CGIAR Challenge Program on WATER & FOOD

TSBF AfNet

Potential for Payment for Environmental Services (PES) approaches to contribute to equitable and sustainable management of soil and water in upper catchments

Brief 1:

Logic, concept, design and markets of Environmental Services: A Review of Literature

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1. Introduction

1.1 The CPWF/AfNet PES Project

Water and People in Catchments (Theme 2) of the Challenge Program on Water and Food (CPWF) and The African Network for Soil Biology and Fertility (AfNet) hosted the inception workshop for a new initiative on "Payment for Environmental Services (PES) approaches to contribute to equitable and sustainable management of soil and water in upper catchments". The workshop was held at ICRAF headquarters in Nairobi from 27th – 29th June 2006.

The purpose of the CPWF PES in watershed initiative is to assess whether the soil and water conservation practices currently being developed to improve farm-level crop and water productivity also have landscape scale benefits, and if so, whether PES mechanisms can act as an additional incentive for their adoption by farmers. The initiative brings together social and biophysical scientists from the CPWF and from the three regional soils consortia, AfNet, MSEC and MIS.

The overall objective of the initiative is to integrate AfNet, Integrated Soil Management (MIS: *Manejo Integrado de Suelos* in Spanish) in Central America, and Managing Soil Erosion (MSEC) in SE Asia more closely into the CPWF around a participatory, action research agenda focusing on technical and institutional innovation at the landscape scale.

Specifically the project seeks to strengthen CPWF research on land and water interactions at multiple scales, e.g. quantify interactions, develop technologies and design governance mechanisms.

In Africa, the objective of the initiative, to be implemented through AfNet, is to incorporate landscape perspectives and social science into soil research, with a payment for environmental services (PES) perspective.

1.2 Suggested pilot studies

Two CPWF funded projects will form the initial pilot studies:

a) **Enhancing rainwater and nutrient use efficiency for improved crop productivity, farm income and rural livelihoods in the Volta Basin;** and
b) **Water Resources Management (IWRM) for Improved Rural Livelihoods in the Limpopo basin**

The two projects are being implemented in contrasting conditions but in watersheds whose lifespan is threatened by agricultural activities. The focus will be to identify the unique ES that can be generated through agricultural land management and how these influences the watershed services and social economic life of the farmers.

2. Background to PES

The challenge of producing food and other products while delivering environmental services is particularly relevant in Africa, where food security and poverty reduction are pressing concerns. Recent research shows that growth in agriculture is the most beneficial for the poor: a one percent increase in yields results in a decrease of 0.6 to 1.2 percent in the number of people living on less than $1 per day (Fresco 2005).

Advances in agriculture are often associated with disturbance of the natural environment (Fresco 2005). On one hand, Africa needs to continue to invest in unlocking the potential of

its diversified rain-fed, irrigated and mixed agricultural systems. On the other hand, there is a general recognition of the need to improve environmental performance in agriculture, through enhancing the beneficial – and reducing the harmful – environmental effects to ensure the sustainability of resource use. However, agriculture has a complex relationship with natural resources and the environment, and attributing specific environmental effects to agriculture is difficult and not fully understood (OECD 2004).

Natural ecosystems provide a wide range of environmental/ecosystem services that benefit society as a whole. These services, nevertheless, are often lost because of the lack of financial or other incentives to preserve them. This problem has been increasingly recognized in recent years, leading to the development of new systems as alternatives to past approaches, which proved ineffective in the preservation of ecosystems/environments. One of the more recent conservation approaches is the one that promotes Payments for Environmental Services (PES). Programs of payments for environmental services (PES) are becoming, throughout the world, an increasingly popular way of creating, conserving, and restoring natural resources that provide public benefits (Alix-Garcia et al 2005).

2.1 Definition of PES

As Wunder notes, there may not be a definition of PES considered formal for all schemes. However, based on work done in various parts of the world, five relatively simple criteria are often used to describe the PES principle (Wunder 2005).

A PES is:

a) a voluntary transaction where
b) a well-defined Environmental Service (ES) (or a land-use likely to secure that service)
c) is being 'bought' by a (minimum one) ES buyer
d) from a (minimum one) ES provider,
e) if and only if the ES provider secures ES provision (conditionality)

First, Wunder defines PES as a voluntary, negotiated framework, which distinguishes it from command-and control measures. This presupposes that potential ES providers have real land-use choices, which may not be the case in some instances (Wunder at al 2005). This voluntary nature leaves it open to unexpected funding shortfalls and 'free riding'. Where non-excludability and non-rivalry exist, they undermine the formation of markets since beneficiaries of the good or service have no incentive to pay suppliers. As long as an individual cannot be excluded from using a good, they have little reason to pay for accessing it. Similarly, where goods are non-rival, consumers know that where someone else pays, they will benefit (free riding) (Landell-Mills and Porras 2002). Most small users especially in the African context, benefiting from the services may not be willing and/or able to pay for the service provision. Majority still view ES as 'free' – offered by nature (whatever belongs to everyone belongs to no one). Most of these small users are not organized in a structure where the required funds can be collected from them. On the contrary, HEP generators, municipal water supply systems and industrial users are easily identifiable, already organized and require security of supply of water both in quality and quantity. Government enterprises, e.g. water boards and electricity suppliers, have a clear interest in maintaining the quality and flow of water, forming the ideal buyers. Through their service provision, they can levy a fee on the final water users and part of this apportioned to pay the service providers.

Secondly, what is bought needs to be well-defined (beginning from the demand side, not the supply side) — it can be a directly measurable service (e.g. additional tons of carbon stored) or land-uses that are likely to help providing that service (e.g. "conservation agriculture"). Depending on people's needs and values, it is important that the service demanded is clear, hence forming continuous demand. These include stabilization of water table, provision of

clean water, or water regulation (Landell-Mills and Porras 2002). Here is it important to note that many environmental externalities, especially water-related ones, are highly localized within specific watersheds.

In any PES, there should be resources going from at least one ES buyer (criterion 3) to at least one provider (criterion 4), though the transfer often occurs through an intermediary. In any event, PES, instead of replacing current activities, represents an additional opportunity for diversifying livelihood strategies, which is why it is advisable to develop the supply of environmental services starting with existing production strategies. Another critical dimension is the need to strengthen demand for environmental services. This highlights the importance of marketing and the role in creating demand of the institutional and regulatory frameworks in local, national and international spheres. (Rosa et al 2003). An interesting groundbreaking strategy is setting up a revolving fund (funded by Government, or water users through a levy by water/electricity companies through which the providers of environmental services can be rewarded. It is important to do an analysis of who is benefiting (the poor or the rich).

Finally, in a PES scheme, user payments need to be truly contingent upon the service being continuously provided (criterion 5). ES buyers thus normally monitor compliance, e.g. have the poor agricultural management practices been contained and replaced with the environmentally sound one in the manner stipulated in a given contract? Service buyers need to be able to withdraw from a PES contract if they do not get what they paid for. Conversely, service providers may also have an interest in flexible contracts, so they can pull out (or alter the terms) of a PES scheme if changing context conditions induce them to do so.

Very few PES schemes in the tropics fulfill all the five principles listed above. The conditionality principle is hardest to put in place. In addition, this definition is a simple illustration of PES. Some schemes may include more than indicated above or purposely leave out some of the principles. In Africa for example, downstream small water users may not see the need to pay for public goods (perceived as free). In this case, the users can be made to pay indirectly through levies, or the government establishes other payment mechanisms.

An example is the *Intermediary-based transactions*. Here negotiation of the contract is between the intermediary and the buyers, and the intermediary and the sellers. The intermediary may be government or an NGO. This category also includes trust funds which pool contributions made by water users to fund improved watershed protection, for example the Water Conservation Fund in Quito, Ecuador (Echavarría 2002);

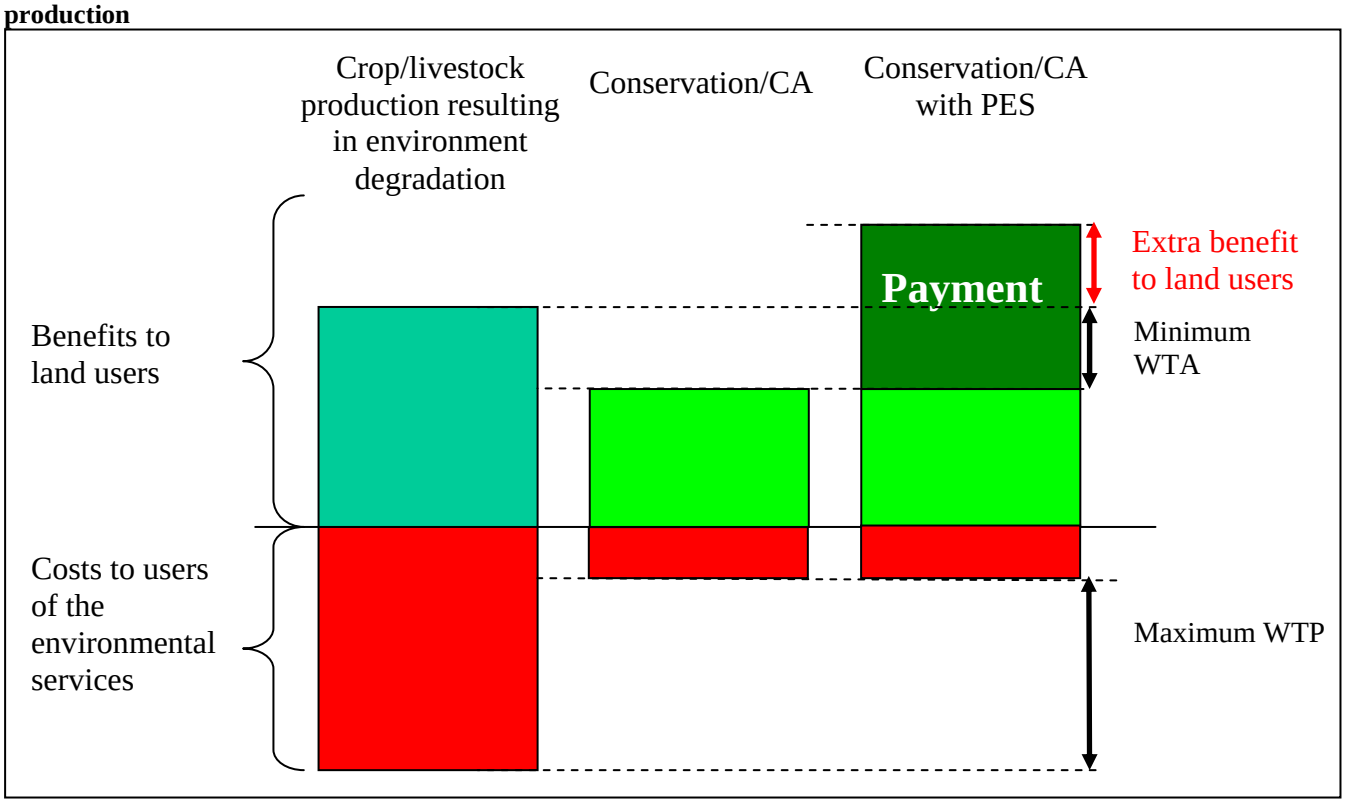
2.2 Logic behind PES (Mayrand and Paquin 2004)

The logic behind PES is that those who provide environmental services should be directly compensated while those who receive the services should pay for their provision. As land users generally do not receive compensation for the environmental services their land provides, they do not consider them when making decisions regarding land use, thus reducing the chances of adopting practices that generate benefits for ecosystems. By compensating them for the environmental services their land generates, they are more likely to choose an environmentally sustainable land use.

For example, conversion to agriculture – which could imply deforestation – may be profitable in economic terms for a land user. Nevertheless, this deforestation can impose extra costs on downstream populations who no longer benefit from services such as water filtration. A payment to the upstream land user from the downstream beneficiaries can encourage him to choose the practice that is most environmentally sustainable, while still making a profit. This payment must be more than the additional benefit to land users of the alternative land use,

and less than the value of the benefit to downstream populations, in order to change the behavior of the landowners and obtain a payment from the beneficiaries (Figure 1).

Figure 1: Conceptual framework of payment for environmental services under Agricultural production



(Adapted from Pagiola et al 2003) WTP/A – Willingness to Pay/Accept

2.3 Types of Environmental Services

Environmental Services (ES) can be grouped into four broad categories namely:

a) **Carbon sequestration and storage** (e.g. a Northern electricity company paying farmers in the tropics for planting and maintaining additional trees);
b) **Biodiversity protection** (e.g. conservation donors paying local people for setting aside or naturally restoring areas to create a biological corridor);
c) **Watershed protection** (e.g. downstream water users paying upstream farmers for adopting land uses that limit deforestation, soil erosion, flooding risks, etc.);
d) **Landscape beauty** (e.g. a tourism operator paying a local community not to hunt in a forest being used for tourists' wildlife viewing)

Not all services are truly threatened and scarce. There are more environmental services, other than those listed above, that could potentially be traded (e.g. wilderness areas providing pollination services to agriculture), but so far only the four identified above exhibit significant commercial scale.

2.4 Introduction to PES and agriculture

PES schemes, which are relatively new in Africa, seek to support positive environmental externalities through the transfer of financial resources from beneficiaries of certain environmental services to those who provide these services or are fiduciaries/trustees of environmental resources. The implementation is environment-specific and largely depends

on the target population (who is targeted to provide the service and who will benefit and/or pay for the service).

Whereas most PES schemes favor forestry systems, as the source of ES, agriculture is increasingly being recognized as appropriate for the provision of environmental services in watersheds. Conservation agriculture, agro-forestry, and forestry-grazing, which provide production options for upstream rural communities, have been considered as ES providers in agriculture (FAO 2004).

In essence, this demonstrates the potential role of agriculture in environment conservation and maintenance. Agriculture if well managed can be associated with provision of a range of services delivered at a watershed level including:

- Water flow regulation (maintenance of dry season flows and flood control) – A study comparing fields managed under conventional and organic systems found that the organically managed farms fared significantly better during drought. Researchers speculated that organically managed soils had better water holding capacity due to increased soil organic matter. Interestingly, the same fields fared better during extreme rainfall, absorbing more water and experiencing less runoff and erosion (Lotter, et al., 2003). In the Sahel, traditional seed holes (called "*zai*") are used to restore arid and crusted areas of fields through their ability to water holding (Stigter et al 2005);
- Water quality maintenance (sediment load control, nutrient load control (e.g. phosphorous and nitrogen (Table 1)) – Leaving crop residues over the soil surface and not tilling for several years considerably increases the organic matter content on the top layer, which provides a much greater mobilization of nutrients. This permits a reduction, to a great extent, in fertilizer doses at medium/long term (Garcia-Torres et al *online*). Organic farming methods conserve and grow soil, maintain water quality and use water efficiently and responsibly. ;
- Erosion and sedimentation control – For example, no-till crop management promotes soil carbon storage, which provides an emerging crop with multiple services, including better soil porosity, water-holding capacity, nutrient storage, erosion resistance, and trophic level complexity. In agricultural production, adopting technologies that increase soil organic matter, (for example mulching, crop residues and use of organic manure) provides energy for soil microorganisms, improves soil water infiltration and water holding capacity, and reduces erosion potential. Soil organic matter also reduces surface wind speed (Roose and Barthès 2001). Surface erosion from well-kept grassland, moderately grazed forests and soil-conserving agriculture are low to moderate (Bruijnzeel, 1990); and
- land salinisation reduction/water table regulation

(Landell-Mills and Porras 2002)

Table 1: Mobilization of nutrients in conservation agriculture (non-tillage, NT) in comparison to conventional agriculture (tillage /ploughed soils, T)

Soil depth cm	Carbon (%)		Nitrogen (%)		Phosphorous (ppm)	
	NT	T	NT	T	NT	T
0-5	2.5	1.0	0.3	0.1	100	20
10-15	1.3	1.0	0.2	0.1	10	40

Source: CTIC (2000)

Soil loss through erosion is only part of the problem. The loss of rainwater that cannot infiltrate in the soils to replenish the ground water reserves might, in the long term, be the more serious problem. Soil erosion and water loss is not controlled by mechanical means but

only by a living and stable soil structure. This will ensure that water is absorbed as completely as possible by the soil, rather than run on the surface. Use of zero or minimum tillage can enhance this.

3. Design of PES schemes (FAO 2004)

In order to evaluate the feasibility of a payment scheme for environmental services, **studies regarding supply and demand for environmental services** must be carried out, as well as economic assessments of the technological changes needed in order to provide environmental services. Several environmental services have been identified in watersheds and these require significantly different assessment methods. There is global demand for some of the services while others correspond to local demand. The demand for water services is of a local nature. In this assessment, the number, type and activities of the suppliers and beneficiaries should be clear. This determines the level of demand and the ability/willingness of the different classes of beneficiaries to pay for the ES. What role can the government play in each watershed (financer, intermediary or policy maker only)?

A **global cost and benefits analysis** of the system is essential to assess the economic, social and environmental costs and benefits, including transaction costs. Economic appraisal of environmental resources must be carried out with the inclusion of the different actors involved at the watershed. The value of the service must be calculated taking into account the marginal changes in the externality by a given land use change. Although the usual methods express service value in monetary terms, appraisal does not necessarily imply a quantification of the service in monetary terms. This means that the service can be quantified in modes other than monetary e.g. for scenic beauty, biodiversity protection. However, ultimately this has to be converted into monetary terms for payments/compensation purposes.

Reliable **baseline information** is essential to PES design and the right indicators must be identified to measure the impacts of system application. There must be consensus between actors with respect to services and activities proposed, as well as a monitoring system in order to avoid breaches and to assure that agreed goals are met. **Methods and entities for monitoring and supervision** must be defined in the design of the PES. For a proper functioning, it is vital to ensure that funds collected by the scheme will be invested only in activities previously agreed and within the watershed where the funds are generated.

As for **design of incentives**, PES does not necessarily involve cash payments; these can be fiscal incentives, credits or others. PES scheme incentives may be individual or collective. If they are to influence behavior, PES incentives must also be of a magnitude that they make a meaningful change in terms of their contribution to overall households or community income. Positive but very small incentives are unlikely to induce change (Figure 1). However, when the incentives are designed for community level, the challenge is to ensure that each member of the community is involved – avoid those who free ride on others' co-operative behavior (Swallow et al 2002). The other challenge is how to determine the level of involvement of each member –

- Do the members have to be farmers or at least own land?
- How will the different management and/or investment levels of each farmer be factored in determining the incentives?

A major challenge to both the schemes targeting either the individual or community is how to ensure equity of resource distribution. The rich own more and are part of the upstream community; they are hence bound to benefit more if incentives are allocated equally.

In terms of **land use promoted by PES**, forestry systems are generally favored, with special recognition of the services provided by trees, especially native species. However, agro-

forestry, forestry-grazing and conservation agriculture systems are increasingly recognized as appropriate for the provision of environmental services in watersheds as well as the provision of production options for rural communities. Other land uses can also be modeled to determine their effect on a watershed locally and at a larger scale.

The **implementing institution of the PES** can be a multi-actor organization like a watershed authority or a micro-watershed management committee including representatives from the government, private institutions and NGOs, with procedures that guarantee transparency and impartiality.

In most PES schemes, the **role of the government** can be that of a facilitator between private actors, establishing a legal framework so that PES can be properly regulated, and establishing the amounts to be paid based on technical studies and agreements between relevant actors. The regulatory role of governments is needed in order to avoid unregulated management of environmental financial resources by market forces. Local and regional governments may also act as agents to facilitate PES schemes. Thus, PES can be a tool for the consolidation of decentralization processes since these consolidate and strengthen local institutions, among other benefits. The role of government as a facilitator works well in schemes where each actor has clearly identified their role and is willing to either provide the service or pay for using it. In cases where the beneficiaries still regard the services as 'free' and 'offered by nature', a lot of sensitization and advocacy is needed to move to a point where they acknowledge the effect of cumulative action on a watershed by different individuals.

In the case of most African countries, that are just adopting the PES concept into agricultural productivity, it is best if government takes the lead in financing the schemes due to the public nature of watershed services. The government should play an active buyer role in ensuring incentives are given to upstream users and sensitization of downstream beneficiaries. As the watershed users realize the importance of conserving the ES, the government's role can then change from that of buyer to facilitator. Facilitation work includes i) defining property rights and making these workable and legally practical; ii) monitoring and measuring ES in a timely and transparent manner; and iii) dealing with litigation and enforcing the PES contracts (Xiaoyun et al 2006).

4. Markets for watershed environmental Services (Landell-Mills and Porras 2004)

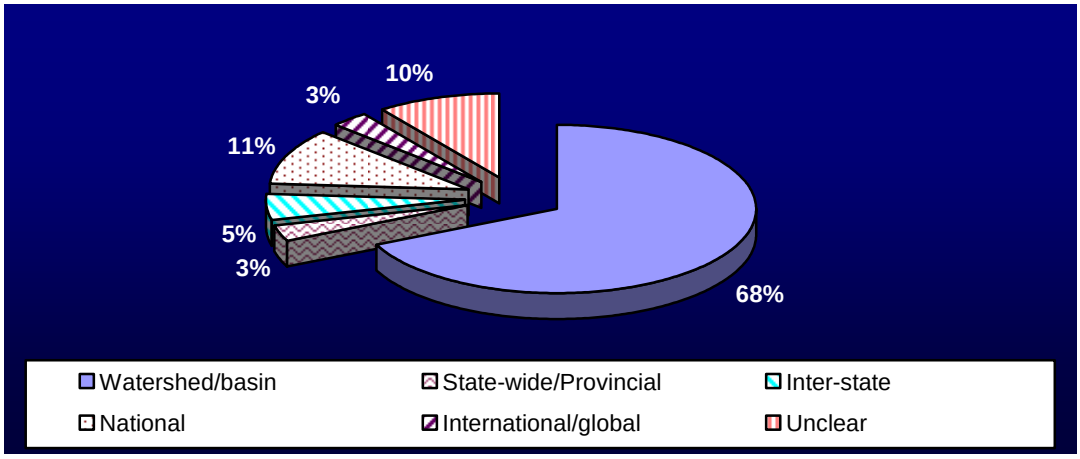
Markets for watershed protection services are closely intertwined with other local institutions, often complementing and reinforcing regulatory or cooperative systems for watershed management. Demand is the main driver behind watershed market establishment.

Markets for environmental services are developing at an increasing rate all over the world and their emergence has critical implications for welfare. There is an urgent need for policy-makers to respond to this development. Lessons need to be learnt from experiences on the ground and guidance compiled on how to create an environment in which markets evolve for the benefit of all, and in particular poor people.

Watershed protection markets are characterized by high levels of cooperation rather than competition. This is linked to the fact that watershed protection services cannot be easily parceled out to buyers. Moreover, in most cases catchments are subdivided amongst several owners making it difficult for individuals to offer to supply watershed protection services. Rather, watershed protection tends to be achieved through cooperation between suppliers and the co-ordination of demand.

Watershed services are supplied at the watershed level. The size and location of a watershed will determine whether the trade is local, state-wide/provincial, national, regional or even international. Based on the cases reviewed, most markets that have emerged are local, often involving watersheds that supply urban or rural settlements (Figure 2).

Figure 2: Geographical extent of markets for watershed protection



Source: Landell-Mills and Porras 2004

The preponderance of local markets is not surprising given the constraints associated with geographically dispersed markets. In larger catchments not only are hydrological linkages between upstream actions and downstream water impacts increasingly tenuous, but perceived links by beneficiaries and suppliers are less likely. Ultimately, unless downstream communities believe they gain from upstream watershed protection, they will not be willing to pay for supply.

Furthermore, even where there exists a willingness to pay, where watersheds span political boundaries (e.g. national or even state borders), the risks involved may prevent payments emerging. Summaries of some of the economic (Table 2), social and environmental impacts of markets are given in the subsequent paragraphs. By transforming environmental externalities into private commodities, markets generate new sources of income for sellers, improve service delivery for buyers, raise the efficiency with which resources are being used and allocated and promote new investments in a range of related assets. Markets clearly offer significant potential for promoting global, national as well as local welfare.

Table 2: Economic impacts of watershed protection markets

Economic benefits	Economic costs
• Income generation for suppliers • Employment in watershed businesses • Cost savings vis-à-vis command and control approaches to achieving improved watershed protection • Cost savings vis-à-vis point source pollution control • Direct benefits from watershed protection, e.g. more efficient hydropower and water supply systems • Positive spin-offs for forestry, agriculture, fishing, recreational activities	• Costs of providing watershed protection • Transaction costs of introducing and managing payment mechanisms • Opportunity costs associated with forgone land uses

Social benefits associated with watershed protection:

- Health benefits result directly from improved drinking water, and indirectly from improved agriculture, fishery productivity and knock on effects for diets.
- Environmental education, which is often promoted alongside watershed protection activities to generate local support.
- Training in improved land use practices that generate watershed benefits.
- Improved recreational opportunities associated with cleaner water, e.g. fishing and water sports.

Benefits associated with markets

- Improved environmental education, which is an essential part of the market development process since it underpins beneficiaries' willingness to pay for watershed protection services.
- Social institution strengthening. Community groups promoted to support markets, offer a basis for cooperation on a range of other livelihood improving activities.
- Improved scientific understanding where market development requires research on land-water linkages.
- Land title clarification where markets require secure property rights.

Environmental costs and benefits of watershed services:

Only environmental benefits are recorded, and for the most part little data is produced to back up the claims. Moreover, they tend to be associated with watershed protection rather than attributed to markets. The main benefits recorded may be split between watershed benefits and other spin-offs. These are listed below:

Watershed benefits

– Improved water quality: controlled sediment and nutrient (e.g. phosphorus, nitrogen) loadings, reduced water salinity
– Flood protection
– Maintained base flows through groundwater recharge
– Soil erosion control
– Soil fertility maintenance (nutrients and salinity)

Positive spin-offs (other environmental services)

– Biodiversity protection (both land-based and aquatic)
– Landscape beauty/aesthetic benefits
– Carbon sequestration

5. Conclusion

In conclusion, PES should be viewed as a payment for conserving the environmental services and not a payment for the services *per se*. Different countries and regions implement PES schemes differently, based on what can work for the specific environment and specific stakeholders in question. In the context of the Volta, where the Burkina Faso is in the upstream and Ghana downstream of the basin, implementing local schemes would be more sustainable due to the complications and risks associated with cross-border interactions.

Healthy watersheds provide valuable services to society, including the supply and purification of fresh water. Because these natural ecosystem services lie outside the traditional domain of commercial markets, they are undervalued and under-protected. However, with the current realization of the need to reverse the negative effects occasioned by poor environmental conservation, agricultural activities of the upland farmers should also be a key entry point in the efforts.

Considering that most occupants and users of upstream land in African watersheds are resource-poor small-scale farmers, Africa needs intermediary action (PES-like) where government plays a leading role in resource mobilization. Once this is established, over time specific regions can move to more defined PES schemes controlled by the demand for and supply of the services. Currently, it is highly likely that most small users do not realize that the cumulative effect of their small actions actually influence water availability at watershed scale.

These individual resource-poor farmers in SSA often rely on their production not only for income but also as a main source of food – whether it leads to environmental degradation or not. Therefore, every effort must be made to prevent further losses of agricultural productivity as well as environmental services, rather than focus on ways to cope after any further disaster occurs. These include short-run intervention options that assure the small-scale resource-poor farmers of continued subsistence while ensuring a stable environment is maintained.

Hence, as focus on environmental conservation and sustainability through use of PES schemes in agriculture increases, it is important that an evaluation of what works and what does not work under specific African systems be done. Critical questions to ask to increase relevancy and determine the scale of implementing the scheme:

a) What environmental services (watershed services in our context) can agriculture provide and who would benefit from the services?
   - At community level, what level of watershed services can the proposed interventions provide?
   - Which interventions (or combination of interventions) contribute towards which services?
   - What is the likely impact of continued provision of the WS at plot and community level?
   -

b) What mechanisms are most appropriate to facilitate service provision
   - Assessment of land and water relationships and socio-economic values
   - Awareness creation
   - In the short-run how will farmers cope with any reduction in productivity occasioned by adoption of environmental conservation management practices?

c) Which farmers are likely to benefit and what groups might be harmed?
   - Richer farmers tend to adopt sustainable practices faster as they have less resource limitation. How does the implementation make the resource-poor farmers better and ensure that they benefit more?

As a general rule of thumb, Tognetti indicates that benefits tend to be more tangible, and contractual arrangements more feasible, at smaller scales, where property rights and stakeholders can be better defined. At larger scales, in which it is harder to link causes and effects, and to define rights and responsibilities, there will be a greater need for the involvement of government and/or other intermediaries, to facilitate transactions among numerous stakeholders and to establish priorities. Start small and as progress is achieved, think big.

Lugo (1995) thus wisely writes, “Management does not require a precise capacity to predict the future, but only a qualitative capacity to devise systems that can absorb and accommodate future events.”

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6. Annex

6.1 Annex 1: Different terms for remuneration of ES

There are different terms used for remuneration of environmental services by different implementers.

a) Payment for environmental services – it has a clear monetary association, which can raise ideological resistance (Wunder and Vargas 2005) and can be locally seen as conflicting with the option of in-kind payments
b) Markets for environmental services – The notion is not only of a prime role for economic incentives, but also multiple actors, choices, and competition to some degree.
c) Rewards for environmental services – a terminology with an overtone of entitlement and justice for service providers being secured through a transaction: everybody who delivers a benefit should also be 'rewarded'.
d) Compensation for environmental services – It refers appropriately to a direct or opportunity cost on behalf of the service supplier, which creates a moral justification and a societal rationality for paying. However, where 'reward' implies that everybody who delivers should be paid, 'compensation' restricts the scope to those who bear some costs

The choice of term implies what one should expect the mechanism to achieve: Is it the competitive interaction between multiple agents ("markets"), the just and equitable prize for services rendered ("reward"), or the recompense for a cost the service supplier has suffered ("compensation")?

6.2 Annex 2: Examples of water services in the Americas

Country	Name	Type of environmental services	Scope	Progress
ECUADOR	Fonag water fund	Water services	Local	In progress
	San Pedro de Pimampiro	Water services	Local	Pilot
HONDURAS	El Escondido Watershed	Water services	Local	In progress
MEXICO	Lerma Chapala Bassin	Water services	Local	Pilot
	Triunfo biosphere Reserve, Chiapas	Water services	Local	Pilot
	Coatepec, Veracruz	Water services	Local	Proposed
UNITED STATES	Catskills, Delaware and Croton Watersheds	Water services	Local	Done