e-Parliament

Forests Initiative

EXECUTIVE SUMMARY. The destruction of tropical rainforests is contributing some 20% of the global carbon dioxide emissions that are heating up our planet. But with the right policies, deforestation can be reversed. In 1900, Costa Rica had 85% forest cover; by 1989, it had just 29%. In 1996 Costa Rica implemented a programme to pay individual landholders for the benefits of nature, or ecosystem services, provided by their forests. Forest cover is back to 51%, and new jobs have been created in the process.

The e-Parliament is a global forum helping the world's democratic legislators to spread and implement good policy ideas like this one. Our Forest Initiative is working to help Members of Parliament and Congress put in place legislation and policies which can protect our last great tropical rainforests. We are starting with the concept of payment for ecosystem services (PES). Here are some key points.

Put a value on ecosystem services. This moves beyond traditional approaches, such as controlling land uses or protecting species, providing an innovative way to conserve nature. By creating a revenue stream for services that typically have no market value, landholders are encouraged to restore or protect ecosystem services.

Create new global funding sources. The most important ecosystem service provided by the forests is protecting our climate. This is crucial for everyone, and the developed nations should help to pay for it. For example, there have been proposals for "forest bonds" to raise serious funding to compensate nations which leave their forests intact.

Identify champions for the national policy and a managing institution to drive the programme. In order for policies such as payments for ecosystem services to be sustained, motivated groups must continuously move the system forward. And an organization with adequate institutional capacity must be given responsibility for it.

Be willing to adapt the system as lessons are learned. Experience in PES is growing, but the political context differs across regions and time. Therefore, taking a learning approach is essential. There have been many changes in the Costa Rican PES programme since its inception, which have improved its effectiveness.

Ensure that the people who live in and near the forests, including indigenous people, benefit from the policy. If local people reap benefits from keeping the forests standing up, they will do their best to keep them that way. Here again, Costa Rica has succeeded in ensuring that peasant farmers and indigenous peoples reap rewards from forest conservation.

There are ongoing negotiations under the UN Climate Convention on a new framework for developed nations to contribute towards forest conservation in developing countries. The role of legislators is crucial on two levels. First, they can help to inject greater urgency and political will into the negotiations. Second, whatever agreement emerges, there will need to be a good national legislative framework in each forest nation if funds are to be spent effectively.

To turn words into action, the e-Parliament Forest Initiative has been launched, with support from Sweden, to:

- **Convene international parliamentary hearings** to enable legislators to examine policy ideas in detail. Each hearing brings together some 20 lawmakers from different countries for two days, to question leading experts from around the world. A hearing on climate and ecosystems, held in South Africa in 2008, identified Costa Rica's legislation as one of the major success stories in the field. Our next hearing will bring legislators from forest nations in Latin America, Africa and Asia to Costa Rica to see and hear first hand how that legislation works, and to discuss how it could be adapted for their own countries.
- **Form cross-party Forest Groups in the parliaments of tropical forest nations**, whose members can work together to introduce new proposals for policy and legislation.
- **Produce Legislative Tool Kits, and facilitate expert advice**, to assist parliamentarians in adapting policy ideas to their own national circumstances. One of our partners is the **UN Development Programme**, which can play a key role in channeling expert advice to interested legislators through its country offices.
- **Work with financial experts to explore new financial mechanisms** – such as forest bonds – which legislators in developed countries could use to generate resources to pay for the global ecosystem services provided by forests.

A summary of the Costa Rican legislation, produced by the World Resources Institute for the e-Parliament, is attached. For more information about the e-Parliament, contact info@e-parl.net or visit www.e-parl.net.

Payments for Ecosystem Services in Costa Rica and Forest Law No. 7575

Key Lessons for Legislators

by

Karen Bennett (kbennett@wri.org)
Norbert Henninger (nhenninger@wri.org)
World Resources Institute

10 G Street, NE • Suite 800 • Washington, DC • 20002
Ph: 202-729-7704 • Fax: 202-729-7798

SUCCESS STORY: COSTA RICA

Costa Rica has been one of, if not the most, successful stories of Payments for Ecosystem Services (PES).

The program was established as a national program in 1996 (*Forest Law No. 7575*) in response to the country's skyrocketing deforestation rates. At the turn of the 20th century, 85% of Costa Rica was forested land; by 1987 that number had plummeted to 29% (Silva 2003). This incredible rate of deforestation was driven primarily by perverse incentives established by law, including cheap credit for livestock, land-titling laws rewarding the cutting of forests, taxes on "unproductive" lands, and a quick expansion of the national road system (Karousakis 2007). Recognizing the need to halt massive environmental degradation, Costa Rica implemented many legal reforms, including a scheme to pay land holders for providing the benefits of nature to people, or ecosystem services.

Setting the Stage

The legal mechanism for payments for ecosystem services did not come until the 1990s. Early changes in forest law designed to support the forest industry, however, established the institutions and well-functioning system of payments for reforestation efforts, from which the future PES program could be launched.

Starting in the 1970s, alarm over diminishing forest areas and timber supplies led Costa Rica to put in place financial incentives for timber plantations, remove perverse incentives, and strengthen various environmental protection laws.

The first law, *Forest Law No. 4475* of 1969, made the costs of reforestation tax-deductible, thereby providing a financial reward to those who invested in reforestation activities. This initial focus on tax rebates primarily benefited only the largest forest companies – in other words, those with considerable tax liability (Pagiola 2006). *Forest Law No. 4475* also further protected the forest industry: concessions were allowed in forest reserves, tax exemptions were put into place, export of unprocessed timber was prohibited, and the import of forest products was restricted.

Reforestation Act No. 6184 followed in 1977, making reforestation a legal imperative for Costa Rica. The law required state commercial banks to earmark 2% of all agricultural loans for reforestation projects. An 8% cap was placed on interest rates for these reforestation loans, and trees could be used as collateral.

Forest Law No. 7032 in 1986 and *No. 7174* in 1990 allowed for significant Forest Authority intervention in the use of forest resources. These acts established further fiscal incentives through the creation of certificates that rewarded land owners for reforestation efforts. These certificates had nominative value and could be sold or used to pay taxes or government fees. One instrument, Forest Bond Certificates (or *Certificado de Abono Forestal - CAF*), broadened the benefits of tax-deductible reforestation costs beyond only large timber companies. The other instrument, Forest Bond Certificates for Forest Management (or *Certificado de Abono Forestal para e Manejo del Bosque – CAFMA*),

was introduced in 1992 and made direct subsidies available for the first time. This year also saw the introduction of Forest Protection Certificates (*Certificado para le Protecion del Bosque – CPB*), another groundbreaking legislative change which supported forest conservation rather than timber production. Parcels of land included in this program ranged in size from 1 to 300 hectares. Enrolled land could not be exploited in any way except for ecotourism (Silva 2003).

Forest Law No. 7575

The Structural Adjustment Programs of the World Bank in the mid-1990s forced Costa Rica to terminate the subsidies being offered through *CAFMA* to property owners for reforestation (Porras and Neves 2006). The forestry lobby, the strong environmental movement, and leading politicians, including the Environmental Minister René Castro and Costa Rica's president José Figueres, looked for a creative solution to this obstacle.

Forest Law No. 7575 was enacted in 1996 to legally establish a payment for ecosystem services (PES) program (or *Programa de Pago por Servicios Ambientales – PSA*) in Costa Rica. The law was an adaptation of the existing system of financial incentives for maintaining forested lands and provided the legal basis for the government to contract property owners to provide services deriving from their lands.

This new law altered the reasoning for the payments from supporting the timber industry to the provision of benefits from nature. A new Certificate for Forest Conservation (or *Certificado para la Conservacion del Bosque – COB*) rewarded landholders for ecosystem services. Land management activities promoted under the forest law, however, were initially the same as those supported by previous laws (timber reforestation, sustainable forest management, and conservation of forests at least 5 years old) (see *Determine what to pay for* section for more information).

An institution, the National Forest Financing Fund (*Fondo Nacional de Financiamento Forestal, FONAFIFO*), was set up through the law to manage the PES program in collaboration with other governmental and non-governmental organizations.

The law broadened the source of financing for the program to various general funding streams at FONAFIFO's disposal: tax revenues, grants and loans from national and international institutions, debt relief, agreements with the private sector, and market instruments (see *Identify payers and secure a diverse and long-term funding stream for the program* section for more detailed information) (Pagiola 2006).

The program achieved immediate success. In its first 5 years, payments were made to over 4,400 individuals (Porras and Neves 2006). From 1997 (when the payment law was implemented) to 2005, a half million hectares of forest, equivalent to a fifth of the country's forested area, had been enrolled in the payment program. US$120 million had been paid out to land owners over this same time period (Karousakis 2007). Program contracts ranged across Costa Rica's various types of forests, from the tropical rainforests in the east to the dry evergreens in the Central Pacific and dry deciduous in the north. The highest participation levels were seen in the humid tropical forest (Sánchez-Azofeifa et

al. 2007). A more recent PES project, the Silvopastoral Ecosystem Management Project, targets the dry forest zone. It aims to rehabilitate degraded pastures, rewarding farmers for planting trees and establishing forest grazing practices.

Adapting the law as lessons are learned

In 2000, the myriad of activities supported by PES were streamlined to just two, contracts for *reforestation* (planting trees on agricultural or abandoned land to establish commercial plantations) and *conservation* (protecting existing primary or secondary forest). Since then, however, an *agroforestry* contract has been introduced (Decree No. 30748-MINAE in 2002) as well as an 'assisted' *natural forest regeneration* contract in 2007 (Pagiola 2006). The former provides incentives for planting trees on farmland and is targeted to boost biodiversity in agricultural plots and reach less well-off farmers with smaller land holdings. The latter supports efforts to reestablish trees more 'naturally' (without planting a commercial timber plantation) through reseeding and other propagation methods. It also simplifies the obligations for management plans and other transaction costs.

The mandate for FONAFIFO has also been altered. Originally, a separate government institution as well as NGOs contracted landowners to participate in the PES program. In 2003, that authority was handed to FONAFIFO, which created 8 regional offices to maximize the efficiency of the contracting process (see section *Establish institution(s) to manage the program* for further information).

Many legal reforms took place in Costa Rica during the implementation of the payment system, and the combined effect has been listed as the reason why Costa Rica, which in the 1960s and 1970s had one of the world's highest rates of deforestation, had growing forest areas around the start of the 21st century (Pagiola 2006; Karousakis 2007). Other major achievements of the PES law have been extolled, such as job creation, particularly for women and local communities, and better soil quality (Segura et al. 1997; Rosa et al. 1999). In addition to saving its forests, Costa Rica was also able to establish itself as a global leader on environmental issues. The burgeoning tourism sector has been attributed in part to Costa Rica's positioning as one of the world's most environmentally conscious nations (Pagiola 2006). According to the World Tourism Organization, growth in this sector in Costa Rica consistently exceeds the global average. In 1995, international tourism brought in US$681 million in revenues; after a decade, the sector had grown to US$1.57 billion (UNWTO 2008). Although the PES program was not designed to reduce poverty, it has also been credited with making progress there. A study found that in one quarter of participating households, payments under the system made up over 10 percent of household income (Ortiz 2003). In the Osa Peninsula, for PES participants under the poverty line, payments brought half of them above it (Muñoz 2004). Additionally, some areas targeted for participation are among the poorest in Costa Rica.

How did Costa Rica find such success? How could their system be improved? How is their program adaptable to other circumstance? This short brief aims to answer these questions by defining key tools and pieces of legislation to aid other nations' legislators in implementing similar systems.

LESSONS LEARNED FROM COSTA RICA: KEY COMPONENTS NEEDED FOR A PES SCHEME

Costa Rica's case is unique. As the previous section outlined, the payment system, as it stands today, is the result of decades' worth of laws and adaptation by dedicated politicians and implementation staff. It would be misleading to claim that another country, by simply implementing components of law from Costa Rica in their own legislature would be guaranteed success. Each nation's circumstances are unique. Nevertheless, there are key elements of Costa Rica's law that can be highlighted as important for the success of any PES system.

Recognize ecosystem services as the focus of legislation

If a law is established to pay for ecosystem services, it is essential to legally recognize these services and define which will be included in the PES scheme. *Article 3* of *Forest Law No. 7575* recognizes four services derived from forests: 1) carbon sequestration; 2) hydrological services, including provision of water for human consumption, energy production, and water quality; 3) biodiversity[1]; and 4) beauty for ecotourism and recreation.

How was this issue addressed in *Forest Law No. 7575*?
Article 3 recognizes four services derived from forests: carbon sequestration; hydrological services, including provision of water for human consumption, energy production, and water quality; biodiversity; and beauty for ecotourism and recreation.

Legislation English[N1] Spanish[N2]

Establish institution(s) to manage the program

In order for PES to be implemented, an organization with adequate institutional capacity must be given responsibility for managing the system. *Article 46* of *Forest Law No. 7575* created the National Forest Financing Fund (*Fondo Nacional de Financiamento Forestal*, *FONAFIFO*) to manage the Costa Rican PES.

FONAFIFO is a semi-autonomous agency that is legally independent and serves as the implementing agency and financial hub for the PES program. FONAFIFO coordinates all activities related to the program, such as setting decrees and creating users' manuals on the PES system, keeping statistics on the scheme, finding financing for PES, disbursing payments to PES participants, and monitoring and evaluating the entire program. The organization has a governing board, with representatives from the public (Ministry of Environment and Energy, Ministry of Agriculture, and the National Banking System) and private forest sector.

Executive Decree No. 30762 (passed in 2002) gives all management of PES to FONAFIFO, excluding the organization's budget (averaging US$770,000 each year) which must be approved by the Ministry of Finance (Porras and Neves 2006). Payment

[1] Biodiversity is not typically defined as an ecosystem service itself, but rather is recognized as the foundation for all ecosystem services.

levels and priorities are established each year by the Executive Branch through executive decrees (Pagiola 2006).

When first established, FONAFIFO and its partner institutions took up to nine months to process contracts for people joining the PES system. In 2003, the same year that authority for the entire PES process was centralized into FONAFIFO, the decision was made to create regional FONAFIFO offices to increase efficiencies. The average is now 75 days from application submission to payment (Karousakis 2007).

How was this issue addressed in *Forest Law No. 7575*?
The Law gave FONAFIFO broad powers to obtain financing and to enter into agreements and contracts for forest conservation.
Legislation English[N3] Spanish[N4]

Determine what activities to pay for

The Costa Rica scheme does not involve direct payments for ecosystem services. Rather, landholders are paid to implement specific land use practices which are believed to create a greater flow of ecosystem services. For example, it is assumed that increased forest cover leads to better water quality. Therefore, the Costa Rica system pays landowners to reforest with the assumption that this in turn will lead to improved ecosystem services.

Various activities are eligible for payments: tree planting for commercial timber plantations[2], forest conservation, agroforestry, and natural forest regeneration. As of 2005, forest conservation was the most popular activity for program participants, totaling 95% of land enrolled (Pagiola 2006).

How was this issue addressed in *Forest Law No. 7575*?
The Law recognized four ecosystem services provided by forests. It rewards landholders for forest conservation and emphasizes the importance of tree cover, reforestation efforts, and forest management plans in specific Articles.
Legislation English[N5] Spanis[N6]h

How was this issue addressed in other laws or implementation efforts?
FONAFIFO's programmatic focus is on land management activities such as area reforested and area designated as conservation forest. The program does not track the flow of specific ecosystem services such as changes in water quality or carbon storage.

Develop a system to prioritize applicants

In Costa Rica, the number of individuals interested in participating in the PES program greatly exceeds available funds. At present, a quarter of demand can be met with existing funds (Karousakis 2007). This makes a method for prioritization crucial. Criteria for prioritization are set annually by decree and vary by activity (i.e. reforestation or conservation) (Porras and Neves 2006), but include importance for hydrological processes, significance of species habitat, proximity to existing protected areas, and carbon sequestration potential (Karousakis 2007). FONAFIFO has recently added particularly poor districts to the program's priority regions to maximize poverty reduction

[2]Critical areas, such as hillsides and riparian zones, are not legally eligible for commercial exploitation, and therefore these areas are not eligible to be enrolled for reforestation payments. This prevents commercial timber plantations from being developed on areas prone to erosion.

efforts (Pagiola 2006). Criteria are overlaid in a mapping database, allowing FONAFIFO to identify locations which score high on these priority criteria. Once these top-tier locations are identified, applications are handled on a "first-come-first-served" basis (Porras and Neves 2006).

How was this issue addressed in *Forest Law No. 7575*?
The Law gives power to the Executive Branch to set broad priorities depending on available resources and relative importance of ecosystem services.
Legislation English[N7] Spanish[N8]

How was this issue addressed in other laws or implementation efforts?
FONAFIFO determines the specific rules to accept or reject applicants.

Establish flexible mechanisms to finance the program
Forest Law No. 7575 authorizes FONAFIFO to finance its program through tax revenues, grants and loans from national and international institutions, debt relief, and agreements with the private sector, as well as market instruments.

How was this issue addressed in *Forest Law No. 7575*?
Article 47 lists different possible funding sources and gives FONAFIFO broad authority to develop innovative forms of financing.
Legislation English[N9] Spanish[N10]

Identify payers and secure a diverse and long-term funding stream for the program
A long-term funding stream is essential to ensure payments to landowners for conserving ecosystem services. The sources of funding for PES differ significantly across the four services covered (carbon sequestration; hydrological services; biodiversity; and scenic beauty). The energy tax revenue (for carbon sequestration) and individual agreements with users (mainly for hydrological services) are so far the only major long-term funding sources, but overall these sources are only a small proportion of the total funds for the PES program.

The ultimate goal of the PES system is to have the beneficiaries of each ecosystem service pay for the services they receive. *Act No. 7575* does not require that people pay for benefits received from nature. Payments thus far have been strictly voluntary. FONAFIFO is charged with negotiating with users to determine how much beneficiaries of ecosystem services will pay for their provision. Some see this as a burdensome system, so FONAFIFO created a new Ecosystem Services Certificate (or *Certificados de Servicios Ambientales – CSA*). Buying 1 CSA funds the conservation of 1 hectare of forest in an area specified by the buyer. This avoids ad hoc negotiations (Pagiola 2006) and guarantees a fixed price for forest preservation. As of 2007 eleven companies had bought into the system. Still, there are some proponents of the negotiation system. Negotiation allows FONAFIFO to determine which areas are most important to users and provides feedback on how well ecosystem services are being provided (the assumption being that if they are not, people will withhold payment) (Pagiola 2006).

Thus far, there has been no success in finding buyers for the ecosystem service of *scenic beauty*. Users of this service tend to be numerous and fragmented, and therefore pinpointing a buyer for a particular plot of land has proven difficult.

Biodiversity payments have thus far only come from grants. The World Bank and Global Environment Facility (GEF) have given funds (Law No. 8058) along with the German aid agency KfW (Law No. 8355) and the environmental group Conservation International (CI).

For *carbon sequestration*, the majority of funding comes from a fossil fuel sales tax; 3.5% of revenues (equivalent to about US$10 million annually) are given to FONAFIFO for program participants.[3] The Costa Rica PES system was also an early participant in the global carbon market, offsetting other countries' greenhouse gas emissions with the carbon sequestered by Costa Rican forests (Pagiola 2006). Money for this type of project has come from Norwegian power producers and the Italian firm Lifegate (Pagiola 2006). The World Bank has also granted money to fund this service. In addition to the tax revenue and negotiated funds, FONAFIFO has developed the Certifiable Tradeable Offset (CTO) which is a standardized unit, similar to the CSA, externally certified to equal a 1-ton net carbon emissions reduction (Pagiola 2006).

The service of *water* is the only one of the four that has achieved significant success in having users pay. This is most likely because there is generally a single dominant user[4] of hydrological services, such as a hydropower company or a municipal water supplier. As with all services, agreements with water users are established by FONAFIFO. The first agreement in this area was reached in 1997 with a hydropower company, Energía Global, to pay landowners upstream of two of the firm's hydrological plants (Pagiola 2006). Users of water services appear to believe in the benefits of the program; two contracts have come up for renewal during the life of the program and both have been renewed (Pagiola 2006).

The precedent of voluntary payments is changing, however, and compulsory payments will soon be implemented. In 2006, a revision to the nation's water tariff was approved which introduces a required fee (paid by the holders of water use permits not the consumers) targeted toward watershed conservation. Once this program is fully in place, it will provide at least US$5 million to FONAFIFO for the PES program. The money FONAFIFO receives from the water tariff must be used in the watershed where the money was generated, meaning that all water users will be required to pay directly for the water services provided by upstream landholders. People with existing voluntary water contracts can deduct what they have already paid from their tariff payment (Pagiola 2006; Karousakis 2007; Porras and Neves 2006).

How was this issue addressed in *Forest Law No. 7575*?
None of these issues were spelled out in the Law.

[3] Originally, Article 69 of *Forest Law No. 7575* declared one third of fuel tax revenues would go to FONAFIFO to finance the PES system. However, the Ministry of Finance was not forthcoming with the funds, so the *Fiscal Simplification and Efficiency Law No. 8114* was passed in 2001 with Article 5 stipulating that FONAFIFO would only receive 3.5% of revenues, but guaranteeing this amount through the Ordinary National Budget (Pagiola 2006).

[4] This is true in all save one of the existing water contracts (Florida Ice & Farm and the town of Heredia both contribute to payments in Río Segundo) (Pagiola 2006).

How was this issue addressed in other laws or implementation efforts?
FONAFIFO coordinated these activities and implemented them through decrees and other legal mechanisms.

Develop criteria on who will be eligible to receive payments

Participants must have at least 1 hectare for reforestation, 2 for forest conservation, in order to receive payments for their ecosystem services. A maximum of 300 hectares can be enrolled in the program (Karousakis 2007).[5] In order to participate in the PES system, landowners must provide several pieces of information with their application, including proof of identity, ownership, tax payments, plans for avoiding fires and illegal hunting and harvesting, and monitoring schedules. Slightly different eligibility parameters have been established for indigenous peoples and the poor because they often do not hold land titles, though their tenure is secure (Karousakis 2007). Recently, FONAFIFO has streamlined this process by automatically checking applicant eligibility through other departments' databases (Pagiola 2006). For sustainable forestry projects, a management plan must be developed by a licensed forester (or *regente*) that has information on proposed land use for the forest. Reforestation projects receive additional approval from the Ministry of Agriculture (Pagiola 2006; Porras and Neves 2006).

Many, particularly poor and small landowners were finding the transaction costs of joining the PES system prohibitively expensive. In response, a method for collective contracting was implemented. Small landowners can group together, usually managed by an NGO, to apply for program participation. This collective application process spreads startup costs across the group, rather than being borne solely by one individual, and therefore aids the poor's participation (Pagiola 2006, 15).

How was this issue addressed in *Forest Law No. 7575*?
The Law identified participants in a very general way and referred to holders and users of forest land.

Legislation English[N11] Spanish[N12]

How was this issue addressed in other laws or implementation efforts?
FONAFIFO developed much more specific criteria and implemented them through decrees and other legal mechanisms.

Determine how much will be paid by service beneficiaries and to program participants

When the PES system in Costa Rica was originally implemented, users who contracted for a given service would pay ¼ of the cost to conserve the land, assuming that each service was 1 of 4 being provided. Now, however, many payments for one service total the entire cost of conservation as well as FONAFIFO's administrative costs (Pagiola 2006).

If selected for program participation, landowners implement their management plan and receive payments. A first payment can be granted at the signing of the contract, but subsequent payments are disbursed annually only after verification that participants are

[5] This limit is 600 hectares for indigenous peoples (Karousakis 2007).

following their contracts (Pagiola 2006, 7).[6] Licensed foresters are in charge of ensuring compliance (Pagiola 2006) and typically receive around 15% of the PES going to the landholder. The amount and length of payments given are determined by which activity a given individual is implementing. Payments are adjusted each year, usually to reflect inflation. Aside from two exceptions[7], payments are uniform across the program.

How was this issue addressed in *Forest Law No. 7575*?
None of these issues were defined in the Law.

How was this issue addressed in other laws or implementation efforts?
FONAFIFO determines the payment amount and payment schedule. These are established through decrees and other legal mechanisms.

Set terms of agreement with program participants

When an individual is accepted for participation in the PES program, a contract is established between the landholder and FONAFIFO. In exchange for funding, participants give FONAFIFO legal authority over their ecosystem services for the length of the contract (Karousakis 2007). Individuals cede their rights over services provided by their lands, thereby giving FONAFIFO the ability to sell the services to users. The length of contracts differs according to activity. Shorter contracts can be more attractive to landholders because they allow for more frequent renegotiation of terms (Pagiola 2006). It is essential, however, that any land use restrictions in the contract be also written into the land's title. This ensures that land management will continue as agreed even if the property switches hands over the period of the contract. If a participant breaks his/her contract (which only occurs in about 2% of cases), penalties may be incurred such as stopping payment or forcing the return of money already paid (Porras and Neves 2006).

How was this issue addressed in *Forest Law No. 7575*?
None of these issues were addressed in the Law.

How was this issue addressed in other laws or implementation efforts?
FONAFIFO coordinates these contracting activities and implements them through decrees and other legal mechanisms.

Monitor the success and integrity of the system

To ensure that land use changes are being implemented on the ground and therefore that legislation is having its intended effect, monitoring is an essential part of any payment scheme. Monitoring also ensures transparency in the program. As mentioned previously, licensed foresters are charged with ensuring compliance. However, Costa Rica also conducts audits of the licensed foresters' work to ensure their accuracy and integrity. These audits involve personal site visits, report reviews, audits of FONAFIFO's paperwork, and the use of geographic information systems (GIS). This activity is mainly done by external organizations (i.e. licensed foresters, the national conservation area system (SINAC), or NGOs such as FUNDECOR) which are contracted for the work (Pagiola 2006).

---

[6] If their property is smaller than 50 hectares, participants for reforestation presenting as part of a larger group can receive 50% of their payment in advance to help cover start-up costs (Porras and Neves 2006).

[7] Participants in the Río Segundo watershed receive a higher payment due to increased opportunity costs seen in this area. In the Río Platanar area, the hydropower producer Platanar S.A. pays $30/ha to landowners without titles who would not otherwise be eligible for PSA contracts. (Pagiola 2006).

How was this issue addressed in *Forest Law No. 7575*?
None of these issues were addressed in the Law.

How was this issue addressed in other laws or implementation efforts?
FONAFIFO drew up regulations for monitoring activities and implemented them through decrees and other legal mechanisms.

Establish an adaptable system that has a long-term vision

Costa Rican policymakers envisioned the PES program as an instrument to support sustainable development in the country. They tried to establish policies and institutions that transcended presidential terms (FONAFIFO 2005) and saw great benefits in having a broadly defined but adaptable system.

There have been many changes in the PES program since the enactment of *Forest Law No. 7575* (which was itself an adaptation of previous laws). When implementing a program, stumbling blocks are common. In order to prevent these obstacles from destroying an entire program, legislators and those implementing the law must continuously monitor and adapt the system as lessons are learned in order to be as effective, efficient, and fair as possible. It is also helpful for the initial legislation to not be overly prescriptive so that when changes are needed, the implementing regulations can be changed rather than requiring an amendment to the legislation itself.

Having a flexible law and flexible people, both government and nongovernment officials, in place to make changes when needed has proven instrumental to Costa Rica's success. For example, Costa Rican law prohibits public funds to be used for payments to property owners without land titles. This is a problem for poor and indigenous peoples because many lack formal titles, though their tenure on the land is secure. FONAFIFO as the PES implementing agency was able to set up agreements with these people utilizing only private sector money. Furthermore, Costa Rica recently changed their law so that now any funds can be used to pay the poor (Pagiola 2006).

IDEAS FOR IMPROVEMENT

The Costa Rican system is one of the most heralded PES systems to date. That said, there are still parts of the program that can be improved. As experience with PES grows, in Costa Rica and elsewhere, it is important to turn a critical eye to existing systems to build on lessons learned.

Monitor to ensure payments lead to desired changes in ecosystem services.
Some have criticized the program's choice of paying for land use changes rather than actual service generation (see *Determine what to pay for* section). Paying for greater forest cover assumes that land management change will increase the flow of ecosystem services, but this may not be true in every case (Pagiola 2006). On the positive end, paying for land management generally guarantees maintenance or restoration of all ecosystem services, rather than enhancing the provision of one service at the cost of others. The program could be improved by either including mechanisms to monitor actual flow of ecosystem services or by supporting further research on the links between land management and the provision of services.

Secure against leakage.
Another critique of the Costa Rica case has been that it does not directly address the issue of leakage; that is, there is nothing to prevent a landowner from conserving forest in one area and receiving payments while simultaneously deforesting another plot of land (Ross et al. 2006). It has been claimed that the threat of leakage in Costa Rica is small (Pagiola 2006), but this could be a larger problem in other national contexts.

Ensure that payments are for activities additional to "business as usual".
It is widely acknowledged that several legal reforms, in addition to the PES program, have contributed to the impressive decrease in Costa Rica's national deforestation rate. Because of these other laws, some have suggested that it is possible that much of the forest conservation paid for by FONAFIFO would have happened regardless of payments (Karousakis 2007; Ortiz et al. 2002; Miranda et al. 2003). The Costa Rican PES system uses a static baseline to measure avoided deforestation, and therefore does not have a method for tracking whether activities being paid for are additional to business-as-usual.

Acknowledge program participants' differing opportunity costs.
Beyond questioning the amount given to all property owners, some question Costa Rica's choice to pay all, save two (see earlier footnote), program participants a universal fee. This does not account for different opportunity costs faced by landholders in diverse areas (see section below *Determining a payment level*) or differing levels of urgency against the threats of deforestation.[8] One possible way of accounting for deforestation risk would be to map human pressure on the landscape.

[8] FONAFIFO does not use threat of deforestation as a means to prioritize applicant acceptance. One exception is the NGO intermediary FUNDECOR, which focuses its PSA activities on what they deem to be vulnerable land, such as plots close to roads (Hartshorne et al. 2005, 12).

Make funding sustainable.
In addition to concerns over amounts given to property owners, there is also unease as to where funds for the program are derived. The program depends on a steady flow of funding so that individuals can be paid. The funding for biodiversity payments is particularly unsustainable. Because there is no identifiable single beneficiary of biodiversity, but rather the service is a public and universal good, funds for biodiversity have historically come from one-time grants. Nearly a million hectares of biodiversity conservation areas are not formally protected and further have no potential for carbon or water financing (Pagiola 2007). This means Costa Rica will need to find a source of funding that is more consistent (Pagiola 2006). Possibilities include setting up an endowment or receiving money from business biodiversity offsets. Other cases, such as Shompole Community Trust in Kenya, have found success in financing programs through ecotourism. The fuel tax used to fund carbon sequestration has also been named as a worrying source of financing. With rising energy costs, taxes on fuel could become politically unpalatable (Pagiola 2006).

Consider eligibility criteria's affect on participation.
In the Costa Rica case, some claim that not enough attention was given to the eligibility criteria and operational rules early in the program's development. For example, indigenous groups were unable to participate early in PES because the program required applicants to hold titles to their land. The Costa Rican law has been flexible and adaptable, so the eligibility requirements were altered. Still, earlier recognition of potential problems faced by this key group would have saved time in the long run and allowed for more universal participation. When setting up PES systems, particular attention should be paid to rules determining eligibility and operation, since these will be the main determinants of who will be included in the compensation schemes (Rosa et al. 2003).

ADAPTATION TO OTHER NATIONAL CIRCUMSTANCES

As stated at the opening of this brief, the Costa Rica case is one-of-a-kind and impossible to exactly replicate in different national or political contexts. Decades of legal history and a ripe political climate made this system possible. Nevertheless, this paper has striven to draw key lessons from the Costa Rica case that should be helpful in any circumstance. An important piece of this is guidance on how to adapt PES systems to various contexts.

Determining a payment level.
Setting the correct payment level is a challenge in any circumstance including, as mentioned in the *Improvements* section, for Costa Rica. A country implementing PES can conduct a basic analysis of the opportunity costs landholders face in order to set appropriate payment levels. The case of service payments in New York's Catskills region is an example of where negotiation between regulators and local populations led to effective payment levels (Rosa et al. 2003). Another option for setting price levels is to develop a valuation of the area's ecosystem services. Program participants can be paid according to the value society places on services. A third option is to conduct a reverse auction to determine pricing. In reverse auctions, multiple sellers (here landholders) compete to sell goods (ecosystem services) to a single buyer (the payment provider). The auction rewards landholders offering the most environmental benefit obtained per dollar paid (Selman et al. 2008; Ecoresources Consultants et al. 2008). Regardless of pricing methodology, if application to the program exceeds funding levels, resources should be aimed at sectors and geographic areas where the most difference can be made (for more information, see section *Develop a system to prioritize applicants*) (OAS 2005, 2).

The danger of increasing land's value.
Inherently, by paying for ecosystem services, the government is increasing land's value. This could result in powerful groups displacing poor and indigenous groups lacking secure tenure. This has not been seen as an issue in Costa Rica (where the PES program is actually believed to have improved land tenure), but there has been some evidence of this occurring in Colombia's Cauca Valley (Landell-Mills and Porras 2002). In the Shompole Community Trust case, land titles were held by individuals even though payments were pooled at the community level. Having many owners of the land tract makes property purchase or seizure more difficult (Yusuf Ole Petenya Shani, personal communication).

Taking local people's needs into account.
When implementing PES, it is important to be aware of how land use changes will affect the needs of local people. Particularly in indigenous communities, where there are strong cultural and spiritual values derived from the land, conflicts can arise when the political and social contexts are not taken into consideration. For example, if a protected area is created to conserve forests, but locals are prohibited from entering, people may be unable to collect food needed for sustenance or access important spiritual sites (Calderon et al. 2002). It is essential to have broad and genuine stakeholder engagement at all points in the planning process to ensure ongoing legitimacy, credibility, and sustainability. When

done right, PES can empower indigenous groups, encourage participatory management, and aid poverty relief efforts.

Main actors driving the system.
The Costa Rican PES is a state-driven scheme; laws to establish the system as it exists today were implemented through legislative acts and executive decree. Different types of groups can lead the charge to develop PES, however, and the activities encouraged can differ greatly. Mexico, for example, gives more power to indigenous groups in their PES system and the Shompole Community Trust was a community-driven example.

Starting point for developing PES.
It is important to note that PES is one option among many tools and policy approaches to link ecosystems and economic development. Decision makers should start with an analysis of the drivers of ecosystem service degradation. If PES is considered the most appropriate policy tool, it is oftentimes easiest to begin a system by adapting or building onto existing programs or production strategies. Existing practices can be tailored to include new revenue streams (such as diversifying agroforestry projects to include carbon sequestration for sale on the global market) or expanded to allow marketing of ecosystem services derived from existing crops (such as increased water recharge from shade-grown coffee) (Rosa et al. 2003). It can also be useful to bundle ecosystem services in the marketplace or tie their sale to other existing markets (such as forest certification or organics) to maximize the potential revenue stream to projects (Rosa et al. 2003).

Various forms of "payment".
Not all cases of PES use direct payments as their means of compensation. In Brazil, for example, a broader range of financing mechanisms proved more beneficial than just directly providing funds to landowners (Rosa et al. 2003). In the New York case, the program offers free consultation services and tax subsidies for fences and pumps (Salzman 2005).[9]

Using PES to strengthen poverty reduction efforts.
PES can be used to improve environmental conditions and reduce poverty. The poor are often located in environmentally sensitive and remote areas, making them attractive participants for PES (Wunder 2008). However, PES programs often by necessity do not include the landless, and therefore exclude the poorest of the poor. To improve outcomes for poor landholders, PES systems can base payments on tenure rather than ownership since the poor often lack land titles. Another common barrier for poor participation is the transaction cost of joining. Costa Rica worked around this problem by allowing organizations to pool individuals for application (see *Develop criteria on who will be eligible to receive payments* section). Participants who are poor or from disadvantaged groups can be prioritized for program participation over other landholders (see *Develop a system to prioritize applicants* section). In South Africa's Working for Water Program, for example, only the poor and unemployed are eligible for participation. The poor also

[9] These activities have proven much more effective than direct payments being offered by New York City to farmers to plant native crops because the opportunity cost of not planting corn is too high (Salzman 2005).

may be helped via employment opportunities, such as creating plantations or monitoring conservation. Unfortunately, groups other than landholders, such as consumers, can be losers of PES systems (Zilberman et al. 2008). Tradeoffs must be carefully analyzed when trying to achieve two outcomes with one policy. Some studies warn that trying to tackle multiple objectives with one policy decreases the efficiency and therefore effectiveness of programs (Wunder 2008).

Sources

Calderon, G., A. Guerena, and J. Varela. 2002. "Informe de Evaluación." *Apoyo del Programa de Pequenas Donaciones para el Acceso al Pago por Servicios Ambientales en territorios Indígenas de Costa Rica.*

De Camino, R. *et al*. 2000 "Costa Rica, Forest strategy and the Evaluation of Land Use." *Evaluation Country Case Study Series*. Washington DC: World Bank. Online at: www.worldbank.org/html/oed

Ecoresources Consultants, IISD and IRDA. 2008. *Cost-Efficiency Analysis of Possible Environmental Goods and Services (EG&S) Policy Options.* Prepared for Agriculture and Agri-Food Canada.

FONAFIFO (Costa Rican National Forest Financing Fund). 2005. *FONAFIFO: Over a decade of action*. San José: FONAFIFO.

Hartshorn, G., P. Ferraro, B. Spergel, and E. Sills. 2005. *Evaluation of the World Bank—GEF Ecomarkets project in Costa Rica*. Durham, NC: North Carolina State University. Online at: http://www2.gsu.edu/~wwwcec/research/publications/publications.htm

Karousakis, K. 2007. *Incentives to Reduce GHG Emissions from Deforestation: Lessons learned from Costa Rica and Mexico.* Paris: Organisation for Economic Co-operation and Development.

Landell-Mills, N. and I. Porras. 2002. *Silver bullet or fools' gold? A global review of markets for forest environmental services and their impact on the poor*. London: IIED.

Miranda, M., I. Porras, and M.L. Moreno. 2003. "The social impacts of payments for environmental services in Costa Rica: A quantitative field survey and analysis of the Virilla watershed." *Markets for Environmental Services Paper No.1*. London: IIED.

Muñoz, R. 2004. "Efectos del programa de servicios ambientales en las condiciones de vida de los campesinos de la Península de Osa', Masters Thesis, Universidad de Costa Rica, San José. Cited in Wunder, S. 2008. "Payments for environmental services and the poor: concepts and preliminary evidence." *Environment and Development Economics* (13):279-297.

Ortiz Malavasi, R., L.F. Sage Mora, and C. Borge Carvajal. 2002. *Impacto del Programa de Pago por Servicios Ambientales en Costa Rica como medio de reducción de pobreza en los medios rurales*. San José: RUTA.

OAS (Organization of American States) Department of Sustainable Development. 2005. "Payment for Environmental Services." Paper presented at the OAS-IICA Experts' Workshop on Sustainable Agriculture, Forestry and Tourism, San Jose, Costa Rica.

Pagiola, S. 2006. "Payments for Environmental Services in Costa Rica." Online at http://mpra.ub.uni-muenchen.de/2010/

Pagiola, S. A. Arcenas and G. Platais. 2005. "Can payments for environmental services help reduce poverty? An exploration of the issues and the evidence to date from Latin America." *World Development* (33): 237-253.

Porras, I. and N. Neves. 2006. "Costa Rica- National PES programme." Online at: http://www.watershedmarkets.org/casestudies/Costa_Rica_National_PES_eng.html

Rosa, H., D. Herrador, and M.E. González. 1999. "Valoración y Pagos por Servicios Ambientales: Las Experiencias de Costa Rica y El Salvador." *Programa Salvadoreño de Investigación Sobre desarrollo y Medio Ambiente* (35).

Rosa, H., S. Kandel, L. Dimas, N. Cuéllar and E. Méndez. 2003. *Compensation for Environmental Services and Rural Communities: Lessons from the Americas and Key Issues for Strengthening Community Strategies*. San Salvador, El Salvador: PRISMA.

Ross, M., B. Depro, and S.K. Pattanayak. 2006. "Assessing the economy-wide effects of the PSA Program." Paper presented at the Workshop on Costa Rica's Experience with Payments for Environmental Services, San José, September 25-26.

Salzman, J. 2005. “Creating Markets for Ecosystem Services: Notes From the Field.” *NYU Law Review* (80): 870—961. Online at: http://eprints.law.duke.edu/1237/1/80_NYU_L._Rev._870_(2005).pdf

Sánchez-Azofeifa, G.A., A. Pfaff, J.A. Robalino and J.P. Boomhower. 2007. ”Costa Rica’s Payment for Environmental Services Program: Intention, Implementation, and Impact.” *Conservation Biology* (21)5:1165-1173.

Segura, O., D. Kaimowitz, and J. Rodríguez. 1997. *Políticas forestales en Centro América: Análisis de las restricciones para el desarrollo del sector forestal.* San Salvador, El Salvador: CIFOR-CCAB-AP-FAO-GTZ-IICA-UICN-WRI.

Selman, M., S. Greenhalgh, M. Taylor and J. Guiling. 2008. *Paying for Environmental Performance: Potential Cost Savings Using a Reverse Auction in Program Sign-up*. Washington DC: WRI.

Silva, E. 2003. “Selling sustainable development and shortchanging social ecology in Costa Rican forest policy.” *Latin American Politics and Society* (Fall).

World Trade Organization (UNWTO). 2008. *Tourism Highlights: 2007 Edition*. Online at: http://www.unwto.org

Wunder, S. 2008. “Payments for environmental services and the poor: concepts and preliminary evidence.” *Environment and Development Economics* (13):279-297.

Zilberman, D., L. Lipper and N. McCarthy. 2008. “When could payments for environmental services benefit the poor?” *Environment and Development Economics* (13):255-278.