

El Salvador- Lake Coatepeque

El Salvador Environmental Services Project- WB/GEF – Pilot site Lake Coatepeque-Los Volcanes

SUMMARY

This is one of the two pilot sites part of the World Bank (WB) / Global Environment Facility (GEF) National Environmental Services Project- Ecoservicios. In this site, it aims to improve agriculture practices in the middle and upper section of the watershed draining into the lake Coatepeque, in order to reduce sedimentation and maintain landscape beauty. The second pilot site is Jaltepeque- Jiquilisco and focuses on biodiversity conservation (see other information below).

MATURITY OF THE INITIATIVE

The project was approved in June 2005. Creation of the Fund is scheduled to end 2006, and disbursement for payments to start in 2007

DRIVER

Driven by water quality problems attributed mainly to erosion problems arising from poor land use practices, which have already lead some businesses to have clean water trucked in from nearby Santa Ana, at a cost of US\$2.50/m³. This area is located within the Los Volcanes complex of natural protected areas (54km²), within the priority Conservation Area Apaneca-Llamatepec (452km²) formed by ten dispersed natural protected areas surrounded by private lands.

In this case, there is already a environmental services agreement underway, led by a local NGO (FUNDACOATEPEQUE), whereby landowners around the lake pay maize and bean farmers in the mid-watershed slopes to apply conservation agriculture techniques, in order to maintain water quality and the scenic beauty of the area. The current project will build on it and expand it to the upper watershed coffee farmers.

STAKEHOLDERS

Supply

Public, private and cooperative landowners: small-scale grain producers in the middle section of the lake watershed and coffee plantations. These correspond to about 1,500ha including 300ha in very steep slopes.

Demand

Recreational users of the lake, particularly owners of the up-market holiday homes, each of which operates its own pump to draw water from the lake, using an estimated 12.5 m³/day/home;

Domestic water users: 13 water systems that serve the populated centers, serving a total of about 18,700 people and using an estimated 818,000 m³ annually;

Small scale fishing (about 500 fishers operating in the lake)

Intermediary

National Environmental Services Fund (FONASA) and the local NGO Foundation for the Development of the Lake Coatepeque (FUNDACOATEPEQUE)

Facilitator

Supported also by two Salvadoran environmental NGOs ASACMA and SALVANATURA.

MARKET DESIGN

Service

water quality: Production of basic grains on steep slopes is resulting in erosion and contamination of runoff by agrochemicals.

Flood and landslide risk management is mentioned, alongside preservation and enhancement of *scenic beauty and carbon sequestration*.

Commodity

Improved management practices to facilitate infiltration and reduce erosion, provide a more hospitable environment for biodiversity and higher levels of carbon sequestration. Activities include:

- i) maintaining and expanding shade coffee systems on existing coffee plantations and
- i) converting hillside basic grain (maize and beans) producers (which normally leave land bare at the onset of the rainy seasons) to agroforestry systems involving planting of 0.1ha of dispersed native tree crops (fruit or timber) and soil and water conservation measures (grass barriers, water infiltration ditches ('acequias'), and grass cover).

Payment mechanism

Intermediary-based transactions, through the national intermediary FONASA and probably local NGOs.

Terms of payments

Ongoing cash payments of US\$1,000/ha on steep slopes, and US\$500/ha on shallower slopes.

Payments are expected to be disbursed annually, but at different rates: i) in the first 5 years a payment of about US\$200/ha/yr to cover the introduction of land use changes and ii) US\$25/ha/yr in subsequent years to maintain conservation measures in place.

Funds involved

Considering the potential payments of US\$ 1,000/ha for 300 ha of very steep slopes and US\$500/ha on 1200ha of less steep slopes, the total cost would be about US\$900,000 over 10 years.

In addition, FONASA will charge 5% administration fees on each contract.

ANALYSIS OF COSTS AND BENEFITS

Economic

SUSTAINABILITY OF THE FUND: contributions from users might be sufficient to cover expected costs (considering payments only, as transaction costs cannot be access before knowing the number of contracts to be processed). The Project Proposal (World Bank 2005) indicates that:

- The owners of holiday villas alone could cover the costs of the scheme entirely, with a contribution of US\$160/villa/year. The project does not consider this an unreasonable fee, considering these villas are valued at over US\$100,000 each and accounting for the increase in property values that would result from improved water quality.
- The households connected to local water systems could cover half of the cost by increasing their monthly fees paid by US\$1 (from current levels of US\$3-11/household/month), generating between US\$30,000 to US\$50,000 a year.

OPPORTUNITY COSTS: in the long term the land use alternatives supported by the project would be slightly more profitable for land users. The level of payments being offered to support the adoption of these alternatives was calculated based on the difference in profitability between the current and the alternative land uses- US\$1,000/ha, in this particular example.

Environmental

Expected benefits include:

- Improved quality of surface water flowing into the lake, reduced erosion and sedimentation; reduced evapotranspiration that would increase the net water supply in the system; greater

infiltration, subsurface flows, and recharge of aquifers around the lake area (serving western El Salvador)

- Conservation of existing natural habitats, including cloud forest and *páramo*, and help to consolidate the Salvadoran part of the Mesoamerica Biological Corridor and buffer zone of Apaneca–Lamatepec, Nahuaterique, and Río Sapo Protected Areas,
- Maintenance or improvement of forest coverage in coffee plantations and plantation of new commercial forests.

Social

Expected benefits: Current monthly income ranges from less than US\$17 to US\$ 470, so the added benefit of the payment will have different levels of impact on the families' budgets, according to how much land they enrol in the programme.

LEGISLATION ISSUES

See Ecoservicios main page

MONITORING

See Ecoservicios main page

MAIN CONSTRAINTS

Potential challenges include risk of domination of negotiations by the demand side (wealthier and more powerful groups) and lack of awareness and participation of the landowners eligible for participation; (Project Proposal, World Bank 2005)

MAIN POLICY LESSONS

OTHER INFORMATION

Ecoservicios pilot site II- Jaltepeque- Jiquilisco (biodiversity conservation)

The second pilot site of the project focuses on biodiversity protection in high value mangrove ecosystems. This area is located in the priority Jaltepeque-Bajo Lempa and Bahía de Jiquilisco Conservation Areas – critical/endangered Northern dry Pacific Coastal Mangroves). It includes the mouth of the Lempa River, the largest river in El Salvador, which drains a trinational watershed (shared with Honduras and Guatemala). It also supports 24 small protected areas (“*nucleos*” of remnant humid forest patches, the smallest of which is only 8 ha).

Through the creation of a local scheme of Payments for Biodiversity Services, the project will:

1. encourage land uses that are compatible with the management of the mangroves and humid forest patches in the buffer zones neighbouring protected areas, to alleviate pressure from: i) forest conversion (for shrimp farming, salt production, livestock production, tourism, subsistence farming and housing); ii) mangroves over-exploitation; iii) poor management of water (resulting in alterations of salinity) and urban waste dumping (resulting in pollution of the coastal waters) and iv) degradation of important flora and fauna habitat (resident and migratory birds, marine turtles).
2. strengthen and consolidate of the six proposed protected areas (consolidate Corridor Omega, or the Golfo Complex), improve environmental and infrastructure conditions inside the protected areas focusing on public use and environmental education and scientific research.

It will involve mainly smallholders (owning less than 3 *manzanas* [(1 *manzana* = 0.6 *hectare*)] and support for the scheme is expected to come from:

1. ecotourism: potentially through negotiation with representatives of the industry for standard fees to be applied to tourism throughout the area;
2. industrial fishing and shrimp farming: A US\$100 fee per hectare of shrimp ponds would generate US\$50,000 annually based on the current area;
3. artisan fishing (unlikely to be able to generate much funding; a 1% tax on the value of landed fish would only generate some US\$3,000 annually)

In the short and medium term, however, *conservation payments* in this area are expected to rely on GEF resources. In the future additional mechanisms, such as the creation of an endowment fund, are being considered.



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REFERENCES

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[http://www.gefweb.org/Documents/Project_Proposals_for_Endorsement/El_Salvador -
_Environmental_Svcs_Proj.pdf](http://www.gefweb.org/Documents/Project_Proposals_for_Endorsement/El_Salvador_-_Environmental_Svcs_Proj.pdf)

MARN (2004) Economia Ambiental- Proyecto MARN/BM/GEF
http://www.marn.gob.sv/economia_ambiental/MARN_BM_GEF.htm

LINKS

World Bank online Project Information:

[http://web.worldbank.org/external/projects/main?pagePK=64283627&piPK=73230&theSitePK=40941&
menuPK=228424&Projectid=P064910](http://web.worldbank.org/external/projects/main?pagePK=64283627&piPK=73230&theSitePK=40941&menuPK=228424&Projectid=P064910)

Ministry of Environment Project Information:

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