



Payments for environmental services (PES) in theory and practice: Lessons learned and way forward

Collection of contributions received

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Introduction to the topic

Dear Forum Members,

The concept of payments for environmental services (PES) has gained prominence as a tool for achieving ecosystem conservation and, at the same time, improving the livelihoods of farmers as environmental service providers. Since the UN Millennium Ecosystem Report, published in 2005, PES is increasingly discussed as a tool to remunerate farmers for the positive externalities they create through the adoption of sustainable agricultural practices.

Through a 3-year project on the “Remuneration of Positive Externalities (RPE)/Payments for Environmental Services (PES) in the Agriculture and Food Sector” initiated in June 2012, FAO would like to learn more about the opportunities and challenges encountered in ongoing and completed PES projects.

The theory and practice of PES

The provision of environmental services, such as preservation of biodiversity habitats, watershed protection, and carbon sequestration have the character of a public good. They benefit mankind at large but tend to be available at no charge. This situation leads to the unsustainable use of scarce natural resources because existing markets fail to value them properly. PES schemes aim to address this market failure by providing financial incentives and other types of rewards (such as capacity development, knowledge sharing, risk alleviation, etc.) to land users to maintain/improve the provision of valuable environmental services. For the scheme to work there must be a willing buyer of a particular environmental service who transfers a payment to a land-owning seller who is willing to adopt measures that ensure the sustainable provision of the particular service.

There are however many open questions with regard to the scope of PES, their cost-effectiveness in addressing the growing global challenges of climate change and food security, and the theoretical baseline assumptions, largely derived from neoclassical economics.

The answers to such questions can often be found in lessons learned from existing projects, and they have to be taken into account in future designs of PES schemes.

Independent of the particular context and the targeted ecosystem service(s), an effective PES project needs to be based on incentives that help to better align the private interests of the local actors with the general public interest of preserving the environment while increasing food security. This is often achieved through public private partnerships that result in innovative practices, institutions and products that make PES schemes financially sustainable and generate positive externalities on their own. Yet, the impact of innovation on the design, implementation and sustainability of PES has so far hardly been addressed in the current academic literature.

The objective of the online discussion

In this online discussion we hope to find answers on how best to address the challenges and opportunities based on prior practical experience and research. We therefore invite practitioners, policy experts and scholars in the public and the private sector and other parties interested in PES to provide us with insights from particular PES projects in developing and developed countries and suggestions on how to make PES more effective as a tool to build up natural capital while also investing in human capital and poverty reduction.

Questions to be discussed in the FSN Forum:

1. What are the lessons learned from PES in developed and developing countries?

- a. What are the main challenges and opportunities with regard to PES projects in your particular country?

- b. Do you know of highly successful PES cases in your particular field of expertise (watershed management, biodiversity/wildlife conservation, carbon sequestration,...)? If so, what were the main factors that contributed to the success of the PES scheme?
 - c. Do you know of PES projects that have failed to deliver despite substantial donor support? If so, what were the reasons that caused the failure?
- 2. PES can be conceived as a diverse set of policies, institutions and processes that mobilize funding from direct beneficiaries, taxpayers, consumers and other interested parties to reward/remunerate/pay providers of environmental services. Which type of PES-related policy instruments would you recommend for your own particular country and why?**
- a. Are PES-related policy tools applied in affluent countries with lots of off-farm employment opportunities and low population growth rates also adequate for least developed countries where farm sizes often tend to get smaller due to lack of opportunities outside agriculture?
 - b. What should be the role of the public sector in creating a regulatory/enabling environment for PES to deliver? Where is public sector assistance most needed (knowledge transfer, communal/private land rights, infrastructure, measurement of environmental quality changes, etc.)?
 - c. To what extent is it justified to abandon the 'polluter pays' principle of PES to increase agricultural productivity and reduce poverty in developing countries? Or should we use other tools to tackle these objectives separately?
- 3. What should be the role of innovation and entrepreneurship in making PES work for sustainable development?**
- a. In some cases, PES has become a vehicle for a market for environmental goods (e.g. farmers respond to a growing regional demand for trees by setting up their own tree nurseries). Do you know of other business opportunities for farmers that could arise from the implementation of a PES scheme?
 - b. According to your practical experience with PES, where do we need innovation to make PES more effective and what type of reward system could create such innovation?
 - c. Innovative landscape approaches focus on the improvement of environmental services on the landscape-level while the PES approach is focused on the remuneration of individual farmers on the field-level. How can the two approaches be reconciled?

We look forward to receiving your inputs.

Thank you very much

Philipp Aerni
Bernardete Neves

Definition of Ecosystem Services:

The Millennium Ecosystem Assessment (MEA) has identified four main categories of services provided by ecosystems:

- Supporting services, necessary for the production of all ecosystem services, such as primary production (photosynthesis), nutrient cycling and soil formation;
- Provisioning services such as food, water, wood, fiber and fuel;

- Regulating services such as climate regulation, flood regulation, drought control, water purification, disease regulation, predation and pollination; and
- Cultural services related to the benefits arising from recreation, aesthetic experience, cognitive development, relaxation, and spiritual reflection.

Contributions received

1. Bertha Cecilia Garcia Cienfuegos, Universidad Nacional de Tumbes, Peru

[Original contribution in Spanish]

Apreciados Philipp y Bernardete, colegas del Foro Global:

Un honor poder impartir aprendizajes en esta importante tematica PSA. La situación en mi país es bastante incipiente, pero no lejana de llegar a concretizarse, se han desarrollado varios proyectos.

1. Como les manifestaba, PSA constituye un reto y una oportunidad de poder conservar los pulmones verdes de nuestra localidad, implica poder avanzar en la conservación y mejoramiento genético de las especies y una oportunidad de generar proyectos que propenden el desarrollo sostenible.

2. Hay 2 proyectos sobre manejo de cuencas en la serranía de Peru, un proyecto importante de reforestación con Eucalyptus globulus en la Comunidad Ignacio Távora, en la Región Piura.

3. No conozco proyectos que hayan fracasado, considero una opción importante y destaco la labor de FAO en este cometido.

Cordialmente,

Bertha Garcia C.
Peru

[English translation]

Dear Philipp and Bernardete, Global Forum colleagues:

It is an honour sharing my knowledge about this important topic (PES). The situation in my country is still quite incipient, although not far from becoming a reality, as several projects have been developed.

1. As previously stated, the PES is both a challenge and an opportunity for preserving the green lungs of our region, allowing progress in the conservation and genetic improvement of species and an opportunity to develop projects which promote sustainable development.

2. There are two watershed management projects in the Peruvian mountains, and one important reforestation project with Eucalyptus globules in the Ignacio Távora Community in the Piura Region.

3. I am not aware of any project that has failed to succeed, and I would like to highlight the important work developed of FAO in this regard.

Best regards,

Bertha Garcia C.
Peru

2. Bayron Medina, Guatemala

[Original contribution in Spanish]

Estimados Philipp, Bernadete y colegas del Mundo de los PSA.

Les Saludos desde Guatemala (Centro America), desde esta parte del mundo, hemos avanzando desde los conceptos, procesos e implementacion y empoderamiento de comunidades y sociedad; hemos caracterizado 35 casos de PSA, y sobre esta base iniciare las discuciones.

Antes de responder con las preguntas del Foro, es importante definir y enmarcar los conceptos, principios, criterios y marco legal de los PSA, PSE, CPA (Pago o Compensacion por servicios ambientales -Ecosistemas), RPE (Remuneracion por Externalidades positivas).

En la mayoria de nuestros paises no existe un marco legal vigente que regule los PSA, tampoco existen orientaciones de PSA en las leyes relacionadas a Bosques, biodiversidad, agua, suelo. Los Casos mas avanzados en legislacion de PSA podrian estar en Costa Rica, Mexico, Brasil, Nicaragua.

Los PSA deberian analizarse desde dos sentidos:

Sentido Extrico (PSA Extrico): Generacion de externalidades positivas (cumple con al menos 5 principios de Wunder et.al.: (Voluntario, servicio ecosistemico definido, Comprador, vendedor, condicionalidad), Segun Russi, tambien podria anadirse: adicionalidad, intermediario y costos de transaccion.

Sentido Amplio (PSA Amplio), Reduccion de Externalidades Negativas y pago por contaminacion: (Creditos de carbono, MDL (Cambios de matriz Energetica), REDD+; ademas de las subenciones, compras e incentivos del Estado, como los proyectos forestales estatales.

Posteriormente entrare a responder las preguntas con detalle.

Saludos Cordiales

Bayron Medina
Guatemala

[English translation]

Dear Philipp and Bernardete, and PES world colleagues:

Greetings from **Guatemala (Central America)**, where progress has been made on the concepts, processes and implementation and empowerment of communities and society. We have characterised 35 cases of PSE, and I will initiate the discussion on this basis.

Before answering the Forum queries, **defining and framing the PSE** (Payments for Environmental Services) and RPE (Remuneration of Positive Externality) **concepts, principles, criteria and legal framework** is important.

In most of our countries **there is no legal framework regulating the PSE, nor PSE guidelines** in the laws related to forests, biodiversity, water and soil. The most advanced examples in terms of PSE legislation could correspond to Costa Rica, Mexico, Brazil and Nicaragua.

The PSE should be analyzed from two perspectives:

Strict Perspective (Strict PSE): Development of positive externalities (meeting at least five Wunder et al. principles: voluntary, defined ecosystem service, buyer, seller, conditionality). According to Russi, three more principles could be added: additionality, intermediary and transaction costs.

Broad Perspective (Broad PSE): Reduction of negative externalities and compensations for pollution (carbon credits, CDM (Changes of energy matrix), REDD +, besides the State subsidies, purchases and incentives, as state forestry projects.

Forum queries will be answered in detail afterwards.

Best regards,

Bayron Medina

Guatemala

3. David Mwayafu, Uganda Coalition for Sustainable Development, Uganda

1. What are the lessons learned from PES in developed and developing countries?

a) What are the main challenges and opportunities with regard to PES projects in your particular country?

The main challenge of PES scheme in Uganda is lack of policy and national strategy in support of the pace programmes in country. The opportunity in Uganda are there for PES scheme for instance the Trees for Global Benefits that works with the farmers as tree growers for carbon sequestration. The existence of the Natural resources such as the Central Forest reserves under National Forestry Authority and National Parks under the Uganda Wildlife Authority. These areas are watershed management, biodiversity / wildlife conservation areas and carbon sequestration.

b) Do you know of highly successful PES cases in your particular field of expertise (watershed management, biodiversity/wildlife conservation, carbon sequestration,...)? If so, what were the main factors that contributed to the success of the PES scheme?

Trees for Global Benefit have been one the most successful PES project in Uganda. Despite some complains among the carbon producers it remains one of the most success projects that one can easily look at. Another example is the Mt. Elgon Regional Ecosystem Conservation Programme (MERECP) with its REDD+ pilot which offers alternative income generating activities and through community Revolving funds it has been highly successful. What needs to be done is replicating such good initiatives to other areas. The main challenge here is that some projects can work well in a given community but then when taken to other communities they fail due to the cultural set up of the communities and other factors such awareness and education levels.

c) Do you know of PES projects that have failed to deliver despite substantial donor support? If so, what were the reasons that caused the failure?

Mount Elgon area had a challenge when the FACE foundation project was implemented because of the design problem where the local people were not well sensitized hence they could not promote the project but instead it turned out to be the main source of conflict between the management and the communities who were viewed as encroachers. But the situation is different with MERECP programme.

2. PES can be conceived as a diverse set of policies, institutions and processes that mobilize funding from direct beneficiaries, taxpayers, consumers and other interested parties to reward/remunerate/pay providers of environmental services. Which type of PES-related policy instruments would you recommend for your own particular country and why?

a) Are PES-related policy tools applied in affluent countries with lots of off-farm employment opportunities and low population growth rates also adequate for least developed countries where farm sizes often tend to get smaller due to lack of opportunities outside agriculture?

Policies and strategies need to be country specific because of the different circumstances so that at the end of the day the local circumstance plays a major role in determining how the policies can easily be implemented otherwise it will remain as a stumbling block in implementation of the PES Schemes. Policies should give clear framework in terms of how to operationalise the PES schemes with clear ideas on how the beneficiaries are selected and what are the roles and mode of engagement.

b) What should be the role of the public sector in creating a regulatory/enabling environment for PES to deliver? Where public sector assistance is most needed (knowledge transfer, communal/private land rights, infrastructure, measurement of environmental quality changes, etc.)?

The public sector can offer services from policy development, knowledge transfer, and communal / private land rights by offering security of tenure, infrastructure, measurement of the environmental quality changes and even ensuring that the benefits are delivered to the local communities. Awareness and knowledge transfer is work that can be left most to NGOs so that they can also contribute the conservation efforts and promote the replications of the best practices and documenting them.

3. What should be the role of innovation and entrepreneurship in making PES work for sustainable development?

a) In some cases, PES has become a vehicle for a market for environmental goods (e.g. farmers respond to a growing regional demand for trees by setting up their own tree nurseries). Do you know of other business opportunities for farmers that could arise from the implementation of a PES scheme?

For PES to be successful the issue and the question of the livelihood of the community must remain the main focus for any PES project to Succeed. Unless the programme answers the questions of livelihoods it will not succeed even if it has much donor blessings and support.

b) According to your practical experience with PES, where do we need innovation to make PES more effective and what type of reward system could create such innovation?

There is no any single approach on how to make PES more effective it depends on various factors. For PES to be more efficient the communities need to be part of the design, let the benefits or reward reach the target beneficiaries for this case the communities. Allow the communities use the money from PES as part of livelihood improvement as it's the case with Mount Elgon. Some communities they only need support and through the community revolving fund they have been able to get support and increase on their savings and improve on their livelihoods. The payment should be done in groups so that the groups can help in the co-management of the natural resources such as the national park and central forest reserves in the case of Uganda. For Instance in our toolkit on proposed benefit sharing in Mount Elgon: [A toolkit to assess proposed benefit sharing and revenue distribution schemes of community REDD+ projects](#). The most interesting aspect of Mt. Elgon case is that the funds avoid so many middle men agencies' by directly transferring the funds from the fund's managers LVBC to the Community Based Organisations.

c) Innovative landscape approaches focus on the improvement of environmental services on the landscape-level while the PES approach is focused on the remuneration of individual farmers on the field-level. How can the two approaches be reconciled?

Sometimes where the community is adjacent to the National Park or the central reserve and have limited land for PES they can enter into collaborative forest management so that they can be able to contribute to the management of the Protected areas as a group and not individuals. This helps in improving the relationship between the park management and the local communities.

4. Emmanuel Suka, Association of Friends of Limbe Botanic Garden, Cameroon

Hi Moderator,

I submit herewith my humble contributions to PES discussion as follows;

1. Some of the lessons learned from PES in developed and developing countries are;

a) - PES activities are inefficient because of lack of an equitable incentive scheme thus, the financial benefits are unevenly distributed leaving out real actors who are supposed to be the rural poor, and due to inaccessibility are often relegated to the background.

- PES doesn't have a management structure with defined action plan or programme, this often create confusion or mixup of projects. Moreover, persons and groups that require particular needs and express wish to participate in PES projects don't know who to contact, moreover, one doesn't know who is doing what, where, when, and who to approach and for what kind of projects?.

- PES projects most often don't reflect the local environmental contexts and realities, with little socio-economic consideration of local people's rights and concerned communities that are major actors. Projects often are planned at big public offices with political elites, know-hows, and the haves because they have the means to reach the project donor or rather a preferred choice of the donor without seeking the opinion of local stakeholders.

- Because PES have no defined policies, it negatively impacts on its activities.

- PES strategy needs to be revised to include Best Available Technologies packages, and capacity building to deliver to stakeholders who will facilitate implementation of PES activities.

- PES doesn't have field and on the spot system of monitoring and evaluation of its activities instead through online is inappropriate. Projects should be followed up to ensure they are successfully implemented and data collected with establishment of PES data bank.

- PES should develop a business plan to start with to be able to measure progress of its projects.

- PES should address quantify and value issues of indigenous rights including knowledge, innovation and practice.

b) Some successful PES projects that I know of is the recently created Mt Cameroon National Park. However, implementers of PES projects sometimes make fake promises to local stakeholders who are mostly the indigenous communities and true actors on the field. It is often very discouraging, for example, the boundary tracing and opening of the Mt Cameroon National Park was conceived as a programme to involve all surrounding villages on the mountain to participate in the activity. This was to serve as some kind of indirect benefits and incentive to locals but upon execution, some villages were intentionally left out.

- Some PES projects fail because they may not be the rightful priority of the concerned communities, thus careful consideration must be made when designing PES projects, for example, alternative income generating activities such as rearing of animals and birds, or provision of particular type of improved agricultural crops to farmers may not be helpful and can create a negative impact in the community where the protected area is created especially if there's no enough buffer zone for the local populations. Also, land scarcity and arable land problems for farming can arise and serve as a big drive to invasion of the park for farmland, more especially if animal rearing etc is not the culture of the particular community will be an uphill task habit to change.

2. The type of policy that I recommend is closed loop policy and not opened loop. The policy should have commitments with defined obligations for concerned parties, with no room for free-riding by members. This will prevent abandonment of prevents and ensure stability and continuity.

a). Opportunities outside agriculture are rare in least developed countries with high population growth rates mostly require more off-farm employment opportunities to reduce pressures on forests.

b). Environmental Governance/decision-making of PES should be revised to take in to account African local environmental context for PES to deliver properly and efficiently.

c) Most farming systems in Africa are small scale with insignificant pollution therefore, the "Polluter Pays Principle" doesn't count so much in African agricultural set up so can't be given substance in developing countries.

3. The role of innovation and entrepreneurship in making PES work for sustainable development will include;

a) - Creation of PES micro-finance schemes and institutions to facilitate financial resource availability. This ensures efficiency and project's lifespan, long term with greater opportunities and benefits for the project's goal and the poor who often do not have access to funding whereas funded projects are always short-lived.

- Design alternative income generating activities e.g Animal rearing, honey farming, flower gardening and sales etc.

b)- Promote Agroforestry farming systems by providing farmers with improved viable hybrid seedlings.

- Develop training manuals for PES projects.

c) Employ Integrated ecosystems management approach in natural resource management to recover depleted forests and agricultural farmlands can render them more productive. This will be my humble submission at moment.

Thanks.

5. Nelly-Diane Alemfack Efozo, Young Volunteers for Environment, Cameroon

CED (Centre for Development and Environment) is a Cameroonian NGO engaged in Environmental Advocacy. It implements a project of "payment for services Systemic eco community" in two community forests with a learning by doing approach. The objectives of this project (supported by the Rainforest Foundation UK) are the following:

- Protect, restore and sustainably manage forests, while improving Living conditions of local populations (poverty reduction)
- Improve and strengthen the management of community forests by the villagers Developing their knowledge and capacity building,
- Develop local capacity to cope with institutional change, economic and environmental
- Learn practical lessons for future initiatives with community based forest on REDD + to power and communicate processes regional political / international REDD +. The partners in this project are the Communities BioClimate Research and Development (BR & D) and Rainforest Foundation UK (RFUK).

The project is part of trials to contribute to the definition of a model for the implementation of Reduced Emissions from Deforestation and Degradation (REDD) in Central Africa. The goal is to find ways for PSE can promote sustainable livelihoods in forest communities. To achieve this, the project has adopted a strategy, the system level vivo. The communities are located in the villages in the district Nomedjoh Lomié Haut Nyong, Eastern Region and in the borough of Nkolenyeng Djoum Dja and Lobo, South Region. Cameroon was chosen for the pilot because it is the Congo Basin countries which has a policy of recognition of community forests for more than a decade. In addition, Cameroon appears as a laboratory for reforms in the forestry sector in Central Africa.

Despite the success of this project, major constraints and challenges of the implementation of the PES remain to be improved:

At the national level, legislation is particularly complex and cumbersome for community forestry as far adapted and flexible regulations that require a gait Forestry social actors could adopt. Moreover, it does not provide new features related to "Payment for Environmental Services" (PES carbon, watershed protection, maintenance of soil fertility, biodiversity) as they come in basically an economic income drill can produce.

At local level, the implementation of a PES requires the field to find an institution or organization that is able to credibly engage in such a contract. Hence the institution must have a legitimate authority in the eyes of people. This raises the question of what the community (social entity created by colonization and they equate to a village). While the village brings together families and lineages that are real institutions regulating access to and use of land. Community institutions are then fully develop wide decision if they are to have a real impact on the users of the resource. because families are often flexible to incorporate people from outside the community but are assimilated by the granting of such land.

Thanks

6. Silenou Demanou Blondel, African Youth Initiative on Climate Change, Cameroon

The United Nations Framework Convention on Climate Change (UNFCCC), developed on the basis of current concerns, taking into account the limits of the Kyoto Protocol aimed to expand opportunities for climate change mitigation by the capitalization of opening of the carbon market. REDD in scripts committed people who maintain the forest in a compensatory mechanism PES. After assessment of carbon stocks, payments are supposed to arrive directly to grassroots communities, the most vulnerable and the most in terms of capacity building, structure or infrastructure that improve living conditions.

I had the opportunity to take a ride in areas where PES projects were implemented, indicators of improved living conditions are not very noticeable. People are still languishing in poverty. And already she attacks back to the forest.

Beyond governance should constitute a major focus, the full participation of all stakeholders in particular youth development strategies should be another priority

7. Carlos Alborta, IFAD Consultant, Bolivia

See roughly the context. In the highlands of Peru, there are downstream water users in Canete and Jequetepeque basins. There are also upstream water keepers in both basins. The idea is to launch a PES/CES initiative in order to preserve the service and make it institutional sustainable by means of a mixed trust fund.

Water demand is normally defined by the amount of water required from the hydrological system from various uses and several users.

There are, distinctively, three major water users in the Canete and Jequetepeque river basins, (a) hydroelectrical companies whose demand is non-consumptive; (b) city dwellers whose demand is consumptive; (c) irrigation users whose demand is consumptive. There are even some rural rates which are presently being paid.

Notice that the idea that power companies are going to be the greater contributors to the CES scheme is not fully valid. Their need for water is permanent but they do not deplete the water available. You cannot say that water resources, in their case, diminish, degrade or change. After passing through their dams, e.g. Gallito Ciego, that water can still be used by other or for other purposes.

Notice also that city dwellers already pay some small fee for the water available, very small indeed. That is, they are not going to be keen on paying or contributing further to the CES scheme proposed.

In the Canete and Jequetepeque river basins water competition is not terribly fierce. In both basins you may argue that water is relatively abundant. Water prices have been estimated in willingness to pay studies as roughly between S./ 0.0011 - S./ 0.0018 per cubic meter, which is very low indeed.

Water users might be concerned with water decrease in availability. But, this is not foreseeable in the future. The hydroelectrical concerns in both areas e.g. Platanal, have already taken provisions in order not to suffer in the next decade from water shortages or large variations. Industries in the cities around are not fully developed, unless some gold mining firm discovers this mineral in the basin. That latter is not yet in sight.

The need for water augmentation is not fully visible as water is, again, relatively plentiful.

See the reasoning of the PES/CES proposal. Incentives are needed to preserve the actual functioning of the basins; that is, to preserve the environmental service. Community contests are one technique if not the effective one in the field. Contests have proved to be (a) all competitive i.e. it is based on open community rules and regulations; (b) incentives can be monitored and geared according to the CES projects goals; (c) incentives are a prize on investment as opposed to a recurrent cost run by the project; (d) contests have proved to be successful in community management of natural resources (IFAD has plenty to support on this statement, particularly in Peru).

Community contests, in the context of natural resources management, have shown a gradualism which is led by project officials. Beneficiaries have been prone to contests related to household improvement first, and then community assets (see PROMARENA's, Corredor Puno Cuzco records (1990s and this decade).

Indeed water management contests are the creative and innovative way out of this riddle.

Here it goes.

Best regards,

Carlos ALBORTA (IFAD consultant)

8. Demetrio Miguel Castillo, Universidad Experimental Felix Adam, Dominican Republic

[Original contribution in Spanish]

En Nuestro País, República Dominicana es ahora cuando se ha iniciado el pago por servicios ambientales, sin embargo este concepto no ha contribuido de forma efectiva con los manejos de recursos y su destino. Si bien es cierto que se han beneficiado una serie de elementos que son afines al gobierno como tal la mayoría no ha contado con esos aportes tan necesarios para mejorar los servicios y protección ambiental requerida en sus respectivas comunidades. Se valora en principio este aporte por servicios ambientales y se piensa que en un futuro inmediato y con mejores manejos de fondos los servicios serán más efectivos y eficientes. Pero siempre recordando que los mejores protectores de esos servicios son las comunidades en las cuales se encuentran ubicados esos valores naturales.

[English translation]

In our country, the Dominican Republic, PES have now started. However, this concept has not contributed effectively to the management and allocation of resources. While it's true that a number of pro-government elements have benefited, the majority has not received these much needed contributions to improve services and environmental protection in their respective communities.

In principle this contribution for environmental services is valued, believing that in the immediate future -and with better management of funds-, services will be more effective and efficient. But always taking into account that the best protectors of these services are the communities where these natural values are located.

9. Conrado Lucas, University, Angola

I remember that some 10 years ago, FAO had launched an internal discussion on PES with many Departments involved, based on interesting analysis of PES in agriculture. As a researcher, I would find very fruitful to measure how much progress has been achieved so far in understanding and promoting sound systems given the raising concerns about, not food production per se, but the quality of food produced, and environmental services have a great role to play.

Could FAO share with us findings from these discussions from the group (led if I remember well by Dr Mansur)?

10. Marcus Vinicius Alves Finco, Federal University of Tocantins, Brazil

As the 'forest standing' has no economic value to the smallholders, their opportunity costs might lead towards deforestation. A 'win-win' approach could be achieved by paying farmers to sequester carbon, which sets up a situation where: CO₂ is removed from the atmosphere (mitigation); high soil organic matter increases agro ecosystem resilience (adaptation); and improved soil fertility

leads to better yields (production and income generation). If a carbon market successfully allows the trade of sequestered carbon on the international market, deforestation of native forests in tropical countries might decrease. If deforestation is business-as-usual (or the baseline scenario), then the conservation of native forests by farmers would implement change and generate additional positive externalities. Thus, REDD+ project would create a stimulus for the conservation of native forests and increase the amount of carbon sequestered and, therefore, decrease the amount of carbon that is emitted to the atmosphere.

Bellow you find the link of paper of mine that I sent to FAO couple of years ago about REDD+, payment for environmental services, social inclusion, food security and climate change in the Brazilian Amazon region.

http://typo3.fao.org/fileadmin/user_upload/fsn/docs/Bioenergy_and_Sustainable_development_Brazil.pdf

Best regards

Marcus Finco, PhD
Professor at Federal University of Tocantins, Brazil

11. George Kent, Department of Political Science, University of Hawai'i, USA

Greetings –

The project on “Remuneration of Positive Externalities (RPE): Payments for Environmental Services (PES) in the Agricultural and Food Sectors” is very worthwhile because it leads to more complete accounting for resources and other concerns that had not been valued adequately.

As the title indicates, the focus is on environmental services. This should lead us to ask, what other externalities are there? Are there other important issues that should not be ignored?

For example, are there cultural resources in the communities of food producers and food consumers that ought to be recognized?

Educational services to farmers, both formal and informal, surely are important.

Should the ability to pass debt to future generations be recognized as an externality?

Should the services of regulatory agencies be recognized as external factors that really ought to be paid for? Aren't they required in any comprehensive view of food systems?

If attention is given to the ways in which industrial modes of food production can lead to environmental depletion and pollution, shouldn't attention also be given to the ways in which those modes of production tend to concentrate wealth?

Shouldn't attention be given to the fact that modern agriculture preferentially serves high income consumers?

Oliver De Schutter, the United Nations Special Rapporteur on the Right to Food, argues that food systems ought to have three major objectives:

- First, food systems must ensure the availability of food for everyone, that is, supply must match world needs.

- Second, agriculture must develop in ways that increase the incomes of smallholders.
- Third, agriculture must not compromise its ability to satisfy future needs (De Schutter 2010).

Environmental services, one part of the third category, certainly are important, but they should be viewed in a broader context in which many different kinds of values are taken into account.

We have choices regarding how the products of agriculture ought to be valued. For a moment, imagine that agricultural produce was paid for on the basis of its nutritional value, its value in correcting inequities, and its value in protecting the physical environment. What would our food systems look like then? If these were the things we cared about deeply, the world would be a very different place.

Some methods used to take account of concerns about the physical environment might be adapted to take account of other types of issues that have been neglected. The first task would be to identify them. Then there is the need to weigh their importance.

We should also recognize the reality that different people would weigh the issues differently (Kent 1993). Often the environment is harmed because no one speaks for the environment. Similarly, hunger in the world persists partly because the hungry have little voice in deciding what should be regarded as important in modern agriculture.

Aloha, George Kent

12. Philipp Aerni and Bernardete Neves, Facilitators

Summary of the first week of discussion on the FSN forum on RPE-PES

Many thanks for the stimulating contributions to our FSN Forum on Payments for Environmental Services (PES). After one week of discussion we identified three major aspects that received particular attention:

- a) REDD+ and PES projects designed for the compensation of carbon sequestration in agriculture,**
- b) PES and other market-based instruments to ensure the provision of environmental services and**
- c) the scope of PES and its applications.**

The commentators so far came primarily from Latin America and Africa where many PES projects are currently being implemented. The view about the effectiveness of the projects in the respective countries is mixed and there seems to be a sort of consensus that PES schemes need to be complemented with a national environmental policy strategy that signals support and assistance from governments for local initiatives that aim at improving the provision of ecosystem services through corresponding incentives for land-users. Many commentators further believe that PES projects in developing countries need to take into account the local economic conditions. Unless the problem of poverty is properly addressed there is little hope for the improvement of environmental services. In this context, innovation and entrepreneurship are seen as important ingredients in efforts to generate local revenues, off-farm employment and achieve a general improvement of rural livelihoods. This would all add to the financial sustainability of PES.

This week we hope to obtain some views from all World regions addressing also the specific challenges and opportunities in concrete areas such as watershed, biodiversity, livestock and fisheries. We would like to address some of the questions that have so far obtained little attention such as the gap between theory and practice when it comes to the polluter pays principle that still constitutes one of the main justifications of PES but often looks more like a 'pay the polluter' principle in practice, especially in PES projects that aim first of all at addressing poverty problems. Furthermore we would like to learn more about the application of landscape and territorial development approaches in efforts to improve rural development and the provision of environmental services. Finally, we would like to follow up Emmanuel Suka's contribution pointing out at the need to better understand the local context in PES projects and design incentives schemes that generate tangible economic opportunities for local people (e.g. new markets, off-farm employment, rural finance etc). Which types of incentive packages/business cases could lead to financial sustainability when applied to the fields of agriculture, forestry, fisheries and livestock?

Question about prior PES activities at FAO

We are very grateful to [Prof. Conrado Lucas](#) from Angola who was wondering about previous FAO activities on PES. Depending on how broad the PES concept is defined, PES-related activities at FAO cover activities in quite a few FAO departments. But generally, PES obtained most attention in the Natural Resources Department (NR) where the present project is based. Prior to our project, the NR Department also hosted the SARD-Mountain project that had a major focus on PES in mountain regions (see <http://www.fao.org/sard/en/sardm/home/index.html>). Moreover there was the earlier workshop in Arequipa, Peru on Payments Schemes for Environmental Services which was published as a Land and Water Discussion Paper (No. 3, 2003) (see ftp://ftp.fao.org/agl/aglw/docs/lwdp3_es.pdf). We think it is this workshop that Professor Lucas was referring to. The Land and Water Division of the NR Department (NRL) has also supported feasibility studies in East Africa and is part of the practitioners networks in Africa, Asia and Latin America. It is the NRL regional office for Latin America and the Caribbean (FAORLC) where probably most technical assistance to implementation is currently happening.

Our project takes in account the findings of these prior activities not just in the NR department but also the Agricultural Economics Department (ESA) that was in charge of the SOFA report 2007 on PES (see <http://www.fao.org/docrep/010/a1200e/a1200e00.htm>), and numerous projects in the forestry department where PES plays a role in one form or another.

Currently, all three departments are involved in follow-up activities to Rio+20, and PES is also considered to be one of the important instruments to promote a 'Green Economy'.

a) REDD+ and PES projects designed for the compensation of carbon sequestration in agriculture

[Marcus Vinicius Alves Finco](#) from the Federal University of Tocantins, Brazil regards REDD+ as an opportunity for farmers and the environment. He foresees a 'win-win' approach that could be achieved by paying farmers to sequester carbon and enabling them to increase yields through sustainable practices; provided that the international carbon market further evolves and enables trade in carbon offsets at moderate transaction costs.

[Mr. Silenou Demanou Blondel](#) from the African Youth Initiative in Cameroon is more skeptical wondering whether a market for carbon sequestration as envisioned by REDD+ will ever benefit farm and grassroots communities in his country. Payments should first go to motivated local people who are committed to the improvement capacity building and the build-up of infrastructure, as effective pre-conditions to make PES schemes work in the first place. He also points out the importance of linking PES to youth development strategies.

[Ms. Nelly-Diane Alemfack](#) from the Efozo Young Volunteers for Environment in Cameroon describes a carbon PES project funded by the UK Rainforest Foundation and Communities Bio Climate Research and Development. She basically considers the project to be a success but also identifies many major constraints and challenges in the implementation of the PES. Environmental legislation on the national level is complex and cumbersome and therefore difficult to implement on the local level. There is a need not just mobilize more financial resources but also some local competent people who have the leadership capacity and the trust of the local community to credibly engage in PES contracts. She thinks the establishment of community institutions must be based on a proper understanding of the power of informal and family-oriented institutions that prevail in rural Cameroon. Otherwise such institutions designed to implement PES will have no real impact on natural resource management.

[David Mwayafu](#) from the Uganda Coalition for Sustainable Development, Uganda, agrees that the support of the national government and a consistent and implementable national strategy for the protection of environmental services is crucial in PES. He illustrates this by discussing the case of 'Trees for Global Benefits'. This government supported initiative works with the farmers as tree growers for carbon sequestration. Another example is the Mt. Elgon Regional Ecosystem Conservation Programme (MERECP) with its REDD+ pilot. Like 'Trees for Global Benefits', it offers alternative income generating activities and through community Revolving funds. What needs to be done is replicating such good initiatives to other areas. According to Mr. Mwayafu, there are however remaining challenges because some projects may work well in one particular community but not in others. If they fail it is because the cultural set up of the communities and other factors such awareness and education levels have not been taken into account to a sufficient extent.

b) PES and other market-based instruments to ensure the provision of environmental services

[Demetrio Miguel Castillo](#) from Universidad Experimental Felix Adam, Dominican Republic deplors that PES has so far not been very effective, even though he firmly believes that there must be alternative policy instruments that help award communities for protecting environmental services in an effective way.

[Mr. Carlos Alborta](#), IFAD Consultant in Bolivia suggests some interesting alternatives such as Community Contests (CCs). He argues that CCs have the advantage of being based on open community rules and regulations with incentives that ensure the provision of ecosystem services via a prize on investment rather than a recurrent cost project cost. He believes that therefore CCs have proved to be successful in community management of natural resources. In view of some of the inconsistencies with regard to the identification of water buyers and sellers in a water fund scheme in Peru, he suggests water management contests as a creative and innovative way out of this riddle.

[Mr. Emmanuel Suka](#) from the Association of Friends of Limbe Botanic Garden, Cameroon believes that current PES projects in his country are not delivering what they promise. He therefore suggests to improve PES schemes by including 'Best Available Technologies' packages and capacity building programs that aim at enabling the local stakeholders to effectively implement PES activities while also becoming more productive. For that purpose, PES schemes should encourage the development of community business plans that describe measurable objectives and how to ensure the permanence of the economic and environmental benefits for the local community once outside support for PES decreases. He thinks that local communities have assets that are worth investing in. Yet, the value of these assets (local knowledge, innovation, practices) have hardly ever been quantified and therefore remain largely ignored by in PES schemes that are also designed to generating alternative income generating activities. Even though there are successful PES projects, it is not sure how long they will last, especially if PES schemes ignore the particular developing country context. The expansion of farm activities due to land scarcity and lack of off-farm employment opportunities may even lead to a colonization of protected sites and thus a reversal of

previous environmental achievements. According to Mr. Suka, a combination of PES with micro-finance schemes and institutions could therefore be important to generate more local businesses and employment.

c) The scope of PES and its applications.

[Prof. George Kent](#) from Hawaii University: Should the concept of PES be extended to other sustainability challenges that generate negative externalities (passing on debt to future generations, exclusion of small-scale farmers in the global food chain) and positive externalities (investing in education and extension services for farm families, making nutritious food more widely accessible)?

[Prof. Bayron Medina](#) from Guatemala argues that there must be a more clear distinction between PES in the narrow sense (buyer and seller of a single measurable environmental service) and PES in the broad sense (government policies and environmental projects designed to provide farmers with incentives to adopt environmental sustainable practices). In Guatemala, there is still no coherent environmental policy framework that would be supportive of a broad PES scheme. But there are nevertheless 35 interesting cases of PES that have an impact on communities, the environment and rural empowerment.

[Bertha Cecilia Garcia Cienfuegos](#) from Universidad Nacional de Tumbes in Peru expresses her optimism about the future of PES in her country. She observes that many PES projects in Peru have already improved environmental services in certain regions. She personally does not know any projects that have failed but expects FAO to provide further clarification about reasons of possible failure. After all, it is a learning process.

13. Bhubaneswor Dhakal, Nepal [first contribution]

Dear moderators

1. Contradiction on your arguments

I do not agree on your argument that payment for environmental services (PES) is a prominent tool to provide environmental services in all places or countries. Please have a read my understanding and our findings of a study in the following sections. You have poorly recognized the possibility of tradeoffs of environmental services that can result by PES. If you want to produce a quality research report, you have to read literatures on biophysical phenomena of environmental resources and consult other people with good experience of community in developing countries. I regret to say that some opinions expressed by participants in this discussion have based on narrow assessment or dubious, and some others have no science bases. This is a common problem of people working in forest and other environment resource management field. This is one of the causes of bad outcomes of development support on forest and other environment resource management field.

2. Do you know of PES projects that have failed to deliver despite substantial donor support? If so, what were the reasons that caused the failure?

REDD is a failure PES project in Nepal for those who also value the ecosystems services other than the carbon sequestration (climate regulation). Animal and plant species of biodiversity importance exist not only in protected areas but also in community forest. Maintaining suitable habitats of the species requires diversity in the forest. Growing numbers of studies showed that the industrial and conservative models of forest management practiced by following international advices and supports have suppressed the habitats and threatened the species due to degradation of habitats. The REDD forestry project, (e.g. in the REDD project funded by NORAD and implemented by

ICIMOD groups) has advised and provided payment communities to fill remaining open spaces in the forests for increasing forest carbon stock. It has worsened the habitats for the species. The conservative model of forest system also affected agro-biodiversity. Increasing forest cover has reduced dry season stream flow of water which is another concern for communities. Studies showed that reduction of access to forest and availability of non-timber forest products hampered local forestry knowledge. The reason of failure is bad governances of donor, implementer and host government agencies which introduce the project for their own benefit and little considered potential problems. It is not due to lack of information because the potential problems are well documented in literature and textbooks.

3. PES debate in literatures

Some scholars claimed that PES can be an effective mechanism to transfer wealth from rich to poor groups or non-farmers to farmers, and contribute to environment conservation and poverty alleviation or economic development. PES critics argued that the payment concept was introduced by developed countries as a policy instrument to redistribute state income to farmers, particularly to compensate for the loss of subsidies through international agricultural policy changes but the countries justified it as a policy measure for reducing environmental problems caused by industrial farming systems. However, international development agencies experimented the PES for environmental conservation and poverty alleviation in developing countries. According to the PES critics the proponents of PES argued for the sake of their own working benefit and interest. The real benefit from PES will be small or often negligible in developing countries. PES commoditised environmental services available freely to public. Developing countries have many socio-political complexities and bad governance to use opportunities of PES. The government agencies of developing countries hop up on the bandwagon of the international agencies without considering needs and problems in the countries. Then the PES further marginalizes poor people due to bad socio-political institutions and regressive financial systems. The countries have also inadequate resources for social development. Implementation of PES can cause misallocation of available budget of the countries and international sources, and increase administrative burden to the institutionally weak government agencies. It affects investment in important areas such as poverty alleviation and other social development programmes. Experimenting of PES on livelihood means of poor people is also an unethical practice as it can create humanitarian and long lasting problems.

4. Our test on the debate

We attempted to rectify the arguments. The study evaluated socioeconomic impacts of payment of six main (specified into 20 for analysis convenient) kinds of ecosystems services provided by mountain agricultural landscapes and their potential impact on the well being of women in Nepal. The study is titled "Socioeconomic impacts of PES of mountain agricultural landscapes on women". We considered that the women are de facto custodians and manager of the resources providing ecosystem services of mountain agricultural landscapes. This study examined the impacts on the policy system model with 13 criteria. Firstly the study examined whether the resource management warrants conservation payment or other kinds of policy interventions. The study showed that only some services were threatening and warrant for some kinds of policy interventions. It is not in all places and all services as claimed by environmentalist and international organizations. PES could be one of them. The potential impacts of PES on women vary according the type of the ecosystem service and the activities that need to be performed for conservation. Provisioning only some services contribute food security otherwise they hamper food security. Interestingly, provisioning of some services make positive effect on one socioeconomic criteria (e.g. reduce work burden and ill health) and negative effect on others (e.g. food insecurity). Bad governance is the main problem to take advantages the opportunities of benefiting from the services.

5. How bad are bad national and international governances?

I would like to present the bad governance cases of PES in next posting. It may embarrass many readers particularly to those involved in environment conservation, international organizations and PES field.

6. Remarks

Ways of life of people and environmental systems in many developing countries are sustained in complex relationship of many informal institutions. It requires scholarly inputs with broad visioning, constructive thinking and high precaution to evaluate and work on new development institutions including PES in the developing countries.

14. Adam Drucker, Bioversity International, Italy

Despite the existence of important ecosystem services specifically associated with the maintenance of agrobiodiversity (e.g. related to: agroecosystem resilience in the face of climate change and emerging pests and diseases; and the maintenance of gene flow, evolutionary processes and future option values, as well as underlying traditional knowledge and seed systems), PES schemes have, to date, largely ignored agrobiodiversity conservation issues per se. Instead they have tended to focus on carbon sequestration, wild biodiversity and water management.

Bioversity International and its partners have consequently been exploring innovative developing country applications of PES through an assessment of the potential of so-called “[payments for agrobiodiversity conservation services](#)” (PACS) to serve as a least-cost and pro-poor agrobiodiversity conservation incentive scheme.

Following the development of a conceptual framework and the identification of conservation priorities for a case study threatened Andean grain in Peru and Bolivia, competitive tenders (reverse auctions) were implemented across a number of communities in each country in 2010-2011 in order to determine farmer willingness to provide conservation services. Selection criteria were developed in order to facilitate the identification of preferred farmers/communities to undertake such services based on efficiency, effectiveness and equity (pro-poor) considerations ([Narloch et al., 2011a](#); [Narloch et al., 2011b](#))

Findings (see [video](#), [factsheets](#) and journal articles indicated) show that farmers/communities were indeed willing to undertake a conservation services contract for the threatened genetic resources and that participation costs vary widely between communities, thereby creating opportunities to minimize intervention costs by selecting least-cost providers. In-kind, community-level rewards (rather than cash payments made to individuals) were shown to provide sufficient incentives and suggest that a number of them could be provided through existing government agricultural and educational development programmes. The circumstances under which such incentives may build upon rather than crowd-out pro-social behavior related to existing institutions of collective action was explored ([Narloch et al., 2012](#); Midler et al., forthcoming). Research also revealed how tender selection protocols may be designed to account for local perceptions of fairness (i.e. accounting for such principles as proportionality, inclusiveness, consensus and distributional equality) in order to facilitate political acceptability and long-run sustainability of the intervention (Narloch et al., forthcoming)

The enthusiasm of the project participants to maintain the threatened genetic resources in future years, regardless of any further intervention (see farmer quotes in the [PACS video](#)) and their interest in exploring market development opportunities for the case study genetic resources, suggests that the potential for PACS to support national biodiversity policy implementation and make a significant contribution to agrobiodiversity conservation and use goals, as well as to improve poor farmer livelihoods, once it is up-scaled, continues to appear promising.

Future Research and Development

In addition to issues related to targeting, strategic prioritization (since not everything can be saved) and establishing scientifically rigorous relationships between specific conservation goals and actual ecosystem service provision, future research and development issues include consideration of the degree of potential complementarity between more conventional niche product/value chain development initiatives and PACS. The potential to use market development approaches as a cornerstone of a PACS-related wide-ranging cost-effective, diversity maximizing national agrobiodiversity management strategy (as opposed to the many examples of individual threatened crop and livestock genetic resources market development applications) remains to be explored.

Further Information:

A video, policy brief and a series of short fact sheets and technical notes in English and [Spanish](#), as well as scientific articles related to PACS can be found on:

http://www.bioversityinternational.org/research/sustainable_agriculture/pacs.html

Sincerely,
Adam Drucker

15. John Kazer, Carbon Trust, United Kingdom

From a UK perspective, there are two broad approaches towards PES.

The first is long established and linked to the EU's common agriculture policy - the stewardship schemes run by Natural England that reward farmers for following certain specified pro-biodiversity etc. practices. There is some on-going investigation towards expanding these schemes to encompass climate change mitigation. The existing scheme, in my opinion, lacks for robust data and farm audit process regarding the measurable impact of the ecosystem services created.

The second is a more recent private, voluntary programme that I've been involved in. Essentially I've been auditing large-scale, increasingly national-level farm carbon footprint measurement and management programmes - typically based around livestock. These are not linked (as yet) to payments, but do show what might be involved in running a cost-effective PES.

For a livestock mitigation programme, the extent of data required and achieving suitable quality of data is critical - particularly when budgets are small.

For an arable mitigation programme, the key factors for me are balancing yield against inputs. Anything which increases yield whilst maintaining or reducing the inputs required is a positive thing and can be measured quite cost effectively. I would include in this list soil improvement as part of a sequestration programme - I believe that any benefit from such a programme will create much more value, more simply, for the farmer via lower costs and increased yields from better soil than carbon credits or direct PES.

PES in my view are typically best targetted at research, capacity building and farmer engagement programmes that will enable them to generate win-win scenarios of better soil and lower emissions accompanied by increased production and profits.

16. Gill Shepherd, IUCN, United Kingdom

I like Dr John Kazer's [*previous contributor, Ed.*] comments about PES in the UK very much. However, the fact that, to date, CAP farm payments for set-aside have been insufficiently monitored for the

effectiveness of inputs to outputs is a reason to try harder, not a reason to abandon these types of payments.

I was surprised at a recent meeting to find that PES purists do not regard these European payment systems as proper PES at all. I don't think we will progress far if we are that picky. PES is such a messy area at the moment, with so few genuine successes, that in my view we should be considering as wide a range of models as possible and monitoring them for impact and effectiveness.

In remoter developing country contexts, we run, as we know, into many more problems. Probably top of the list are these:

Ambiguous tenure (people feel they own communal land, through tradition and customary law, that the national government does not regard as theirs)

Payments of many kinds to rural people (benefit-sharing schemes, payments by loggers or mining companies to local people whose lands are exploited) are curtailed, paid to the wrong people, kept by chiefs and not distributed further, etc. If the flaws in these earlier systems are not understood and dealt with, PES cannot succeed either.

Payments are too low to effect changes in behaviour

PES is an economist's dream solution - put a price on what has not previously been monetised, pay for it, and all will be well. But the social complexities of the deal are still being hugely under-rated.

17. Andrew MacMillan, Italy

Dear Friends,

While the idea of PES is at first sight conceptually attractive, It may simply provide an easy way out – a way of avoiding the inconvenient truth that most consumers of food are failing to pay for its full cost (the exception being those who support fair trade systems). In so doing, they are passing on to their children the costs of depstroyed and polluted natural resources Felled forests, eroded and nutrient-depleted soils, depleted aquifers, reduced biodiversity etc) and of coping with accelerated climate change processes which are, to a large extent, being driven by the greenhouse gases emitted by the current systems of intensive crop and livestock production. Low food prices that fail to internalise these costs are usually justified on the grounds that, if food prices rise, more people will be hungry – forgetting that, apart from causing environmental damage, low food prices encourage overconsumption and waste of food on a vast scale, and lead to appalling conditions of work for most people engaged in the food chain, especially small-scale farmers but also the people involved in harvesting, transport, processing and distribution. And so, when people call for more investment in food production they should probably spend less effort in inventing various PES programmes but simply lend their weight to the idea that a gradual rise in food prices from consumer back to farm gate is a rather good thing from a food management perspective. It should include taxing the system at various levels to create mechanisms through which middle and high income consumers can start to foot the bill for the social and environmental damage that they are now creating and fund the shift to more sustainable systems.

An essential corollary for such a fundamental policy shift is the putting in place of social protection programmes, with transfer amounts indexed to local food prices, that enable all low income families to meet their essential food needs. It is far cheaper to do this that effectively subsidise the costs of food for all consumers by turning a blind eye to the negative externalities induced by conventional policies.

To some extent the rise in international food prices that has happened in the last 3-4 years has begun to address the problems caused by long-term low prices, but its effect on investment in

expanding production has been muted by the undermining of confidence caused by speculation-driven price volatility. But rising prices alone, unless accompanied by policies to protect food consumption by the poor and to support the shift to more socially and environmentally sustainable production and consumption systems, will do little to improve global food management systems – and could even exacerbate the fundamental problems that, if harnessed sensibly, they could resolve.

Andrew

18. Claudia Berretta, University of Urbino, Italy

The analysis of the application of the forestation interventions of the RDP (Rural Development Plan) at a very local level - within the Province of Pesaro Urbino in Italy, (from 1995 to 2011) gives us some good news. The first good news is that EU Member States can benefit of a stable financial supports for the realization of new forests plantings and the consequent delivery of Ecosystem Services (ESs). The second one is that the RDP forestry programs have all the features of a PES mechanism, which is considered as an advanced tool for the enhancement of ESs delivery. We can surely affirm that these programs have all features of a PES mechanism, since the archetype PES definition is very adaptable to this case.

In relation to the concrete application of Reg. No 2080/92 and Reg. No 1257/99, and to their features we believe that this funding mainly conceived as a mechanism for the attainment of socio-economic goals such as transferring income to farmers or to contrast the land abandonment and thus, it's not really working as a supporting tool for the achievement of environmental targets. Although the general recognition of the ESs forest produce, the agreement is solely based in the commitment of planting trees supposing that forest produce public goods with a result of a weak environment targeting. In this case, the payment is received regardless of whether the ESs are effectively delivered. Moreover, the monitoring activities (the monitoring activities are included in the Annual Executing Relation yearly prepared by Regions on the basis of art. 48 paragraph 2 of Reg. (EC) No 1257/99, art. 53, paragraph 1 of Reg. (EC) No 445/02, modified by art. 1, paragraph 6 of Reg. (EC) No 963/2003, and art. 61 Reg. (EC) No 817/2004, and STAR D/761 Final) do not imply the analysis and the quantification of the expected environmental outputs with its explicit ranking. In other words, the EU programs do not have measurable environmental output in order to control if the program attains the declared aims. The difficulties in planning this policy tool at European level are also related to the effective local baseline. The weak targeting could be resolved by introducing a greater site specificity. Indeed, if we consider the case under investigation, we have seen that the financial support is open to all farmers/landowners/public bodies but the allocation is not based on the local baseline and thus additionality can't be really ensured. Moreover, if priority areas would have been defined, the forestation interventions would have been done in particularly sensitive area with a better achievement of ESs delivery. For instance, with regard to the improvement of the rural landscape value of the Marche Region, some authors believe that afforestation interventions would have been done in plain areas where plantings could increase the vegetable structures mosaic and could create little local ecological network (Antonelli et. al., 2006), but, the plain areas have been marginally involved in the programs.

Although the European and regional plans define the environmental benefits of planting interventions, it has not been realized a differentiated payment system for permanent woods plantings actions. Maybe, if the costs supporting would have been stronger, farmers would have preferred this type of plantings. To direct funds where the Region will have the largest environmental impact, the regional programming would define:

1. Acknowledgement of the baselines;
2. Fixation of the ESs level provision;

3. Definition of the priority areas and the fragile areas on the basis of the local baselines and of the ESs identified;
4. The setting up of a differentiated payment.

A better definition of the local ESs to be delivered and the consequent definition of the priority area could be a new base for shifting the financial aid, intended as a socio-economic tool, towards a truly environment support to the local farmers that improve the natural resources conditions and produce positive externalities to local community (i.e. by mapping as priority zones the High Natural Value areas).

Another approach could be applied for the definition of the annual premium. Since the annual aid based on the average farm income of the different areas have not really influenced the choice of farmers to participate, the annual premium could be calculated on the basis of the effective ESs the forest planted deliver.

We can for example suggest the study of Colozzi et al. ("*Delphi based change assessment in ecosystem services values to support strategic spatial planning in Italian planning*", 2012, Ecological Indicator n. 21) which gives the monetary values of the ESs for land-cover classes. Through this approach the final annual premium embodies the single value of the ESs delivered by forests: climate and atmospheric gas regulation (€ 124 - €/ha per year), disturbance prevention (€ 163), fresh water regulation and supply (€ 3988), waste assimilation (€ 76), nutrient regulation (€ 317), habitat *refuge*, and biodiversity (€ 629,33), recreation (€ 107,46) aesthetic and amenity (€1.51), soil retention and formation (€ 9.05) and pollination (€301.66). The final sum depends of course from local conditions and from the effective provision of the ESs listed above. These figures clearly show the high value of the services forests produce, nevertheless at present they have no value at all. With this complete new methodology, the purpose would also be to make more manifest the concept of the positive externalities produced by local agrarians.

The introduction of weighting in monetary terms the environmental services in a government tool could also introduce a little cultural revolution too: the citizens could effectively know the environmental benefits they have from the actions financed and could also define the environmental services the society receive per each Euro spent from the government (i.e. from the citizens them-selves).

Maybe it's time to change the trade-offs between efficiency, effectiveness and equity. In other words the program could move from a PES mechanism with untargeted payment, horizontal participation, low ESs levels designation to a more site specificity programming, an accurate priority and sensitive area definition, in order to reach a strong additionality impact and an higher level of ESs provision although this change would mean for the governmental level higher transaction costs.

It could be also useful to reconsider the way of establishing the cost planting contribution and the financial aid, considering them as a real compensation for the environmental benefits produced instead of a subsidy to the farm revenues.

The innovating key is likely the application of a completely different way of thinking the territory: the plans, the priority area definition and the types of plantings could be defined on the basis of the values and the public goods the community want to protect and enjoy.

19. Rao Matta FAO, Italy

I would like to follow up on Dr Shepherd's comments on the current situation with PES in many countries and the need for a critical, analytical look at why they are failing to achieve the desired (intended) goals in the first place.

More importantly, the dominant belief that is currently driving the PES that a financial incentive mechanism can by itself address the resource degradation problem (ignoring the fundamental underlying social and ethical complexities or root causes).

20. Abubakar Sadiq Ibrahim Birma, IFAD / FMARD, Nigeria

From time immemorial knowingly or unknowingly man has been benefiting from the Ecosystem but paying little consideration with regards to PES. Priority ought to be giving to PES knowing well that there is no profession that can survive without forests and trees. Accelerated developments worldwide, increased food production, increased health, increased nutrition and income all lead to loss of biological potential of the land, biodiversity, climate change, desertification, erosion, floods, low soil fertility, low food production and famine to mentioned but a few. This is due to the negative attention paid to PES both past and present. The negative over dependence on inorganic fertilizers, chemicals, massive tree felling to mention but a few are some of the actions done to the Environment without adequate consideration of PES that man has to pay now as a way forward. This could be done through a wise use of the available resources without causing any damage to the environment, hence a friendly approach and utilization; through a sustainable agriculture development. For in comparison, the benefit derived from these negative activities highlighted above hardly match the cost of PES for such actions. For the way forward, both developmental agencies, government or nongovernmental, private organizations and individuals must respect the environment and adopt sustainable. Agriculture Development approach and work Sustainably in all aspects of development that leads to increased food production without inflicting any damage to the environment.

ABUBAKAR SADIQ IBRAHIM BIRMA

Head Sustainable Agriculture Development. IFAD CBARDP PSO
Federal. Ministry of Agriculture and Rural Development! KATSINA.

21. Tina Porou Ngati Porou, New Zealand

1. What are the lessons learned from PES in developed and developing countries?

In New Zealand a developed country, the indigenous peoples, Maori, a tribally based community have low socio economic statistics, more similar to developing countries, than developed countries. This has meant that access to PES is still low and in New Zealand, PES is still evolving. For Iwi Maori (tribal Maori) PES are seen as an important contribution to their commitment and ethos as kaitiaki or stewards. Maori collectively own approximately 500,000 hectares of land that is mainly marginal and undeveloped. For a range of reasons including lack of capital, land management structures and government policy. For Maori having PES would recognize the role that Maori land often in native forests and reserved for cultural and environmental reasons have to the water quality, biodiversity and erosion control for the rest of the countries.

2. PES can be conceived as a diverse set of policies, institutions and processes that mobilize funding from direct beneficiaries, taxpayers, consumers and other interested parties to reward/remunerate/pay providers of environmental services. Which type of PES-related policy instruments would you recommend for your own particular country and why?

Many Maori would be more open to retaining lands in native forests if PES were readily available. One option raised at recent meetings amongst Maori in regards to climate change was the establishment of a biodiversity credit to support Maori who have a long term view of land ownership and allow them to trade these credits as a carbon market would work.

3. What should be the role of innovation and entrepreneurship in making PES work for sustainable development?

Porou Whanui Forests is a forestry company 100% owned by Maori and more specifically the tribal grouping of Ngati Porou. NPWFL was established in the late 1980's for several reasons, the first was to ensure that land owned by Ngati Porou was retained in the traditional and collective ownership of the tribe. Inherent cultural connections to the land based on spiritual and intergenerational inheritance were being threatened through government policy and the best way for Ngati Porou to avoid the ramifications of these policies was to develop their lands. However the land is extremely erosion prone with massive sedimentation issues in the Waiapu river caused by wide scale land clearances on lands not best suited for farming. Ngati Porou decided that the only way to save their lands from slipping off quite steep lands into the rivers was to convert lands to forestry. There were significant cultural and environmental reasons for this.

However Ngati Porou is situated in one of the most depressed socio-economic areas of New Zealand, finding the capital to afforest was next to impossible until a joint venture option with Korean firm Hansol Forem and the New Zealand Government's afforestation incentive programme called the East Coast Forestry Project were established. This provided effectively a subsidy to encourage east coast landowners to afforest. The key for the government was erosion control, however spin off effects have been improved water quality from previous land uses and biodiversity improvement reviving and supporting traditional food gathering and traditional knowledge. The combination of this partnership has allowed this successful afforestation of 10,000 hectares of land and a proposed further 10,000ha in the next 10 years. It is now one of the largest employers on the East Coast and is set to harvest its first rotation in the next 5 years. The company is run along cultural values and is intrinsically Ngati Porou, using traditional structures and lands to become one of the largest indigenously owned and operated companies in the country. NPWFL are now embarking on a major carbon scheme to add further value to their owners, as well as taking advantage of the Emissions Trading Scheme in New Zealand rewarding the natural affinity of Ngati Porou as environmental stewards through a user pay system for polluters.

In Taupo, the central part of the north island of New Zealand, government legislation dictated that lands should be reviewed for their landscape or natural value. During a desktop review of the lands in the region, it was identified that a huge majority of the lands that were considered to have landscape or natural, ecological value were Maori lands. These lands were then put under a protection policy to restrict development. For Maori this was hugely restrictive, as they did not have the opportunity to develop their lands previously due to lack of capital and land management structures, they were still in native forests and non-developed. However the lands around them were heavily developed and environmental issues, like erosion and lack of amenity areas were prevalent. Maori lands therefore were being disadvantaged as just because they could not develop their lands, and have retained the natural and landscape value, they could not develop in the future. Maori were calling for the local government to recognize and not restrict development. PES would have created capital to sustainably develop many of those lands for tourism options.

Ngā Mihi,

Tina Porou

Tina Porou | Ohaaki Consenting Manager | Contact Energy
Taupo, New Zealand

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22. Josephat M. Nyongesa, Kenya

1. What are the lessons learned from PES in developed and developing countries?

Lessons (read along with Sec. 1b for overlaps)

- PES needs flexibility; Many programs may not strictly meet PES concept principles (see Wunder, S1. 2005 PES definition). It is advisable for hybridized principles PES to work for buyers and sellers (make PES concept *simple*; realistic, voluntary, "conditional", pro-poor)
- PES should be transparent effective, efficient and equitable for sustainability-**TEES**
- PES tend to succeed if it focuses on socio-ecological nexus i.e ecosystem & societal outcomes- balancing community livelihoods and conservation
- Poor environmental service sellers are keen on positive externalities. PES design that delivers on services especially provisioning for food security, poverty reduction; regulating/supporting for soil fertility to improve productivity-*in-situ* benefits tends to succeed
- Engagement of PES stakeholders including government agencies at all levels is paramount in success of PES projects and is sustained if and only if there's constant Willingness to pay and to accept payment for environmental services
- Good governance through well organized legal groups of buyers/sellers will guarantee PES sustainability
- Need to encourage innovativeness; incorporating other PES like side enterprises in the scheme to add value
- Threshold number of PES farmers is important to realize impact; the more they are the higher/stronger expected impact realized
- Initial feasibility studies (i.e livelihoods and legal, hydrological cost benefit analysis) are important to inform and designing long term PES planning
- Most PES projects lack policy dimension and it is essential to Institutionalize PES for policy recognition and harmonized national PES strategic plan
- Contracts between buyers and sellers should be legally binding and contract terms and conditions executed by all parties involved and in good faith.

a. What are the main challenges and opportunities with regard to PES projects in your particular country?

Challenges:

- Complex Land Tenure system; continuous land subdivision amongst family members can be a challenge to implementation of PES conservation interventions. The land ownership as PES requirement is undermined. New owners (the sons)of parcelled land may not understand PES process and mostly it takes time to own their land title deeds
- Absentee landlords/land ladies: degraded land whose owners are away (may be in formal employment) may lease it to other farmers. The lessee may not be motivated to conserve it given his/her temporary ownership status
- Common pool resources (public goods) like roads in PES projects; Public degraded land and or infrastructure not covered under PES is source of further sedimentation i.e soil erosion leading to further silt load in water sources irrespective of good conservation on PES farms
- Lack of PES policy; though being considered under Water Act 2002 in Kenya, lack of PES policy weakens PES legal recognition as conservation-livelihoods tool

¹ Wunder, S. 2005. PES: Some nuts and bolts. CIFOR Occasional paper 42. Centre for International Forestry Research, Bogor, Indonesia

- Low buyers; low “buyers-in” for PES concept, it takes substantial time and resources for possible buyers to realize business potential to invest in PES
- Unpredicted weather; fluctuation in weather affects some of the PES interventions. For instance unpredicted drought and frost affected establishment of agro-forestry and grass strips structures during initial stage of PES project in Naivasha

Opportunities;

- Legally established government recognized Water Resources Users Associations managing PES on behalf of both individual buyers and sellers
- Natural Resource related policies in which PES can be integrated; Several Acts; Water, Land Agriculture, Forest and other relevant legal national legal documents; National Climate Change Response Strategy, National Environmental Management Act, Vision 2030 development plan, Environmental Management and Coordination Act among others
- Private Public Partnership concept; Opportunity to link smallholder poor producer managing ecosystem to niche markets-buyers benefiting from natural ecosystem services for instance commercial horticulture companies in Naivasha-Kenya. PES offers market opportunity for ecosystem goods and services (assumed public goods) that lack direct market
- Stakeholders desire to sustain macro-economic variables; employment opportunity, investment that contributes to local and national GDP

b. Do you know of highly successful PES cases in your particular field of expertise (watershed management, biodiversity/wildlife conservation, carbon sequestration,...)? If so, what were the main factors that contributed to the success of the PES scheme?

To my view I find watershed management PES or PES like Naivasha-Kenya a successful project;

Success contributing factors ([read section along with lessons](#));

- Strong partnership of key stakeholders working towards focused common goal; Conservation and livelihood improvement nexus (private, public- including government line ministries)
- Well organized legal governance structure of buyers and sellers
- Common shared hydrological problem; upstream faced with soil erosion problem lowering productivity/return on investment due to loss of soil fertility (degradation diminishing livelihood opportunities) and the downstream investors facing poor water quality problem resulting from unsustainable land use practices upstream. Poor water quality threaten long-term investment downstream
- Multiple benefits; quick gains from *in-situ* benefits realized by farmers motivates them to continue implementing PES project
- Flexibility; Hybridized PES principle approach, making PES a simple concept for buyer’s and seller’s understanding and acceptance while considering PES principles; realistic, voluntary, “conditional” and pro-poor PES and/or paradigms for compensation or reward for environmental services (CRES); commoditized environmental service-CES, compensation for opportunity skipped-COS and co-investment in stewardship-CIS (van Noordwijk, M and Leimona B. 2010)²
- Build confidence and trust between buyers and sellers strengthened by participatory prepared business agreement
- Involvement of stakeholders at all PES process levels-build project ownership
- Strong support from intermediary organizations; WWF-Care Kenya

² van Noordwijk, M and Leimona B. 2010. CES/COS/CIS paradigms for compensation and rewards to enhance environmental services. ICRAF Working Paper No. 100. World Agroforestry Centre. Bogor, Indonesia.

c. Do you know of PES projects that have failed to deliver despite substantial donor support? If so, what were the reasons that caused the failure?

Generally failure could result from varied factors including failure for buyers/sellers to see business opportunity investing in conservation, design which fails to consider and focus on community livelihood needs... In Naivasha it took some time to mobilize and sensitize stakeholder on PES concept

However, Sasumua sub catchment in Upper Tana catchment area-Kenya is one of intended PES project which has taken long to take-off despite support from donors; Sasumua dam is a source of approximately 20% of water supplied to Nairobi city. Degradation in the catchment due to poor agricultural practices leads to massive siltation in the dam, making Nairobi Water Company to incur heavy water treatment costs especially during the rainy season. ICRAF verified the business case and suggested suitable intervention strategies, but the water company is not willing to invest in this probably due to lack of supporting policy framework and claim that they pay water use fees which should be used to support such initiative (not considering huge water treatment cost which could be reduced by investing in PES).

2. PES can be conceived as a diverse set of policies, institutions and processes that mobilize funding from direct beneficiaries, taxpayers, consumers and other interested parties to reward/remunerate/pay providers of environmental services. Which type of PES-related policy instruments would you recommend for your own particular country and why?

Policies (read with 1a: opportunities bullet two above). They all relevant to PES as they contain sections focusing on conservation of natural resources and socio-economic development. However, framing of policies should legislate PES in away to seal any chances of possible *laissez-faire* kind of community behaviour (*free riders*) in PES project

a. Are PES-related policy tools applied in affluent countries with lots of off-farm employment opportunities and low population growth rates also adequate for least developed countries where farm sizes often tend to get smaller due to lack of opportunities outside agriculture?

I view PES as a tool to address common socio-economic-conservation problem, specifically internalizing externalities. That is why flexibility when designing PES is imperative, (focus on what need to be internalized through PES and figure out how it can fit into “market-place” for acceptance by sellers and buyers). PES approach may not be the same and applicable everywhere due to Variations in socio-economic/cultural/geographic/ kind of problem to be solved etc. For instance how to design PES where environmental sellers (polluters)are rich land managers and buyers are poor

Least developed countries with decreasing land sizes; Innovativeness in PES implementation needed. Through PRA identify other income generating opportunities that can be integrated within PES. Small medium enterprises supplements PES incentives and ensure smooth household production and consumption over time

b. What should be the role of the public sector in creating a regulatory/enabling environment for PES to deliver? Where public sector assistance is most needed (knowledge transfer, communal/private land rights, infrastructure, measurement of environmental quality changes, etc.)?

Legalizing PES is important; the relevant policy in which PES can be instituted/integrated will recognise and foresee PES implementation as part of its mandate leading to promotion of PES in most hot-spot land/sea scapes. Policy change is the main role public sector can play along with other listed themes for public sector assistance. For instance infrastructure which most PES buyers

may not address can be fixed through government direct involvement in PES as stakeholder. However, skills and knowledge transfer can be facilitated collectively through development/conservation organization taking lead as it is in Naivasha PES project

c. To what extent is it justified to abandon the 'polluter pays' principle of PES to increase agricultural productivity and reduce poverty in developing countries? Or should we use other tools to tackle these objectives separately?

Although Polluter Pays Principle is an environmental policy principle to internalize environmental externalities of socio-economic activities; to my view it may not work well for the PES aimed at increasing productivity/reducing poverty. Considering the subsistence nature of agricultural system in most developing countries, there are tendencies to allow positive externalities to enhance food security and reduce poverty while overlooking the negative externalities on same small farms. This makes agriculture at times exempted from environmental controls applicable to other industrial sectors. Therefore the small nature of agricultural production system in developing countries makes the principle difficult to apply thus not feasible. Equally, Market based tradable permit strategy may not work well.

However, in cases of large commercial farming, principle could be applied through command-and-control strategy ensuring zero tolerance to pollution of agro-ecosystems.

What should be the role of innovation and entrepreneurship in making PES work for sustainable development?

Integrating alternative nature based enterprises will add value to PES as conservation and additional alternative source of income contributing to green growth and development. Access to financial capital is a challenge to smallholder farmers and micro-financing PES related enterprises would be helpful to sustain development. In Kenya, most micro-finance institutions including mainstream banks have realized the need to finance small medium agro-based businesses

a. In some cases, PES has become a vehicle for a market for environmental goods (e.g. farmers respond to a growing regional demand for trees by setting up their own tree nurseries). Do you know of other business opportunities for farmers that could arise from the implementation of a PES scheme?

This could be area specific considering demand-supply forces, consumption of household requirements and relevance to PES design at hand; examples include but not limited to; fruit trees for conservation, income and nutrition; water harvesting (storm water) to check soil erosion, enhance infiltration/recharge and use harvested water for drip irrigation (i.e horticulture) during drought season; Aquacultures using harvested water; poultry to reduce dependency on land (cultivation), apiculture among others

One challenge that the poor farmers face is lack of stable markets for their produce as the markets and prices are mainly controlled by middlemen. Small holder farmers may not have the capacity to market their produce directly due to the low volumes they produce. Market linkages with the potential beneficiaries of environmental services would enhance the operationalization of PES schemes. This can be achieved through organizing farmers into marketing groups.

b. According to your practical experience with PES, where do we need innovation to make PES more effective and what type of reward system could create such innovation?

Conservation-livelihood related: Knowledge and skills, integrated small medium enterprises; Reward system should be arrived at through participatory discussion between buyers and sellers. The reward could be in cash, in kind or both. But should address the immediate needs of the

beneficiaries. Generally, PES needs dynamism as one intervention may not be enough to propel PES to achieve expected outcomes

c. Innovative landscape approaches focus on the improvement of environmental services on the landscape-level while the PES approach is focused on the remuneration of individual farmers on the field-level. How can the two approaches be reconciled?

In PES, the critical focus is to restore the degraded areas/ farms that contribute greatly to sedimentation on the water bodies (for PES schemes that aims to deliver watershed services). In this regard, only those who adopt the desired land use changes are rewarded and it is expected once all the farms are protected, then the impact will be felt in the entire landscape, but incentives should be considered at the landscape level rather than individual level.

However, reconciling the two can also be done through Ecosystem-wide approach or Integrated Water Resource Management-IWRM principle as a coordinated development and management of water, land and related resources in order to maximize the resultant economic and social welfare in equitable manner without compromising the sustainability of vital ecosystems (approach which can be implemented through sub-basin water resource users association-WRUAs as in Naivasha basin

In Naivasha, Community Forest Associations formed for co-management of forest resources in the upper catchment could be integrated with PES for reconciling landscape/field level to enhance environmental services

23. Philipp Aerni and Bernardete Neves, Facilitators

Last week we received many valuable comments on lessons learned from selected PES projects but also more general views about the challenges PES schemes currently face on the policy level as well as on the project level.

The share of contributions from developed countries increased compared to the previous week. Comments addressed the question whether the EU's Common Agricultural Policy (CAP) contains the right schemes to remunerate farmers for the positive externalities they generate through the adoption of sustainable agricultural practices. In this context, the experiences of national implementation schemes in England and Italy received particular attention.

[In the case of England](#), the stewardship scheme run by Natural England rewards farmers for following certain specified pro-biodiversity practices. They are linked to CAP but also complemented by more voluntary schemes such as large-scale farm carbon footprint measurement and management programmes - typically based around livestock. These voluntary schemes seem to deliver promising results and could eventually be linked to PES schemes that generate win-win situations through sustainable intensification in livestock management.

The case documented in the [Region of Marche in Italy](#) suggests that EU agricultural development programs with a PES component could be designed in a more targeted and effective way. It is suggested that this could be achieved by moving towards more site specificity, more accurate priorities and more sensitive area definition. This would have a strong additionality impact and generate a higher level of ESs provision. Such a change may however lead to an increase in transaction costs resulting from monitoring, reporting and verification (MRV) on the governmental level.

The government-sponsored PES schemes in Europe appear to meet only few criteria set by PES purists who look at a particular environmental service as a commodity that can be traded as long as a proper value has been assigned. [Some contributors](#) doubt that such narrowly defined PES schemes are effective when implemented on the farm level. The local context, challenges in the proper valuation of environmental services, high transaction costs (largely due to MRV) and social complexities must be taken into account.

Quite a few contributors have expressed very critical views about PES schemes in developing countries. A case where REDD projects apparently have not delivered well is documented in the [case of Nepal](#). The contributor also points out that PES does not just reflect a theoretical approach that could be implemented in various contexts. Instead it must be understood in the context of the history of subsidies in agricultural policies in developed countries and international environmental politics. He warns that PES approaches often neglect the cultural dimension and the complexity of local human-environment systems that are sustained through many informal institutions that PES schemes tend to ignore.

An approach to PES that seems to facilitate the empowerment of indigenous communities through grassroots innovation, local entrepreneurship and experimentation is however illustrated by another [contributor from New Zealand](#). She reports on a Maori project that started as an effort to protect Maori-owned land from environmental degradation through an afforestation project. It eventually attracted foreign private sector investment but also benefited from an government incentive scheme (East Coast Forestry Project). Even though the focus was on erosion control, the project also increased the range of other environmental services and raises now new options such as the participation in markets for biodiversity offsets or carbon credits. The project also had a positive socioeconomic impact. It generated capital, income and employment for local Maoris, thanks to the establishment of a company called Porou Whanui Forests that is 100% owned by local Maoris. The success of this case is compared to another more top-down conservation-focused approach in the central part of the Northern Island of New Zealand where Maoris did have hardly any chance to set their own development agenda and the outcome in terms of livelihood improvements and environmental services was correspondingly low.

Finally, a contributor drew attention to the efforts of [Bioversity International](#) to connect PES also to sustainable management and preservation of agrobiodiversity, documenting cases in Bolivia and Peru. These Payments for Agro-Biodiversity Conservation Services (PACS) schemes also focus on the possibilities of local communities to generate value from the maintenance of threatened genetic resources through the development of market opportunities. The contributor sees a potential of such schemes to improve poor farmer livelihoods, once it is up-scaled. The success would however also depend on future research on the degree of potential complementarity between more conventional niche product/value chain development initiatives and PACS; and the potential to use market development approaches as a cornerstone of a PACS-related wide-ranging, cost-effective, diversity-maximizing national agrobiodiversity management strategy (as opposed to the many examples of individual threatened crop and livestock genetic resources market development applications).

In general, the contributors of last week seem to indicate that farmers are quite willing to take into account the provision of environmental services in their crop and livestock

management practices if the incentive schemes are really able to either compensate them sufficiently for the additional work and the transaction costs or if they actually contribute to win-win situation that help them to generate more revenues through sustainable intensification, eco-label premium price schemes and agri-tourism.

In our final week of debate we would like to learn more about the **effective use of new technologies (e.g. ICT, monitoring technologies) that help reduce transaction costs of PES projects and thus contribute to financial sustainability**. Otherwise, we hope obtain many further contributions on the **reasons for the successes and failures of policies and projects related to the remuneration of positive externalities in agriculture and payments for environmental services**.

Many thanks to all of you for the lively discussion so far.

Philipp and Bernardete

24. Rogerio Mauricio, Universidade Federal de São João Del-Rei, Brazil

Our group would like to fulfil 2 points raised for discussion on the FSN Forum on the topic "What are the lessons learned from PES in developed and developing countries?"

i- Challenges & opportunities – from my view the biggest challenge to promote ecosystem conservation is to convince farmers that without "conservation", "production system" will fail in a matter of time. Even though money is going to the farmer's pocket now a days, in the future, the negative impact on the environment/landscape will heavily compromise the economical viability of the system. Therefore, the evident world ecosystem disorder generated by agriculture and livestock sector is the most important opportunity for implementation of PES, especially considering the additional negative effect of climate changes. In addition, if products price are the same for both, sustainable and unsustainable farmer as it is for milk or meat at the moment in Brazil, the only way to convince the unsustainable farmer to change the rural practices is paying for ecosystem services for the other. It is important to conciliate production and conservation otherwise agriculture and livestock production systems will not feed the world.

ii- Lesson

Brazil – An incentive for farmers to maintain and increase water availability in the farm was implemented in Minas Gerais State, Brazil. The project distributed material freely for farmers to build fences (wood sticks, barbed wire) around the water spring. Keeping animal out of the springs the natural regeneration of shrubs/graminaceous process started and contributed for water production in the farm. The main factor of the success of this project were concentrated on free help from the government, otherwise small farmers could not do the work.

Thanks for the opportunity and congratulation for the initiative.

Prof. Rogerio M Mauricio
Leonardo Calsavara e Rafael Sandin Ribeiro (MSc. students)

25. Ruth Meinzen-Dick, International Food Policy Research Institute, USA

With regard to the question of what innovations are needed to make PES suitable for developing countries (my interpretation of Q 2.1 and 3.2), one of the major issues to address is the challenge of making PES systems work for smallholders. The transactions costs of dealing with many smallholders are high, which is why large-scale plantations can engage more easily.

Moreover, many PES systems deal only with legally recognized "owners" of the land, which further excludes many small-scale producers who rely on customary land rights.

Collective action can provide a mechanism for farmers to coordinate actions over large areas to provide environmental services such as biodiversity and watershed protection. Collective action also offers the potential to reduce the costs of monitoring and certification usually required to obtain payments for the services. However, the nature of the environmental services will influence the scale and type of collective action needed, the bargaining power of smallholders, and the investment or reinvestment requirements.

Working with Brent Swallow and Meine van Noordwijk, we have developed a conceptual framework that clarifies the inter-linkages between property rights, collective action, payment for environmental services, and the welfare of smallholder land users. The framework is centered on concerns of function and welfare effects of PES. The functional perspective clarifies the effects of collective action and property rights institutions on the supply of environmental services. The welfare perspective considers smallholders as one of several potential sources of supply, sometimes directly competing against large landowners and public sector providers. Using this conceptual framework can help to identify conditions under which smallholders are likely to be able to participate in payment for environmental services schemes. Greater consideration of the linkages between PES and other rural institutions can lead to more equitable outcomes, particularly by 1) suggesting how collective action can be used to overcome transaction costs and barriers to participation by smallholders, and 2) identifying mechanisms through which managers of small private parcels or areas of common property can be rewarded for environmental stewardship through PES.

The paper is available at <http://www.capri.cgiar.org/wp/capriwp42.asp>

26. Timo Beiermann, OpenForests, Germany

1. What are the lessons learned from PES in developed and developing countries?

1. What are the main challenges and opportunities with regard to PES projects in your particular country?

In Indonesia unclear tenure and harmonization of stakeholders interests (e.g. on various government levels and between agencies, same as citizens and farmer groups or communities). Hidden interests in case of resources and exploitation by private investors and supporting agencies can effect projects when under implementation. I guess situation is much similar in other developing countries.

Especially economic driven fast unsustainable development does not match with sustainable ideas promoted in PES subjects, conflicts might be evident.

Opportunities might be limited resources and stress on ecosystem services which might tend for a rethinking of strategies same as questions how to combine rural development with conservation constraints to create benefits for communities. This could maybe address local levels In case of REDD the complex methodologies and conceptual design might be an issue, even if the efforts could innovate forest management tor better support a set of base data and finally increase situation in governance of forest resources.

2. Do you know of highly successful PES cases in your particular field of expertise (watershed management, biodiversity/wildlife conservation, carbon sequestration,...)?

If so, what were the main factors that contributed to the success of the PES scheme?

In my personal opinion combined PES for watershed management and biodiversity approaches integrated with rural development approaches using Micro Hydropower, Forest conservation and Agroforestry would have best opportunities. It is good to provide visible activities with direct benefit as starting point for any activities, later on carbon sequestration could be included if it will work successful in future. In REDD context starting in a voluntary framework above mentioned combination could be a good entrance to support trust building with related stakeholders.

3. Do you know of PES projects that have failed to deliver despite substantial donor support? If so, what were the reasons that caused the failure?

Unsecure tenure and lack of information management could bring PES projects in critical states. As many agencies are involved in spatial planning and concession issuance this could harm projects and make them fail finally, e.g. REDD projects where 50.000 ha are seen as minimum and it could happen that parts of REDD DA could get lost because others hidden plans might be existing in case of mining.

2. PES can be conceived as a diverse set of policies, institutions and processes that mobilize funding from direct beneficiaries, taxpayers, consumers and other interested parties to reward/remunerate/pay providers of environmental services. Which type of PES-related policy instruments would you recommend for your own particular country and why?

1. Are PES-related policy tools applied in affluent countries with lots of off-farm employment opportunities and low population growth rates also adequate for least developed countries where farm sizes often tend to get smaller due to lack of opportunities outside agriculture?

For sure they make sense especially in development countries, because they can introduce partly also the matter why conservation is necessary and enlightens benefits. Often no awareness is in place for subjects related to environmental impact assessment and even if regulations are in place missing knowledge or weak methodological approaches create an insufficient result and copy paste is used widely. Especially Management and Spatial Decision Support Tools can generate more efficient decision processes and secure tenure or increase management different levels of ownership.

2. What should be the role of the public sector in creating a regulatory/enabling environment for PES to deliver? Where is public sector assistance most needed (knowledge transfer, communal/private land rights, infrastructure, measurement of environmental quality changes, etc.)?

At least government sector should provide clear tenure schemes. Capacity building could be also supported public sector if appropriate institutions are already in place.

3. To what extent is it justified to abandon the 'polluter pays' principle of PES to increase agricultural productivity and reduce poverty in developing countries? Or should we use other tools to tackle these objectives separately?

I guess it is not useful to abandon the 'polluter pays' principle. This could indeed increase awareness about harmful activities. E.g. overuse of pesticides "because if you use more it is better" which seems to me common in many cases.

3. What should be the role of innovation and entrepreneurship in making PES work for sustainable development?

1. **In some cases, PES has become a vehicle for a market for environmental goods (e.g. farmers respond to a growing regional demand for trees by setting up their own tree nurseries). Do you know of other business opportunities for farmers that could arise from the implementation of a PES scheme?**

Agroforestry production schemes with ecologic/ organic focus combined with climate change adaption could promote drinking water protection and increase biodiversity in general (see also under 2 and 3)

2. **According to your practical experience with PES, where do we need innovation to make PES more effective and what type of reward system could create such innovation?**

I guess the simplest reward would be the easiest: by having impacts for agriculture and improving livelihood. Agroforestry for watershed protection and including also reforestation as climate change adaption. By supporting organic methods and improve ecosystem services better harvest and for certified products (cocoa, rubber e.g.) higher income could be a benefit.

3. **Innovative landscape approaches focus on the improvement of environmental services on the landscape-level while the PES approach is focused on the remuneration of individual farmers on the field-level. How can the two approaches be reconciled?**

Promote PES in Micro watersheds could be an opportunity also to enforce policies towards IWRM in general! It can be used for drinking water protection within small entities and combined with rural electrification (MHPP). In Kalimantan it can support forest protection and meet local customary law also, where customary lands inherit forests for livelihood support (water, hunting, fruits). Laws for HCV recognizing these are in place but not monitored and slightly practiced in case of Indonesia. Here it could promote law enforcement and combine it with livelihood subjects and climate change adaption.

27. Peter Steele, Australia

Sustainable Cities

Payments for environmental services (PES) are not well understood by those at the sharp end of the business; it represents a sophisticated approach to resource management that can be well outside the remit of those involved with current resource use. And this, notwithstanding the logic of many of the principles behind PES. If there are people out there who are not really certain of what is involved, there is a quick introduction provided by the World Bank.³ The messages can be summarized as: *'Providers get'* and *'Users pay'*.

For all that, however, local socio-political decision-making frequently rides rough-shod over the value of a particularly area of natural cover, watershed, swampland and/or habitat, and much will depend upon the support given to the sometimes impoverished and ill-informed rural people, in particular, by concerned public services or NGOs.

³ World Bank web address:

<http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/ENVIRONMENT/EXTEEI/0,,contentMDK:21010580~menuPK:1187844~pagePK:210058~piPK:210062~theSitePK:408050~isCURL:Y,00.html>.

My contribution to the debate, however, is one of placing PES within the context of 'sustainability' and linking this to those ever expanding urban areas – the preferred habitat of the majority of the world's people. This raises a couple of interesting developments: 1. When everyone is living in towns and cities, the remaining 93% of the globe's surface can be managed on the basis of best practices land/resource suitability;⁴ and 2. The conceptual appreciation of cities as 'Networks of inter-dependent and self-sustaining systems'.

I may not have expressed myself sufficiently well enough with this kind of approach, but the basis for considering it is the finite nature of the global biosphere and the difficulties that will face national and international global managers when sustaining a population >10B in a few years time with the standards that are currently enjoyed today by less than one third this number. How will the planet cope? There is need for a different way in which to consider the extent to which natural resources are consumed and, in most cases, wasted.

You can consider urban dwellers as living in a *technosphere*⁵ wherein everything that is required for the sustenance of daily life has to be produced elsewhere and shipped into the city; and the city then becomes hostage to the life-supporting systems, infrastructure, foods, energy, water, minerals and other necessities, on the one hand, and the copious waste streams discharged into the surrounding environment, on the other.

Sure, there are glimpses of the changes already taking place with waste re-use, materials recycling, etc. which are beyond a brief consideration of the many issues involved here but, consider, the analogy of a city as a natural habitat – an urban forest, ocean, savannah grasslands or whatever - with opportunities into the long-term of making the city as sustainable as that forest; meaning no waste streams, no land-fill, no waste heat, no atmospheric discharges, etc.

Practical or futuristic? Probably both, but much will depend upon approach and understanding, and the ability of concerned people everywhere when working towards this kind of shared future. The alternatives – much of what we can see already – of competition for resources, increased consumption, waste instead of conservation and pragmatic opportunism by many of the major players – including the world's richest 30% (*meaning you and me, of course*) – do not provide optimistic answers.

PES represents a small step into this kind of protective sustainability; and not before time. You only need to explore the reduced quality of the majority shallow seas, loss of natural flora/fauna, the degradation of natural forest lands – particularly those that are accessible to cities – and the decline in productive lands/soils everywhere.

It is particularly apt to explore a debate of this kind within the world's leading international food agency given the unsuitability of many of the agro-industrial food/materials production systems that currently sustain the world. The externalities of food production should not be sacrificed on the altar of low cost; new approaches and new models are long overdue.

Peter Steele
Melbourne

⁴ Urban land area. There is an interesting approach to the challenge of one international city housing 7B people. Check out: [tp://persquaremile.com/2011/01/18/if-the-worlds-population-lived-in-one-city/](http://persquaremile.com/2011/01/18/if-the-worlds-population-lived-in-one-city/). 93% is based upon a 'London' model density.

⁵ Technosphere. Something of an emotive word (concept even) with different meanings according to those promoting different platforms for the way in which the world should/may continue to change into the next period.

28. Hans-Joerg Lehmann, FOAG, Switzerland

Dear colleagues, I hope to serve you with some feedback. Don't hesitate to contact me again.

What are the lessons learned from PES in developed and developing countries

In the past 1970 - 1993 many individual PES project were in place. Since 1993 and certainly after 2000 a process started to integrate PES more and more into the general agriculture policy. (agriculture policy in our country includes food production, rural development, safeguard marginal agriculture areas, livelihood aspects, providing services such as contribution to biodiversity, soil conservation, food security etc.). This integrated system is more comprehensible for farmers, easier manageable for the public authorities, more effective and efficient and has a much better visibility to taxpayer and consumer.

On the farmlevel as well as on the execution level the knowledge-demand increased very fast and is high => a longterm advisory service is very important as well as research of new technics, productionmethodes, recycling, ressource efficiency.

The system is based on a farm level approach, not on individual surfaces. It means that on the whole farm (crop, pasture, animal etc) basic rules have to be fulfilled regarding statutory provisions (environmental-low, water protection, animal well fare, etc) . In addition to that farmers who participate in such a program follows further rules like integrated pest, soil and fertilizer management. The execution is in partnership with Cantons, CSO and private sector. In the following link you will find more in detail further information .

<http://www.blw.admin.ch/dokumentation/00018/00498/index.html?lang=en&download=NHZLpZeg7t.lnp6I0NTU042l2Z6ln1ad1lZn4Z2qZpn02Yuuq2Z6gpjCDe316gmym162epYbg2c.JjKbNoKSn6A--> Page 185 ff

To what extent is it justified to abandon the 'polluter pays' principle of PES to increase agricultural productivity and reduce poverty in developing countries? Or should we use other tools to tackle these objectives separately?

There is no way to abandon PPP and there are possibilities to manage such a provision. If PPP is not applied, very difficult execution problems occur. Very, very important is to fix the minimum standard from the beginning on and to have a scheme how farmers can achieve in a certain time (2 years) this levels. Maybe additional support (e.g. how to collect and store the manure; education how to use pesticide or adaption of pasture management, etc) is needed in a transitional period.

29. Assan Ngombe, UNDP, South Africa

Over the last two years I have been working exploring the possibilities of integrating PES into national development programmes through the UNDP regional environment project in sub-Saharan Africa. We have under taken a number of exploratory studies and below is one of the lessons we have learnt.

PES schemes can be a powerful instrument to modify land use to ensure environmental protection and the provision of valuable ecosystem services; and also contribute to poverty reduction goals as these schemes have a potential of providing new sources of income to the poor.

Making PES schemes pro-poor requires specific efforts to ensure informed participation by the poor –such as addressing insecure land tenure and transaction costs. PES can also have negative

impacts on the poor that need to be carefully analysed and managed, such as unequal negotiation power with more organized private sector players.

For pro-poor PES schemes to reach their potential, they need to be integrated in the broader development process. More importantly, they need to be relevant for livelihood strategies of the rural inhabitants in the areas they are being introduced, particularly the poor.

Attention needs to be paid to develop the capacities of the poor to take part in PES programmes, take full advantage of the benefits, and minimise the risks associated. Capacities such as contracting and contract management, is a priority area for capacity development. Capacities for accountability also need development.

Making PES schemes pro-poor will require additional financial resources to provide for capacity needs and for upfront payments and investment without which success will be difficult to achieve.

Ensuring a supportive institutional and legal framework framework is another challenge we have identified. There are currently exists conflicting policies and legal instruments to support the implementation of PES at a national scale.

Thank you

Assan

30. Bhubaneswor Dhakal, Nepal [second contribution]

Dear moderators and FSN forum members,

I would to share my understanding on the problems to utilize benefiting opportunity of PES in developing countries. I am citing some cases in Nepal but the problems can be more serious in other countries such as Africa where the cases are poorly understood, reported or shared.

Misuses of PES and making environmental systems worse

Increase capabilities of human, animals and plant species for adaptation to climate change require forest management interventions. If communities manage their forests for getting payment for carbon, the resources and institutions (rules or contracts) of REDD create barriers to make necessary changes in forest through management interventions for increasing adaptive capacity. Production of non-timber forest products and other resources essential for sustaining forestry environmental systems are heavily degraded due to introduction of wrong forestry policies in Nepal. The need of forest management operations is being urgent in most of community forests and national parks irrespective of climate change adaptation issue. Ignoring the facts some of the international agencies have introduced the REDD project in the forest areas and are creating problems to make those changes. For example, WWF allied with the USAID fund introduced REDD programme (Hariyo Ban Project) for biodiversity conservation in community forestry areas. One of the main problems of biodiversity conservation in the project command area is excessive suppression of understory species with biodiversity and its habitat importance by overstocked trees. The agencies completely ignored the problem and introduced the REDD project in the area for biodiversity conservation. The project agencies are doing other ways for the sake of showing they are contributing in biodiversity conservation. Similarly a REDD project (under Multi-stakeholder Forestry Project) has been introduced for increasing capacity of human community and forest adaptation to climate change under joint venture partnership of SDC (Swiss aid agency), FINIDA (Finish aid agency) and DEFID (UK aid agency). The growing problem of overstocking of trees in the forest and its negative effect in communities are well acknowledge in the project document but the agencies introduced REDD project by ignoring the REDD policy barriers to

address the community problem. Nepal Foresters' Association advocated for forestry management activity in the forestry programme but the funding agencies completely ignored the voice. The agencies rather bypassed the government system and implementing the project by a NGO formed by their ex-staffs. In Nepal's condition the objective of human community and forest capacity of adaptation to climate change by REDD policy can be achieved together only at low extent. Otherwise they get tradeoffs. The research findings also proved that it exists tradeoffs between climate change adaptation and mitigation outcomes of forest management (Amato et al. 2011; and Thompson et al. 2009). Despite the scientific facts and ground realities the international agencies influential in resource management are doing other way. In fact the aid agencies are using their material and symbolic powers to make Nepali community foolish and capture the resource of poor communities to offset carbon emission produced by affluent societies.

1. Amato, A., Bradford, J., Fraver, S. & Palik, B. 2011. Forest management for mitigation and adaptation to climate change: Insights from long-term silviculture experiments. *Forest Ecology and Management* 262 803-816.
2. Thompson, I., Mackey, B., McNulty, S., & Mosseler, A. 2009. Forest Resilience, Biodiversity, and Climate Change. A synthesis of the biodiversity/resilience/stability relationship in forest ecosystems. Secretariat of the Convention on Biological Diversity, Montreal. Technical Series no. 43.

Why are not watchdogs effective in developing countries?

It requires strong institutional capacity and uninfluenced environment to work watchdog properly in society. The institutions of watchdogs are very weak in developing countries. Moreover, the watchdogs are manipulated and made dysfunction. The Federation of Community Forestry User Group Nepal (FECOFUN), for instance, is a watchdog in forestry. The body is assumed to represent the interests and act to safeguard the interests and wills of community forest users. The WWF (implement the REDD project funded by the USAID) and ICIMOD (implement the REDD project funded by NORAD) have formed business partnership with the FECOFUN to implement their REDD projects. The key leaders of the FECOFUN body are benefitted (got direct and indirect opportunities and facilities) by the project partnership so they have given little attention on the critical issues created by the REDD project. They are silent on the REDD project activities even though the project has criminalized collection and uses of green non-timber forest products, the daily need goods for living for poor people. The ICIMOD and WWF were aware of potential social problems of REDD programme. The intention of the ICIMOD and WWF to involve the FECOFUN in project implementation is to neutralize potential confrontational position of forest user groups and escape from the blame of any wrong doing. Given the nature of the REDD projects and institutional condition of the FECOFUN it is an absolutely abuse on civil society.

Reality of bad governance

International agencies argue that failure of international development support on environmental management in developing countries is due to bad governance of government. From my understanding the problem of government in developing countries is weak institution but the bad governance is the problem of international agencies which are advising wrong policies and practices for hidden interests. The government agencies of host countries could not reject the bad policy advices or stop the inappropriate interventions of the international agencies.

Suggestion for FAO

If FAO management is really/honestly dedicated to make benefit socially disadvantaged people in developing countries and improve environmental condition it should research to find a solution to overcome the bad governance of the international agencies. There is hardly any study in this issue. This research would make more benefit in society than the research on PES that FAO presented to discuss in this forum.

Thank you for your time to read my opinions.

Bhubaneswor Dhakal, Nepal

31. Rodolfo Valdez Garcia, Comisión Nacional Forestal, Mexico

[Original contribution in Spanish]

Desde un punto de vista personal con respecto a las políticas implementadas en México desde el 2003, año en que se inició con la aplicación del proyecto de pago por servicios ambientales hidrológicos, otorgando un pago durante 5 años a gente poseedora de terrenos forestales, siempre y cuando mantengan o mejoren las condiciones del área apoyada.

Les puedo comentar que el programa ha evolucionado en gran medida, desde su implementación (difusión) hasta el monitoreo de los recursos, al punto de iniciar con pagos fijos por hectárea de bosque y selva para la compensación a la gente por acciones de conservación, hasta la actualidad que se realizan pagos diferenciados por ecosistemas existentes en el país dependiendo en parte de la presión económica existente.

Sin embargo el desarrollo de estos proyectos depende de la visión y objetivos que cada gobierno tenga, lo cual a mi consideración debería de ser una de los principales puntos que se deben de analizar al respecto, no solo en México sino en cualquier país. Para el caso de México se comenzó con una inversión inicial de aproximadamente 30,000 dólares en el 2003, actualmente la inversión es de aproximadamente 100,000 dólares y apoyando una superficie de 2.5 millones de ha actualmente.

Uno de los principales retos ha sido ir acoplando las nuevas políticas de cada gobierno, para que el proyecto siga manteniendo su esencia la conservación de los recursos naturales del país, por lo que hay diversos casos tanto de éxito donde a pesar de que se le retira el apoyo por la conservación la gente continúa conservando los recursos forestales e incluso incursionan en aprovechamientos sustentables, así como también hay casos que dejan de recibir apoyos y hay casos de cambio de uso de suelo. Esto se da por que México cuenta con Zonas de atención prioritaria que es muy extensa y que con los recursos que se cuenta para este proyecto no se puede cubrir todas estas áreas.

Un factor que ha intervenido desde el 2006 es el combate a la pobreza, a lo cual se adaptó el proyecto en México, sin embargo el otorgar recursos a estas áreas no es suficiente para combatir la pobreza, algo que debe de ir acompañado el recurso es la asistencia técnica, que se le enseñe a la gente en como cuidar y aprovechar sus recursos, así como una campaña de difusión local para concientizar a la gente de la importancia de los servicios ambientales que proveen los ecosistemas, y aporten recursos para la conservación, así cuando se retiren los apoyos gubernamentales o de organizaciones internacionales, el apoyo para la conservación de un área se siga manteniendo.

Es recomendable que cuando se quiera implementar un proyecto en cualquier país, primero se tenga que analizar su política en materia de medio ambiente, y como segundo término y no menos importante hablar con la gente en donde se va a implementar los proyectos, es necesario hacer estudios piloto para identificar áreas con presiones a ser deforestadas y áreas donde grandes empresas estén utilizando los recursos y que no aportan a la conservación de estas.

Es difícil definir una estrategia global para los servicios ambientales, ya que inciden diversos factores al momento de su implementación, comenzando desde cuando se va a pagar por conservar, donde inciden los costos de oportunidad de una localidad, no se les puede pagar 30 dólares por ha, para conservar un bosque cuando la ganadería o agricultura le ofrece el doble, y al extrapolar esto a otras partes de un mismo país, para algunas áreas puede ser suficiente y a otras parecer insignificante.

Pongo a su disposición el link oficial de la Comisión Nacional Forestal, donde está vigente la las reglas para operar el convocatoria 2013 para solicitar apoyos de servicios ambientales y otros apoyos forestales,

<http://www.conafor.gob.mx/portal/index.php/tramites-y-servicios/apoyos-2013>

Espero les sirvan de algo mis comentarios.

Saludos.

[English translation]

I will explain from a personal standpoint the policies implemented in Mexico since 2003, when the project of payment for hydrological environmental services began, giving money during five years to forest owners, providing they maintain or improve the conditions of the land.

I can say that the program has evolved greatly, from its implementation to the monitoring of resources. It began with fixed payments per hectare of forest and jungle to compensate people for conservation, and now differentiated payments are made for existing ecosystems in the country, depending in part on the existing economic pressure.

However, the development of these projects depends on the vision and objectives of each single government. In my opinion, this should be one of the main points to be analyzed, not only in Mexico but in every country. In the case of Mexico, it started with an initial investment of about USD 30 000 in 2003 and now the investment is about USD 100 000, supporting an area of 2.5 million hectares.

One of the main challenges has been to adapt the new policies of each government, so that the project continues to maintain its essence: the conservation of the country's natural resources. There are several success stories, where despite withdrawing support for conservation, people continue conserving forest resources and even progress to sustainable uses. There are also cases where people stop receiving support and there are cases of land use change. This is because Mexico has very large priority areas, and the resources allocated to this project are not enough to cover all these areas.

A factor taken into account since 2006 is the fight against poverty, and the project in Mexico was adapted to this goal. However, allocating resources to these areas is not enough to combat poverty. Technical assistance should be added, teaching people how to take care of and exploit their resources, as well as a local advocacy campaign to raise awareness of the importance of environmental services provided by ecosystems, and to provide resources for its conservation. Thus, when the support of government or international organizations is withdrawn, the conservation of an area will continue to receive assistance.

We recommend that when you want to implement a project in any country, first analyze its policy environment, and secondly -and no less important- talk to people where the projects are to be implemented. Pilot studies are needed to identify areas with pressures to be deforested and areas where large companies are using the resources and do not contribute to their conservation.

It is difficult to define a global strategy for environmental services, as various factors can influence at the time of implementation. Starting with how much to pay for conservation, or where do opportunity costs affect a place. You can not pay USD 30 per hectare to preserve a forest, whereas livestock or agriculture offers twice. When you extrapolate this to other parts of the same country, for some areas it may be sufficient and for others it would seem insignificant.

Here I put at your disposal the official link of the National Forestry Commission, where you can view the rules of the 2013 call to apply for support for environmental services and other forest support services.

<http://www.conafor.gob.mx/portal/index.php/tramites-y-servicios/apoyos-2013>

I hope my comments are helpful.

Regards.

32. Simone Lovera, Global Forest Coalition , Paraguay

Dear Mr. Aerni and Ms. Neves,

Hereby I would like to contribute to the FSN Forum on Payments for Environmental Services. I also would like to submit a paper on Innovative Financial Mechanisms elaborated by the CBD Alliance, the global network of NGOs following the Convention on Biodiversity, which includes an elaborate critique on PES. See <http://globalforestcoalition.org/wp-content/uploads/2012/03/submission-GFC-on-REDD+-Finance.pdf>.

Moreover, I would like to contribute a draft submission on Non-market based approaches to the UNFCCC which is currently being elaborated by my own organization, the Global Forest Coalition (a coalition of 54 NGOs and Indigenous Peoples Organizations from 39 different countries) and other groups. This submission analyzes the advantage of alternative incentive mechanisms if compared to PES. I am afraid it is only a draft at this moment , the final draft of this submission will be ready by March 22 only. I would appreciate it if you could include that final draft in the forum. I could send you an almost final version on Monday afternoon my time.

From the outset I would like to point out that I considered the questions rather biased, they seem to assume that all respondents would be in favor of PES mechanisms. However, the above-mentioned papers by the CBD Alliance and GFC (representing hundreds of NGOs and IPOs that are actively involved in biodiversity policy) are very skeptical about these mechanisms. Many of these reservations are shared by Governments as well. The results of the Global Dialogue on Scaling up Finance for Biodiversity organized by the Secretariat of the Convention on Biological Diversity and the Governments of Japan, India, Norway, Sweden and Ecuador in March 2012, for example, expressed far more balanced views on PES and certainly did not outright support it. In fact, PES are increasingly being criticized by especially Southern Governments during intergovernmental negotiations while they were mainly defended by OECD countries. A clear example are the Rio+20 negotiations, where G77 formally requested the term 'environmental services' to be removed from the outcome document. I feel it is important an organization like FAO takes a more balanced approach in this respect.

I have tried to fill out some of your questions below, also using some of the experiences in my own country Paraguay, where I work for a local NGO, Sobrevivencia, as well. See also <http://globalforestcoalition.org/wp-content/uploads/2010/11/Casestudy-Life-as-Commerce-in-Paraguay1.pdf> for an elaborate research by our colleague organizations on the social impacts of PES and Biodiversity Offsets schemes in Paraguay.

I wish you success with your consultations and I look forward to the results of this forum.

Sincerely yours,

Simone Lovera

1. What are the lessons learned from PES in developed and developing countries?

1. What are the main challenges and opportunities with regard to PES projects in your particular country?

A very basic challenge is that there is no funding to implement a PES scheme in Paraguay. As an elaborate research by Milder (Milder, J.C., S.J. Scherr and C. Bracer, 2010. Trends and Future Potential of Payment for Ecosystem Services to Alleviate Rural Poverty in Developing Countries. *Ecology and Society*, 15(2):4.) has pointed out, 98% of all PES schemes are financed by Governments, and the budget of the Government of Paraguay is simply too restricted to take this on. One should also seriously question whether expensive PES schemes, which lead to permanent payment obligations if 'environmental services' are to be maintained, are a wise use of the very limited funding that is available for environmental conservation in developing countries. In the case of Paraguay, there are many, many other priorities.

2. Do you know of highly successful PES cases in your particular field of expertise (watershed management, biodiversity/wildlife conservation, carbon sequestration,...)? If so, what were the main factors that contributed to the success of the PES scheme?

No, as described in the research on PES and biodiversity offsets in Paraguay mentioned above, community conservation initiatives were unable to obtain PES funding as the procedures were too complicated. Only large conservation organizations and/or large landholders with very strong links to the government are able to obtain PES funding. The combination of bad governance (Paraguay has one of the highest levels of corruption in the world, a situation that has worsened even further since last year's coup d'etat) and PES is a very nasty one. More importantly, the added value of PES in countries like Mexico and Costa Rica is seriously questioned by independent researchers (See e.g. Alix-Garcia, J., de Janvry, A., Sadoulet, E. and Torres, J., 2005. An Assessment of Mexico's Payment for Environmental Services Program. University of California at Berkeley and CIDE for the FAO Comparative Studies Service Agricultural and Development Economics Division. and Pfaff, A., Robalino, J. And Sanchez-Azofeifa, A., 2008. Payments for Environmental Services: Empirical analysis for Costa Rica. Working Papers Series, Terry Sanford Institute of Public Policy, Duke University.

3. Do you know of PES projects that have failed to deliver despite substantial donor support? If so, what were the reasons that caused the failure?

Significant donor support was gathered for setting up the PES scheme in Paraguay, and other countries, but in most countries it is a complete failure as it is impossible to generate sufficient funding to provide permanent payments. Even when the direct corruption is less, there are many cases of favoritism.

2. PES can be conceived as a diverse set of policies, institutions and processes that mobilize funding from direct beneficiaries, taxpayers, consumers and other interested parties to reward/remunerate/pay providers of environmental services. Which type of PES-related policy instruments would you recommend for your own particular country and why?

1. Are PES-related policy tools applied in affluent countries with lots of off-farm employment opportunities and low population growth rates also adequate for least developed countries where farm sizes often tend to get smaller due to lack of opportunities outside agriculture?

As explained above, setting up a PES scheme does not imply that money suddenly starts to fall out of the sky. In the overwhelming majority of cases, governments will have to pay for them themselves, or at least subsidize their establishment, and for most least developed countries there are many other priorities than spending precious financial resources on schemes to permanently

compensate landholders for proper environmental behaviour. As explained in the submission on non-market mechanisms attached, there are many alternatives to PES that require far less financial resources and are far more sustainable from a social, environmental and especially economic point of view. These alternatives play an important role in strengthening community governance and traditional value systems as well, which is important for the social, economic and cultural well-being of indigenous and non-indigenous communities in general.

2. What should be the role of the public sector in creating a regulatory/enabling environment for PES to deliver? Where is public sector assistance most needed (knowledge transfer, communal/private land rights, infrastructure, measurement of environmental quality changes, etc.)?

I feel it is fundamentally wrong if the public sector subsidizes the establishment of markets in environmental services. It often creates unfair competition, as only rich countries can afford extensive PES schemes, and it makes it easier for rich farmers to compete with producers in other countries if they received additional income for "environmental services".

3. To what extent is it justified to abandon the 'polluter pays' principle of PES to increase agricultural productivity and reduce poverty in developing countries? Or should we use other tools to tackle these objectives separately?

Your question seems based on the wrong assumption. PES means the polluter gets paid principle, it assumes that people have a right to destroy the environment, and that they should be compensated for not doing so. So it is in square contradiction with the polluter pays principle.

3. What should be the role of innovation and entrepreneurship in making PES work for sustainable development?

See above, your question assumes that everyone would favor this policy mechanism, but many Governments, NGOs, IPOs and social movements have serious and fundamental objections against it.

1. In some cases, PES has become a vehicle for a market for environmental goods (e.g. farmers respond to a growing regional demand for trees by setting up their own tree nurseries). Do you know of other business opportunities for farmers that could arise from the implementation of a PES scheme?

2. According to your practical experience with PES, where do we need innovation to make PES more effective and what type of reward system could create such innovation?

3. Innovative landscape approaches focus on the improvement of environmental services on the landscape-level while the PES approach is focused on the remuneration of individual farmers on the field-level. How can the two approaches be reconciled?

Simone Lovera

executive director
Global Forest Coalition
Bruselas 2273
Asuncion

Paraguay

33. Sarah Schomers, Zalf, CIVILand, Germany

Dear all,

from a European perspective, the major approach towards PES is based on European CAP payments. These payments are developed and executed in a complex legal and institutional environment, where the overall framework is set by the EU. The concrete policy designs of the measure are worked out at the individual member state level. Thus, most PES cases in Europe are reflected in governmental payment programs.

Based on an extensive literature review (conducted in 2011), it became obvious that the majority of PES cases in developing countries are based on large governmental payment schemes, too. This implies that a major approach towards PES in developing countries reflects the same approach that we have in Europe since 1992 (or even longer in the case of many European states).

PES is a very multifaceted term and many different conservation approaches are labeled as PES. Also in this online discussion it has been frequently emphasized that PES purists do not consider these European payment schemes as PES at all. We will miss considerable lessons learnt from more than two decades of empirical research on governmental PES schemes, if we do not consider these PES approaches. To push the international PES discourse ahead, we should rather integrate existing research and major lessons learnt on the European and US American payment schemes more heavily. Since the wording of Payments for Ecosystem Services / Environmental Services is relatively new, most lessons learnt of European payment schemes are published under a different terminology, such as agri-environmental measures and schemes or multifunctionality of agriculture.

34. Shiney Varghese, Institute for Agriculture and Trade Policy, USA

Dear Forum Moderators,

Please see below the submission on Payments for Environmental Services to the FAO Global Forum on FSN by the Institute for Agriculture and Trade Policy, (www.iatp.org), USA.

According to FAO, Payments for Environmental Services (PES) are one type of economic incentive for those that manage ecosystems to improve the flow of environmental services that they provide. Generally these incentives are provided by all those who benefit from environmental services, which includes local, regional and global beneficiaries⁶.

We write this note to urge caution about the wider implications of adopting PES as a public policy option. We have come to our position by drawing not only on IATP's work with mid-western farmers since 1986 onwards, but also on our individual engagements in environmental stewardship activities since 1986 in India, China and the United States. IATP's experience includes involvement in the much discussed Catskills Project in Upper New York, the Upper Yangtze Watershed Protection Program in China, the rainwater harvesting and forest protection initiatives in Satpura Ranges, Narmada District, India.

Based on our historical and ongoing involvement in environmental stewardship related activities both in policy and practice, we consider that Payment for Environmental Services (PES), and its market, as we know it now, is something that emerged in the last decade or so.

⁶ <http://www.fao.org/es/esa/pesal/index.html>

We recognize it as an attempt to monetize specific ‘ecosystem functions’⁷ that are considered beneficial to human civilization by naming these as ‘services’ and instituting a regime of payments for them. We understand that PES is seen by its advocates as an option because of the decline of the community ethos that prevailed formerly, where, certain functions were valued as essential for community survival and were protected—regeneration of forests, water retention, refraining from killing young animals or plants etc. It is also seen by its advocates as a framework for protecting these commons in the absence of regulations and/or incentives.

However, our support for PES is qualified, as we see it as a reductionist approach to complex ecological and cultural systems, and that that approach can lead to perverse incentives.

In a paper, *‘Commodification of the commons?’* which we published in the lead up to Rio+20, we urged for caution. In fact in the Rio+20 negotiations, the G77 formally requested the term ‘environmental services’ be removed from the outcome document. It is noteworthy that the main supporters of PES as a market based mechanism for addressing environmental problems, and green economy as such, are countries such as South Korea that are part of OECD. Group G77 and China on the other hand had already pointed out in their [submission](#) to the draft document that “there is no consensual agreement on the definition of a Green Economy in the context of Sustainable Development and Poverty Eradication.”

For them the central tenets for “achieving sustainable development and poverty eradication is through technology transfer/access and sustainable consumption and production patterns”. Given that most developing countries have reservations regarding the use of environmental services, it is prudent that FAO adopt a more cautious approach towards PES, especially in the context of developing post 2015 UN sustainable development agenda.

This prudence is all the more necessary since PES is increasingly promoted as an offset mechanism, especially when in private sphere (as compliance markets are still limited in carbon, water, and even in biodiversity). Here in lies the problem.

Thus whether PES can be a public policy instrument to help protect ecosystem function must be examined on a case by case basis.

We include a set of principles/ questions (see below) that we use in deciding whether to engage in proposed activities towards environmental stewardship. These are based on the recognition that it is nearly impossible to isolate one ecosystem function as an independent variable: these functions are interdependent, and in identifying the variables that influence the ecosystem functions socio-cultural and economic justice issues are important considerations. We urge you to include these questions as guidelines, in addition to emphasizing that PES must not lead to violation of Rio principles such as “polluter pays”, “precautionary approach”, and common but differentiated responsibilities, in your policy recommendations.

Questions developed by IATP to help guide our work around environmental stewardship

- Does it (the policy/program) reduce emissions/ pollution?
- Is it a slippery slope to policy?

⁷ Natural processes are the result of complex interactions between biotic (living organisms) and abiotic (chemical and physical) components of ecosystems through the universal driving forces of matter and energy, and they affect each other in complex exchanges of energy, nutrients and wastes. These complex exchanges and interactions, within an ecosystem are called ecosystem functions and in addition to energy and nutrient exchanges, involve decomposition and production of biomass.

- What are the downstream policy implications of a particular initiative?
- What are the implications of scaled-up versions of an initiative?
- Opportunity costs: is it distracting from real solutions?
- To whom does the benefit (dollars and others) go? Are farmers benefitting?
- Does it support better agroecological/social practices?
- What are the risks involved?
- How do these practices support human rights, justice, equity, democracy?
- How does the domestic affect the international, how does international affect domestic?
- Do these practices create a more democratic production system, or does it play into further concentration of power etc.?
- How does it affect food security?
- Does it promote adaptation and/or resilience?

We have responded to some of your questions further below, using some of our own experiences in various countries as well as our research on PES. Wishing you success and looking forward to the results of this forum,

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See below our responses to your questions:

Please note that given our qualified support for PES, all our answers are in the context of public support for environmental stewardship rather than PES.

1. What are the lessons learned from PES in developed and developing countries?

- a) **What are the main challenges and opportunities with regard to PES projects in your particular country?**

As IATP works locally and globally/ given our qualified support for PES, we reframe this question thus: “What are the main challenges and opportunities with regard to environmental stewardship in your particular country/other countries?”

As a recent report ‘Charting new waters’ by Ecosystem Marketplace pointed out, the majority of all PES schemes are financed by governments. This is because many of the public funded conservation projects are now considered as PES projects.

For example, in the United States Conservation Reserve Program (CRP) that was enacted in 1985 and Wetland Reserve Program (WRP) that was authorized by Congress in 1990 as part of the Food Security Act (Farm Bill) 1985, are both federally funded and interestingly both are now considered as PES projects in many PES surveys.

While more public funds needs to be made available for environmental stewardship, for

8 <http://www.cnie.org/NLE/CRSreports/Natural/nrgen-21.cfm>

9 http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs143_006911.pdf

most developing country governments, their budgets are too limited to undertake such public funded activities. In many countries environmental conservation competes with other developmental priorities. Lack of public funds to implement environmental stewardship related activities remains one of the main challenges in many countries.

b) Do you know of highly successful PES cases in your particular field of expertise (watershed management, biodiversity/wildlife conservation, carbon sequestration,...)? If so, what were the main factors that contributed to the success of the PES scheme?

In our [paper](#) on PES in the green economy, we examined a watershed initiatives in the late 1970s/early 1980s in Sukhomajri, India, where villagers undertook watershed protection (and other) activities that both helped enhance ecosystem functions and increased livelihood options for the villagers. The project is listed as successful example of PES according to the TEEB project, even though it did not involve the kind of monetization of ecosystem functions that seems to characterize the PES schemes being discussed these days. The case study looks at some of the problems that have emerged in the later years.

The Catskills project of early 1990s (which involved water shed protection as a means for water purification for NY city), suggests the emergence of a different trend: It is one of the first examples where restoring the ecosystem function—in this case water filtration—was not only priced in terms of its cost to the mainstream economy, but was also compared to the alternative, of investing in a technological alternative—a filtration plant, and has been hailed as an example of how the ecosystem protection in one area can benefit another group downstream.

What is interesting is that the ‘service’ is priced only in terms of its present market price rather than its value, it has been suggested that the market price may not have reflected the actual value of the ecosystem functions in the area. “However, despite the paper success of the program, Delaware County residents claim that they are experiencing significant detrimental economic and sociological effects to their communities because the LAP is driving up land prices, reducing the quantity of developable land, and threatening the County’s property tax base.” *Excerpted from: Avoiding Further Conflict: A Case Study of the New York City Watershed Land Acquisition Program in Delaware County, NY, by Jennifer Church, Pace University School of Law*¹⁰.

c) Do you know of PES projects that have failed to deliver despite substantial donor support? If so, what were the reasons that caused the failure?

I would consider World banks’ The Kenya Agricultural Carbon Project as a good example of PES project that failed to deliver despite substantial donor support. This is one of the case studies included in a paper looking at the [PES landscape in Eastern Africa](#). As [our ongoing research](#) shows this project has not delivered on its promises regarding fair remuneration to actual farmers undertaking activities to enhance ecosystem functioning. We also found the transaction costs to be very high. We continue to monitor the project.

¹⁰ <http://digitalcommons.pace.edu/cgi/viewcontent.cgi?article=1581&context=enlaw>

2. PES can be conceived as a diverse set of policies, institutions and processes that mobilize funding from direct beneficiaries, taxpayers, consumers and other interested parties to reward/remunerate/pay providers of environmental services. Which type of PES-related policy instruments would you recommend for your own particular country and why?

- a) **Are PES-related policy tools applied in affluent countries with lots of off-farm employment opportunities and low population growth rates also adequate for least developed countries where farm sizes often tend to get smaller due to lack of opportunities outside agriculture?**

Programs such as conservation reserve programs can be tailored for developing countries (with small farm) by linking incentives with dedicated practice of multi-functional agriculture/ agro- ecological practices/ organic farming in small farms.

- b) **What should be the role of the public sector in creating a regulatory/enabling environment for PES to deliver? Where is public sector assistance most needed (knowledge transfer, communal/private land rights, infrastructure, measurement of environmental quality changes, etc.)?**

The public sector must not subsidize the establishment of markets in environmental services. Instead, they should use the funds for developing compliance mechanisms for regulating pollution, as well as for incentivizing environmental stewardship, recognition of communal and private land rights,

- c) **To what extent is it justified to abandon the 'polluter pays' principle of PES to increase agricultural productivity and reduce poverty in developing countries? Or should we use other tools to tackle these objectives separately?**

As we understand, it is envisaged that PES can incentivizes good practice among some actors– say farmers, such as reducing the in-farm use of agrichemicals. However this in turn allows other polluters (say, industry in the same watershed) to buy pollution credits from these farmers and in turn avoid paying for the true cost of their pollution, as the factories would opt to pay a lower cost to farmers rather than investing in reducing their own pollution.

So in effect, PES provides an easier option to those who do not want to comply with rules and regulations, without necessarily making actual reduction in their own pollution or emission.

3. What should be the role of innovation and entrepreneurship in making PES work for sustainable development?

- a) **In some cases, PES has become a vehicle for a market for environmental goods (e.g. farmers respond to a growing regional demand for trees by setting up their own tree nurseries). Do you know of other business opportunities for farmers that could arise from the implementation of a PES scheme?**

Rewarding farmers for their practice of climate resilient agro-ecological approaches (e.g. by subsidizing organic farming) will be important.

b) According to your practical experience with PES, where do we need innovation to make PES more effective and what type of reward system could create such innovation?

Rewarding environmental stewardship as part of rural and urban development would be important.

c) Innovative landscape approaches focus on the improvement of environmental services on the landscape-level while the PES approach is focused on the remuneration of individual farmers on the field-level. How can the two approaches be reconciled?

Using the concept of commons will be helpful.

35. Helena Gonçalves, Fundação Agência das Bacias PCJ, Brazil

1. What are the lessons learned from PES in developed and developing countries?

We have a lot of PES projects being developed in Brazil and it became a trend over here. Most of them are related to water, carbon and biodiversity. From my experience in this projects I can enumerate some challenges which those initiatives are meeting and trying to overcome:

- Legal problems: some of the PES schemes are developed by municipalities or state government and there is a legal contradiction in the financial transaction (from the public to the private)
- Forest Code: in some projects related to water conservation, the payment is related to the conservation or restoration of the “Permanent Preservation Areas – APPs”, defined by law and associated to some spatial limits, that some times are not being respected by the PES schemes. How to justify a payment for someone who is not even respecting the law?
- About the voluntariness of PES projects: how to guarantee that the adhesion is volunteer if many projects are directly related to “helping the landowner to follow the law” and he is vulnerable to the penalties?
- How to justify a payment to help someone follow the law but to someone else not? (the projects are not all-inclusive, not even in Brazil or in the cities they are developed)?
- There are some projects where the price of the payment does not reach the opportunity cost, so it is not interesting to the landowner to join the project. So, there is financial support, but there is no environmental service provider.
- In my opinion PES schemes MUST be integrated to environmental education, the ES providers MUST be involved and participate from the design of the project, and their suggestions and comments should be strongly considered in the implementation of the project, otherwise the change of behavior will be permanently related to the financial transaction.
- Payment cannot be related to the total area of the farm, but to the area to be conserved or any methodology that value the service that portion of landscape is providing – otherwise the inequality will just be exacerbated.

2. PES can be conceived as a diverse set of policies, institutions and processes that mobilize funding from direct beneficiaries, taxpayers, consumers and other interested parties to reward/remunerate/pay providers of environmental services. Which type of PES-related policy instruments would you recommend for your own particular country and why?

In Brazil there is a Law Project to regulate the PES policies, but it is “locked” in the congress for 7 years already. At the same time, we figure many types of PES schemes, adopting several solutions and methodologies, trying to fit the local reality and financial support available. Projects are developed by NGOs, municipalities, state governments, companies, and are paying totally different amounts (many times for the same services).

Despite recognizing the importance of adopting methodologies adequated to the local reality, I wonder if the results and impact of them would not reach higher proportion if following a “model” or unique strategy.

In fact there is a initiative from ANA (Water National Agency) called “Produtor de Água” that stimulates the development of PES projects and gives technical assistance to it. Anyway, the “PES trend” is making many initiatives emerge, sometimes without enough prepare and assistance.

In São Paulo, the Environmental Secretary tried for years to develop an incentive program to the municipalities create PES projects to protect water springs. But it didn’t work. Now the idea is to give farmers who intend to get adequated to the Forest Code, all the tools to do it: fences, seedlings. Instead of paying them.

3. What should be the role of innovation and entrepreneurship in making PES work for sustainable development?

In some places, where there are a great number of small properties, focus on individual farmers is the only way to reach conservation of relevant areas, where there is potential and necessity of environmental services providing. Those areas are populated and you can not just remove the population. You have to give them ways to provide these services. PES is one of the possibilities.

36. Philipp Aerni and Bernardete Neves, facilitators

PES FSN discussion, closing summary

Dear colleagues, many thanks to all for sharing your experience, views and advice on PES with us over the past three weeks. We are very happy to see that this discussion received contributions from both PES hopefuls and sceptics around the World- both have made very important points. The results of this discussion will help guiding the ongoing [FAO project](#), dedicated to capturing evidence on when and how PES and other flexible incentive and non-market mechanisms can be effective in supporting the multi-functionality of agriculture, in developed and developing countries.

The most common issue raised was the importance of participatory design of projects ([Helena](#), Brazil; [Rodolfo](#), Mexico). Many of your examples focused on forest conservation and the many shortcomings that have prevented them from achieving the necessary environmental benefits ([Claudia](#), Italy), thus wasting funds; while causing no improvements ([Silenou](#), Cameroon), or even harming the communities depending on these ecosystems ([Bhubaneswor](#), Nepal; [David](#), Uganda; [Gill](#), UK and [Assan](#), South Africa). We are very pleased that the Forum can be a platform for this type of critically important and outspoken debate; we will follow up on some of these issues directly with you over the coming weeks.

In connection to this, several contributions also discussed the **types of incentives that should be offered to farmers and forest managers for their conservation efforts**. In the first week,

[Emmanuel](#) (Cameroon) highlighted the need for off-farm employment, rural finance etc. In cropland, [Timo](#) (Germany) and [Josephat](#) (Kenya) noted the importance of offering the right combination of short and long-term incentives for adopting and sustaining better practices. [Timo](#) reported good results in Indonesia, combining short-term agroforestry benefits with long-term carbon revenues from forest carbon. [Josephat](#) highlights the need for quick gains from in-situ benefits as motivation for continued investment in long-term downstream benefits.

Nearly all contributions speak about experience from development projects designed at national level, with donor funding. This could also be partly because, as [Shiney](#) from the Institute for Agriculture and Trade Policy (USA) says, many of the public funded conservation projects are now considered PES. **In the second week, [Tina](#) (New Zealand) gives us an encouraging example of a different set up.** The Maori tribal grouping of Ngati Porou, took control of their own indigenous resources framing their activities in a way that they can become a local economic player. But if afforestation of degraded lands can improve water conditions, why aren't those water users more willing to co-fund this environmental service provision? It seems that even with a strong indigenous community, an investor for the product (lumber), the environmental service benefit it is still not an easy sell. [Adam's](#) (Italy) work on payments for agrobiodiversity conservation services is exploring a range of private and public funding opportunities that could/should be explored to broaden the funding base of these schemes.

While there is good work in progress, engaging the beneficiaries of improved environmental services remains PES most important challenge. Without this, PES will not deliver its key promise -attracting new funding or support services from the private sector - and likely to remain a short-lived public-funded investment ([Simone](#), Paraguay), with mixed goals and fuzzy results. One major problem may be that sellers are not necessarily the only providers of environmental services (often they are enabled to do so through organisations that provide them with the necessary assistance and in-kind payments) and buyers do not necessarily represent the beneficiaries only. In fact, downstream industries often invest a substantial amount to make their own businesses more sustainable and come closer to complying with regulation (more efficient use of resources, ecological restoration, wetland construction, water cleaning stations etc.) and thus contribute to the improvement of ecosystem services. This indicates that what might look like a business case in PES theory may not be one in practice.

Another key challenge seems to lie in the relationship between PES and regulation. Existing environmental regulation can be an opportunity. PES could be used as an incentive to help farmers comply with existing, but partly unenforced environmental protection regulation, helping them to deliver the mandated environmental improvements (cross-compliance to fulfil the polluter-pay principle: [Hans-Jörg](#), Switzerland; [Timo](#), Germany) and asking them to deliver additional environmental improvements, beyond those required by law (provider-gets principle). While some of our members consider that PES can be used to combine both benefits, others believe it should be applied only to the latter ([Helena](#), Brazil). But if we want to target sensitive areas like those [Rodolfo](#) (Mexico) mentions, a combination of both instruments may be required to make a difference. On the other hand, budgetary regulations and conflicting sectoral policies can block PES development. In some countries, existing tributary regulations do not allow for municipal financial transfers across administrative boundaries, undermining local creativity in addressing ecosystem scale problems. At national level, compartmentalized sectoral policies may contradict each other too ([Assan](#), South Africa). In some cases, legislation can block PES development. In Kenya, [Josephat](#) mentions a common problem: water use fees and their share earmarked for water resources management exist and are being collected to some extent, but their investment is not traceable. Their existence hampers any further efforts of PES to negotiate for re-directing existing or capturing additional funding for watershed management.

Perhaps the way forward lies in a more systemic approach, and PES is already piloting it. [Rogerio](#) (Brazil), [Peter](#) (Australia) and [Andrew](#) (Italy) make us look to the future and consider the extent to which natural resources are consumed and wasted, its impacts to producers ([Rogerio](#))

and consumers ([Peter](#)). [Andrew](#) calls for a gradual rise in food (and water) prices, that includes funding the adequate protection of the environmental services that allow for the provisioning of these goods. **Perhaps one of the virtues of PES lies in highlighting these linkages between providers and users of environmental goods and services.** Ecolabeling schemes bring both sides closer together, local PES initiatives are leading to revisions of water tariffs to include a new charges for, or earmark existing revenues, to watershed management. These approaches, automatically capture all private sector, include us: the final users of all these goods and services.

But to mainstream this we need to demonstrate the need for improved ecosystem management and we cannot do that if our pilot projects fail to deliver environmental benefits. Impact assessment is seriously needed and [John](#)'s (UK) cost-effective approach to measuring impacts is very encouraging. We should aim to developing similar approaches in all "development" and conservation projects, be they through PES or other investment mechanisms.

While our discussion here comes to an end this week, we will continue pursuing some of these main lines of reflection on how to: 1) diminish the gap between theory and practice of PES, 2) ensure participatory design of projects that are demand-driven with realistic long-term funding strategies, 3) provide alternatives to resource use-restriction and balanced packages of short and long-term incentives for adoption of improved practices, 4) measure the impacts our work and 5) communicate that to engage the private sector in a long-term and substantial manner and 6) eventually mainstream that into government policy.

Once again, we thank you for sharing your honest opinion, your experience and related documents. Should you like to elaborate further on any of these issues please write to us. We will also include you in our project mailing list and welcome feedback on the direction we take, and the added value of our work over the coming two years.

Best wishes to all

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