PES reflects this by stressing the exchange between producers and consumers of environmental services.

> "The central principles of PES are that those who provide environmental services should be compensated for doing so and that those who receive the services should pay for their provision."
>
> Pagiola and Platais (2002): Environmental Strategy Notes 3, World Bank.

In the partner countries expectations and enthusiasm on PES varies. While expectations on the landowners/land users (supply) side tends to be high regarding compensation payments, demand and willingness to pay within the private sector generally do not match these expectations. In most existing examples funding is coming largely from governmental or donor sources. The timeframe for funding ecosystem services is also subject of debate. Some NGOs argue for the necessity of an open-ended commitment to payments while donors overwhelmingly see their role in facilitating the transition to a market-like exchange as defined in the World Bank definition between "producers" and "consumers" of environmental services.

The current situation is one where many organisations are taking stock before a decision for or against "up scaling" is being made. [4] The results of existing analyses point to a variety of conceptual as well as practical questions. Landell-Mills and Porras from IIED (2002) summarize this by asserting that "…policy-makers' enthusiasm is not matched by practical understanding…" when it comes to the difficulties of creating markets and their impacts for poor landowners and land users. Replacing the pitfalls of command and control measures for effective and efficient environmental management raises a variety of challenges in terms of property rights, clearly defined environmental services, organisational capacity and sources of funding. For all of these challenges we will be looking how we have been addressing these in German development programmes.

3. Experiences

What we will be looking at initially are the lessons learnt from the first generation of programmes that paid private landowners for changing land use. In German Financial Cooperation (FC), funded by the Federal Ministry for Economic Cooperation and Development (BMZ) and managed by KfW Entwicklungsbank (KfW Development Bank, part of KfW Group), a number of such

[4] The most comprehensive ones have been written by Pagiola, Bishop, and Landell-Mills (2002), Landell-Mills and Porras (2002), Schilling and Osha (2003), Gutman (2003), and FAO (2004)

programmes have been implemented in Latin America since the mid-1990s, in some cases jointly with the German Agency for Technical Cooperation (GTZ, implementing technical assistance programmes for BMZ). Subsequently, the GTZ portfolio on PES will be presented which is much more recent with the majority of programmes in the planning stages. Our focus there will be on design considerations.

German Financial Assistance to PES programs in the LAC Region

Country and Region	Agencies Involved	Contribution to Program Costs (in million US$)	Types of Land Use Promoted Through Subsidies
Honduras / Biosphere Reserve Río Plátano	Corporación Hondureña de Desarrollo Forestal (COHDEFOR), KfW, GTZ	11.5	shade-grown coffee, improved cattle pastures
Costa Rica / Huetar Norte	Fondo Nacional de Financiamiento Forestal (FONAFIFO), World Bank, GEF, KfW	12.7	reforestation, protection of existing forests, sustainable forest management
Colombia / Río Magdalena Watershed	Federación Nacional de Cafeteros de Colombia (FEDERACAFÉ), KfW	28.1	reforestation, enrichment planting, natural forest regeneration, shade-grown coffee
Ecuador / Cordillera Chongón-Colonche	Fundación Natura, KfW	9.6	reforestation, enrichment planting, shade-grown cocoa and coffee, improved cattle pastures, communal forest control
Ecuador / Biosphere Reserve Gran Sumaco	Ministry of Environment, GTZ, KfW, DED	9.6	shade-grown cocoa and naranjilla, improved cattle pastures, reforestation
Peru / Jaén – San Ignacio – Bagua	Instituto Nacional de Desarrollo (INADE) / Proyecto Especial Jaén-San Ignacio-Bagua (PEJSIB), GTZ, KfW	6.4	shade-grown coffee and cocoa, reforestation
Chile / regions VII. – XI.	CONAF	17.9	enrichment planting, sustainable forest management
Paraguay / central and eastern region	Ministry of Agriculture, Dirección Nacional de Coordinación y Administración de Proyectos (DINCAP), KfW, GTZ	9.6	soil conservation (no-till cultivation), reforestation, natural forest regeneration
Dominican Republic / Alto Río Yaque del Norte Watershed	Ministry of Agriculture, KfW, GTZ, DED	8.9	reforestation, shade-grown coffee

3.1 Financial Co-operation Portfolio of PES

The preceding table gives an overview of the German PES programmes currently under way in financial co-operation. In some cases, PES-type components are integrated into broader conservation or forestry programs, the total costs of which are stated. Reflecting different local conditions and types of land use promoted, there are wide variations between payments per hectare and shares of costs assumed by the programs and by participating landowners. Only one

of the programs mentioned here, in Costa Rica, co-financed with the World Bank and the GEF, is explicitly called a PES program.

Potential of Financial Incentives for Land Use Change: Quick and Direct Impacts

With the exception of recipients and their lobbying groups, it is hard to find defenders of subsidies. They are under attack as either fiscally unsustainable and prone to political manipulation or accused of undermining moral suasion and self-help processes on communal levels. Some more traditional conservationists are also reluctant to accept financial concepts in a conservation context, because of ethical concerns and the difficulty to "value" nature.

Conceptually, this is an attemt to address a situation of positive externalities, where, in effect, today's landowners are "subsidizing" those firms and consumers who are the beneficiaries of their ecosystem services. In KfW's portfolio of projects with PES components activities can often be more precisely targeted at a limited number of objectives and priority areas than other regulatory instruments, can provide clearer incentives to landowners with regard to desirable forms of land use, can generate results relatively quickly, and respect individuals' rights to make voluntary decisions.

In the Río Magdalena watershed of Colombia, for example, there is no other instrument through which the Federation of Coffee Growers (FEDERACAFÉ) could have convinced its members as quickly of the benefits of converting marginal coffee lands into forest plantations. In our view, the social benefits realized (reduced coffee output and improved coffee quality at a time of market crisis; watershed, soil and biodiversity protection; and social stability through alternative incomes) would not have come about on a scale sufficient to make such a notable positive difference without the use of financial incentives.

In Honduras, in the buffer zone of the Río Plátano biosphere reserve, there is an urgent need to provide alternative income sources to stop the advance of the agricultural frontier towards the largest remaining forest in Central America. Farmers now receive financial assistance from the administration of the protected area when undertaking investments to switch from extensive, wasteful land use to sustainable, more intensive land use. This includes parts of the costs of fencing, new grass seeds, and shade trees to enable them to produce two or more heads of cattle per hectare, whereas before they could produce only one.

In Chile, as part of a campaign to diversify the sources of lumber instead of relying on monoculture plantations, and to establish a culture of sustainable natural forest management, small forest owners receive subsidies from the Forestry Agency (CONAF) to cover part of the initial costs of enrichment planting and other silvicultural measures.

In none of the cases mentioned here our analysis suggests there were alternative instruments available which could have produced these outcomes on such a broad scale and so rapidly. Farmers have not just benefited financially (and many of them have opened their first bank accounts in the process), they have also been accompanied by extension workers, learned new technical skills, started organizing and articulating their interests, and have come to understand that they provide services for which others are willing to compensate them. PES thus became an instrument that also helped to integrate remote and marginalized regions into the mainstream of national development.

3.2 Technical Co-operation Portfolio of PES

While KfW as a Development Bank is in a position to act as funding agency in the PES context, GTZ is complementing this with its focus on capacity building, organisation of participatory processes, institution building, arranging the financial mechanisms and preparatory analysis. Because GTZ is generally not the source of funding, its role is to analyse and mobilise the demand side of PES systems be they private sector, government, international NGOs or other donor agencies. Where GTZ is involved in PES it is in the context of larger Environment and Resource Management Programmes. Most of the PES components are still in the phase of operational planning. This also reflects the fact that the necessity to mobilize funding can be a considerable task slowing down the overall implementation process.

Technical Co-operation to overcome implementation challenges

For the analysis of experiences we are returning to the Tungurahua Province in Ecuador where we do have first insights from actual implementation of a PES scheme. It has also produced a number of interesting lessons that go beyond this particular case. Like with the examples discussed earlier, the situation warranted intervention going beyond pure infrastructure development for addressing the problems of water overuse and low water quality, land degradation and high level of conflict over access and control of water resources.

A first step was to define the watershed boundaries and establish who has which property rights of land and access to water resources. A number of analytical steps pertaining to all aspects of water use, water costs, distribution and infrastructure, opportunity costs were undertaken by the PROMACH project before the actual process to establish a PES system could be initiated.

On the basis of this analysis, planning started for the creation of a financing instrument that would compensate land users/owners in the highlands (“Paramo”) for sustainable land use practices thereby “producing” environmental services in the form of securing water quality and quantity in

the lowlands.[5] In the course of a sequence of stakeholder meetings a link was established between the water users on the one hand and the "producers" of water quality and quantity and their largely communal lands. This must be considered a major achievement also in the sense that these two parties in themselves are by no means homogenous either socially, geographically or economically.

German Technical Co-operation in PES in the LAC Region

Country and Region	Agencies involved	Technical Co-operation timeframe and stage of PES implementation	Land Use Promoted/ Desired environmental benefits
Dominican Republic/ Alta Rio Yaque del Norte ("PROCARYN")	GTZ / KfW / DED	2001 –2007 PES planned	Sustainable Forest and Agricultural Management of the upper watershed, Biodiversity conservation, Soil and Water conservation
Ecuador/ Chocó, Esmeraldas "Namares"	GTZ, Conservation International, Indigenous Communities	2003 – 2006 PES planned	Biodiversity Conservation
Ecuador/ Tungurahua ("PROMACH")	GTZ, Provincial Government, NGOs, Water Consumers, Private Sector	2001 – 2013 PES operational	Soil and Water Conservation Activities in Highlands, preventing further extension of pasture and agriculture frontier, forest conservation and reforestation
Brasil/PPG7 („PROAMBIENTE")	GTZ / PPG7 Local Communities	PES under implementation	Forest conservation and fire prevention, Carbon sequestration, soil and water conservation, and biodiversity conservation.
Peru/ Reducing disaster risks and improving food security in Arequipa	GTZ/Consejo Transitorio de Administración Regional CTAR	2002 – 2005 PES planned	Reforestation, soil and water conservation for prevention of natural disasters
Peru: Regional Project Cuencas Andinas Columbian and Ecuador	GTZ/ CONDESAN	2003-2006 PES planned	Integral Watershed Management in the Andean Region. Land use planning and incentives to improve land uses in a more sustainable way
Bolivia PRONAR/ PNC	GTZ, IDB, KfW	1996- 2009 2003- 2009 PES planned	Small scale irrigation (with IDB), watershed management programme (together with NL, CH)
Bolivia/ Reducing disaster risks and improving food security in the watershed of the San Pedro River	GTZ	2002-2007 PES Planned	Soil and water conservation, small scale irrigation, upstream participatory watershed management

For the compensation payments a "transition" fund was created stocked with financial resources for an initial phase from the provincial water supplier, provincial government and donor sources with a view to make this fund sustainable by raising/differentiating water tariffs to a level where environmental services can be "bought" long term from its "suppliers".

[5] The cause-effect relationship between types of land use and exact impacts on water quantity and quality is subject of much relevant discussion in a variety of PES schemes (see Pagiola, Bishop and Landell-Mills 2002, as well as FAO

Conceptually, this is at the core of the PES concept: Overcoming externalities as market failures by aiming to overcome transaction costs as main obstacles for a market-based mechanism to reconcile the interests of producers and consumer or – more simply – making the beneficiaries pay. In term of the German technical co-operation input this meant:

- Assisting with a thorough analytical grounding of all institutional, organisational and technical aspects of the watershed and its inhabitants;
- Support with reaching consensus over methods and calculation for environmental services and understanding this as a political rather than a purely scientific process;
- Assisting with the design of a process that takes the interests of all stakeholders into account and takes participation seriously;
- Reaching consensus and building up ownership, by creating viable communication channels with land users

PES Programmes at planning stage

As the table with the PES portfolio in German technical co-operation indicates, there are a variety of project approaches that are under preparation, having or are about to get started in 2004. One is supporting the Brazilian Government with a Programme called “Proambiente”. In the context of the multidonor “PPG7” Programme Germany is supporting PES in its application in a family farm context. Civil Society organisations have developed a programme where the “production” of environmental benefits through changed agricultural practices in six defined areas is being paid for:

- Reduction and/or avoidance of deforestation
- Carbon sequestration
- Rehabilitation of hydrological functions
- Soil conservation
- Biodiversity conservation
- Reduced risk of forest fires

The changed production practices are to be monitored and certified. Compensation to farmers has been agreed at among the Brazilian stakeholders at around 40 USD per month and small farm family, which is roughly half a month’s minimum wage. Financial resources are going to be channelled through a „Fondo Socioambiental“ for the payments for environmental services to the producers and a „Fondo de Apoio“ which is supporting technical advice for farmers and monitoring of the impacts. The model is interesting not only because of the co-operation between government and civil society in designing it but also in focusing on the impacts of land use changes rather than being input orientated as most existing programmes are. This approach will

2004). Here it was well documented and plausible enough for negotiations among stakeholders.

produce interesting lessons for the practical implementation of an output-oriented model in terms of monitoring costs and practical advantages of a flat compensation rate relate to the cost effectiveness advantages of payments differentiation. German technical co-operation is supporting this approach by – among other things - helping to define indicators for this output orient model of PES.

A particularly promising approach from a German perspective is the PROCARYN Project in the Dominican Republic. Investments in afforestation, forest management and diversification of agriculture are combined with a grassroot advisory system for sustainable land use and land use planning as well as forest certification and marketing assistance. The energy supply company CDE has signalled interest in paying for land use practices that result in reduced sediment loads in its main reservoir. On the political level, a Commission for capacity building and exchange with Costa Rica has been set up and the concept for a PES scheme with the Energy supplier as main financier was developed. Once the newly elected government in the Dominican Republic has become fully operational and CDE has formally agreed, implementation could start in early 2005.

Other PES approaches new in German development co-operation involve the use of conservation easements for biodiversity conservation with communities in Esmeraldas, Ecuador, which will be put "on the market" this fall in co-operation with Conservation International, and PES as an instrument for changing land use practices in a disaster prevention context in Bolivia and Peru – the results of which will be assessed with great interest. In several financial cooperation projects being prepared in Latin America, other PES approaches are under consideration.

3.3 Challenges: Institutionalional Requirements, Sustainability, Cost Effectiveness and Transaction Costs

What then are the potential pitfalls encountered in the design and implementation of this type of programme? As discussed in section 2, PES-type instruments were originally introduced in OECD countries, where they are still primarily used. This is a social context with strong organisational capacities and sustained willingness to pay to attain environmental and agricultural objectives. In the analysis of KfW's Latin American PES portfolio, we identified three main ways in which programs can go wrong:

- by underestimating the importance of the organisational and institutional framework in which a PES system will operate,
- by not clearly spelling out strategies to make the desired land use change sustainable in the long run,
- by not insisting on the most efficient mechanisms to deliver environmental results, and
- not investing sufficiently in the reduction of transaction costs

Insitutional and organisational requirements

In order to understand the institutional requirements, one has to consider the typical PES-type programme setup. Once a farmer's application is accepted, the executing agency will sign a contract with him or her, defining the objective (required land use), level and sequence of payments, obligations and contributions of the farmer, duration, and monitoring. The agency's extension service then often has the dual function of advising the farmer and monitoring compliance (one or both functions are sometimes outsourced, which may reduce conflicts of interest).

While this may appear a simple setup, in many rural regions it is beyond local capacities. The land tenure situation is often far from clear. A "contractual culture" (popular acceptance of honoring contractual commitments, especially of such novelty) may not be sufficiently developed. In some cases, drop-out rates of participants reach 30% or more between the first and second payment, and incentive mechanisms have to be fine-tuned by asking for guarantees etc. Especially where payments are "frontloaded" (paid out during the first years of a contract period), there may also be few possibilities to enforce contractual obligations over longer periods of time. In fact, the only programme where this problem appears to have been solved satisfactorily is in Costa Rica, where the legal system works comparatively well and landowners have to register the restrictions on their property (for up to 20 years) in the public land registry, ensuring that they will have to be honored by eventual buyers of the land.

Considering the issue of contract design, PES-type programmes like agri-environmental programmes in OECD and particularly in the European Union have contracts that might be called input-oriented – that is, they spell out in relative detail how farmers are to work their land – rather than output-oriented – i.e. specifying the environmental outcomes or services expected from participating farmers. Output-oriented programs would leave more freedom to farmers in choosing how to reach outcomes and might be easier to monitor. For example, a biodiversity-oriented PES system might link payments to the ongoing presence of endangered species on the land, an erosion-oriented system to downstream sediment loads, a CO_2-oriented system to the standing biomass on a plot etc. As we will see later, one such output-oriented programme is in the process of being implemented in Brasil with GTZ support (section 3.2).

Finally, one important institutional constraint is that subsidies must fit into the socio-cultural environment. Indigenous and other communities with strong cooperative bonds might be disrupted if individual members start receiving cash payments. Common property regimes might break down into individualistic, open access situations. However, in such situations, recipients of payments need not be individual farmers. Depending on legal frameworks and local practices of decision-making on natural resource use, they could well be farmers' groups or entire communities.

Sustainability

The second set of issues mentioned above refers to the sustainability of land use changes for which incentives are provided. Before designing funding mechanisms, a serious effort must be made to have a clear view of the mid-term “demand” for environmental services. Only afterwards those technological packages or “Best Management Practices” that can deliver the desired environmental outcomes with the least costs to landowners and society have to be selected. Then the question arises under what conditions farmers will be able to adopt and sustain these new land uses. This mainly depends on how long it takes the new land use to become competitive or to break even compared to the traditional or next best use of the land.

In most Latin American contexts, it is unlikely that substantial levels of PES can be maintained from public budgets or that local financing mechanisms will be firmly established after some years. From the perspective of German co-operation externally financed programs should promote land uses that become financially self-sustaining for landowners before payments stop. So far, there is only one example where this is actually the case: the PES system in Costa Rica, which is financing the protection of primary forests and requires permanent subsidies.

In our view, continuous payments through PES schemes in developing countries can only be a realistic option where the value of the environmental service is exceptionally high. In most cases, the appropriate way to use PES will be to finance temporary campaigns to change land use patterns in specific regions, after which costly implementation structures can and should be dismantled.

Cost-effectiveness

In order to maximize the ecological impacts of funds available for PES, systems should also be as cost-effective as possible. PES will quickly lose its appeal as an instrument of environmental policy if it is perceived to be loaded with other objectives, especially social objectives, at the expense of its environmental impact.

For example, it is not desirable to compensate farmers for legal restrictions on land uses that already exist and that can be enforced by the state. Only where new restrictions cannot be introduced otherwise – for example, where a new protected area would restrict traditional grazing rights and is politically impossible to establish without compensation – should PES be considered. In order to address rural poverty there are other instruments much better suited for this purpose. The attractiveness and credibility of PES for taxpayers and others asked to contribute funds depends not on its ability to redistribute income but rather on its ability to effectively change environmental outcomes by changing individual land use decisions.

A misleading argument in our view is that farmers should be paid the exact amount of the costs arising from changing the land use. For an agency executing a PES program, it is impossible to determine individual costs with any degree of accuracy. Even approaching the level of information that farmers have would incur unreasonable costs. But risks to farmers are usually limited – if the new technology fails to deliver economic benefits, they can revert to the traditional technology. And it may actually be possible to design PES-like mechanisms that only render payments when the new land use does not turn out to be economically beneficial to the farmer. Also. farmers could be insured, for example, against the risk that they will not receive a specified minimum price in the market for a new product. The Nature Conservancy, for example, is currently working on an interesting transitional risk insurance program in the Brazilian *cerrado*.

PES agencies have often been reluctant to try to improve the cost-effectiveness of programs. Instruments like price differentiation and auctioning add to the complication of implementing PES and do not fit easily into the socio-cultural context of rural regions. The flip side to that argument is that without maximised cost-effectiveness PES will lose attraction among funding agencies and particularly make private sector involvement less likely.

Transactions Costs

The obstacles against the introduction of market-like mechanisms where public goods characteristics determine resource use are not overcome easily. Information is scarce and expensive. Negotiation and process coordination with the various parties at all organisational levels in the province requires time, standing and a political sense for pragmatic solutions. Cost effectiveness must be measured including rent-seeking behaviour of involved actors. A functioning set of rules and regulations for the formal and informal sector is not a one-off exercise but requires continuous adjustment of gaps and inconsistencies and needs to be communicated effectively to the affected population.

Effective support in technical co-operation must focus on institutional strengthening which starts with a thorough analysis of the conceptual foundation of resource governance regimes in the respective context and provides workable options for practical implementation. It will also look early on towards the “demand side” for environmental services – whoever the “consumers” of environmental benefits are and wherever there is willingness to pay - which are the preconditions for any financially sustainable PES scheme. If German technical co-operation sees its role as a facilitator of change towards sustainable, more efficient resource management regimes it is not in a position to and should not prescribe the outcomes of the change processes where its role is a catalyst. Most effective development cooperation will be able to provide both, facilitating the process and providing access to funding. The political aspects of negotiating and consensus building are part of the cost effectiveness criteria: Without credibility and standing with all involved parties, there can be only very limited impact of technical co-operation programmes seeking to

foster sustainable resource management. This is all the more important as the public in developed and developing countries sometimes misinterprets PES schemes as privatisation of natural resources.

4. Outlook

Payments for environmental services are a promising instrument for improving the management of natural resources. The challenge in the years ahead is to further develop its use on the basis of the lessons learnt. One major lesson is to define as clearly as possible the areas where PES makes sense and where it doesn't. In order to make financing PES programmes attractive to their own taxpayers, to official donors, or to private sector actors – be they CDM investors, water companies, or conservation NGOs - developing country governments, PES agencies and donor organisations will need to demonstrate that their proposals address the issues raised in this review – taking care of the necessary institutional requirements, tackle the sustainability challenge and give attention to cost-effectiveness in a context that requires participation and consensus. It is important to remember that agri-environmental programmes in OECD countries are usually also the result of a political process. But given the resource constraints developing countries face, the cost-effectiveness requirement will figure much larger in terms of future PES application. Many institutions are currently considering how to scale up local pilot initiatives. The larger PES programmes become, the more responsibility programme designers will also have with respect to their impacts on land markets (substantial subsidies will rapidly be reflected in land prices), agricultural production, public budgets and macroeconomic parameters.

Like in the case of PROMACH in Ecuador and PROCARYN in the Domenican Republic, we feel that a combination of support to set PES systems up carefully and to provide financial resources for a transitory phase is the most promising approach to successful implementation. Effective monitoring and the resulting lessons learnt should inform and influence national agricultural, forestry and environmental policies. We feel that the idea of creating markets should remain at the core of the PES instrument. This will require more work on the demand side when preparing PES schemes, given that donor funding will in most cases be transitory. PES campaigns, designed to introduce new land uses that are environmentally friendly and economically profitable, hold the greatest promise.

The instrument of PES warrants a closer look also in other regions, particularly in Asia where high population densities and strong economic development are raising the value of environmental services in many regions. In times of tight public budgets, we also need feedback from "developing" countries to improve the efficiency of PES-type programmes in OECD countries.

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