

Nicaragua - San Pedro del Norte

A PASOLAC Initiative

SUMMARY

PASOLAC is supporting this local initiative at the micro-level in San Pedro del Potrero Grande, also known as San Pedro del Norte (Chinandega), Nicaragua. The scheme involves forest conservation and natural regeneration in 13ha benefiting 5 families (at US\$24/ha/yr). It claims to have improved water flows during the dry season by 1.25m³/day two years after implementing payments.

MATURITY OF THE INITIATIVE

Ongoing. Proposal was submitted to PASOLAC in 2001 and fund was set up a year later. Contracts have been signed since 2003 and last for 3 years.

DRIVER

Local municipality's interest in developing an integrated water management scheme. International NGO PASOLAC provided the required technical assistance and start up funds.

The main environmental problem in the area was unrelenting deforestation followed by slash-and-burn and compaction of soils. It has experienced sustained deforestation through logging of pine trees, followed by slash-and-burn and cattle grazing or food production. Low water flow from the main spring in the area (Los Cuevones) has decreased and the municipality had to purchase an electric powered pump to get water from a nearby creek. Precipitation is approximately 800-1,000 mm/year, with a marked dry season. Slopes inclination gradient is 15-35%.

STAKEHOLDERS

Supply

Priority recharge areas within the micro-watershed "Paso de Los Caballos" (approx 600ha), particularly around the main spring "Los Cuevones". Since 2003, contracts have been signed with 5 farmers covering a total of 13 ha (18.6 manzanas), representing 18% of the area designated as critical (73 ha in total). It was expected that sufficient funds would be raised to incorporate 5 more farmers by the end of 2005.

Demand

Water users in the San Pedro municipality (5,000 inhabitants, 1,200 of which live in the town)

Intermediary

Direct negotiation between the municipality and farmers.

Facilitator

International NGO PASOLAC-Programme for Sustainable Agriculture on the Hillsides of Central America funded the Swiss Agency for Development and Cooperation funded by the Swiss Agency for Development and Cooperation (SDC/COSUDE), supporting the design of the initiative.

MARKET DESIGN

Service

Increase and protect water quality and quantity

Commodity

Improved management practices through agriculture using less chemical inputs and agroforestry, incorporating stubble instead of burning it and implementing soil and water conservation measures (building rows of stone barriers in critical water infiltration points and stone ditches in creeks where there is a risk of erosion)

Rehabilitation of degraded ecosystems for protection by switch from cattle ranching to natural regeneration and conservation.

Payment mechanism

user fees and trust fund.

Water use fees were introduced and a share is earmarked for PES investment.

A trust fund has been created to administer funds. Seed capital obtained from PASOLAC (US\$12,000) and the same amount is expected from the municipality. The municipal government created, through a Municipal Ordinance, the Association of Water and Resource Management who is to take charge of PES contracts, water tariff collections and management of the fund. This association is recognised by the National Assembly.

Terms of payment

Providers receive 300 córdobas per manzana (1mz= 0.69ha) or US\$ 24/ha, per year. In the first year, a share 50% of the payment is given at the time of signing the contract and 50% upon completion of agreed practices. The payment then continues for 3 years.

Users: Household consumers pay 30 córdobas per month (about US\$ 2) as a set fee for water use. From this amount, 5 córdobas (US\$ 0.30) are assigned to the PES fund. Water users that do not have the capacity to pay contribute with labour to the soil and water conservation measures being built/planted in the farms of the providers participating in the scheme.

Funds involved

PASOLAC contributed US\$12,000 to support design of the management plan, economic valuation, negotiations with stakeholders, creation of the water management association, and initial seed capital for the fund. The municipality is expected to contribute the same amount to the fund.

The municipality also contributes with 5% of its own fiscal budget, yielding US\$400-500/year.

ANALYSIS OF COSTS AND BENEFITS

Economic

Benefits: 5 families receive payments (25 people in total) of US\$24/ha/yr for three years. Technical assistance for changing land use patterns.

Increase in water availability is expected to bring benefits on savings for not using electricity-powered water pumps, increased water availability for rural families (who are now able to irrigate small areas and provide grazing for a few cows per family) and the value of vegetation recovered. (Perez, 2005)

Costs: No information currently available other than for start-up transaction costs. The PASOLAC initial funds of US\$12,000 have been used to support the negotiation and setting up of the system. PASOLAC considers this investment useful, as it has already changed the way "in which local stakeholders manage natural resources" (Perez, 2005).

Environmental

Results from PASOLAC sources indicate that after two years of PES there has been an increase in availability of water from natural springs and creeks. According to PASOLAC, permanent springs have increased from 8 before 2005, to 13 in 2005 and 2006. Temporary springs have reduced from 6 to 1 in 2005 and 2 in 2006. Prior to 2005, the creek that flows in the area was temporary, since then it flows all years round.



During the dry season (Dec-May) creeks and springs dry up if sustainable water techniques are not used in the catchment area. In the particular case of Los Caballos there is an estimated additional 1.23m³/day of water available during the dry season, giving a total of 162.5m³ of water over the 135 critical dry season days. It is however difficult to completely attribute these effects to land use changes in only 13 hectares, over two years.

Water shortages will remain regardless of land uses in the area. The current estimate of water flow into during the dry season is 6.03m³/day (in 2006 was 12.96 m³/day), but local requirements are approximately 42 m³/day (assuming that a family of 6 needs 300lt/day, and there are 140 families in the town). During the rainy season the problem is less serious due to greater inflows into the reservoir and the option to use rainwater collected from rooftops.

Between 2002-2004, the forest area increased from 31% to 49% and shade density in the critical recharge zone increased from 73% to 80%.

PASOLAC believes that they have demonstrated that PES can increase water supply and improve its quality. PASOLAC (2006)

Social

The negotiations carried out to implement this project have increased stakeholder participation and that has led to conflict resolution.

LEGISLATION ISSUES

The municipality has proclaimed a Municipal Ordinance declaring the foundations of the Fund for Environmental Services.

MONITORING

Monitoring is made by visits to the field, by a representative of the water association.

MAIN CONSTRAINTS

No information.

MAIN POLICY LESSONS

Policy momentum due to decentralization of water the water supply service company, in 200, the PES was created together the municipal water management service. Willingness to pay revealed interest in paying for a better water supply system as well as for water environmental protection measures.

OTHER INFORMATION

Two other PASOLAC sites in Nicaragua

In San José de Achuapa (also in Chinandega), 16 upstream farmers are already receiving payments for 170ha of forest conservation and management.

Payments are made in cash, once a year, for conservation and management of forest. Mature forest (over 25 years old) is paid 260 córdobas /ha/yr (about US\$ 15), developing forest (10-25 years) receives 130 córdobas/ha/yr (US\$ 7) and young forest 65 córdobas/ha/yr (or US\$ 4). Contracts were made for 5 years and minimum area was 10ha.

A further incentive received by the participants is a total or partial exemption on municipal estate tax. According to the level of conservation adopted in their properties under PES, landowners may be fully (in the case of adopting sustainable forest management) or partially released from payment (land under



agroforestry is eligible to pay only 50% of the tax and adoption of soil and water conservation measures may reduce it by 10-25%.)

Funds are still from seed capital and not yet from water fees. The municipality is expected to be able to provide funds from water fees once the seed capital runs out.

In the Community of Espinal (Esteli), members of the downstream community provide their labour for management activities upstream. This involves crop waste management (no burning of stubble) and fencing of the aquifer recharge area. A valuation of the payments to labourers that was saved through the use of volunteer work is about US\$200.

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LINKS