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| 1. Project Data: | | Date Posted : 05/20/2014 | |
| Country: | Mexico | | |
| Project ID: | P087038 | Appraisal | Actual |
| Project Name: | Environmental Services Project | Project Costs (US\$M): | 156.56 163.14 |
| L/C Number: | L7375 | Loan/Credit (US\$M): | 45.00 45.00 |
| Sector Board : | Environment | Cofinancing (US\$M): | 15.00 15.09 |
| Cofinanciers : | Global Environment Facility (GEF) | Board Approval Date : | 03/29/2006 |
| | | Closing Date : | 06/30/2011 06/30/2011 |
| Sector(s): | General agriculture fishing and forestry sector (100%) | | |
| Theme(s): | Environmental policies and institutions (29% - P); Biodiversity (29% - P); Other environment and natural resources management (14% - S); Land administration and management (14% - S); Climate change (14% - S) | | |
| Prepared by : | Reviewed by : | ICR Review Coordinator : | Group: |
| Fernando Manibog | George T. K. Pitman | Christopher David Nelson | IEGPS1 |

2. Project Objectives and Components:

a. Objectives:

The objective of the project according to the Loan Agreement (Schedule 2) and the Project Appraisal Document (PAD, p. 7) is:

"to enhance the provision in the Borrower 's territory of Environmental Services of national and global significance and secure their long term sustainability ."

The project's Global Environment Objective (PAD, p. 7) is:

"to enhance and protect biological diversity and preserve globally significant forest and mountain ecosystems ."

b. Were the project objectives/key associated outcome targets revised during implementation?

No

c. Components:

The project included five components :

1: Developing Sustainable Financing Mechanisms (estimated cost at appraisal, US\$ 14.47 million; actual cost, US\$16.35 million, of which GEF financed US\$7.68 million).

This component was intended to develop new, sustainable financing sources - based on payments from users of environmental services - that would be channeled through: (i) the Payments for Hydrological Services Program (PSAH); or (ii) stand-alone Payment for Environmental Services (PES) mechanisms. The activities under this component were to support the development of financial mechanisms keyed to the following main environmental services: (i) water quality and regulation; (ii) biodiversity conservation; and (iii) carbon sequestration. The financial mechanisms were to be piloted in 8 promising sites identified by the

National Forestry Commission (CONAFOR). A Biodiversity Endowment Fund (FPB) was also to be established and capitalized to provide PES long-term financing, through contributions from the Global Environment Facility that were to be matched on a one-to-one basis from other sources.

2: Developing and Strengthening PES Delivery Mechanisms (estimated cost at appraisal, US\$3.51 million; actual cost, US\$3.23 million, of which GEF financed US\$1.3 million).

This component aimed to strengthen two existing programs: PSAH and CABSA (Program to Development Environmental Services Markets for Carbon Capture and Biodiversity and to Establish and Improve Agroforestry Systems). The component also intended to support the development of new, stand-alone PES delivery mechanisms to: (i) serve as intermediaries between services users and providers; and (ii) carry out functions such as generating the environmental services, identifying critical areas, targeting land use practices, negotiating contracts, monitoring compliance, making payments and monitoring results.

3: Supporting Environmental Service Providers (estimated cost at appraisal, US\$9.56 million; actual cost, US\$9.82 million, of which GEF financed US\$3.7 million).

This component aimed to remove the obstacles hindering the participation of communities in PES programs, with a focus on poor communities. The activities sought to strengthen owners of common property lands (*ejidos*) and indigenous groups - who are prospective providers of environmental services - by providing technical assistance through consultants and grants for technical support directly contracted by the intended beneficiaries.

4: Payment to Service Providers (estimated cost at appraisal, US\$127.0 million; actual cost, US\$131.56 million, of which GEF financed US\$1.58 million).

The objective of this component was to properly implement the actual payments to environmental service providers for water, biodiversity and carbon sequestration.

5: Project Program Management (estimated cost at appraisal, US\$1.90 million; actual cost, US\$2.07 million, of which GEF financed US\$0.74 million).

This component was to support project management, planning, coordination, supervision, and monitoring and evaluation (M&E).

d. Comments on Project Cost, Financing, Borrower Contribution, and Dates:

Project Cost: The actual total project cost was US\$ 163.14 million, slightly higher than the US\$ 156.56 million appraisal estimate (these figures include the front-end IBRD fee of US\$ 0.11 million).

Financing: The Bank provided a loan of US\$ 45.00 million and this was fully disbursed. The GEF a grant of US\$ 15.00 million increased in value as a result of exchange rate fluctuations and US\$ 15.09 million was disbursed.

Borrower: The Government of Mexico financed US\$ 85.55 million of the project cost compared with the US\$ 80.66 planned, while private sources funded US\$ 17.50 million compared with the US\$ 15.90 planned.

Dates: The project closed on June 30, 2011 as scheduled.

3. Relevance of Objectives & Design:

a. Relevance of Objectives:

Substantial

- Mexico has 64.8 million hectares of forest, covering a third of its total land area. The annual rate of deforestation (1.1%) in Mexico was nearly four times greater than in Brazil over the period 1993-2000. Unlike many countries where forests are privately and publicly owned, 80 percent of Mexico's forests remain under collective ownership by indigenous communities or by peasant associations known as *ejidos*. These owners of are among the poorest in the country and are highly dependent on forest resources. Consequently, degradation of these resources hinders their ability to sustain their livelihoods. Rapid deforestation also has led to soil erosion, sedimentation of reservoirs and increased flooding. In addition, Mexico is one of the megabiodiversity countries of the world, its plant diversity exceeds that of the USA and Canada combined and globally it ranks second, third and fifth in the diversity of its reptiles, mammals, and plants and amphibians respectively.
- The economic and social policies of Mexico have consistently and increasingly assigned a high profile to addressing environmental issues and climate change in the country. The National Development Plan (NDP) for 2007-2012, which has benefited from wide consultations, has environmental sustainability as one of its four pillars. More specifically, the NDP's goal is to make environmental sustainability a cross-cutting ingredient of public policies and ensure that all public and private investments are compatible with environmental protection. The environmental and climate change agenda of the Government of Mexico (GOM) is a central feature of collaboration in the Bank's Country Partnership Strategy (CPS) for 2008-2013, as well as the Bank's Strategy Progress Report. The ensuing Bank-GOM partnership has been translated

in practice into a range of Bank instruments, including several environmental Development Policy Loans, investment lending, non-lending support (including a Program of Forestry Advisory Services), as well as various grant instruments.

- Project objectives are fully consistent with three of GEF -5 Focal Area Strategies, including Biodiversity, Land Degradation (Desertification and Deforestation) and Sustainable Forest Management.

b. Relevance of Design:

Substantial

- The project's Results Framework is well articulated, logical and sound. (PAD, Annex 3, pages 45 to 50). It is explicit about expected outcomes (both final and intermediate, which were disaggregated under each of the 5 components), and specific about the measurable outputs and actions against which performance can be monitored.
- The key design feature of the project was to bring together buyers and sellers of environmental services intermediated and facilitated by a national agency and this was highly relevant. Technical assistance through consultants to strengthen the owners' stewardship of common property land, where most of the forest are located, is relevant. Similarly, it was highly relevant to enable the environmental service providers - the local populations including indigenous peoples - to contract for technical support.
- A clear effort was made to establish the causal links between the provision of environmental services and specific land use changes. For example, as part of the environmental service contracts, site-specific indicators were defined. Provisions were made for National Forestry Commission's staff to commission studies for defining baselines, beneficiary assessments, and impact evaluation, with the contractors also providing technical supervision.
- Lesson-learning, including semi-annual workshops, was built into project design. The results measurement and lesson-learning from the selected pilot areas were designed to provide valuable guidance for the replication of PES programs elsewhere in Mexico.

4. Achievement of Objectives (Efficacy):

To enhance the provision in the Borrower's territory of environmental services of national and global significance and secure their long-term sustainability.

The project objective has two sub-objectives: (a) To enhance the provision of environmental services of national and global significance; and (b) to secure the long-term sustainability of environmental services. The achievement of each objective is reviewed below.

a) To enhance the provision of environmental services of national and global significance : Substantial

Outputs:

- Four priority sites with stand-alone payment for environmental service mechanisms for buying and generating environmental services were established. The appraisal target was 2 sites, and none had existed prior to the project.
- Financing mechanisms were established in 21 sites (target 6).
- A total of 3,726 contracts have been signed under existing funding mechanisms to conserve forests and natural ecosystems in areas of globally significant biodiversity. The baseline was 923 service contracts and it was expected the project would facilitate another 200 contacts. The project facilitated 2,803 contacts or more than ten times the targeted number.
- All 3,726 contracts are related to hydrologic resources tied to forest conservation (ICR p. 17). Contracts are for five years and are renewable. Payment is conditional on having maintained the enrolled forest area to the prescribed standard. During implementation, M&E found only 2.5% of non-compliance with contracts.
- Since 2009, the National Forestry Commission implemented a program of matching funds (Fondos Concurrentes) in which it pays 50% of the cost of conservation projects, the balance by beneficiaries. By the end of the project over 50,000 ha was being protected under these matching fund agreements. The ICR (p.34) notes that they "provide prima facie evidence that these water users perceive the benefits of conservation to exceed the costs, or they would not commit their own resources to conservation."
- An important project contribution is the provision and use of GIS data from satellite imagery to: (i) provide critical information on deforestation rates, which enabled the project to select priority areas for biodiversity conservation; (ii) help to determine social indicators for marginal populations; and (iii) facilitate the calculation of opportunity costs, which were important inputs to ensure the proper compensation of service providers.

Outcomes:

- The area brought under environmental service contracts from existing funding resources grew to 3,126 million ha at the end of the project from a 2006 baseline of 0.583 million ha. The incremental area greatly exceeded the target (0.5 million ha). These contracts provided environmental services in watershed conservation, biodiversity conservation and/or carbon sequestration benefits.
- 52,955 ha (target 100,000 ha) additional area was brought under environmental services contracts using project funds.
- Carbon sequestration projects reached 53 proposals under the project, compared to 15 proposals estimated at appraisal. A project in Oaxaca managed to commercialize 76,821 tons of carbon from an area of 2,973 ha from 2008-2011 (ICR p.17).
- By the end of 2010, Mexico's Payment for Environmental Services program had become the second largest in the world in terms of total area enrolled. The project helped to establish an integrated environmental services program compared to the scattered and politically driven initiatives that existed without the project.
- The project helped to create and advance the legal and financial components for the design and implementation of local mechanisms for environmental service payments in environmental priority zones, and in other places with demonstrated willingness-to-pay for environmental services. The programs are now serving as an intermediary instrument for leveraging public resources to bring together providers and buyers/users of environmental services.
- The National Forestry Commission has developed the capacity and demonstrated the ability to implement a range of mechanisms for payment of environmental services that are adapted to site-specific needs:
- Compared to previous contracting processes that were done by hand, the Commission now has a fully functional information system that monitors contracts, payments and compliance.
- The majority of the Commission's staff is now hired on a permanent basis, which would enhance sustainability of project outcomes. Even so, there is a shortage of staff for the Commission's increased budget of US\$ 30 million a year and this is being addressed.
- The Commission has the capability to scale-up the experience gained from the project, and apply lessons learned across different sites.
- The Commission monitors biodiversity conservation as measured by vegetation cover and indicator species. It is also working on developing impact evaluation methodologies and mechanisms using outside technical assistance, with the ultimate goal of understanding and documenting the causal links between specific land uses or land use changes and environmental services, and the level of change need to produce specific quantities of those services.

(b) To secure the long-term sustainability of environmental services : Substantial

Outputs:

- An endowment fund for biodiversity conservation was established in October 2008, is capitalized in the amount US\$21.5 million and it is operational. Appropriate legal and institutional arrangements, including a capitalization strategy, are in place. The first proposal for biodiversity conservation was approved in late 2011.
- The Mexican Forestry Fund has received over \$ 100 million a year since 2007 - compared with the US\$ 30 million agreed at appraisal - and participation of *ejidos* in pilot sites increased 50% over the national average.

Outcomes:

- A total of 353,340 ha of forests and other natural ecosystems (target 200,000 ha over a baseline of 30,000 ha) of global biodiversity significance were brought under protection and sustainable management by landowners.
- A recent study (ICR, page 15) found that deforestation decreased by 10% in the properties of project participants compared to matched controls selected from rejected program participants; another study found that project participants had reduced their deforestation from 1.6% to 0.6%. This evidence-based definition of the critical targets for environmental service payments enhanced the transparency of the program, and improved accountability mechanisms and reporting. This, in turn, helped facilitate the mobilization of additional funding sources.
- The previously separate programs for the development of environmental services markets for carbon capture and biodiversity (PSAH) and the establishment of improved agroforestry systems (CABSA) were unified under the National Forestry Commission into a single program - Payment for Forest Environmental Services (PSAB). This in turn became part of its new, far-reaching ProArbol Initiative, an umbrella of 45 programs managed by the National Forestry Commission with the objective of fighting poverty while

recovering forest land and increasing forest productivity mostly in *ejidos* and communities with marginalized populations. This Initiative strengthened the payment for environmental services programs, streamlined their administration, and, more importantly, increased their resources over three -fold (from US\$30 million to US\$100 million annually). While this strong financial commitment was impressive, the greatly increased resources were not accompanied by a corresponding increase in the Commission 's capacity, and the burden of implementing a program that was three times the anticipated size was not insignificant although activities supported by the Project were mostly carried out as planned .

Progress towards achievement of the Global Environmental Objective : “to enhance and protect biological diversity and preserve globally significant forest and mountain ecosystems .”

- The area under protection increased 10-fold under the program, from a baseline of 30,000 hectares to 353,340 hectares by the project’s closing date.
- Under the project, 2,803 additional PES contracts aimed at forest and ecosystem conservation in areas of globally significant biodiversity were concluded, compared to the appraisal target of 200 additional contracts.
- Albeit with some delay, the process of monitoring biodiversity indicators started in 2010 as a collaborative effort between the National Forestry Commission and the National Commission for Natural Protected Areas .

5. Efficiency:

Efficiency (not applicable to DPLs).

Economic or financial efficiency . The difficulties of defining project benefits in monetary terms preclude calculation of an economic rate of return or cost-benefit analysis. Even when benefits could be quantified very sophisticated evaluation over a prolonged period would be required to define project impacts .

Project benefits were expected to derive from three major sources :

- Conserving forests would improve watershed management, reduce erosion and improved the quantity and quality of water supplies .
- Improving local biodiversity services is expected to bolster tourism income . The local tourism industry often relies heavily on natural ecosystems for scenic beauty and /or recreational activities . Damage to these ecosystems could result in fewer tourists or lower prices .
- Selling carbon sequestration services could help finance costly reforestation in degraded areas .

Instead of a formal economic analysis, the project’s efficiency was assessed in terms of the opportunity costs to program participants . This examined their most profitable alternative use of their own resources compared to forest conservation, plus any costs related to contract compliance (such as conducting fire patrols). Annual project investment costs have been estimated to range from about US\$ 2 pe ha to an upper bound of US\$32 per ha. On this basis, the ICR (p. 16) states that even relatively modest average levels of hydrological and other net benefits per hectare would be sufficient to justify the program . The benefits of program participation include the payments received and any benefits that may be derived from the conserved forest area, as long as the latter did not conflict with contract requirements . Participation has been financially beneficial to participating landholders, judging from the high number of applications that exceeded funding available and popularity of the program .

Administrative efficiency

- The National Forestry Commission’s transaction costs amount to about 4% of payments for all its project activities. This was despite the fact that the program grew to three times the size planned .
- The outputs of the project in terms of the number of contacts made and area covered were much cheaper than planned at appraisal.
- While there were initial delays, particularly in the establishment for the Biodiversity Endowment Fund, the Fund was created and was made operational before the end of the project .

Project efficiency is rate as **Substantial** .

a. If available, enter the Economic Rate of Return (ERR)/Financial Rate of Return (FRR) at appraisal and the re-estimated value at evaluation :

| | Rate Available? | Point Value | Coverage/Scope* |
|-----------|-----------------|-------------|-----------------|
| Appraisal | | % | % |

ICR estimate

%

%

* Refers to percent of total project cost for which ERR/FRR was calculated.

6. Outcome:

The project's relevance to the current National Development Plan of Mexico and the Bank's current Country Partnership Strategy is substantial. The project's relevance of design that emphasized the causal links between the provision of environmental services and specific land use changes in designing its performance monitoring and results framework is also substantial. The first objective was substantially achieved and the provision of environmental services increased, and its efficacy is rated substantial. The second objective to secure the long-term sustainability of environmental services has been secured, and its efficacy is rated substantial. Efficacy is rated substantial.

a. Outcome Rating : Satisfactory

7. Rationale for Risk to Development Outcome Rating:

Risks to the project's development outcome are considered negligible, based on the following factors :

- First, the programs supported by the project are part of the Mexican Government's much larger ProArbol Program, and thus have received a significant amount of commitment, as is evident from the level and consistency of Government funding allocations .
- Second, the demand for payment for environmental service interventions has been and is expected to continue to be high, both from service users and service providers .
- Third, the expansion and sustainability of the programs have been facilitated greatly by consultative processes as well as a focus on poorer beneficiaries .
- Fourth, considerable experience has now been gained in Mexico and other countries with payment for environmental services programs, thus enhancing the cross-fertilization approach and enabling flexible adaptations to the specific conditions of various sites . These factors are expected to contribute to the sustainable expansion of the programs over the long term .

a. Risk to Development Outcome Rating : Negligible to Low

8. Assessment of Bank Performance:

a. Quality at entry:

In addition to responding to a strategic priorities of both the Bank and the Mexican Government (namely, the provision of sustainable environmental services of global importance), the Bank team also conducted a detailed review of the Program to Development Environmental Services Markets for Carbon Capture and Biodiversity and to the Program to Establish and Improve Agroforestry Systems with a view to identifying areas for improvement and ways to incorporate lessons from the few payment for environmental services programs operating at that time. The project's objectives, conceptual approach and operational aspects were closely prepared with the Government, in a manner that responded to its priorities while setting realistic expectations of the results that could be achieved during the project's implementation period. Consultative processes were consistent and effective. Financial management challenges and corresponding actions were carefully identified given that these were rated high at entry and appropriate risk management measures were put in place. The M&E system was well designed and was fully in place by project launching.

Quality-at-Entry Rating : Satisfactory

b. Quality of supervision:

The Bank team, together with the National Forestry Commission, played a catalytic role by providing a forum for exchanging experiences across the various PES interventions supported by the project (ICR p. 20). This involved extracting lessons and sharing new knowledge, including through Stakeholder Workshops and a study tour. Bank staff supervision was hands-on, proactive and results oriented.

Quality of Supervision Rating : Satisfactory

Overall Bank Performance Rating : Satisfactory

9. Assessment of Borrower Performance:

a. Government Performance:

The government demonstrated strong and consistent commitment to the project's objectives throughout its implementation period. For example, while there was initial concern over changes in ministry officials in 2007, the government's commitment became stronger after those changes occurred. As evidence, the Government undertook newer and broader initiatives and commitments to support the PDO, and provided increased funding beyond what was originally expected, despite the difficult macroeconomic conditions in Mexico during the project period.

Government Performance Rating Satisfactory

b. Implementing Agency Performance:

The National Forestry Commission's commitment was also strong and consistent through project implementation (ICR, page 20). Despite staffing limitations, the Commission implemented the project and its significantly increased mandate resulting from the Government's ProArbol Program. The Commission was able to obtain agreements and cooperation from the various institutions that could provide the data needed to prioritize, manage and monitor its programs. There was adequate beneficiary consultation and involvement that enhanced stakeholder commitment and compliance. There were some delays, however, in M&E activities, partly due to the magnitude of the project and the short time available prior to completion.

Implementing Agency Performance Rating : Satisfactory

Overall Borrower Performance Rating : Satisfactory

10. M&E Design, Implementation, & Utilization:

a. M&E Design:

The project's M&E system was designed to be implemented at three levels: contract compliance, project implementation, and impact monitoring. The Results Framework was well defined and had clear intermediate and final outcomes against which project progress was to be monitored.

b. M&E Implementation:

The National Forestry Commission staff was responsible for overall project monitoring, including existing and new PES mechanisms, as well as integrating results to serve as inputs for project reporting and decision-making. Studies were commissioned for determining baselines, beneficiary assessments, and impact evaluations. There were some delays in M&E activities, partly due to the project's broad reach and the relatively short implementation period.

c. M&E Utilization:

The National Forestry Commission in coordination with databases of other agencies, utilized the project's M&E system to monitor and identify over-exploited aquifers, deforestation risks, national protected areas, priority areas for bird conservation, and the Human Development Index by municipality. Forest cover monitoring was done yearly, and if the data indicated land clearing, current and future payments under the respective contract were cancelled, and the contracting party is withdrawn from the program. During implementation, monitoring efforts found only 2.5% of non-compliance with contracts.

M&E Quality Rating : Substantial

11. Other Issues

a. Safeguards:

The project was classified as a category 'B' under OP4.01 Environmental Assessment. Three safeguard policies were triggered: OP4.04 Natural Habitats, OP4.10 Indigenous Peoples, and OP4.36 Forests. The project's Environmental Management Plan was finalized during project preparation. An Indigenous Peoples' Development Plan was completed and disclosed after project appraisal. According to the ICR (p.12), "Supervision of compliance with safeguard policies was carried out routinely during the course of the Bank's implementation support" and "There were no issues with safeguard compliance throughout implementation."

b. Fiduciary Compliance:

The financial management assessment carried out during project preparation rated its risk as "high". Those risks were to be mitigated by: (i) using Forestry Commission's resources to strengthen the internal control environment; (ii) supervision by the National Financing Agency, which is the Government's Development Bank; and (iii) close project supervision by the Bank to ensure proper use of project funds and early detection of any potential financial management issues. The Commission was responsible for bidding, contracting, and consultant payments, as well as for submitting annual procurement plans and producing procurement reports. The Commission acted expeditiously in hiring financial management and procurement staff within the first year of implementation, and the Bank conducted training workshops for administrative staff that were responsible for the project's financial management and procurement activities. According to the ICR (p.13), project audits were received routinely and contained unqualified opinions. Ex-post reviews of procurement were also carried out, and found only cases of non-compliance with Bank procurement procedures for equipment purchases, which the Bank eventually did not finance.

c. Unintended Impacts (positive or negative):

d. Other:

| 12. Ratings: | ICR | IEG Review | Reason for Disagreement /Comments |
|-------------------------------------|-------------------|-------------------|--|
| Outcome: | Satisfactory | Satisfactory | |
| Risk to Development Outcome: | Negligible to Low | Negligible to Low | |
| Bank Performance : | Satisfactory | Satisfactory | |
| Borrower Performance : | Satisfactory | Satisfactory | |
| Quality of ICR : | | Satisfactory | |

NOTES:

- When insufficient information is provided by the Bank for IEG to arrive at a clear rating, IEG will downgrade the relevant ratings as warranted beginning July 1, 2006.
- The "Reason for Disagreement/Comments" column could cross-reference other sections of the ICR Review, as appropriate.

13. Lessons:

The following lessons are derived from the ICR :

- The Government's commitment at the highest levels and its substantial budgetary support, together with support from reputable members of academia, are crucial for the success of these types of environmental projects.
- The effectiveness of local mechanisms for the payment of environmental services depends closely on the prior establishment and building up of alliances and strong inter-institutional arrangements, which need to

involve state and municipal governments as well as the private sector . The quality and quantity of technical assistance received by the communities are strong determinants of program results .

- Stakeholder involvement is important for reaching workable proposals and obtaining needed buy -in, and is critical to project success .
- Robust M&E is important for the credibility of payments for environmental services programs because the payment depends on certification of actual impacts of environmental services on the resource base .
- Flexibility is necessary for projects of this type, where gradual improvements (e.g., in establishing a differentiated payment structure) prove more effective than making a single push to implement major changes all at once .

14. Assessment Recommended? Yes No

15. Comments on Quality of ICR:

The ICR was well prepared and clearly written . It covered all the aspects required for a project completion and results report. The evidence provided was of good quality, having made use of research studies and project evaluations, and overall the ICR’s analysis was keyed to outcomes and impacts . The ICR was candid in citing remaining challenges along with the positive outcomes . However, the long discussion of the Evolution of Mexico’s Climate Change Engagement (pages 9 and 10), while interesting, could have been better left in an annex rather than repeated in the text . A very large number of acronyms were also used, and an annexed diagram on how the various institutions and programs relate to, and cascade from, each other would have been useful. Some acronyms are not in the Acronyms list: “PSAB” for example is the core of what is being assessed by the ICR but it is not in the list . Finally, there are a number of small inconsistencies in the text - for example the size of the Trust Fund .

a.Quality of ICR Rating : Satisfactory