

Mexico's Payments for Ecosystem Services Programme

Case study Module 2

Sofia Cortina⁽¹⁾ and Ina Porras⁽²⁾

Authors' affiliations: (1) Ex-director, Forest Ecosystem Services office, Mexico's National Forestry Commission; (2) International Institute for Environment and Development

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Ecosystems, poverty alleviation and conditional transfers

Guidance for practitioners

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Evidence from the international research community shows that careful management of nature results in benefits to people's wellbeing. Poor people especially depend more heavily on the quality of the ecosystems and have less access to substitutes when they are degraded. Making meaningful impacts in the way ecosystems are managed requires governments to step in and scale up, but the evidence also shows that empowered communities can make strong calls to enact and implement change at the local level. Positive incentives like payments for ecosystem services (PES) and other forms of conditional transfers can provide important signals to enact this behavioural change into positive actions. Carefully designed, these incentives can also contribute to the wellbeing of people, especially poor and vulnerable groups. New tools emerge that can help with scaling up and dealing with inevitable trade-offs, but more efforts are needed to bring this information closer to those making decisions. This case study accompanies a [Guidance for Practitioners](#) that helps to bridge this space by: 1) making evidence accessible, bringing the latest evidence from research on PES in theory and practice with documented case studies written for practitioners; and 2) supporting capacity building to 'train the trainers', through teaching modules which can be used to promote capacity building of practitioners.

Mexico's Payments for Ecosystem Services (PES) programme is the combination of two previously separate programmes: the Payments for Hydrological Environmental Services Programme (PSAH) and the Programme of Payments for Carbon, Biodiversity and Agroforestry Services (PSA-CABSA). These programmes were merged in 2006, at the same time that poverty alleviation was introduced as a programme objective (Alix-Garcia *et al.*, 2014; Muñoz-Piña *et al.*, 2008). The programme currently offers two types of cash compensation: payments for watershed services, and payments for biodiversity conservation (Aemi *et al.*, 2013).

Implementing this programme is not an easy task. The country has nearly 125 million people, with an expanding urban network (almost 80 per cent now live in cities); a growing economy constantly exposed to global crisis and a highly unequal distribution of wealth, especially in rural areas and among indigenous groups. Almost 80 per cent of the country is managed as *ejidos* (communal lands with emphasis on social benefits), a property regime that underpins the PES programme. Urban expansion and demand for resources drive deforestation and put significant pressure on water: for supply to cities, for agriculture and industry, and for dealing with waste and pollution. Both water and deforestation are considered national security issues by the government.

The programme targets private forest owners as well as *ejidos*. A contractual relationship is formed between the forest owner and the government's forestry department (CONAFOR), the latter assuming the role of the buyer of the environmental service. Landowners may enrol a portion of their property in which they must maintain existing forest cover and undertake sustainable management practices. Participants can make changes to land cover in the rest of their property. Verification of forest cover is made through satellite imagery or site visits. In the case of non-compliance, where CONAFOR verifies deforestation within the enrolled area due to conversion to agriculture or pasture, the participants are removed from the programme. Payments are also reduced for deforestation under natural causes, such as fire or pests.

Political support

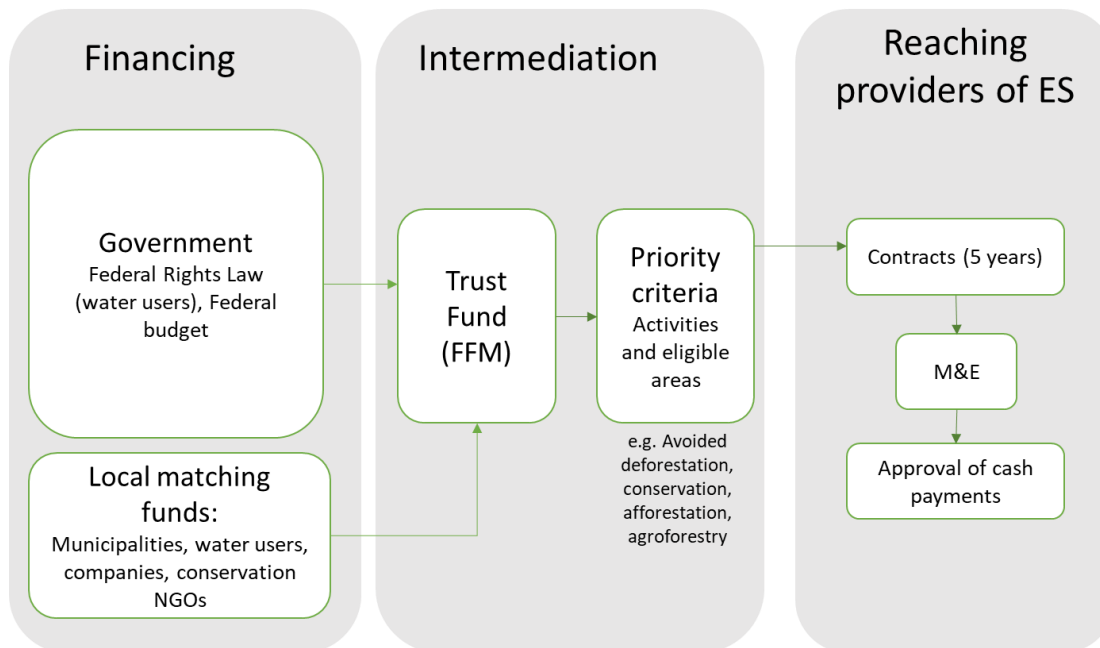
Mexico is among the first countries that designed and implemented a national-level PES strategy in Latin America in response to high deforestation rates and degradation of watershed ecosystem services.

On a local scale, ongoing PES projects have shown the potential of using rewards for the provision of ecosystem services. For example, the small-scale community carbon project, Scolel-Te, was one of the first of its kind in the world, and the namesake of the international community carbon standard Plan Vivo. In 2003, the municipal government of Coatepec initiated a pilot hydrological services programme, creating public trust with revenues from water fees, which later paved the way for the PES National Programme (Aemi *et al.*, 2013). Following a national public consultation, the Mexican government decided to integrate the concept of PES within the General Law for Sustainable Forest Development (GLSFD). In 2003, Article 223 of the Federal Rights Law was amended, earmarking a portion of water tax revenues for the development and operation of PSAH. Programme design was also informed by the Costa Rican PES programme which started in the late 1990s (Aemi *et al.*, 2013).

Sustainable financing

The programme receives most of its funding from the national government through the *Fondo Forestal Mexicano* trust fund. This trust fund captures revenues from a variety of sources (water tax, annual budget allocations, and contributions from local governments and the private sector) and allocates them to different environmental objectives, including PSAH. It guarantees financial resources for the programme's five-year contracts and pays the participating landowners on an annual basis (see Figure 1).

By 2013, 4.27 million hectares were enrolled in the programme, benefiting 7,350 private or communal landholdings and representing an investment of \$8,586 million Mexican pesos/US\$651 million (Alatorre-Troncoso, 2014).

Figure 1. Mexico's basic PES financing framework

Source: Authors' own.

Institutional set-up

PSAH was created in 2003 through an amendment of Article 223 of the Federal Rights Law. Article 223 relates to the country's water fees, and the aforementioned modification increased the fees charged to different users, earmarking a specific share of the increased tax revenues for financing PSAH. Programme implementation by the National Forestry Commission of Mexico (CONAFOR) started the same year. An associated Payments for Biodiversity and Carbon Capture Services Programme (PSAB) also began in 2004, and in 2006 the two programmes were merged under the PES National Programme.

The programme is a federal mandate set forth as a reform to the Federal Rights Law. Mexico's approach is very innovative in that it mandates payment for the use and application of the national water supply and lays out specific guidelines for the allocation of funds collected by the PSAH programme. These guidelines obligate the government to put in place administrative mechanisms for compliance and, most importantly, put in place a policy tool to ensure that forest landowners are compensated for the environmental services that they provide to society.

The programme is managed by Mexico's National Forestry Commission (CONAFOR), which also provides capacity building and technical assistance to the beneficiaries. To promote transparency, a national technical committee consisting of representatives from academia, government and civil society, is responsible for authorising the annual payments. An advisory technical committee to assist CONAFOR with programme operation was created in 2006 by the Mexican government, financed with a loan from the World Bank and a grant from the Global Environment Facility. This group was formed by members from various government and academic institutions (for example, the National Protected Areas National Commission and the National Institute of Ecology), as well as conservation organisations (for example, the Mexican Fund for the Conservation of Nature, The Nature Conservancy and the World Wildlife Fund). However, since 2013, due to lack of legal provisions, the group has not been summoned by CONAFOR's new administration.

Systems and tools for effective implementation

Clear application process: The use of simple five-year contracts, backed up by clear, easy-to-reference programme guidelines, has been effective. The process begins with a published call for participants which contains information about programme requirements and priorities, and the relevant application procedures. The prospective participant submits an application along with official identification, legal certification that he or she is the landowner (or valid possessor, in some cases), and a map of the area to be included in the programme, among other information. If the property is selected, the participant has a certain amount of time to provide a signed participation contract, a copy of a signed contract for support services from a person or company on the official list of technical advisers, and a list of beneficiaries. All documents go into the project's records with the programme. Not only the contract, but also the call for participants and the programme guidelines describe the participants' rights and responsibilities. Because additional information can be provided in supplementary guidelines and programme rules, the contracts used in these public programmes can be simple without sacrificing procedural or substantive details.

Targeting criteria: The programme's clear operational rules ensure accountability. First, CONAFOR selected the priority areas based on the following factors:

- Vegetation type, prioritising cloud forests and jungles
- Deforestation risk
- Overexploited aquifers
- Natural protected areas, and
- Poor municipalities.

It is not necessary that all criteria are fulfilled, but rather a combination of them.

Table 1. CONAFOR's criteria for determining priority areas

Water (PSAH)	Forest (PSAB)
<p>Has a certain percentage of forest cover Is found within a natural protected area, within the limits of the 60 priority mountains, upstream from a population centre of 5k inhabitants or more, within a high deforestation-risk area, in a high water-scarcity area, in a marginalised locality, within an overexploited aquifer Is found in a municipality with an indigenous majority Has an existing contract with an ecosystem service user</p>	<p>Has forests with a good conservation status Is located in the buffer zone of a protected area Includes species at risk of extinction Is not receiving support from any other PES Requires proof of land ownership where the project is to develop Must show that PES activities are additional Applicants belong to an ethnic group with a high level of social marginalisation Requires proof of either the existence of a forest management plan, an environmental management unit or the commitment to the project through a local assembly act</p>

Source: CONAFOR, 2006 (PSAH); Corbera, *et al.*, 2009 (PSAB).

Second, a set of criteria was developed to prioritise fund allocation among these areas. Socioeconomic criteria include 'poverty levels', 'indigenous populations', 'gender', and 'collective organisation'. Environmental criteria include 'tree cover', 'biodiversity', 'biomass density', 'disaster risk', 'water availability', 'land degradation', and 'priority watersheds'. There are also additional criteria used that involve other conservation or development efforts, such as the presence of 'local PES mechanisms', 'community surveillance networks', and 'community land use plans'. Each criterion receives a score based on its absence or presence in the target area, with higher scores increasing the chance of project approval and compensation. Table 2 shows how these criteria have changed throughout 2006-2010, reflecting the programme's evolving targeting efforts.

Table 2. Criteria point system for PSAH 2006-2010

Criteria	2006	2007	2008	2009	2010
Primary: (hydrological importance and deforestation risk)	44%	37%	29%	25%	19%
Secondary:	56%	63%	71%	75%	81%
Social	22%	19%	13%	11%	12%
Administrative			3%	2%	8%
Other forestry programmes	11%	26%	27%	36%	37%
Other environmental programmes	22%	19%	29%	26%	23%
Max. number of points	45	54	70	81	106
Min. number of points	15	18	28	23	26
Criteria number	9	12	17	21	26

Source: Muñoz-Piña *et al.*, 2011.

Targeting the poor: The programme has gradually increased its focus on poverty reduction. Since 2006, targeting has been accomplished through a points-based system in which sites with the most positive social and environmental characteristics are prioritised. Through this process, indigenous communities, marginalised areas and women-owned properties are targeted. This targeting, combined with the fact that most forest land is owned by the poor, is reflected in an estimate that 78 per cent of payments went to forests owned by people in a situation of 'high or very high marginalisation'. In addition, female participation has increased.

Payment levels: Initially the payments were designed based on the average opportunity cost of forest conversion to corn production, as well as on budget limitations, and corresponded to US\$36/ha for cloud forest land and US\$27/ha for land with other forest types. Since 2010, the programme has differentiated its payments based on the type of ecosystem involved and its risk of deforestation due to economic pressures, to match compensation with the opportunity costs facing the landowner (FAO, 2013). Cloud forests are still prioritised over other forest types, and compensation varies from US\$28 to US\$100/hectare/year. In the case of *ejidos*, the programme does not directly remunerate households or individual landowners. Once enrolled, the *ejido* decides how to allocate its revenues. It can distribute the payments among its members, invest in public goods (such as roads, schools or new income-generating activities), or remunerate labour related to activities promoted by the programme, such as forest patrols or building firebreaks.

Monitoring and evaluation: Payments are made annually and are conditional on performance and compliance with the annual activities as prescribed by the contract's specifications and programme guidelines. Technical service providers help to prepare and implement the best management practices document that is required for participation in the programme. This document reflects the activities to be realised during the five-year project period and forms the basis of verification checks in the field. Verification is achieved through a combination of site visits and remote sensing, with the latter increasing in use over time due to the lower costs involved. Monitoring practices are not explicitly provided by the contract or the programme guidelines, but are designed and implemented by CONAFOR. When non-compliance is observed, participants are removed from the programme.

ICT systems: The programme uses a combination of remote-sensing technology (high- and low-resolution satellite images and aerial photography) and site visits, with varying degrees of frequency and sampling intensity. The PSAB programme selects a sample of enrolled properties for which satellite images are examined, and where non-compliance is suspected based on this examination, site visits are conducted. In the first few years of PSAH's operation, initial examinations were conducted using low-resolution satellite images, but this method was not particularly effective in identifying non-compliant participants.

Ability to demonstrate impact

Between 2003 and 2009, 4893 *ejidos*, communities and small farmers benefited from PSAH (Alix-Garcia *et al.*, 2014). By 2013, a total of 4.27 million hectares were enrolled onto the programme, benefiting 7,350 private or communal lands and representing an investment of US\$650 million (Alatorre-Troncoso, 2014). By 2007, the programme reported 100 per cent compliance (Muñoz-Piña *et al.*, 2008: 732), even though in a 2004 survey only 87 per cent of respondents reported that they had 'respected the contract' (Alix-Garcia *et al.*, 2009).

Effectiveness of payments has varied by area. For example, in la Lacandona, Chiapas, demand for the programme was very low, due to compensation rates that were inadequate in comparison with the area's potential for high agricultural returns. However, demand went up when payments increased by half due to the area enrolling in early action REDD+ in 2010, thus halting local deforestation. In 2010, to better match compensation with the targeted land's opportunity costs, the programme started differentiating its payments based on the type of ecosystem involved and its risk of deforestation due to economic pressures. Since 2012, the programme has been reinvesting 40 per cent of its payments in conservation activities that promote environmental services, as well as in actions that improve governance in *ejidos* and communities.

Alix-Garcia *et al.* (2014) suggest that PSAH has significantly reduced the extent of deforestation over a baseline scenario without the programme. In addition, through an analysis of PSAH's selection criteria and the characteristics of lands enrolled, the authors found that the programme has been successful in targeting areas of higher hydrological priority but less effective for high deforestation risk. However, looking at the programme's evolution over time, targeting of high deforestation risk and more marginalised (higher poverty) areas has improved substantially between 2004 and 2010 due to changes in the programme's rules and eligibility zones.

Using a 2008 survey sample, Alix-Garcia *et al.*, (2014) conducted a comparison between programme beneficiaries and applicants that were rejected and showed a neutral to positive socioeconomic impact. The authors found that, on average, all participating households were gaining in material wealth over time, but not considerably so when compared to non-beneficiaries. Alatorre-Troncoso (2014) used gap analysis to examine whether the targeting of marginalised communities was at the expense of conservation goals and concluded that neither high poverty nor highly threatened biodiversity areas have been effectively targeted by the programme.

Lessons

In order to achieve its long-term objectives, the programme needs clear sources of financing based on a legal mandate, and clear operational rules that promote accountability. The programme has been adapting along the way, improving its focus environmental impacts — at least in terms of targeting areas of high deforestation risk. The programme works in both private and communal lands (*ejidos*). In communal lands, contracts are signed with the *ejido* board which decides how to distribute the money internally. A participation bias in favour of those already engaging in good practices versus those more likely to deforest (such as cattle ranchers) has been suggested, implying limitations to the programme's additionality. The introduction of social benefits was a requirement to make the programme politically acceptable, even if it led to trade-offs. However, evidence of such trade-offs in the programme has been contradictory: some show that it is possible to effectively combine social and environmental objectives (Alix-Garcia *et al.*, 2013), while others claim that it is counterproductive (Alatorre-Troncoso, 2014; Salafsky, 2011).

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