

Session 2: Developing innovative financing mechanisms

PES schemes have made use of a range of financial mechanisms

Costa Rica's experience

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I would like to relate the experience of Costa Rica in PES schemes. Although PES began formally in 1997, the truth is that, as early as 1979, Costa Rica was making certain incentives available for reforestation. These early experiences proved invaluable for the later establishment of the PES scheme for forest management and conservation.

Costa Rica has 4.6 million inhabitants, and 70 percent of the national territory is designated as forestland. Minister Castro noted earlier that, at a certain point in time, we were champions of deforestation: we were deforesting at a rate of 75 000 hectares per year, which was 1.5 percent of the national territory. But the country has taken a number of important actions since the early 1980s to arrest this trend.

In the 1960 and 70s, policies were in place to favour exports of traditional cash crops such as sugar, beef and coffee, and landowners were compelled to clear their forests or they would not have access to credit. At the same time, the country's first conservation areas were created, and the first laws were enacted aimed at reducing deforestation and recovering degraded forest areas. Nevertheless, agriculture continued to expand, and it was not until 1987 that deforestation bottomed out—the remaining forests were state property. In the 1980s there was strong debate on forests, and in 1986 a forestry law was passed which aimed to stimulate reforestation by private landholders by authorizing tax credits in the form of Forestry Investment Certificates (*Certificados de Abono Forestal*). This was followed by other similar instruments, including Natural Forest Management Certificates (1990).

The country's leaders were aware that they had a catastrophic problem on their hands, and the revised forestry law of 1997 (Law 7575) articulated, for the first time, the concept of environmental services and payments for them. That law created a PES scheme with four main pillars: the legal framework; institutions; finance; and evaluation and monitoring.

Legal framework. Law 7575 sets out the purposes of the scheme as the mitigation of greenhouse gas emissions; the protection of water resources; the protection of biodiversity; and scenic beauty. It creates FONAFIFO, and it provides scope for revenue to fund the scheme through a tax on hydrocarbon fuels.

Institutional framework. The Ministry of Environment, FONAFIFO and a range of forestry, academic and regulating institutions are linked to the work.

Financing. All Costa Ricans pay a fuel tax to pay for the PES schemes. In addition, loans and grants, including from the Global Environment Fund and the World Bank, totalled



A waterfall in Cartago, Costa Rica. The country's PES scheme has proven to be an effective instrument for stopping illegal logging and land-use change. Photo: FAO/Riccardo Venturi

US\$90 million between 2000 and 2010. But the bulk of the funds are derived from the tax on fossil fuels.

As a country we have shown our ongoing commitment to this scheme; the Government of Costa Rica signed the last credit line in 2007, and the legislators approved it unanimously, even though they were from eight parties and had widely varying ideologies. It was one of very few projects approved unanimously.

German cooperation assistance has also helped us, providing €10.2 million for specific activities in the north of the country.

These funds are not sufficient to fund the entire program, so additional fundraising mechanisms are *Certificados de Servicios Ambientales* (Certificates for Environmental Services), sold to the private sector, and the *Canon de Agua* (Water Canon), which is a tax on water consumption used to compensate farms providing catchment protection services.

Payments are made on the basis of reforestation, agroforestry, forest protection and natural regeneration, and for each of these there is a different payment. If endangered species are involved, we pay 40% more.

Monitoring and evaluation. The fourth pillar is monitoring and evaluation. Each participant in the scheme has a geo-reference, and we have various information layers. Monitoring is very important—we have to show that the resources are being used correctly and effectively. Monitoring is done both by FONAFIFO and by third parties to show that resources are being invested in the right way.

The PES scheme enjoys ongoing political support: it has been a priority program for all administrations since 1997 (in which time there have been five presidents and ministers of environment). To some extent, the tax on fossil fuels is controversial; industry, for example, argues that it makes them less competitive than their rivals in other countries, where there is no such tax. Thankfully, however, the tax remains in place.

Achievements. After more than a decade of operation, the PES scheme has proven to be an effective instrument for stopping illegal logging and land-use change. It has successfully engaged private-sector users of environmental services, who contributed more than US\$18 million to the scheme between 2003 and 2010. Partnerships with private companies and international agencies for PES reduce the investment needed from the state.

The PES scheme encompasses 934 000 hectares and involves 13 500 families, and more than 4.6 million trees have been planted. In total, the scheme has resulted in an investment of more than US\$400 million in rural areas, including more than US\$35 million on 110 000 hectares of indigenous territories.

Challenges. Costa Rica's PES scheme faces a number of challenges, such as:

- legal limitations on certain potential beneficiaries entering the program;
- the need to better measure the impact of the scheme;
- a lack of adequate accounting to assess the real impact of environmental services on the economy and the importance of the forest sector in general; and
- an ongoing need for more resources to pay all those supplying environmental services.

A public financing mechanism for forest environmental services

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The Grain for Green Project (G4G) is China's largest and most fruitful PES, poverty-alleviation and eco-restoration project. The total financial input for the first round of the G4G was 326.2 billion yuan (US\$53.5 billion). It led to the creation of 29.4 million ha of forest, comprising 9.27 million ha of forest established on agricultural land and 20.1 million ha of forest established on bare land and mountains suitable for afforestation. The first round benefited more than 32 million farmer households, each of which was paid (on average) more than 7000 yuan (US\$1150). The second round of the project will be launched in 2014.

The first round of the G4G has had two phases, with phase 1 spanning 1999–2006. The core policy involved the state subsidizing farmers or individual contractors who converted agricultural lands to forests with an appropriate amount of grain, seedlings, an afforestation fee and cash, on the basis of the area of converted land on slopes above 25 degrees. The grain compensation standard was 100 kg of grain per mu per year (equivalent to 1500 kg per ha per year) in the Yellow River area and the Northern Region, and 150 kg per mu per year (2250 kg per ha per year) in the Yangtze River area and the Southern Region. The cash compensation standard was 20 yuan per mu per year (US\$50 per ha per year). If converted to cash, the grain is paid in accordance with the coefficient of 1.4 yuan per kg (US\$0.2 per kg). The compensation period was tentatively for eight years for "ecological" forest; five years for economic forests; and two years for grassland.

In Phase II of the first round (2007–2014), Central Finance allocates funds and continues to pay farmer households that converted agricultural land



G4G has led to an increase in China's forest area, improved environmental quality, and growth in the incomes and livelihoods of farmers.

Photo: Li Zhiyong

to forest with a cash subsidy designed to improve the livelihoods of the farmers. The compensation standard is 1575 yuan (US\$258) per ha per year in the Yangtze River area and the Southern Region and 1050 yuan (US\$172 per ha per year) in the Yellow River and the Northern Region. The original livelihood subsidy of 20 yuan per mu per year (US\$50 per ha per year) continues to be paid to farmers as long as they fulfil their obligations for managing and protecting the forests. The compensation period remains at eight years for ecological forest, five years for economic forest and two years for grassland.

The second round of the scheme will run from 2014 to 2020: a major difference is that farmers are free to decide the sort of forest they want, such as an economic forest or an ecological forest. Priority will be given to arable land on slopes above 25 degrees (around 4.314 million ha), arable land in key areas at risk of desertification, and arable land in critical water-supply areas, among others.

Politically, the G4G carries a number of risks. China has a population of 1.37 billion people and only a limited area of arable land: there is a risk that the G4G project will be seen as removing arable land from food production, leading to a reduction in the grain supply. In addition, forest-tenure reforms associated with the project have weakened government control. There is also a question of social equity: is G4G an equitable way of distributing benefits?

From an ecological point of view, it is too early to properly evaluate the impact of the G4G. There have been a number of issues, such as a lack of ecological planning and evaluation; a lack of diverse or appropriate species being planted; a lack of improved seeds; insufficient forest tending; the over-preparation of soils prior to planting; and the use of invasive species.

Economically, the high inputs required, and the long management period, mean that annual economic returns are low, especially in the early years—and there is uncertainty about the markets for forest products when they reach harvestable sizes. The compensation for planting forests was relatively low and declined over time as agricultural reforms increased farmer profits from other land uses.

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Despite its shortcomings, however, the G4G project has, overall, been a success. The forest area is increasing nationwide, environmental quality is increasing, and the incomes and livelihoods of farmers are growing. The G4G project is expected to continue into the future; there is a general political consensus on the need to pursue green development as a way of alleviating rural poverty and bridging the rural–urban gap. To reduce the risks associated with G4G, proposals include: increasing the compensatory standard; broadening the funding (including through the private sector); increasing the rights of farmers to manage their land independently; increasing technical support, including for value-adding industries; and improving monitoring and financial management.

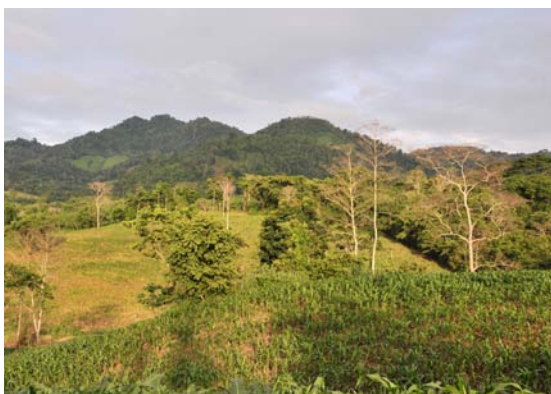
A PES public–private partnership in Nicaragua

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The scheme to compensate forest owners for environmental services in the municipality of Belén in western Nicaragua is an example of an effective public–private partnership. The scheme draws on a range of local instruments, such as the municipal development plan, which includes elements on land use and watershed management; regulations on zoning and land use; and municipal forest management and environmental plans.

Water is a strategic element in land-use planning in the municipality. After an initial process involving wide consultations with local farmers, the Gil González catchment was prioritized for payments for hydrological services as a way of improving the management of the municipality's water resources. The Gil González River flows from west to east for about 25 km before emptying into Lake Nicaragua. The upper part of the catchment is populated mainly by poor farmers who raise cattle and cultivate corn, beans and rice, and much of the land is degraded, lowering the quality of water flowing into Lake



Under the PES scheme in western Nicaragua, payments are made to farmers for protecting forest areas, leaving areas to regenerate naturally, and establishing connectivity between fragmented forests. *Photo: FAO/Saul Palma*

Nicaragua. A public–private partnership was initiated to restore and conserve forests in the Gil González catchment.

The partnership is a mixed-management model involving local farmers, the large sugar company CASUR (*Compañía Azucarera del Sur*), and national and municipal governments. CASUR grows sugarcane in the lowlands and operates a sugar mill at Lake Nicaragua, so it was in its interest to be involved in the project to ensure the supply of good-quality water. Government institutions have two roles—regulation and technical assistance.

A financial mechanism raises and manages funds and ensures a long-term, continuous flow of income for financial sustainability. The project has received financial support from GIZ (the German development cooperation agency), FAO and the national government, as well as from CASUR. The main source of funding for the payments is CASUR, the municipal government and FONADEFO (*Fondo Nacional de Desarrollo Forestal*—National Forest Management Fund).

Payments are made through annual contracts that stipulate the obligations of farmers, and compliance is assessed before payments are made.

The supervisory mechanism keeps transaction costs low and ensures transparency and credibility, which are essential for maintaining trust in the system. A board of directors comprising representatives of the environmental service providers (i.e. the farmers), users and government, oversees the scheme, and there is also a technical committee and a coordinating executive committee which, among other things, monitors changes in water quality in the catchment.

Under the scheme, payments are made to farmers for protecting forest areas (e.g. by establishing firebreaks and using selective harvesting), leaving areas to regenerate naturally, and establishing connectivity between fragmented forests (e.g. live fences). The payment represents compensation for the opportunity costs of conservation and the adoption of sustainable land-use practices such as agroforestry and silvo-pastoral systems.

Conservation areas attract annual cash payments of C\$819 per ha, and the establishment of live fences receives a one-time payment of C\$5000 per km (the Nicaraguan cordoba currently trades at around 26 to the US dollar). We also provide tools such as pick axes to help establish the live fences. To date, 85 farmers have conserved more than 500 ha of forest and established 23 km of living fences. Most farmers in the catchment have been geo-referenced in a geographic information system, strategic alliances have been created with trusted partners, and 60 local people have been trained as promoters of watershed management.

Payments generated by the scheme are insufficient to fully sustain local livelihoods, so the scheme also provides farmers with technical assistance to plant fruit trees and pursue other livelihood options such as beekeeping. It has helped train people in fire prevention and other management practices and to raise environmental awareness in local communities.

The keys to the success of the scheme are:

- the willingness of the municipal governments to include all producers in the scheme, regardless of their political colours;
- the clear defining of agreements and commitments—clear rules of the game are essential for the scheme to be sustainable;

- the engagement of local farmers through empowerment and awareness-raising;
- the transparent handling of information and resources; and
- the participation of the private sector from the start of the project.

Brazil's Atlantic Forest Fund

Julia Mello de Queiroz

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FUNBIO is a private, not-for-profit institution that mobilizes resources for biodiversity conservation. We have four units, and I work in the Financial Mechanisms Unit. We design financial mechanisms to help fund biodiversity conservation, map and analyse financial demands and opportunities, and link programs and policies with the public and private sectors.

Under Federal Law 9.985/2000, companies are obliged to support the conservation of protected areas to compensate for their significant environmental impacts. In Rio de Janeiro, where I am based, many investments were planned, but companies have not known how to make their compensatory payments. Nor did the state government have sufficient capacity to implement a scheme, so there was a need for a financial middleman.

In 2007, the Government of Rio de Janeiro contracted FUNBIO to develop a financial mechanism—the Atlantic Forest Fund (*Fundo Mata Atlântica*—FMA)—to mobilize these private compensatory resources and to direct them to protected areas in the state. A pilot phase began in 2008 and the full scheme started in 2010.

The FMA is a private finance mechanism with public governance through the Environmental Compensation Board (*Câmara de Compensação Ambiental*—CCA), and FUNBIO is its financial manager. The FMA is flexible and transparent, and it preserves the public nature of decision-making through its governance structure. It is also designed to allow short-, medium- and long-term investments in conservation units. Other positive aspects include the following:

- FUNBIO has low execution costs.
- Procedures are uniform.
- The FMA is a voluntary option for executing the requirements of the law.
- The FMA is an easy solution for meeting compensation obligations through an efficient mechanism.
- The FMA model can be replicated in other states of Brazil and in other countries.

As of December 2013, the FMA was funding 56 projects valued at about US\$115 million, of which about US\$30 million had been delivered. Prior to the creation of the FMA, large investments in the management of conservation units in Rio de Janeiro were rare, and many protected areas were just on paper; now they are being managed and the state system of conservation units has started to take meaningful shape. The private sector bought into and trusted the process because companies could see the benefits it could bring. The public–private nature of the partnership brings credibility to the process, and, in Rio de Janeiro, almost all companies with obligations under the law have chosen the FMA as the mechanism through which to fulfil those obligations.

Main challenges. The public sector is risk-averse, so it can be difficult to be innovative, and there is a continual need for political will—public-sector managers may have other interests and priorities. In designing the mechanism, there is a need to match modalities with the needs and realities of stakeholders, so validation is essential. For the mechanism to work well in practice there must be sufficient flexibility to meet the needs of stakeholders.

Lessons learned. It is important to listen to stakeholders and to find out what they want. Establishing an effective mechanism involves a complex process of persuasion and conversion, which takes time. The private sector is most likely to be interested when the benefits are clear, the risk is low and the process is economically efficient. The mechanism must have effective and transparent oversight and political legitimacy, and it needs clear rules and laws. One of the big lessons we have learned at FUNBIO is that we have many initiatives, but to develop successful innovations we have to look in many directions for funds and for a large diversity of financial mechanisms.

The GEF's work on PES

Jaime Cavalier

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The Global Environment Facility (GEF) is a financial mechanism of the three environmental conventions. Countries deposit funds with the Facility, and most are handed over to recipient countries, which decide on the use of those resources within the general GEF framework. The GEF Secretariat verifies the projects that are submitted.

The GEF has explicit language on the possibility of using GEF resources for the development and implementation of PES schemes, and proposals are welcome. We have a new SFM strategy—which means that additional funds are available to supplement the resources available to each country in the focus area of biodiversity.

The last two funding cycles of the GEF have generated funds close to US\$8 billion, of which almost 50% is allocated to biodiversity conservation. The major focus of 14 projects worth a total of US\$70 million is on the development of PES schemes; these projects have also attracted US\$395 million in cofinancing. PES schemes are a significant component in another 15 projects worth US\$73 million (US\$281 million in cofinancing), and a minor component in 28 projects worth US\$82 million (US\$918 million in cofinancing). PES schemes developed as part of GEF projects may have international, national or local buyers.

The environmental service that generates most demand in GEF projects is water-resource protection, followed by carbon sequestration. Why? PES schemes are likely to be developed and implemented in areas where water

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is in high demand, and conserving the water source is less expensive than all other alternatives, including water treatment and relocation. PES schemes are also being used in pilot carbon schemes in countries where there are significant carbon stocks, technical capacity and legal certainty for buyers seeking to offset carbon emissions.

There is no project in the GEF in which the main objective is to create a PES scheme for biodiversity; where biodiversity is included, it is part of a basket of services. This seems to be the main way in which biodiversity conservation will be the subject of PES schemes in the future: as part of a package with other environmental services for which there is real demand.

Comments from the floor

- Question for Jaime: There is plenty of interest in PES in Africa; many concepts are brought to us, but one of the challenges is the “captive buyer”. Would the GEF be willing to allow projects to use funds to pay for credits as a way of “testing the water” and encouraging users to get involved?
- **Jaime’s response:** Yes, we do have cases where GEF projects have not only set up the PES scheme, they have also “primed the pump”. But if you don’t really know if there is a buyer, what is the point of setting up a scheme? Who in the business world would set up a business without a sense of what the market is?
- One of the problems with PES schemes is how to scale them up, but there is also the problem of “scaling down”—ensuring that payments are spent effectively at the local level.
- In China, the G4G program has run for more than 15 years and it has passed through three stages. In the first stage, farmers were paid to plant trees, but after a few years the farmers said the money was not enough. In the second stage, the program assisted local governments in working with farmers to develop follow-up industries so they would have new ways of making money, such as through ecotourism and the sale of other products. Now, in the third round of the program, we want to improve the policy to focus on capacity building—training farmers and building roads and schools, so they can create more opportunities for themselves.
- We need to understand that the deforestation problem is not usually a forestry problem; it is more about pressure for land from other sectors. Often this is simply because those sectors make inefficient use of their land. So we need to identify the deforestation drivers and then develop a compensation mechanism to combat those, such as by developing more productive ways of managing existing cleared land.



A Forum participant speaks during a facilitated plenary discussion.
Photo: H.O. Ma/ITTO

PES schemes are not only about money—they might involve, for example, alternatives for other sectors so they stop putting pressure on forest resources.

- In Uganda we are working with small-scale landholders to engage them in voluntary carbon markets. The scheme provides a system whereby several small-scale landholders can aggregate to create scale and connect with companies looking to invest for corporate social responsibility purposes. Even if you start small, it gets easier to scale up because the experiences of the pioneers can inspire other communities to join producer groups.
- We want long-term sources of funding—for example, a hydroelectric plant is likely to want to invest in the long term in high-quality catchment management. Some existing mechanisms, such as a GEF grant, might provide short-term bursts of funding and then they’re over. Grants are short-term unless they can be converted into a trust fund that can finance certain conservation activities in the long term. It’s important that we distinguish between the types of mechanisms: will they be there in the long term, or will they be depleted?
- The core of the issue is how to finance all these schemes in the long term. In Costa Rica, we had great expectations after the Rio Earth Summit in 1992; we established a self-imposed tax on greenhouse gas pollution, but we are still to see real action at the international level; there has been no echo internationally to our national efforts.