El Salvador

Access, Management and Rational Use of Water (AGUA)

Final Report of the Evaluation

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Submitted by:

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A successful project evaluation—both the process and the final product—are the result of a collaboration of organizations and people for whom the goals of the project transcend other agendas. The evaluation team wishes to acknowledge the good will, support, and collaboration of all those involved in the AGUA Activity. The conclusions and recommendations found herein are the product of a collaborative analysis of findings with AGUA participants and reflect their sincere desire to carry out activities with the highest possible sustainable impact.

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Annexes

Acronyms and Abbreviations

ACD	Activity Completion Date
AGUA	Access, Management, and Rational Use of Water
ANDA	National Administration of Water and Sewage
BDS	Border Development Services
BOD	Biological Oxygen Demand
CAMAGRO	Salvadoran Chamber of Agriculture, Livestock, and Agroindustry
CARE-AGUA	Consortium of CARE, SalvaNatura, FUNDAMUNI, and SACDEL
CDL	Local Development Committee
CENTA	National Agricultural Technology Center
CRS	Catholic Relief Services
CTO	Cognizant Technical Officer
DGRN	General Directorate for Natural Resources
EGE	Economic Growth and Education Office (of USAID)
EHP	Environmental Health Project
ERP	Earthquake Reconstruction Program
FIAES	Inter-American Enterprises Fund
FISDL	Social Infrastructure for Local Development Fund
GDP	Gross Domestic Product
GIS	Geographic Information System
GOES	Government of El Salvador
IDB	Inter-American Development Bank
IEE	Initial Environmental Examination
IICA	Inter-American Institute for Agricultural Cooperation
IR	Intermediate Result
M&E	Monitoring and Evaluation
MAG	Ministry of Agriculture and Livestock
MARN	Ministry of Environment and Natural Resources
NAD	New Activity Development
NGO	Nongovernmental Organization
O&M	Operation and Maintenance
PAES	El Salvador Environmental Program
PCI	Project Concern International
RASES	*Red de Agua y Saneamiento* (Water and Sanitation Network of El Salvador)
SIA	Small Infrastructure Activity (USAID)
SO	Strategic Objective
SOAG	Strategic Objective Grant Agreement
SOW	Scope of Work
UAM	Municipal Environmental Units
USAID	United States Agency for International Development
WB	World Bank
WE	Water and Environment Office (of USAID Mission)
WV	World Vision

Executive Summary

The USAID/El Salvador Water Strategy, expressed in its Strategic Objective 4, *Increased Access by Rural Households to Clean Water*, was approved by Washington in October 1997. Subsequently, the Mission approved its Results Package Document (IRs) in February of 1998 and the New Activity Document (NAD) for the AGUA Activity (Access, Management, and Rational Use of Water) on September 24, 1998 at a funding level of $15.6 million with an activity period of four years. A three-year Strategic Objective Grant Agreement (SOAG) for the AGUA Activity was signed with the Government of El Salvador (GOES) in September 1998. An increase in funding the Activity to a level of $17.2 million was authorized on May 22, 2000, and on July 18 of 2001, the Activity Completion Date (ACD) was extended to September 30, 2003. The purpose of AGUA is to increase access to clean water for rural Salvadorans in an environmentally sustainable way.

Implementation of the AGUA Activity began in earnest in mid-1999 with the initiation of a cooperative agreement with the CARE-El Salvador Consortium of three local NGOs: SalvaNatura, FUNDAMUNI, and SACDEL to carry out project activities in 18 municipalities located within El Salvador's three major watersheds in the departments of Ahuachapán, Usulután and Morazán. Within the following year, five smaller cooperative agreements with other organizations and a buy-in to a USAID global project were signed to implement additional activities in these same regions in order to expand into complementary technical areas of solid waste and wastewater management and increase outputs toward meeting the USAID/El Salvador's SO4 under the responsibility of Mission's Water and Environment Office (WE).[1]

Principal Findings and Conclusions of the Evaluation

Among the of various activities promoted by its Implementers, AGUA is making important contributions to the rational use of water resources in outreach areas, and has all the elements necessary to establish replicable models for local-level integrated management of water resources throughout El Salvador, and should be actively supported by USAID. Based on an analysis of the performance indicators related to the IRs included in the NAD, nearly all originally established performance indicators are being met or exceeded by Project Implementers, or will be by the end of the no-cost extension period of October 1 to December 31, 2002. Indicators for two IRs—4.4.1, *Water-related ordinances passed*, and 4.4.2, *Resources invested in water-related projects*—are lagging, as execution of activities related to these results depend directly on actions and/or counterpart funding by municipal governments which can not be effectively controlled under a donor project. Potentially, these targets could have been more fully met earlier if USAID had not restricted funding (USAID/WE notified CARE in September 2001 that they would have to curtail spending by about 25% due to USAID's funding shortage).

In terms of participation and "customer satisfaction," the more than 40 groups interviewed by the Evaluation Team appeared very enthusiastic and dedicated to the objectives for which they were organized, with many expressing their gratitude to the Project Implementers and USAID. This also reflects on the level of satisfaction achieved, not only for those services and goods received (potable water, plant materials, waste management infrastructures, etc.) but also for the sense of participation in a truly democratic process within their communities. This "sense of belonging" to the development process expressed in essence by all the groups and individuals interviewed during the project site visits is one of the aspects that especially impressed the Evaluation Team. While no appropriate indicators to gauge

[1] In 2001, the Mission revised its references to SO4 to the Water and Environment Office (WE). For the purposes of the current evaluation, references made to the AGUA Activity, the AGUA Project and AGUA/WE all refer to the combination of activities carried out by the CARE Consortium and six other organizations, referred to as the *Implementers*.

participation are being tracked under AGUA, the Evaluation Team concludes that, since attrition does not seem to be a severe problem among the 200+ groups assisted under the AGUA Activity, there is currently a high level of satisfaction. This should be tempered, however, with the fact that many activities—especially those related to such demonstration subprojects of agricultural diversification and marketing, solid waste disposal, and wastewater collection and treatment—are early in their implementation stages and it remains to be seen if the end result will prove acceptable to their respective participants.

USAID has been quite successful in leveraging its grant funds working with GOES agencies and local NGOs. While agreements with GOES agencies and participating NGOs were to provide approximately $5,711,142 in cost-sharing and counterpart funds, the total projected outlays will accumulate to more than $7,012,000 by the end of December 2002 (the no-cost extension period of USAID's original strategy period for SO4)—more than $1,300,000 or 23% over and above the amounts original indicated in the amended SOAG with GOES and NGO Implementers' respective cooperative agreements. This is considered exceptional and demonstrates the commitment of both GOES and participating NGOs to AGUA objectives and full development of project activities.

Activities related to Decentralization and Development of Local Management Capacity, including strengthening of existing groups (municipalities, and local development committees) and establishment of new organizations active in water resources protection (esp. watershed committees), are among the most advanced in Central America and are contributing greatly to the national decentralization and democracy initiatives. The principal development concept being promoted under the Project—*local and municipality-based integrated water resources planning by watersheds*—is deemed to be the most appropriate for rural areas in El Salvador. However, while Implementers have made important strides in particular geographical areas in linking the sustainability of potable water and irrigation systems to the integrated management of their tributary watersheds, the results of the evaluation indicate that activities in many areas are still being implemented without embracing this guiding principle. Agroforestry, soil and water conservation practices promoted under the Project are, in their majority, appropriate and are contributing greatly to water resource conservation at the direct sites of intervention and to lesser degree downstream. Environmental education and awareness training at all levels have brought about a discernable change in the attitude and priorities of those people in communities served by the Project and at the national level among GOES ministries and legislators. Topics of environmental protection and relating potable water systems to the conditions of upland watersheds have taken on a higher priority in local development committees, municipal governments and water administration boards.

AGUA is financing a series of demonstration wastewater treatment and solid waste management projects that, depending on their outcome, may be used as models for replication for communities with similar characteristics in El Salvador. AGUA is also having positive impact at the local and municipal levels in the development of ordinances that promote integrated water resources management and environmental health. Efforts at the national level in concert with the Water and Sanitary Network of El Salvador, have served to educate a broad cross-section of Salvadoran society in the need for cohesive and equitable water resource laws and a draft executive decree to establish a national watershed management commission and facilitate legalization of local watershed committees to manage their resources held in common. The inclusion of a line item in water fees charged to customers of small communal and municipal water systems, although incipient, is a groundbreaking and fundamental step in incorporating the environmental costs into projects that consume renewable natural resources and guaranteeing the sustainability of both water systems and the watersheds that serve them.

Still there are a number of issues that need addressing in order to perfect several strategic, technical and operational deficiencies identified during the evaluation, as well as complete and determine the

applicability of the demonstration projects which are applying technologies relatively new to El Salvador. The current grouping of the activities (and indicators of execution) under AGUA components is confusing and complicates their administration as well as efforts to monitor the impacts of Project activities. Project Implementers have not used sufficient strategic criteria for selecting priority intervention areas and technologies, resulting in some undue dispersion in the Project's geographic outreach and missed opportunities for integration and synergy. AGUA has experienced some "project drift" as some activities are seen to be only marginally connected to the original objectives and focus of the Project. The original project design did not include the indicators necessary to appropriately and quantitatively determine the social, economic and/or environmental impacts of Project interventions and progress in achieving of Project objectives (IRs).

Unless they move with caution, Project Implementers' success in local organizational development and strengthening could lead to a plethora of local and micro-regional entities and/or concentrate the decision-making power into the hands of very few people. Implementers' strategies of organizational development and the use of incentives are not always clear, especially in terms of an "exit strategy" and when technical and financial support should be reduced and groups graduated from Project assistance.

Some interventions are being promoted without understanding their potential social, economic and/or environmental impact (including inconsistent environmental analysis that does not meet USAID's IEE guidance). Also, USAID has required inconsistent standards of quality and process for activities financed under varying sources of financing within the mission, even where these may be implemented by the same Implementers in the same general outreach areas. There is insufficient coordination among CTOs and their respective projects in the application of standards, and supervision of quality control among the differing sources of financing. While AGUA execution has been coordinated with PROSAGUAS in several instances (both are CARE managed), projects financed by USAID under other SOs are not being coordinated at the field level to interchange complementary technical services, thus requiring that every project be self-sufficient in all technical areas. This is very inefficient and appears to be the result of a lack of strategic vision at the Mission level to design and execute projects in coordination with other USAID offices to attain a broader level of impacts and sustainability. Also, due to the demonstrative nature of wastewater treatment and solid waste management subprojects, a number of engineering and construction quality control problems have been detected which should be remedied in order to ensure that these subprojects perform according to their intended objectives.

Principal Recommendations of the Evaluation

As this evaluation is treated as formative, it is incumbent on the Evaluation Team to provide sufficient guidance to USAID and AGUA Implementers to consolidate successes achieved to date and make the necessary corrections in those issues that are limiting the Project's fulfillment of USAID's Water and Environment objectives. The evaluation should also provide USAID with elements of strategic guidance in its efforts to obtain financing to advance the objectives of integrated sustainable water resources management in the next three to ten years. Consequently, the Evaluation Team has formulated the following recommendations based on the findings and conclusions of the evaluation.

1. The principal recommendation of the evaluation is*: USAID should extend existing cooperative agreements and provide those funds necessary beyond the actual AGUA ACD and until the end of the extended strategy period (until September of 2004) so that current Implementers consolidate project activities in selected sub- and microwatersheds in order to establish integrated models of decentralized management and sustainable use of water resources.* These models should include all

elements currently being promoted in different parts of the project area by implementing organizations, including:

- A participatory water resources/sub- or microwatershed management plan supported by all relevant groups;
- Municipal ordinances regulating environmental protection and water resources conservation;
- One or more water systems (for potable and/or irrigation uses) served by the respective microwatersheds;
- Environmental and public health education and awareness programs, with civic groups active in water resources advocacy;
- Water tariff structures that include the costs of environmental services provided by tributary sub- and microwatersheds; and
- A more science-based monitoring and evaluation system centering on indicators of impact as well as those of performance.

2. There is an enormous environmental health need to deal with wastewater and solid waste problems in a cost-effective manner for smaller communities in El Salvador. More time and technical assistance is required to prove the operability of the wastewater and solid waste management systems still under development with AGUA financing.

3. Topics of environmental protection and relating potable water systems to the conditions of upland watersheds have taken on a higher priority in local development committees, municipal governments and water administration boards, but project activities still need to be better consolidated into a logical framework and better integrated with overall objectives and Project actions in watersheds.

4. The inclusion of the costs of environmental services in the tariffs charged to potable water consumers and irrigators needs to be applied uniformly throughout the Project outreach area by all Implementers. A minimum of 10% of water fees charged should be directed to conserving and improving conditions in the upland watersheds. This same policy should be adopted Mission-wide by all projects in USAID's portfolio that involve consumption or use of water resources.

5. The next step in applying and enforcing municipal ordinances needs to be articulated and promoted under the Project by engaging Municipal Environmental Units, using precedents in other municipalities as these may be available in El Salvador and/or neighboring countries.

6. CARE should continue its efforts with the Ministry of Environment and Natural Resources (MARN) to see through efforts to establish the Interinstitutional Watershed Commission, but increase emphasis on the establishment and strengthening of subwatershed and microwatershed committees. It is suggested, however, that any other activities concerning the General Water Law be ceded to the Water and Sanitation Network to carry on as advocate in this area (most of AGUA's active participation in this activity was concluded in early 2001).

7. Current project activities under the responsibility of each and all Implementers should be concentrated in a selected number of sub- and microwatersheds in order to maximize the positive impacts of the integrated water resources management model advanced under AGUA/WE. The selection of sub- and microwatersheds should be based on a series of technical and operational criteria that will consolidate the linkage of potable water and irrigation systems to their tributary watersheds. In those area selected, efforts should be made to complement any missing elements of the integrated model (see No. 1

above). Implementers that have may limitations in the technical or operational capabilities necessary to implement all of the elements of the integrated model should seek collaboration among other organizations working in AGUA/WE for such assistance.

8. While commercial agricultural diversification and marketing activities were not considered part of the original thrust of the Project, they are seen as potentially relevant in ensuring that intensified agricultural production with irrigation succeeds economically, and should be continued but under different arrangements. While it would be advantageous to incorporate the IICA/CAMAGRO activities in the integral model approach proposed for the Project, financing for these activities should be provided under a different project (and/or different SO) and accessed as required in specific areas in the AGUA outreach area. CRS and PCI activities should be expanded to fully embrace watershed management objectives in the microwatersheds producing water to irrigation systems financed by the Project and/or be coordinated under a different SO.

9. Implementers should review progress to date for local organizational development and analyze tendencies of proliferation and effectiveness of these organizations, as well as the potential for overconcentrating decision making in the hands of a few, and the impacts to local community leaders in terms of their time and personal livelihood.

10. Each Implementer should examine their strategies for community development and reassert the elements of their project cycle to determine the amount of time necessary to bring about desired change and permit the gradual reduction and withdrawal of technical and financial assistance from the Project (exit strategy).

11. Demonstration projects in agricultural diversification and irrigation, commercialization, solid waste management and wastewater treatment and disposal should be accompanied by higher-quality diagnostic analyses in order to project potential social, economic and environmental impacts and incorporate necessary design changes and mitigation.

12. USAID should review its internal oversight for quality control and technical standards on differing activities financed by WE in relation to AGUA. For instance, standards for what connotes an integrated water system under SIA financing differs from the CARE Consortium's standards (e.g., several SIA-financed water projects do not have as a condition that absorption pits or latrines be constructed before commissioning the water system). Also, environmental impact management standards, as applied understanding IEEs are not always reviewed by USAID's Environmental Officer, nor have necessary guidelines and training been provided to ensure compliance.

13. USAID should mandate coordination among projects regardless of which SO or office where these are assigned. Such coordination should be mandated during both design and execution of project activities, including working in the same geographic areas where feasible. USAID should consider the advantages of geographic overlap to achieve "value-added" and greater development impact among projects, and the possibility of the provision of specialty services from one project's executing agencies to those of other projects where such capability may not exist.

14. USAID should require that a quality control committee be established made up of selected staff of Implementers and either a qualified USAID staff person and/or consultant to review designs for water, wastewater and solid waste management subprojects or potentially contract such services with CARE-DASAGUAS. Implementers are advised to provide sufficient on-site oversight to ensure quality control during construction so design standards are met.

15. In order to better facilitate administration and monitoring of AGUA activities, USAID and Implementers should analyze and propose a reordering of activities under the existing components, and review the utility and validity of current performance indicators to consider reducing their number and improving the instruments used to track the indicators of those found most useful.

16. As part of the recommended exercise to reorder activities and indicators under each Project component, it is suggested that definitions for these indicators be refined to reflect "hard numbers" limited to an established set of qualifiers. Where certain activities yield products that do not fit exactly into the aforementioned indicators, then any anomalies should be clarified with a technical footnote.

17. For the period encompassing the AGUA ACD and throughout the Mission's extended strategy period, USAID should encourage the establishment of a minimum number of impact indicators with direct relevance to the AGUA Activity IRs (some examples are provided in this report). Also, a baseline should be established for each indicator selected and monitored throughout this period.

1.0 Background and Project Environment

El Salvador is the smallest and most densely populated country in the Western Hemisphere with a population of over 6.3 million in an area of approximately 21,000 square kilometers, roughly the size of Rhode Island. The population is evenly split between urban and rural dwellers and the country is urbanizing. El Salvador showed positive economic growth in the post war period between 1988 and 1997. Growth has slowed in recent years and the GDP per capita is one of the lowest in Latin America at around $1,300 per year. Balancing this somewhat are remissions from Salvadorans working overseas which may approach one-third of the GDP or $2.5 billion per year. It is estimated that over one third of El Salvadoran families receive remittances adding an average of $6,000 per year to these families' incomes. There is great inequality in income in both urban and rural areas and in the provision of basic human services, especially in terms of access to clean water. El Salvador is also one of the most disaster-prone areas on earth. Earthquakes, hurricanes, drought, and volcanic eruptions wreak havoc on people forced by population to live in high-risk areas where their land use practices contribute to landslides, flooding and exacerbation of drought.

1.2 Overview of the Water Resource Sector in El Salvador and Problems with Access, Management and Rational Use of Water

El Salvador has distinct seasons of wet and dry. Winter (the rainy season) runs from roughly May to October and is when the majority of rainfall is deposited (averaging about 2000 mm/yr in AGUA Project areas according to Project documents). Because of large-scale deforestation (only 15% remaining cover) most rainfall runs off rapidly, reducing water retention in upper watersheds, failing to recharge aquifers, increasing soil erosion into surface waters, and causing siltation in waterways and reservoirs. Flooding is common in low-lying areas during the wet season and water sources dry up during the dry season.

Recent studies supported by USAID/El Salvador indicate that 90% of the country's rivers and streams are contaminated by anthropogenic sources and are not potable unless treated. Only 2% of all municipal and industrial discharges receive any kind of treatment prior to entering into surface waters. No agricultural runoff is treated. In rural areas contamination of both surface sources and shallow wells is common because of inadequate household sanitation systems. Solid waste disposal is another cause of water contamination. People commonly dispose of garbage in nearby waterways and those communities with collection services typically dispose of garbage in open dumps exposed to rainfall and runoff.

Estimates of access to clean water in El Salvador are wide-ranging and depend on the definition of terms, data sources and their reliability, and the date of the reports relative to recent natural disasters. A joint WHO/UNICEF report "Access to Improved Drinking Water: El Salvador" from September 2001 puts rural access to clean water at 60% and urban access at 90%. However, AGUA/WE Activity documents state that for 1999, only 35% of the rural population had access to clean water, while in the AGUA/WE outreach areas, the percentage served drops to 29%. In any case, rural areas are underserved. Women and children can spend several hours a day collecting water of dubious quality from streams, seeps, springs and artisanal wells. Other rural and urban families purchase water from those having wells, municipal tapstands, or from tanker trucks at a cost that exceeds the amount paid by those households that have access to water service from a system. The lack of access to clean water caused by limited supplies and contamination of sources is directly impacting the health of the population with gastrointestinal diseases being the leading cause of death of children under five years of age.

This plethora of problems related to water resource management are a product of weak regulatory efforts on the part of a host of national entities (20 different entities with 19 separate decrees) who manage the Water sector with overlapping mandates and differing political agendas. There is also a growing and unregulated private and local-government water sector. There has been over 15 years of work in El Salvador to reform the water resources sector that has produced dozens of different versions of a National Water Law – all unsuccessful. Although the current administration has been seen as sympathetic to the cause of water resource management there has been no substantive progress on a National Water Law to date. Champions of water resource and watershed management are, however, hopeful that a presidential decree supporting local watershed management will soon be made. This decree would support work currently being done to formalize and legalize local and subregional watershed management committees being promoted under AGUA/WE.

Water resource management is also constrained because Salvadorans do not have a strong concept of the economic value of water—that is, the relationship between economic development and sustainable water resource management. Salvadorans are only recently engaging in local planning and management of water resources brought about through a program of government decentralization. There are opportunities to work with local citizens and municipal and community leaders to increase their awareness and support their efforts to manage and sustain their water resources.

1.2 USAID/El Salvador Strategic Objective 4 and Intermediate Results Package

The USAID/El Salvador Water Strategy, expressed in its Strategic Objective 4, *Increased Access by Rural Households to Clean Water*, was approved by Washington in October 1997. Subsequently, the Mission approved its Results Package Document (IRs) in February of 1998 and the New Activity Document (NAD) for the AGUA Activity (Access, Management, and Rational Use of Water) on September 24, 1998 at a funding level of $15.6 million with an activity period of four years. A three-year Strategic Objective Grant Agreement (SOAG) for the AGUA Activity was signed with the Government of El Salvador (GOES) in September 1998. An increase in funding the Activity to a level of $17.2 million was authorized on May 22, 2000, and on July 18 of 2001, the Activity Completion Date (ACD) was extended to September 30, 2003. USAID/Washington extended the Mission's SO4 strategy period until September 30, 2004. The purpose of AGUA is to increase access to clean water for rural Salvadorans in an environmentally sustainable way. The NAD has three components: Institutional Coordination and Policy; Integrated Water Management in Municipalities; and Citizen Awareness, Participation and Action. The four Intermediate Results of this Strategic Objective are presented below, together with their respective sets of lower-level indicators.

Activity implementation began in June 1999 with the signing of a $12.6 million Cooperative Agreement with CARE-El Salvador, whose technical proposal and activity objectives mirrored the NAD and targeted activities in 18 municipalities located within El Salvador's three major watersheds in the departments of Ahuachapán, Usulután and Morazán. CARE implements the AGUA Activity through a consortium of three local NGOs: SalvaNatura, FUNDAMUNI, and SACDEL. In September 1999, USAID approved an unsolicited proposal submitted by World Vision to carry out AGUA-related activities and, within the following year, four additional cooperative agreements were signed with Catholic Relief Services (CRS), Project Concern International (PCI), a partnership between the Inter-American Institute for Agricultural Cooperation and the Salvadoran Chamber of Agriculture, Livestock and Agroindustry (IICA/CAMAGRO), Border Development Services (to provide technical services to the CARE Consortium on a community wastewater project). Also, USAID executed a buy-in with USAID's global Environmental Health Project to provide AGUA-related technical services. These additional activities complemented the various components of the AGUA program and included environmentally sound

agricultural practices, solid and liquid waste management, and water policy initiatives. On June 20, 2002, the Mission Director approved a no-cost, three-month extension of the five principal cooperative agreements (CARE, PCI, World Vision, CRS and IICA/CAMAGRO) until December 31, 2002.

1.2.1 IR 4.1: Improved Quality of Water Sources

Activities associated with this Intermediate Result are designed to reduce contamination of surface and ground waters and to improve water management. Activities are focused in these areas:

- The use of improved soil and water conservation practices to reduce runoff and erosion, increase infiltration and productivity on treated farm parcels, and improve water quality and quantity downstream to actual and potential water supply systems;
- Promotion of agricultural diversification with home gardens and demonstration horticultural subprojects, some with marketing components, to link economic gains in agriculture to watershed management and the sustainable use of water resources;
- Improved solid waste and wastewater management, to reduce contamination to surface and subsurface water supplies; and
- Improved industrial processes to reduce contamination of water resources.

The CARE Consortium is working towards achieving this result in all three departments. Other Implementers working toward this Intermediate Result are: World Vision, which carries out its activities in 5 microwatersheds in Ahuachapán Sur; PCI in Usulután; CRS in Corinto, Morazán; and ICCA/CAMAGRO in the upper Lempa watershed above the Cerrón Grande hydroelectric facility and in two communities of Ahuachapán Sur.

Also, it should be pointed out that the drilling of wells and wastewater treatment initiatives were not originally contemplated in the AGUA design. When it was determined that wells make up more than 90% of the water sources used in the project outreach areas (personal communication, CARE, August 2002), AGUA amended the menu of activities eligible for financing to include wells as integral elements of new and/or rehabilitated potable water systems. WE also financed a $150,000 add-on to USAID/Economic Growth and Education Office's (EGE) rural poverty survey to include testing of sample households' water sources for chlorine residual, bacteriological and physical/chemical parameters. Based on the results of this study (FUSADES, 2000), it was found that over 60% of those households tented consumed fecal-contaminated water. Hence, it was concluded that actions should be taken with AGUA financing to mount demonstration projects for the adequate collection and treatment of wastewater and gauge their replicability in the country. The Project is financing construction of two medium-scale wastewater treatment plants in Suchitoto (with PCI) and Cara Sucia/Puente Arce (CARE Consortium), and one small-bore community biofiltration collection and treatment subproject in San Rafael as a subcomponent of the Cara Sucia project (CARE Consortium with Border Development Services).

1.2.2 IR 4.2: Improved Performance of Water Delivery Systems

This IR addresses improvement of existing drinking water supply through the rehabilitation and expansion of existing systems and the construction of new systems. This is done through two principle activity areas: improving existing physical infrastructure; and forming new and strengthening existing water system management organizations to competently provide operation and maintenance (O&M), administrative, financial and management services.

The CARE Consortium is heavily involved in infrastructure work that improves water system service and has leveraged support from a number of GOES entities including ANDA, FISDL, and municipal governments. USAID/El Salvador's Small Infrastructure Activity (SIA) grants are also being used by CARE Consortium members to build, improve and expand infrastructure, mostly by FUNDAMUNI in communities of the Usulután Department. World Vision has worked in water supply in small communities in Ahuachapán Sur and PCI in Usulután, but with financing under other another USAID SO initiative. SIA has also financed development of three rainwater catchment and storage systems for potable water in areas around Berlin, Usulután where groundwater levels have dropped to a depth of below 150 meters making wells cost-prohibitive.

1.2.3 IR 4.3: More Effective Citizen Actions to Address Water Issues

The activities associated with this Intermediate Result are focused on environmental protection and environmental health education, and strengthening of local environmental organizations in three general activity areas:

- Environmental and environmental health education targeting local residents to raise their awareness on the causes of unclean water and solutions to them;
- Building and/or strengthening community and regional organizations that focus on integrated approaches to water resources management and solutions to improper waste disposal problems; and
- Citizen actions aimed at improving the management of water resources and the environment around them.

The CARE Consortium is the principle Implementer of activities toward the achievement of this IR but World Vision in its project in Ahuachapán Sur also has a component contributing to the IR.

1.2.4 IR 4.4: Greater Municipal Participation in Water Resources Management

Activities toward the achievement of this intermediate result are directed toward increasing and improving municipal participation in water resource management in two activity areas:

- Working with municipalities and local development committees to address water resource management through the development of integrated water resources management plans and increasing investments in the sector through these plans;
- Drafting and promulgation of municipal ordinances that deal with issues of water resources management, environmental health and watershed management issues; and
- Working to create and advocate for the approval of national policies and legislation that support decentralized control of water resources to the municipal level and the establishment of national and local watershed organizations to integrally manage subwatersheds throughout the country.

The CARE Consortium executes most of the activities in coordination with national and municipal government agencies but has received technical assistance from the Environmental Health Project (EHP) in policy and legislative activities related to watershed management and has worked with the Water and Sanitation Network of El Salvador (RASES), which is coordinated by PCI, in aspects related to water law.

It is important to note that local organizational development is a key crosscutting activity among all Implementers and especially the CARE Consortium. Local community organizations and municipal governments have been strengthened and/or formed for decentralized management of potable water supply systems, local and regional development and watershed planning and management, soil and water conservation, agricultural diversification and marketing activities, and in the provision of solid waste management and wastewater management services. Subwatershed and microwatershed management committees are in the process of formation that will link many of these organizations with municipal governments to sustain the planning and implementation of project activities when AGUA funding is ceased. Linking the activities of these different institutions and organizations is fundamental in achieving the USAID's Strategic Objective 4.

2.0 Evaluation Objectives, Scope of Work, and Methodology

The results presented in this report reflect those of a *formative evaluation*. The AGUA Activity has, in reality, only been implementing for three years. USAID/Washington extended the Mission's SO4 strategy period for two years until September 30, 2004 and USAID/El Salvador has extended the AGUA Activity Completion Date (ACD) for one year until September 30, 2003. Consequently, the Evaluation Team has made a concerted effort to provide numerous observations and recommendations to guide USAID and AGUA Implementers in the improvement of strategic, management, technical and operational aspects of project implementation applicable to the period remaining in the AGUA ACD and into the extended strategy period. This report emphasizes the positive and promising aspects of the AGUA Activity to date, as well as identifying those areas that merit more attention and/or improvement. The report also provides USAID/El Salvador with several strategic avenues to pursue in the Mission's next phase of planning for future activities the Water and Environment Sector over the next three to ten years.

2.1 Evaluation Objectives

The USAID/El Salvador Mission Strategy that encompasses the AGUA Activity was originally programmed for the period of FY 1998 to FY 2002. As indicated above, the strategy period was extended by USAID/Washington for two additional years until September 30, 2004. During the process to amend the AGUA NAD to cover this additional two year period, the Mission decided to first evaluate the current AGUA strategy by examining performance against the established results framework as well as individual implementation activities in order to plan for future interventions. The principle objectives of the AGUA Activity evaluation are to:

- Appraise progress in implementation across the subsector of activities as managed by Implementers.
- Assess the likelihood of achieving the planned Activity Results.
- Identify those elements deemed most promising and those constraining the successful execution of the Activity Results.
- Report the lessons learned to date.

The AGUA Activity evaluation examined strategies, management systems, outreach approaches, activities, monitoring and evaluation systems, and expenditures for the following implementing entities:

1. CARE-AGUA (Consortium comprised of CARE, SalvaNatura, FUNDAMUNI and SACDEL)[2]
2. World Vision (WV)
3. Catholic Relief Services (CRS)
4. Project Concern International (PCI)
5. Inter-American Institute for Agricultural Cooperation/Salvadoran Chamber of Agriculture, Livestock and Agroindustry (IICA/CAMAGRO)
6. Border Development Services (BDS)
7. Environmental Health Project (EHP)
8. USAID/Small Infrastructure Activity (SIA)

[2] The term "CARE-AGUA" should not be confused with the overall AGUA Activity. CARE-AGUA is used to refer to those activities carried out by the CARE Consortium, just one of the six Implementers that have signed cooperative agreements with USAID/El Salvador for execution of activities under the AGUA Activity.

2.2 Scope of Work and Limitations of the Evaluation

The evaluation is comprised primarily of the analysis of planned and unplanned activities and their results, along with related indicators, targets and means of measurement, from the date of approval of SO4 and NAD to the present. The USAID Scope of Work (SOW) for the evaluation is presented in Annex 1. The evaluation analyzes the following aspects of project implementation:

- Program planning, design, implementation and management performance by Implementers;
- Implementation arrangements between USAID and Implementers and between Implementers and their targeted and/or beneficiary communities;
- Participation and satisfaction of beneficiaries/participants at all levels;
- The development impact and the sustainability of project interventions; and
- The operational vision for the next 2 years until the end of the period of the current mission strategy, and the strategic vision of the AGUA Activity for the following 3-10 years.

Progress and strategic success of individual activities/cooperative agreements under the responsibility of the USAID/Water and Environment (WE) Office are evaluated against planned outcomes, as well as the cumulative impact of all activities under the AGUA Activity. Compliance with Code of Federal Regulations 22, Part 216 (environmental assessment) is also evaluated.

It is noted that this evaluation is not intended as a scientifically rigorous analysis of the AGUA Activity. There is neither the time nor the resources for USAID/El Salvador to mount a data gathering and analysis effort with sample sizes that permit conclusions to be drawn that are statistically significant. The evaluation team has collected, reviewed and analyzed as much information as possible to be able to draw rational conclusions based on their professional experience and judgment, identifying important trends, strengths and weaknesses of the Activity. It must also be stressed that this is a formative rather than a final evaluation. With two years remaining in AGUA Activity implementation, the Team has focused on providing USAID/El Salvador with guidance on strategic directions that solidify and sustain strengths and rectify areas that lack of strategic focus or exhibit inefficiencies.

2.3 Evaluation Methodology and Makeup of the Evaluation Team

More details concerning the methodology of the evaluation are presented in the Evaluation Team's Revised Final Work Plan (Annex 2). The team used the following methods for collecting and assessing Activity-related information:

1. Interviews with USAID/El Salvador staff of the Water and Environment, Health, and Economic Growth Offices and the Strategic Objective Teams.
2. Interviews of key personnel located in central and field offices of all Implementers (see Annex 5).
3. Interviews with key representatives in GOES agencies, including MARN, ANDA, MAG/CENTA and FIAES, and the Inter-American Development Bank (see Annex 5).
4. Review of Project and subprojects documents (see Annex 7).
5. Field trips over eight days to the three regional Project outreach areas (see Annex 4), visiting sites attended to by all Implementers using interview and field analysis guides, and including:
    - inspections/observations of project activities for all components, including community infrastructure such as potable water systems, tanks, wells, wastewater treatment plants,

solid waste landfills, demonstration farms, microenterprises, environmental education centers, schools, rural households, farms and farm production infrastructure;
- interviews with nearly 350 members of more than 60 local organizations, including municipalities; and
- interviews with beneficiaries/participants of more than some 40 different subprojects of all types.

6. Staging of a one-day workshop attended by over 50 participants including members of the implementing organizations and USAID/WE staff to review and provide feedback on the preliminary findings of the evaluation team and generate recommendations as guidance to the Evaluation Team (see Annex 6).

The Evaluation Team is composed of an interdisciplinary three-person group of professional who represent a wide range of integrated water resources management experience in Latin America and El Salvador in particular (see Annex 3). The team has experience and expertise in watershed management, natural resource and water resources management, environment assessment, soil conservation and agricultural production, water and sanitation infrastructure, institutional development and strengthening, policy and legislation, community development, and monitoring and evaluation. The Team was ably assisted by an administrative specialist.

2.4 Structural Conditions Affecting Execution of Activities under Strategic Objective 4

This evaluation should be read with an understanding of several important structural situations that affected the evolution of Project implementation over the course of the last fours years. AGUA Project activities were initiated in mid-1999, approximately eight months after Hurricane Mitch's disastrous trip through Central America—essentially while El Salvador was still in reconstruction mode responding to the damage caused by the hurricane. The year 2000 and 2001 agricultural years were beset by extended drought conditions which thwarted many attempts by the CARE Consortium to establish demonstration farms and promote plantings of green barriers of vetiver, fruit trees and reforestation efforts (many succumbed to the drought). Then on January 13, 2001 and again exactly one month later on February 13, two very large earthquakes hit the project areas hard, especially in Usulután, requiring the reorientation of Project efforts and resources to that of rescue and reconstruction. About US$1,000,000 of AGUA funds was reprogrammed to earthquake reconstruction.

Considering the frequency and magnitude of these disasters, it is really quite astonishing that so much has been accomplished under AGUA/WE Activity effort. While these events certainly presented obstacles to the timely implementation of project activities, they also presented some unique opportunities for Implementers to coordinate the relief and reconstruction resources that emerged after the earthquake and, in some cases, were able to intensify the rhythm of execution. The earthquake also facilitated the consolidation of the relationship between Implementers and local organizations in their respective project outreach areas, resulting in a higher level of trust and mutual appreciation. USAID/El Salvador's and Implementing organizations' staffs certainly deserve an acknowledgment of merit in levels of success achieved under the Project to date.

3.0 Evaluation Findings, Conclusions and Recommendations

This section presents the findings, conclusions and recommendations of the evaluation. The first subsection presents the general findings and conclusions for all activities carried out under AGUA Activity, as represented by all Implementers. These are followed by five separate subsections that present the findings and conclusions of the Evaluation Team's analyses for each respective group of activities, along with recommendations developed for each. A final subsection presents the general recommendations reflecting the most salient aspects of the overall evaluation. Also, evaluation profiles for each of the principal five Implementers are presented in Annex 9 (CARE Consortium), Annex 10 (PCI), Annex 11 (WV), Annex 12 (CRS) and Annex 13 (IICA/CAMAGRO).

3.1 General Findings and Conclusions

The general findings and conclusions of the evaluation are presented in Table 3.1. The principal conclusion of the evaluation is:

> *The AGUA Project, among the amalgam of activities promoted by its Implementers, is making important contributions to the rational use of water resources in outreach areas, and has all the elements necessary to establish replicable models for local-level integrated management of water resources throughout El Salvador, and should be actively supported by USAID.*

Project Implementers are making important contributions in the water resources sector in aspects of local organizational development, participatory planning, environmental health and biodiversity protection, expanding access to and decentralized operation and management of potable water systems, integrated watershed management, and the incorporation of the costs of environmental services in water fees—all necessary for the sustainability of water production systems and improving access to clean water by rural populations. The Project is also advancing practical knowledge in the establishment and operation of appropriate wastewater and solid waste management, through the development of demonstration subprojects in the rural setting.

3.1.1 Appropriateness and Effectiveness of the AGUA Strategy

AGUA has facilitated development of a series of approaches and technologies that are contributing to the establishment of models of integrated water resources management. The strategy of connecting community water systems infrastructure with the optimal management of their tributary watersheds is socioeconomically and environmentally sound, and is perhaps the only practical approach to ensuring access to water of the quality and quantity to meet the needs of rural populations in the medium and long term. As indicated in the diagnostic studies of nearly all municipalities and subwatersheds carried out by Project Implementers, access to clean water for use in the household continues to be the most important problem perceived by the rural population. However, while Implementers have made important strides in particular geographical areas in linking the sustainability of potable water and irrigation systems to the integrated management of their tributary watersheds, the results of the evaluation indicate that activities in many areas are still being implemented without embracing this guiding principle.

Perhaps the most impressive accomplishment of the Project to date is found in the progress made through activities of *local organizational development*. Project Implementers, especially those working together in the CARE Consortium, have catalyzed broad participation of diverse stakeholders in AGUA outreach areas. More than 200 organizations—from particular community groups (schools, microenterprises, etc.), local development associations (ADESCO) and water boards at the cantonal level, local development committees (CDL) and local governments at the municipality level, micro- and subwatershed committees

and water board networks at the regional level, to members of the Water and Sanitation Network (*Red de Agua y Saneamiento/RASES*) at the national level—are participating in several aspects of integrated water resources management facilitated by the Project. The Project is actively promoting the decentralization and democratic reform goals and objectives of GOES, which are reaffirmed under USAID/El Salvador's Mission Statement. Many of these groups have begun managing their own participatory development planning, and are active in local initiatives to resolve many of the basic human needs and environmental health problems related to water resources in their communities.

Although still early in implementation, AGUA is making impressive inroads in the technical areas of sustainable water system management and watershed management. Many of the organizations responsible for the 87 potable water systems are managing the operation and maintenance, including collection of water fees, with ever-decreasing dependence on Project Implementers. Also, improved soil and water conservation practices, especially in aspects of no-burn/minimum tillage and agroforestry, are now in varying stages of adoption on some 6,800 farm units comprising more than 16,400 hectares.

AGUA has financed several complementary agricultural diversification and commercialization demonstration projects under separate cooperative agreements (CRS, PCI, IICA/CAMAGRO). The need for increasing on-farm income is seen as an important driver in the adoption of water resource/watershed management practices when these principles are incorporated with diversification. Also, various demonstration subprojects in wastewater treatment and solid waste management are still in early stages of construction and operation. It is hoped that at least some of these subprojects will prove appropriate and cost-effective for the rural and semi-urban settings in the country, as the need for these types of technologies is ubiquitous and increasing.

3.1.2 Progress in Meeting Intermediate Results Performance Indicators for Strategic Objective 4

In its short three years of implementation, Implementers promoting project activities have met and/or far surpassed the performance indicators linked to the IRs (see Performance Data Tables in Annex 8, representing accomplishments through December 31, 2001). While some of these indicators were vastly underestimated in the project design and others were found to be impractical[3], credit should be given to the efforts of all participating Implementers for their efforts, especially in view of the difficulties posed by Hurricane Mitch, the extended drought of 2000/2001 and the January 13 and February 13, 2001 earthquakes. As accomplishments in meeting performance indicators presented in the annex does not include the results of activities from January 1-August 1 of 2002 (when the evaluation was begun), these numbers have increased and most of the targets have certainly been met at the time of this evaluation.

As indicated in the preceding section, AGUA Implementers are working with more than 200 local government and community organizations, both formal and non-formal. This represents 400% of the original target established in the project design. Two other performance indicators are related to local development. The *preparation of integrated water resources management plans* at the municipal level has, in reality, been exceeded in that 17 of the 18 target municipalities have plans. But to this must be added a series of micro- and subwatershed management plans, as well as those informal community-level project plans that include all the elements of water resource management plans (water system and watershed management activities) promoted by the CARE Consortium partners (at least five of which were reviewed during the evaluation period) and World Vision (5 microwatershed management plans).

[3] Data or the indicator "rural households nationally with water that meets quality and time standards" were not taken at national level. Also the qualifier originally assigned for the indicator in AGUA target areas was "water availability of 24 hours/7 day a week" but was seen as difficult to achieve in rural El Salvador and impractical to quantify, and later changed to "available every day of the week" (some water systems rotate daily water supplies among consumers to deal with limited supplies).

Also, only 18 of the initially targeted municipal ordinances dealing with management of water resources and environmental protection have been promulgated, although several of these ordinances cover multiple aspects of environmental protection, solid waste management, wastewater treatment, control of deforestation and water system management. Thus, under the different materials covered under these ordinances, the target may be assumed to be met. However, what is important is that all 18 of the municipalities included in the AGUA target areas should have at least one ordinance dealing with some aspect of water resource or environmental management.

In terms *access to of potable*, AGUA Implementers have contributed to the rehabilitation (20) or expansion of existing potable water systems and facilitated construction of new water systems (49), representing about 96% of the end-of-project target. Targets for meeting water quality standards at the household level are already met and should actually improve before the end of the no-cost extension period in December of 2002. Similarly, potable water system flow standards are nearly met, although the qualifier for these targets should be reoriented to reflect the seasonal nature of water resources in the country (during the 6-month dry season when the flow of many water sources, especially those dependent on surface water, are drastically reduced). Another indicator that is considered impractical is that of "households that pay the full costs of clean water services." Only 18 systems, or 22% of the established target of 80 systems, are meeting this criterion. It would be more instructive to be tracking the percentage of operations and maintenance costs being met in these systems, as this would show progress (or the lack thereof) in efforts to achieve financial sustainability of the systems.

Targets for the number of farm units and hectares of land covered by soil and water conservation practices have been fulfilled by 400%, as these targets were vastly understated. Implementers were able to begin working with groups with which they had already been promoting from earlier projects; and this facilitated rapid promotion and spread in the adoption of these practices. It should also be pointed out that approximately 42% (7,000 hectares) of these achievements are calculated in terms of the surface area treated in and around three protected areas within the Project's geographic outreach: El Imposible National Park, the Barra de Santiago Mangrove Protected Area and Los Lagartos. This is seen in positive light as the AGUA Activity is also supporting protected areas management objectives in stabilizing land use, encouraging conservationist agroforestry practices in buffer zones, and reducing pressure on resources within these protected areas.

Finally, targets intended as proxies for the success of environmental education efforts, as least as have been interpreted for this indicator, have been surpassed by an additional 37%. It should be pointed out, however, that these figures represent some double counting of achievements under other activities, as the qualifiers are quite broad and ambiguous. For instance, some improvements in water systems (rehabilitation, pipe replacement, installation of a chlorinator) are treated as a "water-related change resulting from citizen-group action" (Performance Indicator 4.3.1) but are also counted under Indicator 4.2.1.1, "Cumulative number of rehabilitated, expanded or new water delivery systems."[4] Still, there has been a noticeable transformation in the attitude of community members and municipal governments in the AGUA outreach areas that can be attributed to the environmental education messages and trainings given to both the staff members of Implementers and community-level participants in AGUA's outreach areas.

[4] The improvement of water delivery systems is brought about, in many instances, by citizens' insistence that it be done once they have a raised awareness of the need to consume clean water. Reporting the achievement under both indicators would be more accurate if that of water-related changes was better articulated.

AGUA Activity Evaluation
Table 3-1: General Findings and Conclusions and Recommendations

Findings and Conclusions	Observations and Recommendations
A. Accomplishments	
1. Based on the IRs included in the NAD, nearly all performance indicators are being met or exceeded by Project Implementers.	a. Implementers have been especially successful in recruiting participants/beneficiaries in local development groups and in sustainable hillside soil conservation practices
2. Activities related to Decentralization and Development of Local Management Capacity, including strengthening of existing groups (ADESCOs, Municipalities, and CDLs) and establishment of new organizations active in water resources protection (esp. watershed committees), are among the most advanced in Central America and are contributing greatly to the national decentralization and democracy objectives.	a. Local civic and municipal government leaders are taking an ever-increasing role in determining their own priorities and learning participatory planning techniques b. The development of watershed committees related to water boards, ADESCOs and CDLs is giving new impetus to natural resources and environmental protection
3. The concept being promoted under the Project—local and municipal integrated water resources planning by subwatershed (and especially by microwatershed)—is the most appropriate for rural areas in El Salvador. Access to clean water at the community and household level continues to be the highest priority for the rural population.	a. Participants in local development groups, agricultural families, and resource users, schools and health centers find common ground in the need to plan activities that protect their water resources and improve environmental health conditions b. AGUA/WE Implementers should maintain rehabilitation and expansion of existing potable water systems and construction of new systems as a high priority and expand coverage.
4. Agroforestry, soil and water conservation practices promoted under the Project are, in their majority, appropriate and are contributing greatly to water resource conservation at the direct sites of intervention and to lesser degree downstream.	a. No-burn, agricultural slash management, minimum tillage and vegetative barriers are the most popular and effective in reducing erosion and runoff, improving structure, increasing water infiltration, and increasing productivity.
5. AGUA is financing a series of demonstration wastewater treatment and solid waste management demonstration projects that, depending on their outcome may be used as models for replication for communities with similar characteristics in El Salvador.	a. There is an enormous need to deal with these environmental health problems in a cost-effective manner for smaller communities b. More time and technical assistance is required to prove the operability of these systems in El Salvador
6. Environmental education and awareness training at all levels have brought about a discernable change in the attitude and priorities of people in communities served by the Project. The Project has facilitated dissemination of environmental protection and water resource conservation messages through mass media, including financing for establishment of radio stations and radio programming. Community-level outreach has focused in great measure on solid waste management and recycling.	a. Topics of environmental protection and relating potable water systems to the conditions of upland watersheds have taken on a higher priority in local development committees, municipal governments and water administration boards. b. Activities need to be consolidated into a logical framework and better integrated with overall objectives and Project actions in watersheds
7. The inclusion of the costs of environmental services as a line item in water fees charged to customers of small communal and municipal water systems, although incipient, is a groundbreaking and fundamental step in guaranteeing the sustainability of both water systems and the watersheds that serve them.	a. The inclusion of such charges needs to be promoted uniformly throughout the Project outreach area by all Implementers. b. A minimum of 10% of water fees charged should be directed to conserving and improving conditions in the upland watersheds, and these charges should be formally incorporated into tariff structures vis-à-vis statutes of each water board's bylaws and municipal ordinances.

Findings and Conclusions	Observations and Recommendations
8. AGUA is having positive impact at the local and municipal level in the development of environmental health ordinances. Efforts at the national level, especially with the National Water and Sanitary Network, have served to educate a broad cross-section of Salvadoran society in the need for cohesive and equitable water resource laws and a draft executive decree to establish a national watershed management commission and facilitate legalization of local watershed committees.	a. The next step in applying and enforcing municipal ordinances needs to be articulated and promoted under the Project, using precedents in other municipalities as these may be available in El Salvador or neighboring countries b. CARE should continue its efforts with MARN to see through efforts to establish the Interinstitutional Watershed Commission, but increase emphasis on the establishment and strengthening of subwatershed and microwatershed committees c. It is suggested that all activities of the Project concerning the General Water Law be concluded and the Water and Sanitation Network (RASES) act as advocate
B. Aspects that Merit Greater Attention and Improvement	
1. The current grouping of the activities (and indicators of execution) under AGUA components is confusing and complicates their administration as well as efforts to monitor the impacts of Project activities. For example, soil/water conservation and agroforestry activities are budgeted under the same component with wastewater treatment and solid waste management.	a. To better facilitate administration and monitoring of AGUA activities, USAID and Implementers should analyze and propose a reordering of activities under the existing components. b. USAID and Implementers should also review the utility and validity of current performance indicators and consider reducing their number and improving the instruments used to track the indicators of those found most useful
2. Project Implementers have not used sufficient strategic criteria for selecting priority intervention areas and technologies, resulting in some undo dispersion in the Project's geographic outreach and missed opportunities for integration and synergy.	a. As part of the effort to consolidate Project activities in a selected number of sub- and microwatersheds, Implementers should develop a series of criteria on which to base this selection of geographic areas and activities to be promoted leading to the linkage of potable water and irrigation systems to their watersheds. Efforts should be made to complement any missing elements of the integrated model indicated in this report. b. According to the menu of activities selected, Implementers should seek collaboration among other organizations working in AGUA to complement any deficiencies in their own staffing capabilities.
3. AGUA is experiencing some "project drift" as some activities are seen to be only marginally connected to the original objectives and focus of the Project. The agricultural diversification, marketing and commercialization activities carried out by IICA/CAMAGRO (SAGEM) and CRS have been concentrated outside of AGUA's primary outreach area and have not been integrally linked to AGUA's guiding principles of sustainable water resources use and conservation.	a. While such activities were not considered part of the original thrust of the Project, they are seen as potentially relevant in ensuring that intensified agricultural production with irrigation succeeds economically, and should be continued but under different arrangements. b. While it would be advantageous to incorporate SAGEM activities in the integral model approach proposed for the Project, financing activities should be provided under a different project (and/or different SO) and accessed as required in specific areas in the AGUA outreach area. c. CRS activities should be expanded to fully embrace watershed management objectives in the microwatersheds producing water to irrigation systems financed by the Project, probably in collaboration with FUNDAMUNI.

Findings and Conclusions	Observations and Recommendations
4. Unless they move with caution, Project Implementers' success in local organizational development and strengthening could lead to a plethora of local and micro-regional entities and/or concentrate the decision-making power into the hands of very few people.	a. Implementers should review progress to date and analyze tendencies of proliferation and effectiveness of local organizations, over-concentration of decision making and the impacts of time and personal income on community leaders of local groups.
5. Implementers' strategies of organizational development and the use of incentives are not always clear, especially in terms of an "exit strategy" and when technical and financial support should be reduced and groups graduated from Project assistance.	a. Each Implementer should examine their strategies for community development and reassert the elements of their project cycle to determine the amount of time necessary to bring about desired change and permit the gradual reduction and withdrawal of technical and financial assistance from the Project.

3.1.3 Beneficiary Participation and Satisfaction

Beneficiary participation can best be measured by monitoring the dynamics of membership in the 200-plus organizations assisted under the Project. This indicator, however, has not been used at the SO or IR level. It was noted during the evaluation that membership numbers rise and ebb, as is normal with any organizational effort. The performance indicators for the number of organizations participating would indicate a high level of participation, although the attrition numbers were not available. The more than 40 groups interviewed by the Evaluation Team appeared very enthusiastic and dedicated to the objectives for which they were organized, with many expressing their gratitude to the Project Implementers and USAID. This also reflects on the level of satisfaction achieved, not only for those services and goods received (potable water, plant materials, waste management infrastructures, etc.) but also for the sense of participation in a truly democratic process within their communities. This "sense of belonging" to the development process expressed in essence by all the groups and individuals interviewed during the project site visits is one of the aspects that especially impressed the Evaluation Team. Hence, it can be concluded that participation in project activities is very high and stable.

Similar to the lack of a true participation indicator, no specific indicator was established to gauge beneficiaries'/participants' satisfaction with the goods and services provided under the project. While CARE included questions concerning beneficiary satisfaction under its PROSAGUAS monitoring and evaluation survey instrument, such questions were not included for the survey instrument used for the AGUA outreach areas. This is unfortunate as such data would have provided the Evaluation Team with a base on which to quantify satisfaction. Similar to its conclusions concerning participation, the Evaluation Team must conclude that, since attrition does not seem to be a severe problem among the 200+ groups assisted under the AGUA Activity, there is currently a high level of satisfaction. This should be tempered with the fact that many activities, especially those related to such demonstration subprojects of agricultural diversification and marketing, solid waste disposal, and wastewater collection and treatment, are early in their implementation stages and it remains to be seen if the end result will prove acceptable to their respective participants.

3.1.4 Implementation Arrangements and Expenditures of USAID, GOES Counterpart and NGO Cost-Sharing Funds

Implementation arrangements are managed in two major groups of Implementers. Administratively, the activities being managed by all Implementers appear to be executing well, with very few problems. Relationships with USAID are good, as all of the organizations are supported by their home offices in the U.S. and are advancing funds for implementation of activities through letters of credit which are then reimbursed by USAID. USAID is sometimes slow to approve work plans, although Implementers proceed with a verbal approval while plans are still scrutinized. USAID has had some negative influence on the rhythm of project execution. Upon signature of its cooperative agreement in 1999, the CARE Consortium was advanced funding to begin AGUA activities. As mobilization took place, CARE and its partners were gradually ramping up to full implementation and using less than the year-one funding level projected by USAID; hence funds were accumulating unspent. By the second year, the Mission wanted to reduce the resulting increased pipeline of funds, so WE instructed CARE to immediately promote construction of additional infrastructure (four additional water systems) to absorb funding. Due to the pressure to get funds expended, the CARE Consortium's normal promotion strategy was not followed and these projects leveraged very little counterpart and/or cost-sharing from participating municipalities and communities. Problems with funding availability from USAID have also constrained project development. USAID had approved funding under SO4 at level of $17.2 million for the original 1998-2002 execution period.

However, only $15.85 million was made available for use during this period. On top of this situation were requirements that USAID's WE Office contribute $1.75 million to earthquake emergency response and reconstruction. In September 2001, USAID/WE notified CARE that they would have to limit their monthly expenditures to $300,000 due to this funding shortage (the CARE Consortium was averaging over $400,000 at that time). Consequently, both the rhythm of execution and levels of counterpart/cost-share funding were negatively influenced by USAID funding idiosyncrasies.

Administration and reporting has been hampered, however, by the sometimes confusing grouping of activities under the four AGUA/WE components. Most are grouped under the first component which responds IR4.1, Improved Quality of Water Sources, which includes such activities as soil and water conservation, reforestation, agricultural diversification and marketing, water harvesting and reservoir storage, irrigation infrastructure, solid waste management, wastewater treatment infrastructure, and control of industrial pollution. Potable water infrastructure is handled under Component 2, environmental education and elements of solid waste management under Component 3, and municipal and national level policy initiatives for water resources under Component 4, including those dealing, again, with wastewater treatment, solid waste management, management of water systems, control of deforestation and environmental protection. The AGUA/WE design did not include a component *per se* for local organizational development; the CARE Consortium, in fact, established its own Component No. "0" to account for such activities.

The Evaluation Team found the staff of the USAID/WE to very well engaged and knowledgeable about all details of project execution, and noted that they made numerous field inspection trips which are very instructive to successful supervision.[5] Implementers are gratified by such visits by USAID staff and encourage them. The Evaluation Team also found headquarters and field staff of all Implementers to be fully committed to AGUA/WE activities and the success of the Project. Technical staffs of all Implementers are very capable and committed—a fact that has contributed greatly to the success of project activities to date.

USAID has been quite successful in leveraging its grant funds working with GOES agencies and local NGOs. While agreements with GOES agencies and participating NGOs were to provide approximately $5,711,142 in counterpart and cost-sharing funds, the total projected outlays will accumulate to more than $7,012,000 by the end of December 2002 (the no-cost extension period of USAID's original strategy period for the AGUA Activity)—more than $1,300,000 or 23% over and above the original cost-sharing agreement amount. GOES agencies have continued to participate in several activities, even as it was deemed that the Government had already met its counterpart obligation of US$475,000 by the end of 2001, through in-kind participation of the staff of several agencies (MARN, ANDA, MAG/CENTA, municipal governments, Ministry of Education, Ministry of Health) in project activities, and funds expended through government-sponsored programs, especially the Inter-American Enterprises Fund (FIAES), the Social Infrastructure for Local Development Fund (FISDL, with the Inter-American Development Bank), and ANDA.[6] Under FISDL, GOES has continued to co-finance potable water, solid waste and wastewater management systems, contributing to data a total of $658,030. Similarly, ANDA has maintained participation in the co-financing of rural water systems and has contributed $143,662. Ministry of Agriculture and Livestock (MAG) has provided irrigation infrastructure, water storage

[5] USAID/WE staff accompanied the Evaluation Team on most of the field visits and participated in the Evaluation Workshop; their participation enriched the evaluation process.

[6] The AGUA SOAG was amended in mid-2000 when the original GOES counterpart of $5,200,000 was reduced to $475,000 when it was determined that GOES should not be responsible for such a high level of counterpart financing as no GOES agency was responsible for project execution.

structures and training services valued at $83,584 through its General Directorate for Natural Resources (DGRN), and $55,553 in technical assistance and extension services under its National Agricultural Technology Center (CENTA). Total GOES cost sharing is currently calculated at $1,094,050, or approximately 230% of the agreed-upon counterpart of $475,000.

Finally, USAID's cooperative agreements with six NGOs established a cost-sharing level of $5,101,392 to leverage USAID's total grants with these organizations in the amount of $14,703,635, or a match of approximately 26%. However, most NGOs have already exceeded their agreed-upon amounts: PCI by 67%, World Vision by 39% and CRS by 12%. The CARE Consortium, based their members' estimates, still have a total pending commitment on the part of participating municipalities, GOES agencies and community organizations of $2,504,590 to be expended by the end of the no-cost extension period (December 2002). At this level, the CARE Consortium will exceed its agreed-upon cost share by approximately $185,000 or about 5%.

3.1.4.1 The CARE Consortium

The Consortium, made up of CARE, SalvaNatura, FUNDAMUNI and SACDEL, is responsible for approximately 80% of the overall AGUA effort (including all related SO activities among all Implementers). After a difficult first year of interrelational development, members of the Consortium have developed a good working relationship, from both the philosophical and technical standpoint and in terms of project administration. The particular strengths of each organization have served to strengthen the weakness areas of other members: FUNDAMUNI's shared its approaches in organizational development and participatory planning which were adopted by other members in their assigned geographic outreach areas; SACDEL's previous work with decentralization and municipal development has been used to develop such strategies with other members; SalvaNatura's strategies for environmental education, organic coffee, protected areas management , and alternative uses of natural resources is being promoted in all outreach areas; while CARE has used it's experience in watershed management, agroforestry, potable water infrastructure development, and the efficient administration of project resources (accounting, procurement) to strengthen its fellow Consortium members.

Implementation by the Consortium has been going well, as evidenced in the accomplishments for nearly all performance indicators for potable water, soil and water conservation and especially components dealing with local organizational development. There are serious delays with the larger wastewater treatment plant for Cara Sucia/Puente Arce due to problems for purchase of the site for the treatment plant. The San Rafael subcomponent of the system is also experiencing some delays, especially in aspects of training and promotion, as well as bringing the small biofiltration plant on line. Also, the Consortium has been able to advance the objectives of integrated water resources management intended in the original AGUA design, as they have had a full complement of resources and the combined expertise of Consortium members at its command. Hence, many of the activities among the four project components are being intrinsically promoted and linked at the micro- and subwatershed level—which was the expressed intent of the consortium approach from the beginning.

In terms of expenditures as indicated in Table 3.1-A, the Consortium has expended to date about 80% of the budget of USAID funds included in the CARE/USAID cooperative agreement, but only about 47% of its agreed-upon cost-share. It should be pointed out, however, that CARE still has a large number of infrastructure subprojects in execution and does not register the counterpart/cost-share amounts until the projects are completed and commissioned. Hence, the actual amount of cost-share already encumbered is probably closer to parity with the amounts reflected in USAID expenditures. This implies the difficulty in attempting to evaluate the *pari-passeu* among USAID and CARE Consortium funds.

As of July 31, 2002, the Consortium had expended a total of an estimated US$12,159,953 in USAID and cost-share funds, which was distributed according to the following activity groups: 31% in activities of soil and water conservation, agroforestry, reforestation and agricultural diversification, of which 75% is oriented to soil and water conservation and the other 25% to aspects of diversification; 39% in potable water infrastructure (including a minor portion in wastewater infrastructure and soak-wells); and approximately 30% for activities in local development and participation (including aspects of water resources policy and municipal ordinances). However, once again, as many infrastructures projects still in construction have not yet been accounted for under cost-share funds, the actual distributions may differ by an important margin. According to the CARE Consortium, an additional $1,500,000 has been formally committed in cooperative agreements to water and wastewater management infrastructure projects to be finalized and accounted for by the end of 2002. This would bring expenditures for water and wastewater infrastructure up to 46% of total project outlays under AGUA.

3.1.4.2 Other Implementers under Strategic Objective 4

For the rest of the activities funded under AGUA/WE, about 20% of total AGUA investments is being managed by several international NGOs active in El Salvador for many years, each under separate cooperative agreements with USAID. In general, as best as could be determined during the evaluation, all Implementers are well on their way to achieving the targets established in their respective corporate agreements.

As of April 2002, *Project Concern, International* (PCI) had achieved about 75% of the life-of-project targets in its Sustainable Agriculture and Marketing component and was making good progress in its diversification/marketing program, including drip irrigation, and water harvesting and storage subprojects involving small reservoirs. The Suchitoto Wastewater Treatment Plant began operation in the second trimester of 2002, and follow-up on operational aspects and training was still in progress at the time of the evaluation. Some construction and operational difficulties still need to be resolved at the plant. The solid waste landfill at Corinto has been operating with relative success since early 2002 and includes a composting facility for organic wastes. The landfill at San Francisco de Menendez is behind schedule and has experienced some design and construction quality control problems, but should be operational in the next two months. PCI has been especially generous in its provision of cost-sharing funds, exceeding the agreed upon match by 67%. Approximately 57% of the total expenditures under PCI activities has been made for infrastructure, while the remaining 53% has been dedicated to its agricultural technology and marketing program.

World Vision has essentially met all of its agreed upon targets and has developed several successful models for microwatershed management with small communities linked to potable water supplies. The soil and water conservation activities are augmented with good agroforestry techniques and increasingly popular home gardens. It is promoting a promising subprogram for fruit tree production, and the Project has secured a link with the Persian Lime Producers Association for the provision of technical services and marketing of future harvests. World Vision has also been generous in its cost-sharing match with USAID funds to finance the Project, exceeding its promised match by 40%. All expenditures were oriented to soil and water conservation and diversification activities. AGUA funds were also used to improve and expand coverage under existing water systems in at least two communities, including construction of public water tapstands to serve those lacking household connections.

Table 3.1-A: AGUA/WE Life of Project USAID/WE and Cost-Sharing Budget and Expenditures to Date (US$)[7]

Implementer	LOP Budget		AGUA/WE Expenditures by Principal Activity Area						Totals (%)[8]		Balance (%)[2]	
			Soil/Water Conser.		Infrastructure		Local Dev/Particip[9]					
	USAID	CON	USAID	CON	USAID	CON	USAID	CON	USAID	CON	USAID	CON
CARE Consort.	12,600,000	4,350,000	3,039,086	811,866	3,748,207	1,014,834	3,342,995	202,966	10,130,288 (80%)	2,029,665 (47%)	2,469,712 (20%)	2,320,334 (53%)
PCI, Intl.	879,427	233,518	277,600	253,500	563,614[10]	136,100			841,215 (96%)	389,600 (-167%)	38,211 (4%)	-156,082 (-67%)
World Vision	398,257	135,714	335,495	170,800			37,227	18,978	372,722 (94%)	189,778 (-139%)	25,525 (6%)	-54,064 (-40%)
CRS	399,901	202,525	308,196	228,106					308,196 (77%)	228,106 (-112%)	91,705 (23%)	-25,581 (-13%)
IICA/CAMAGRO	391,050	159,635	324,870	150,303					324,870 (83%)	150,303 (94%)	66,177 (17%)	9,635 (6%)
Border Dev. Serv	35,000	20,000			35,000	20,000			35,000 (100%)	20,000 (100%)	---	---
Small Inf. Activity	539,000	134,750			527,772	132,000			527,772 (98%)	132,000 (97%)	11,227 (2%)	2,750 (2%)
FIAES		260,000		260,000						260,000 (100%)	---	---
MAG/CENTA		55,553		55,553						55,553 (100%)	---	---
MARN		50,000						153,221		153,221 (-306%)	---	-103,221 (-206%)
FISDL		50,000				658,030				658,030 (-1,016%)		-608,030 (-916%)
ANDA		50,000				143,662				143,662 (-287%)		-93,662 (-187%)
DGRN		9,447		83,584						83,584 (-885%)		-74,137 (-785%)
TOTALS (% of Category)	**15,242,635**	**5,711,142**	**4,285,247**	**2,013,712**	**4,874,593**	**2,104,626**	**3,380,222**	**375,165**	**12,540,063 (82%)**	**4,493,502 (65%)**	**2,702,573 (18%)**	**1,043,702 (18%)**
USAID & Cost-Share Totals for Category (% of Total)	$20,953,777 (100%)		$6,298,959 (37%)		$6,979,219 (41%)		$3,755,387 (22%)		$17,033,565 (81%)		$3,746,275 (18%)	

[7] Figures are approximate and based on data provided by Implementers and USAID, and include overhead and other indirect costs as appropriate prorated to programmatic splits. LOP counterpart budget for FISDL, MARN, ANDA and DGRN are estimates only. Totals do not necessarily match due to rounding.

[8] Percentage of total budget remaining; a negative figure indicates spending in excess of budgeted amount. (Note: Some counterpart contributions far exceed amount originally budgeted and percentage totals will not match do to over-investment of counterpart.

[9] Note: For all other Implementers but the CARE Consortium and World Vision, expenditures in organizational development and environmental education are included under the other two activity budget lines.

[10] Includes approximately $177,800 for disaster mitigation structures. PCI cost-share figure excludes FISDL counterpart.

As of June 2002, the *Catholic Relief Services* (CRS) demonstration agricultural diversification and marketing program has already met most of its agreed upon performance indicators. Only a few indicators are lagging, including the total number of participants (at 61% of the target) and in its intended quota of women's membership in the PHOC cooperative (at only 32% of the intended target). The program includes innovative drip irrigation and water diversion (mini-dams) technologies. The cooperative, with CRS assistance, has secured an apparently limitless market for their produce with a supermarket chain in San Miguel. Problems with access may pose problems for getting produce to market during the wet season. CRS has exceeded its agreed-upon cost sharing level by 13% and intends to continue supporting the project with its matching funds after USAID funds are fully expended. All USAID and cost-share funds are invested in agricultural diversification investments.

While the most recent information on performance indicators was not made available, *IICA/CAMAGRO* appears to be on its way to achieving its outreach targets with its program of Entrepreneurial Management Services in Marketing and Technology.[11] The project has contributed, along with IICA cost-share funds, to the establishment and strengthening of the Salvadoran Chamber of Agriculture, Livestock and Agroindustry (CAMAGRO). The cooperative agreement was signed under the condition that resources be dedicated to support of the IDB-financed El Salvador Environmental Program (PAES) outreach area in the watershed of the Cerrón Grande Hydroelectric Project, which was already being attended to by the IICA/CATIE partnership. But IICA/CAMAGRO also provided training and information services to producers in Ahuachapán Sur (Guymango and San Pedro Puxtla), within the AGUA outreach area, in such aspects as the cooperative purchase of agricultural supplies, marketing of produce and seasonal data on agricultural commodity prices. As of June 2002, IICA/CAMAGRO was fully meeting its cost-share contributions, with 100% of funds expended on training and demonstrations in diversified agriculture, entrepreneurial development and marketing activities.

Information on *Border Development Services* was not available, as proposed interviews with staff did not take place due problems with their travel to El Salvador. BDS is providing technical services to CARE in the design and construction of the San Rafael small-bore wastewater treatment subproject. The design agreed to in BDS' cooperative agreement with USAID was expanded from the intended 10 household connections to include all households in San Rafael as part of the overall sanitation solution in the Cara Sucia area of Ahuachapán Sur. The project is behind schedule and has suffered some problems with the collapse and/or emergence (floating) of polyethylene septic tanks being used in for household connections in areas of the community subject to local flooding during rain events. Training of community members in septic tank maintenance, collection of sewage fees and operation of the small biofiltration plant is also behind schedule. The status of expenditures of USAID and cost-share funds was not obtained by the Evaluation Team.

Nearly all the financing made available under the *Small Investment Activity* has been expended for some 17 small infrastructure projects of approximately $40,000/each. FUNDAMUNI has received most of the financing for rehabilitation and/or construction of new potable water projects, while CRS has used funding to construct 6 removable in-stream mini-dams to divert water for irrigated vegetables and fruit trees.

[11] This assessment is made based on the content of the Second Semester Report dated July 2001 and interviews with project staff. The Evaluation Team did not visit PAES outreach areas where much of the work under the cooperative agreement was carried out.

3.1.5 Development Impact and Sustainability of Project Interventions

It is still too early to fully gauge the development impact and potential for sustainability for most activities being promoted under the AGUA Activity by the CARE Consortium and other Implementers. As stated earlier, the Project has only been in active implementation for three years, with the year 2001 dedicated to earthquake response. Due to the deficiencies in the project design in the establishment of sufficient and appropriate impact indicators and lack of a qualifying baseline, the development impact can only be assessed qualitatively. Each Implementer established some sort of socioeconomic baseline in order to identify their potential participants and guide selection of communities and techniques to be promoted. However, few included baseline parameters that can be considered impact indicators. CARE uses a survey instrument oriented primarily to qualifying the quantity and quality of water consumed in a sample of households in communities at the municipal level to respond to the USAID's IR 4.1. However, the density of sampling locations (households) is deemed insufficient to accurately discern the direct impacts of AGUA activities on water quality and time standards at the municipal level or quantity impacts within the discrete group of project participants—hence the indicator could be improved. Also, other impact indicators that have been successfully used in relation to other CARE projects (i.e., PROSAGUAS) concerning such aspects as sanitation, customer satisfaction, payment of fees, etc., were not included in the survey instrument used for AGUA. World Vision has attempted using a proxy indicator to gauge the level of adoption and acceptance of soil and water conservation technologies promoted under its cooperative agreement, but this effort is only in a trial stage.

The Evaluation Team has made the following subjective observations based on members' professional judgment that several project activities are producing tangible positive impacts toward meeting Strategic Objective 4 and some elements of the IR package. Local organizational development and environmental education efforts, primarily under the CARE Consortium, are yielding very positive results in relation to national objectives of promoting decentralization and democratic initiatives at inter-municipal, municipal and community levels. Citizens representing varied social, economic and environmental protection interests are coming together in forums that promote participatory planning and development of projects of mutual interests around water resources issues. Water—or rather the lack of it in a country that has a six-month extreme dry season—was determined to be at the top of the list of problems and priorities for resolution for nearly all communities and municipalities profiled during the Project's diagnostic phase. Hence, by its own acronym, AGUA is a lightning rod for rallying the interests and participation of rural populations. Participation in development planning is still in its infancy in El Salvador; but USAID's and GTZ's long-running efforts in the strengthening of municipal governments are starting to yield results, and AGUA's Implementers have t seized these accomplishments and expanded on them through local development of community-level organizations and the formation of micro- and subwatershed committees. While no hard data is available to accurately calculate the level of impact on local organizations, the Evaluation Team finds that the elements of decentralized and democratic institutional sustainability are being established in the AGUA outreach areas. How these efforts will pay off in terms of the other IRs and overall development impact is still to be determined, when communities are weaned from project assistance and whether organizations, then on their own, will successfully manage their water systems and continue the participatory local development planning and execution of projects of community interest and need. What is clear is that three years is *not* sufficient time to instill the capability and experience necessary to ensure this sustainability.

Another aspect that can be positively assessed is the results of efforts in soil and water conservation. The most popular technical package in terms of adoption by farmers in upland watersheds is one that combines practices of no-burn, slash (crop residue) management and minimum tillage on hillside farms. These techniques are spreading on their own and are proving successful in reducing erosion, promoting

infiltration and increasing yields for all crop types grown on treated lands. Where these practices are combined with green barriers of vetiver or other plant materials or agroforestry techniques they take on even more added value and soil protection. While no direct measurements are being taken in the AGUA outreach areas, similar technical packages applied under the USAID-financed LUPE program in Honduras showed decreases in runoff and erosion in excess of 60% in normal rain events and increases in crop yields of 40-60% when compared to untreated fields under the same agroecological setting.[12] Such impacts also translate to improved quality and quantity in downstream water sources in terms of reduced sediment load, increase flow of streams and springs during dry season. Again, while these impacts are not being systematically measured in the AGUA/WE outreach areas, the LUPE results can be assumed to be applicable in here as well.

Other activities promoted under AGUA/WE activities are still seen in early stages of demonstration. The development impacts of agricultural diversification—including horticultural crops under irrigation, commercial marketing, water diversion structures and storage reservoirs, cooperative purchase of agricultural inputs and marketing of crops—and solid waste landfills and wastewater treatment plants, are still to be determined once the full subproject cycles have run their course among the Implementers. At present most of these subprojects are still under near or full control of the Implementers and/or have not yet been employed for a full year. While most of these techniques and approaches have been proven in other countries in the region and several appear promising in the AGUA/WE outreach areas, the Evaluation Team is not able to say with certainty that they will be successful or have the intended development impact. At the same time however, the Evaluation Team feels strongly that these activities should continue to receive assistance from USAID throughout the Mission's extended strategy period and extended AGUA ACD or at which time control and operation of the subprojects have been turned over to community and municipal counterparts.

3.2 Decentralization and Local Management Capacity Development

Approximately 22% of total AGUA/WE funding is dedicated to activities under this category (see Table 3.1-A). All Implementers are working in varying aspects of developing local management capacity. PCI, CRS and IICA/CAMAGRO are working with community groups and several incipient farmer cooperatives to develop their capabilities to manage agricultural diversification and marketing schemes. World Vision is working with individual community groups in water system administration, and with producer farmer groups in soil and water conservation, and agricultural diversification. The CARE Consortium however, is working on multiple levels with a specific strategy of local organizational development that goes beyond simple task groups, although these too form part of its outreach approach. The Consortium has even established its own fifth component under AGUA: Component "0", Local Development. The CARE Consortium is breaking new ground in forming micro- and subwatershed committees dedicated to the integrated planning for water resources management. The objective is to link other local development groups, including ADESCOs, CDLs, water committees, municipalities and special interest groups, into a broader regional participatory development planning and management framework. Progress to date is impressive and continued support from AGUA should lead to several replicable models. The findings, conclusions and recommendations of the evaluations are presented in more detail in Table 3.2.

[12] USAID/Honduras has copies of LUPE Project experiences, including evaluation reports and technical manuals. Also, Texas A&M University carried out a series of erosion studies on treated and untreated lands in southern Honduras, also available from USAID/Honduras.

3.2.1 Findings and Conclusions

The AGUA Project has improved coordination and mutual support between the members of the CARE Consortium as evidenced by the interchange of skills and institutional capacity between the Consortium members. This was the first Consortium experience for the local members and it is noted that each of them has since entered into other consortia agreements for the implementation of other projects.

As a whole, the Project has helped local organizations to increase enthusiasm and motivation, to take on greater challenges, and to translate local expectations and needs into clear agendas and cohesive action plans. The Project has facilitated action on the part of these local organizations that has led to better identification and use of resources and improved management systems that may have not been functional in the past. This has, in turn, generated more confidence in these organizations on the part of local populations as evidenced by the level of knowledge about and participation in the activities of the organizations. A direct impact of the AGUA Project is increased leverage of resources from national and regional entities by groups of municipal or community organizations that have united for a common cause. The AGUA Project has facilitated this process for communities that have united on regional water supply projects, leveraging large amounts of funds from national and international sources. Still, the sustainability of local institutions is at risk because of a very limited pool of local leaders and a lack of effective rotation of leadership. Up until now these charismatic natural leaders have facilitated the promotion and the organization of new entities with new mandates. However, in the future, without a corps of trained and experienced local leaders who form and manage the myriad of local and regional organizations that the Project is supporting, the defection or loss of just a few key people could present serious problems to the operation of the organizations. This is particularly important given that organizations that focus on issues like watershed management must be stable over the long term.

The stronger organizations have gained local experience in conflict resolution related to access and supply of water an in the capture and management of resources for local community projects. The concept of focusing on the watershed as a form of local water resource management has been strongly promoted. Also, local water committees have initiated an interinstitutional dialogue to help them find solutions for their respective issues. The Regional Network of Water Committees that is being formed and strengthened in the western region of El Salvador is the result of this type of dialogue. This Network, supported by the AGUA Project, is itself strengthening local water committees and supporting an inter-municipal information exchange that deals with common water system management and administrative problems.

The use of incentives by the CARE Consortium is focused on short term actions on the part of local participants. Seeds, fertilizers and other materials and equipment are supporting agricultural activities that are not being strongly linked to future monetary returns. World Vision is providing similar incentives for fruit tree cultivation while at the same time helping communities find a long-term market for their fruit. Management activities implemented in parallel with large construction projects and complicated organizational aspects have promoted and supported the legalization of organizations as specialized local service providers (water supply, vegetable producers from PHOC, and others). At the same time the Project has strengthened those completely participatory organizations such as the CDLs and watershed committees. The AGUA Project has also effectively supported the legitimization of the role of these strengthened organizations and increasing the membership of beneficiaries or users, of those organizations participating in the larger infrastructure projects. The Project has also been effective in elaborating participatory municipal ordinances on environmental and basic sanitation that support better resource use and conservation of the environment, but are not receiving support to actually put them into local practice.

AGUA Activity Evaluation

Table 3.2: Decentralization and Local Management Capacity Development

Findings and Conclusions	Observations and Recommendations
A. Accomplishments	
1. Through participation in the CARE-AGUA consortia, consortia members have succeeded in strengthening one another, passing their capacity in a particular area to their partners and receiving the same in return.	a. The Consortium relationship has evolved into a process of sharing expertise and know-how. The other AGUA implementers should be brought into this CARE-AGUA process.
2. CARE-AGUA has improved the ability of all manner of organizations to identify and solve problems and has initiated a process of regional integration of organizations – e.g., the network of water system management committees	a. Local leadership that understands the limits of their particular organizations has been formed. b. Networks of organizations with similar interests and objectives have been formed that have served to support their members' agendas. Continued support to this process should be provided.
3. AGUA has succeeded in catalyzing local organizational processes which has included inter-municipal collaboration in addressing common problems.	a. This intermunicipal collaboration is awakening municipalities to the possibilities of collaboration to take on regional and policy problems – particularly in the environmental sector. Support to these activities should be continued.
4. AGUA has increased the leverage of local resources and improved local management capacity.	a. Organizations are better able to access local investment and manage that investment.
5. Local AGUA participants identify with the project and its staff.	a. This acceptance of Project values, processes and culture is significant and indicates that the participants are ready to continue in future Project endeavors.
6. AGUA has been particularly successful in helping to form local specialized service provision organizations that operate using entrepreneurial management models (Water Committees, Ag. Production coops). AGUA has supported purely voluntary organizations as well as watershed committees.	a. The large water system committees (communities with over 500 households) are the strongest of these organizations. b. Administrative systems created through AGUA are good workable models that should be packaged and continued throughout AGUA's outreach areas.
7. AGUA has supported and strengthened cooperative business and marketing, especially in the PAES outreach area, but to a minor degree in Ahuachapán Sur	a. This process has been successful and can receive continued support.
8. AGUA has helped to legitimize the role of Service provision organizations and increased the base of users and participants.	a. The leadership role of these organizations is recognized by users and participants and payment for services is taking place.
9. Decentralization of water management through local water system committees has allowed local populations to participate in the provision of water supply services.	a. These organizations must be challenged to accept responsibilities for management of their watersheds.
10. Water committees have successfully dealt with local conflicts over water system management and water use and have been able to generate resources for other community development activities.	a. Experience in conflict resolution should lead these committees to further address issues of equity in water supply and management.
11. AGUA has succeeded in planting the idea of watershed management at local, regional and national levels along with operational systems to allow it to be practiced.	a. Successes in applying and institutionalizing these processes should be documented and replicated as they form the basis for sustainable watershed development.
12. AGUA has developed successful training programs for all of its local organizations, both entrepreneurial and voluntary.	a. These should be strengthened and expanded.

Findings and Conclusions	Observations and Recommendations
13. AGUA has developed a complete model for legitimizing the roles of the municipal-level Local Development Committees (CDLs) and community level committees (ADESCOs).	a. These organizations, through collaboration and consensus are handling short-term planning and development issues.
14. AGUA has directly influenced the establishment of a legal basis (ordinances) for environmental management at the municipal level.	a. These ordinances focus on resource conservation and improved local environmental health. Efforts should be made to engage and train UAMs of municipalities in outreach areas to act as application agents of ordinances.
15. AGUA has been a pioneer in the preparation of watershed management plans by local organizations.	a. Although new, these are powerful approaches to decentralized, local natural resource management.
16. AGUA has formed nascent watershed management committees supported by the water and sanitation subsector.	a. These organizations are field-testing processes that when solidified shall form the basis for the formation of working watershed management planning.
B. Aspects that Merit Greater Attention and Improvement	
1. The local organizations (outside of the service provision organizations) have a limited management capacity and doubtful long-term sustainability.	a. Establish policy of institutional and organizational strengthening at Project level that not only builds management systems but addresses need to generate and direct resources to new resource-strapped voluntary organizations.
2. Local service provision organizations tend to focus on short-term opportunities with less attention on strategizing and planning for the medium and long term.	a. Build capacity in strategic planning that builds on short-term successes to address long-term objectives.
3. The sustainability of local institutions is at risk because of a small pool of local leaders and policies that are not allowing effective rotation of leadership.	a. Support processes that form a cadre of young leaders (participation in the organization, training) for the local organizations, while helping establish rules and norms that address reelection of leaders and incorporation of new leaders.
4. There are no formal mechanisms or norms guiding AGUA's work in motivating local organizations that use natural resources to address watershed protection and environmental conservation issues.	a. Establish formal guides on the application of watershed management focus as operational norms of these organizations, and facilitate to the extent possible the legalization of these organizations.
5. Local organizations without access to financial resources are markedly less effective than those with access to finances.	a. Support municipal code reform that permits municipal resources to move to participatory/voluntary organizations. b. Support processes that allow local resource capture for these same activities.
6. Rural Development Action plans focus on local immediate physical needs and lack strategic focus on watershed and environmental management and protection.	a. AGUA should make environmental and watershed planning part of all planning processes. b. Environmental support should be promoted as a local organizational prerogative and included as mandatory in ordinances, norms, and regulations.
7. Baseline studies have not been done in AGUA's work in institutional development and drawing conclusions on the impacts of AGUA's efforts is difficult.	a. AGUA must start gathering baseline data on organizational capacity in areas where it will implement institutional strengthening activities.
8. There is not a strategic plan for the use of incentives that promotes the development of systems for payment for environmental services or environmental reserves within watersheds.	a. Incentive use needs to be part of an overall strategic plan that moves farmers and other Project participants (through the creation of demand for environmental services) to be willing to pay for those services locally.
9. AGUA does not have a strategy for organizational handholding, follow-up, and exit for all of the organizations it has helped to build and strengthen, that promotes continued local work in watershed and environmental protection.	a. AGUA needs to define this strategy and implement it if organizations are to continue to function and be viable protectors of watersheds and water resources.

3.2.2 Recommendations

AGUA should intensify its training of small organizations, such as ADESCOs, for their formation and/or linkage with microwatershed committees, as well as those organizations in recent formation (where projects are in execution) that possess a limited management capacity and limited possibilities for sustainability as local groups. At the same time, even the small organizations considered stronger need to be shifted away from their focus on short-term issues and oriented in the preparation of integrated development/microwatershed plans and/or activities that can financially sustain them for the medium and long term. The Project needs to engage these local organizations in activities that transfer strategic planning processes that contain aspects (so successfully promoted in water committee formation) of entrepreneurial management techniques, leadership, social interaction and general management, and establish formal guides on the application of watershed management concepts as operational norms of these organizations. If and when the executive decree is issued that creates the figure of "watershed organizations", then the CARE Consortium should immediately begin facilitating their legalization.

AGUA should begin strategically training and grooming young community leaders in aspects of participatory planning, organization concepts, and management for eventually coordinating local organizations. At the same time, the Consortium should facilitate the establishment of rules and norms that address reelection of leaders and the incorporation of new leaders to further the democratic process of sharing decision-making responsibilities. The participatory mechanisms promoted and organizations supported by the Project (CDLs and watershed committees) also need to foster financial mechanisms that permit them to function over the medium and long term. The reconstruction and development plans developed by these groups need to be shifted away from their focus on just physical infrastructure and reoriented to a strategic focus on watersheds and ecosystems that support them.

Incentives are currently used in the short term to draw their participation and achieve stated soil and water conservation and diversification objectives. In the case of World Vision, PCI and CRS, incentives are used as in-kind seed monies (although credit is also used) to jump-start commercial enterprises and produce income for their project participants. However, AGUA Implementers need to develop procedures and forms of reinvestment and payback schemes that will facilitate the inevitable cutting off of project assistance (if these ventures can be sustainable). Furthermore, AGUA Implementers should begin reorienting the use of incentive to be part of an overall strategic plan to create a demand for environmental services that engenders farmers', municipalities', water consumers' and other Project participants' willingness to pay for those services locally.

CARE Consortium needs to assist municipalities with strategies and mechanisms to put recently-passed ordinances into practice. The Municipal Environmental Units (UAM) should be included in this activity as an instrument for sustainability and focus their efforts on the municipal, microregions and sub-watersheds. These Units should be oriented and trained in applying local environmental norms, seeking self-sustaining financing for developing control and follow-up support mechanisms. AGUA should work with councils of municipalities (*mancomunidades*) as a mechanism to promote the integrated work of the UAMs in watershed that span more than one municipality and the larger subwatersheds.

3.3 Watershed Management, Water Source Protection, Sustainable Agroforestry and Agricultural Diversification

About 37% of total AGUA/WE financing to date has been oriented to support activities under this category (see Table 3.1-A). The term watershed management refers to all those soil and water

conservation activities currently being promoted by USAID/WE and implemented through AGUA/WE. Water source protection comprises those activities related to measures to protect or improve the sites where water is being collected (springs, spring boxes, streams, wellheads). Sustainable agroforestry involves the incorporation of trees into the farm unit and/or reforestation of strategic parcels of land. Agricultural diversification is being promoted by all of the Implementers, but with more intensity by PCI, CRS and IICA/CAMAGRO. Findings, conclusions and recommendations of the evaluation of these activities are presented in Table 3.3.

3.3.1 Findings and Conclusions

The promotion approach of working with demonstration farmers, both men and women, is facilitating the spread of appropriate techniques. The use of the farm plan by most of the members of those farmer groups participating in project activities is working well, although a simpler plan would facilitate its wider dissemination and sustained use. As indicated in earlier sections of the report, the Evaluation Team found a remarkable level of technology uptake and spread for soil and water conservation practices including no-burn and minimum tillage, *even on rented lands*, and their adoption by farmers not formally participating in AGUA/WE-sponsored training. This obviously is an indicator of the success of such practices.

What is especially positive about this phenomenon is that the technological package is also the most cost-effective of all practices being promoted and contributes the maximum amount of conservation impact. At the farm level (and there are some 6,800 farm units and nearly 10,000 hectares thus affected), the package has the following positive impacts as observed and corroborated by farmers: i) reduced runoff and erosion; ii) increase in organic material from crop residue that improves soil structure, increases nutrients and promotes a higher level of cation exchange (nutrient availability); iii) increased infiltration of rainwater that makes additional moisture available to crops and recharges subsoil and aquifers; iv) reduced drought risk as the growing season is extended and short dry spells are ameliorated by additional field moisture; and v) increased yields primarily for traditional hillside crops of maize, sorghum and beans, but also for fruit trees and vegetable crops planted on treated lands. These practices are augmented on many farms with hillside green barriers of vetiver or other plant materials or agroforestry techniques wherein they take on even more added value and soil protection. As application of these techniques is expanded to surrounding farms and reach a critical mass, they will contribute to a marked reduction in downstream flood risks. Such positive impacts of watershed management have been documented throughout the world, including the USAID-financed LUPE project in Honduras.[13] Also, techniques of improved polycultural home gardens and the planting of fruit trees is also gaining widespread acceptance for their potential to improve the diet of rural families, diversify the crop mix and generate some additional on-farm income.

Agricultural diversification and marketing activities are considered demonstration projects and are still in their developmental stages. The success and spread of these techniques will depend on the results of these demonstration subprojects, for which Implementers will need to monitor after reducing project assistance. The Evaluation Team worries that some of the farms being promoted for commercial-scale vegetable production may be subject to access problems potentially affecting their economic viability. Several quality control problems were also detected during the evaluation, such as planting trees in the shadow of

[13] In the aftermath of Hurricane Mitch in Honduras, field inspections revealed that lands treated with soil conservation and agroforestry practices suffered far less damage from torrential rains, including reduced erosion, gullying and landslides, and areas where these techniques were widely practiced, there was a noticeable reduction in local flash flooding.

other trees and promotion of improper techniques under certain land-use settings (e.g., infiltration ditches in active pastures), but these should be corrected with time.

Water source protection, usually involving small investments to improve access and the quality of surface water sources such as springs and seeps, are very effective and should be more intensely promoted. The AGUA Activity had envisioned working with area industries to reduce contamination of water resources, but these are seen as outside the scope and capability of Implementers. Hence, there has been little promotion of such techniques and Consortium partners have collaborated at the margins primarily in promoting the use of soak pits for disposal of coffee processing wastes.

3.3.2 Recommendations

The selection of techniques and priority locations for promotion of watershed management (including soil and water conservation, agroforestry and reforestation) could be improved with better use of strategic planning techniques to ensure that those areas treated are contributing to water resources improvements related to the improvement and sustainability of existing or new potable water and/or irrigation sources (tributary microwatersheds). Implementers should strive to organize more women's groups to promote soil and water conservation as part of the diversification strategies for home gardens.

Implementers should seek out collaborations with other municipal, national government and/or NGO programs to facilitate additional watershed management activities not currently in the mix promoted by the Project. These include: improved road drainage emulating natural contours and drainage ways; reforestation/protection of stream corridors (greenbelts), steep hillsides and ravines, and critical aquifer recharge zones; and the promotion of improved pasture and cattle management in the form of silvipasture, live fencing and cut-and-carry fodder. Activities for the control of industrial contamination should be removed from the WE portfolio, as these actions are included under several MARN programs financed by IDB and other agencies.

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Table 3-3: Findings, Conclusions and Recommendations for Watershed Management, Water Source Protection and Agroforestry

Findings and Conclusions	Observations and Recommendations
A. Accomplishments	
1. The use of demonstration farmers (both men and women) and model/demonstration farms and gardens is a proven promotional and training approach with widespread success throughout the Project outreach areas. The "learn by doing" extension approach is very effective with both men and women groups.	a. This extension process should be fully promoted and consolidated as a replicable model for future activities financed by USAID throughout El Salvador.
2. On areas treated, soil and water conservation practices promoted by the project are having a very positive impact en terms of reducing runoff and erosion, increasing organic material, improving soil structure and cation exchange capacity, increasing infiltration of rainwater and aquifer recharge—all contributing to maintenance and/or improvement of watershed conditions.	a. Practices showing the greatest level of uptake by farmers are: i) no-burn; ii) slash/stubble (rastrojo) management; iii) green barriers of vetiver (with brizantha grass becoming more popular); live fence posts, especially of Gliricidia sepium; iv) home gardens; v) fruit trees on individual terraces; and vi) vegetable production under supplemental irrigation. b. There is a need to continue promoting and determining the level of acceptance of other practices and innovations, including: i) rainwater catchment and reservoirs; ii) polyethylene water tanks; iii) portable mini-dams; iv) sprinkler and drip irrigation; and v) commercial level vegetable production ventures.
3. Two of the Project Implementers are promoting several designs of small on-farm reservoirs, some with rainwater catchment, for storing water for agricultural and household water in areas of chronic water shortages during the dry season.	
4. Several Project Implementers are promoting polycultural home gardens and diversification into vegetables and fruit crops using alternative irrigation technologies in order to increase on-farm income.	c. All AGUA Activity implementing organizations should meet periodically (annually?) to systematically compare experiences in promoting differing soil and water conservation and diversification approaches and techniques, document lessons learned and visit each other's outreach areas. RASES could serve as the forum for such meetings.
5. Several Implementers have promoted the development of community-based nurseries as small enterprises among community groups and to supply plant material for extension and outreach activities.	a. While it may be more economical to purchase plant materials from large commercial nurseries outside of the project area, financing the establishment of communal nurseries, especially with women's or mixed-gender groups is seen as an activity that can help meet at least part of the local and regional demand for plant materials (forestry and fruit tree species), train people in alternative vocations and generate income for those participating.
6. For those examples observed, the small subprojects of water source improvement and protection are very positively impacting those rural communities served.	a. Even small low-cost improvements such as concrete spring boxes and public water taps can make a huge impact on the access of small communities to cleaner water and should be widely promoted for traditional watering holes.
7. The use of small farm management plans is fairly well disseminated, although with differing methods of use and success among Project Implementers.	a. A simpler, lower-cost plan could be more widely disseminated and used by the undereducated (for instance on newsprint similar to newspaper). b. Such plans should also incorporate home gardens and those activities managed by women in the household (not only those activities managed by the men).

Findings and Conclusions	Observations and Recommendations
8. AGUA is financing two cooperative agreements to exclusively promote and train farmer groups in cooperative purchase of agricultural inputs at reduced costs and in cooperative marketing of produce. The agricultural diversification, marketing and commercialization activities carried out by IICA/CAMAGRO (SAGEM) have been concentrated outside of AGUA's primary outreach area and have not necessarily been integrally linked to AGUA's guiding principles of sustainable and integrated water resources use and conservation. This activity primarily added value to agricultural enhancement and diversification activities in the middle Rio Lempa watershed and only incipiently in the Ahuachapán Sur area served by other AGUA Implementers. Some CRS-supported irrigation schemes are not strategically linked to protecting the microwatersheds that produce water for these schemes.	a. While such activities were not considered part of the original thrust of the Project, they are seen as potentially relevant in ensuring that intensified agricultural production with irrigation succeeds economically, thus adding value to the water resources used to irrigate non-traditional crops. b. While it would be advantageous to incorporate SAGEM activities in the integral model approach proposed for the Project, financing for these activities should be provided under a different project (and/or different SO) & accessed as required in specific areas in the AGUA outreach area. a. CRS activities should be expanded to fully embrace watershed management objectives in the microwatersheds producing water to irrigation systems financed by the Project, probably through more strategic microwatershed management planning with FUNDAMUNI.
B. Aspects that Merit Greater Attention and Improvement	
1. Promotion of soil and water conservation activities and diversification does not consistently adhere to strategic planning related to the overall objectives of the Project, especially in terms of selecting priority intervention areas and techniques according to watershed management needs.	a. Project Implementers should consolidate Project activities in a selected number of sub- and microwatersheds, and develop a series of criteria on which to base this selection of geographic areas and activities to be promoted leading to the linkage of potable water and irrigation systems to their watersheds. Efforts should be made to complement any missing elements of the integrated model indicated in this report.
2. Participant groups were observed that were not relating their activities to the need to rehabilitate and/or manage watersheds. For some subprojects promoting diversification and irrigated commercial horticultural production, Implementers were not attending to farmers located in the upper watersheds of the water sources being tapped for irrigation where deforestation and improper hillside agriculture was being practiced.	b. According to the menu of activities selected, Implementers should seek collaboration among other organizations working in AGUA to complement any deficiencies in their own staffing capabilities.
3. Most of the groups organized and promoted under the Project are men-only, with some women's groups organized to promote home gardening, improved stove making, confection of artisanry and to market horticultural crops. Farm management plans only rarely included activities for women, thus serving to further divide the family farm concept by gender.	a. More emphasis should be placed of the organization and/or consolidation of women's groups for demonstration of polycultural home gardens, cash crop diversification (including marketing arrangements) and community commercial nursery development for production of plant materials normally purchased by Project Implementers. b. Farm plans should incorporate home gardens & activities managed by women in the household (not only those activities managed by the men).
4. Several more appropriate conservationist land and watershed management practices are not being promoted in critical watershed areas. Without treating these aspects, on-farm improvements in runoff and erosion control may be offset by continuing or increasing runoff and sedimentation from roads, stream banks and gullies.	a. Project activities should be expanded and/or linkages made with other municipal and/or national government programs and other development organizations to facilitate: i) improved road drainage emulating natural contours and drainage ways; ii) reforestation/protection of stream corridors (greenbelts), steep hillsides and ravines, and critical aquifer recharge zones; and iii) promote improved pasture management, silvipasture/live fencing, cut-and-carry fodder.

Findings and Conclusions	Observations and Recommendations
5. Various instances of deficient quality control and selection and promotion of improperly selected practices were observed, including some that were promoted under pay for work schemes instituted after the earthquake.	a. Implementers should monitor and exert better quality control to reduce problems such as: planting trees under standing trees, construction of absorption ditches in pastures, fruit trees as live barriers, and vegetable production within restricted areas along stream corridors (farmers should maintain a minimum 5-10 m greenbelt between their field and streams) b. Implementers should monitor and take real data on the viability of high-cost vegetable production subprojects in areas of restricted or poor access. c. Extension packages should include the reduction in the use of highly-toxic (Category I and II) biocides and change to Category IV products and organics.
6. One activity area included in the original project design, control of industrial contamination, has received little or no attention in project outreach areas (it should also be pointed out that there are very few industrial activities in these areas.	a. Activities for the control of industrial contamination should be removed from the AGUA portfolio, as these actions are included under several MARN programs financed by IDB and other agencies.

3.4 Potable Water Systems, Wastewater and Solid Waste Management Infrastructure

At the date of the evaluation, financing of infrastructure represented about 41% of total AGUA/WE expenditures (see Table 3.1-A). However, when including CARE Consortium's cost-share funding is projected to the end of 2002, total infrastructure expenditures should exceed $8,500,000, or 46% of all of AGUA/WE financing. Of this total, potable water systems represent the great majority, about 88% of infrastructure financing, while wastewater management systems (excluding latrines and absorption pits) represents 7% and the two solid waste management subprojects had about 5% of total infrastructure funding. The three principle infrastructure activities are potable water supply, wastewater treatment (some collection), and solid waste management (sanitary landfill construction). These projects are implemented through the CARE Consortium, PCI, World Vision, Border Development Services, and the SIA fund.

Infrastructure projects under AGUA/WE have components that handle technical studies, design, construction and construction management, training of local managers, creation and strengthening of local management organizations and billing systems, formation of local operators, formation of legal ordinances to govern system operation and water use, linking water systems to health improvement and watershed protection, and project follow-up support. The detailed findings, conclusions and recommendations for all of these activities are found in Table 3.4. The key overarching findings, conclusions and recommendations for the larger activities are discussed below.

3.4.1 Findings and Conclusions

The AGUA IRs and performance indicators that define the implementation of the Activity use a confusing and time-consuming method to track increased coverage brought about by system construction or rehabilitation that does not help project managers track their true progress in meeting development objectives of the activities. There are no indicators that can be measured to directly track activity impacts, although there are two that can, with some modification, be used to measure the establishment of potable water supply infrastructure operating in a sustainable fashion. There are no results or indicators that link local health improvements to the provision of potable water supply systems. Findings and conclusions as they relate to the different infrastructure activities follow.

3.4.1.1 CARE Consortium

In terms of potable water infrastructure, both the physical and institutional aspects are deemed of the highest quality. Management and quality control for project design, construction oversight, institutional formation and strengthening, operation, maintenance, and administration training, and organizational follow-up support are particularly strong. CARE Consortium Water supply infrastructure has served as a nexus for other local development activities and the Project has been successful in getting water committees to support watershed management activities and to link water committees with their counterparts in regional networks.

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Table 3.4 Findings, Conclusions and Recommendations for *Infrastructure Interventions*

Findings and Conclusions	Observations and Recommendations
USAID/El Salvador SO Level and CARE-AGUA Results and Indicators	
A. Accomplishments	
1. Result 4.2, Indicator 4.2.1 is a better way of tracking progress and impact than indicators 4.1, 4.2	a. Indicator 4.2.1 provides a clearer picture at much less effort than do 4.1 and 4.2 and should serve as a model.
2. Indicators 4.2.2.2, and 4.4.2.1 are close to being indicators that measure infrastructure impact	a. These are the indicators that should receive attention from AGUA with respect to drawing conclusions on the sustainability of constructed water systems.
B. Aspects that Merit Greater Attention and Improvement	
1. There do not appear to be actual field Activities under Result 4.1.3 Increased Use of Improved Industrial Practices	a. There has been no real advance on the indicator to date. USAID should consider removing this result from the AGUA Activity.
2. As it now stands there are really no described indicators that measure the sustainability of the infrastructure installed or facilitated by the Activity	a. Simple proxy indicators that indicate that a system is functioning in a sustainable fashion should be drafted and used.
3. The results framework does not link water and sanitation infrastructure to health practices or benefits	a. There should be a result and indicator, however modest that recognizes this fact on the Activity Design level.
4. Certain results that are used to fulfill indicator requirements are subjective and whether the results satisfy the spirit of the indicator is open to interpretation	a. Criteria should be established for results and indicators that ensure that the intent and "spirit" of the indicator is respected.
5. Indicator for sustainable system implementation is an output indicator not an impact indicator. (CARE-AGUA Indicator 2.1.5)	a. Simple impact indicators for infrastructure should be adopted by the end of the Activity to measure impact of infrastructure activities.
6. It is permissible under the accepted results framework to end with Water supply systems in the middle of construction as long as financing is assured. (Indicator 2.1.4 b)	a. CARE-AGUA must clarify how these will be provided for these projects. (having a municipality sign a paper that says that they will assume responsibility is not sufficient)
Water Supply and Sanitation	
A. Accomplishments	
1. The level of service provided by the CARE-AGUA water systems is uniformly high – a tremendous achievement given the size and technical complexity of the systems, the panorama of institutional collaborators in implementation, and the challenges of building sustainable local administrative and O&M capacity	a. CARE-AGUA should capture and prepare these criteria as part of a best-practices package.
2. CARE-AGUA has essentially saved the investments made by other donors (Red Cross, FISDL) on large water supply projects by providing a range of services to the implementation and/or the operation of these projects, and has succeeded in leveraging considerable external support	a. CARE/El Salvador's highly developed systems has been proffered to several large donors who are principally focused on building infrastructure. Pursuing further alliances with donors that support construction is a recommended short and long term strategy for AGUA infrastructure.

Findings and Conclusions	Observations and Recommendations
Water Supply and Sanitation	
A. Accomplishments (continued)	
3. The use of the CEFA (Economic Competence based on the Formation of Businesses) model to build administrative and management capacity in Juntas de Agua has succeeded in creating excellent management organizations.	a. Continue the use of CEFA and work to spread its use to other organizations and infrastructure projects.
4. Criteria to be satisfied by a community and the future water users for system inauguration is proper and is uniformly applied for the most part.	a. CARE-AGUA should capture and prepare these criteria as part of a best-practices package.
5. The six-month CARE-AGUA follow-up activity identifies technical and operational difficulties, bringing them to the attention of appropriate CARE consortia staff.	a. CARE-AGUA should continue providing this service and capture lessons learned for a best-practices package that can be shared with other organizations b. CARE-AGUA should provide follow-up services to work other infrastructure projects outside of CARE-AGUA (e.g., SIA)
6. The SIA is working with large populations to repair or expand service. Bringing CARE-AGUA training and watershed activities to these large systems has leveraged considerable impact on the sustainable management of the systems.	a. This type of collaboration should be actively pursued between the two projects.
B. Aspects that Merit Greater Attention and Improvement (Water Supply Systems)	
1. The technical descriptions of the projects in the design folders were found in some cases to not describe sufficiently the criteria used to make particular design decisions that ended up being built in the field.	a. DASAGUA, serving as CARE-AGUA's technical quality control entity must ensure that technical documents are of high quality and that changes made to a system during construction are reflected and justified in the technical documentation.
2. CARE-AGUA shall end the Project with systems are in construction. The strategy for capacity-building and follow-up on these systems is not clear.	a. A plan that provides supervision, training, and follow-up must be developed and put into place for these projects.
3. CARE-AGUA implements projects in a weak normative environment. National standards for water systems are not exacting and allow work of middling quality to be built. CARE-AGUA is not actively promoting its best practices to be accepted as national norms	a. The Water and Sanitation Network of El Salvador is working toward improving and standardizing norms used in water supply and sanitation infrastructure. CARE-AGUA should support these efforts.
4. The follow-up provided to system operators is not on the same level as that offered to the committees. Operators receive post-inauguration support from CARE-AGUA only when visible problems arise.	a. CARE-AGUA must develop and put a plan into place that provides a structured program of follow-up support to the operators and other technicians working on CARE-AGUA infrastructure.
5. The SIA does not have a clear strategy for community selection which causes difficulties in providing training, institutional strengthening, watershed conservation activities to the projects through the AGUA umbrella.	a. SIA projects can greatly increase their impacts on sustainable management of water systems and protection of watersheds if they coordinated more closely with CARE-AGUA. AGUA should formally establish this coordination.
6. There are serious deficiencies in the quality of the SIA design documents, and criteria that must be met by SIA communities and users before a system can be inaugurated are not uniform	a. AGUA must support a mechanism that brings to the SIA the same technical criteria used in the CARE-AGUA and other USAID-funded infrastructure projects
7. There is not a formal system of institutional or technical follow-up being provided to the SIA local water organizations.	a. AGUA must see that these components are made available to communities receiving these SIA funds.

Findings and Conclusions	Observations and Recommendations
Demonstration Technologies – Waste Water Treatment and Sanitary Landfills	
A. Accomplishments	
AGUA is supporting important first steps in the application of sanitary landfill technology in El Salvador and is generating interest in and attention to the management and policy implications of these technologies	a. AGUA should continue focus on building the capacity of NGOs in this field. b. AGUA should devote extra time and resources to support "demonstration management systems" to compliment the demonstration technologies.
B. Aspects that Merit Greater Attention and Improvement	
1. Environmental impact statements which serve as important tools to ensure good site-specific engineering design and construction practices are not being used as tools to this end and not helping support site-specific designs or "no-go" decisions.	a. The USAID/El Salvador Environmental office should support training that raises awareness and instructs technicians on EIA implementation that meets USAID requirements.
2. Systems are being approved first and then designed to fit whatever site they happen to be provided. Local input and the no-build option are not sufficiently considered.	a. AGUA should establish basic entry criteria for committing to these projects b. AGUA should use local participatory activities to select appropriate systems for locales and not select technology and management without involving local actors.
3. Design criteria lack clarity in some important areas	a. AGUA should support independent technical review of designs, construction and post-commissioning operation.
4. Ground is being broken on projects without clarity in how management systems will function, how tariffs will be levied to cover recurring costs	a. AGUA must apply a set of criteria for management that must be satisfied before construction begins, and criteria to be satisfied before commissioning.
5. There is low incentive for the landfill and WWT plant operator to perform at a high level	a. AGUA must formulate and then implement operator training that raises the awareness of the operators with respect to performance.
6. A formal program of follow-up supervision to trouble-shoot problems and support the O&M and managerial systems is not in place.	a. AGUA should support independent review of landfill and plant operation and support local training of NGO staff , operators, and managers to address shortcomings.

CARE Consortium collaboration with different international organizations, GOES agencies and local NGOs has been commendable and has helped leverage funds, materials and equipment for the Project. The Consortium has also been able to support large water supply projects implemented by other organizations that have primarily been focused on building infrastructure, to address quality control, institutional development, and water resources management issues that are key to sustainability. On the other hand, rising electricity costs might threaten the tariff structure and successful operation and management of water supply systems with wells and submersible electric pumps (the majority of the systems).

For the CARE Consortium, certain results that are used to fulfill indicator requirements are subjective in nature and whether the results satisfy the spirit of the indicator is open to interpretation. There is no impact indicator for sustainable system implementation. It is permissible under the accepted results framework for the project to end with water supply systems in the middle of construction as long as financing is assured.

3.4.1.2 Small Infrastructure Activity Water Supply Infrastructure

SIA infrastructure activities have served as nexus for other local development activities in outreach areas served by the CARE Consortium (especially FUNDAMUNI areas). The impact of leveraged activities such as water committees and operation and maintenance training can have great impact, particularly in large water systems that are using SIA funds for repairs or expansion. In some cases the CARE Consortium is bringing its institutional strengthening, watershed protection, and other components to complement the SIA project; however, this is not done systematically. SIA projects are selected based on opportunity, not within a strategic framework that could theoretically mandate their implementation in priority watersheds or where the CARE Consortium could provide support. There are serious shortcomings with respect to design documentation and justification, as well as construction shortcomings that reflect a lack of budget, technical norms, and technical supervision.

3.4.1.3 Demonstration Technologies for Wastewater Treatment and Solid Waste Management

Solid waste landfills and wastewater treatment plants are still in a demonstration phase in El Salvador. The technologies are proven in other countries, but are recently being introduced here. The general findings and conclusions for the both these types of infrastructure are more directed at the fact that they are demonstration technologies and, therefore, are presented together here. PCI is the lead NGO in executing these demonstration projects under AGUA/WE financing. Detailed treatment of the particular areas can be found in Table 3.4 and in Annex 10 (for PCI), and Annex 9 (CARE Consortium).

Environmental impact assessments, which serve as important tools to ensure good site selection, and the selection of adequate engineering design and construction practices are not being used as tools to this end; rather they are being poorly applied under a paperwork exercise required to gain MARN approval prior to breaking ground.[14] Construction is being initiated on these projects with questions about management systems, operation and maintenance, payment for service, (and landfill closeout) still unresolved. These are unfamiliar technologies providing services that have a much lower community perception in terms of importance and demand for proper operation and maintenance than that for water systems. There are

[14] MARN's work in environmental impact assessment is incipient and still in its developmental stages. MARN is vastly understaffed and does not use uniform guidelines that facilitate determining the magnitude of potential impacts based on the size, location and nature of impacts of wastewater and solid waste projects.

currently no cohesive plans to offer formal follow-up assistance to the institutions that will manage these systems after commissioning the infrastructure.

Because of the novelty of the technologies being used in the sanitary landfills and wastewater treatment plants, there are shortcomings in design, site preparation, and construction. Strong technical oversight is required during all phases of implementation. However plans to offer formal follow-up technical assistance to the systems after they are commissioned were not included in the subproject proposals or ensuing cooperative agreements with USAID.

3.4.2 Recommendations

3.4.2.1 The CARE Consortium

CARE/El Salvador's highly developed systems for design, construction, administration, formation of exemplary water management committees, and forming links between water supply and watershed conservation should continue to be proffered to large donors who are principally focused on building infrastructure. Pursuing further alliances with donors who are essentially construction contractors provides an invaluable service to El Salvador and an attractive short and long term strategy for AGUA infrastructure. Coordination between the CARE Consortium and SIA has been invaluable in contributing to the impact and sustainability of the SIA projects both in terms of water supply and integrated water resources (watershed) management. The CARE Consortium should continue to actively bring SIA projects under its umbrella. The Consortium should capture best-practices in infrastructure and work to share them in El Salvador and elsewhere.

The Water and Sanitation Network of El Salvador is working toward improving and standardizing norms used in water supply and sanitation infrastructure in El Salvador. PCI, as coordinator, and CARE is in a position to support these efforts and should do so. The Consortium should explore and then work to implement a sustainable long-term support network for water supply systems in El Salvador. This system could include participation from regional Networks of Water Committees (*Red de Juntas de Agua*), GOES-sponsored "circuit riders", and UAM. The CARE Consortium should act now to analyze and prepare a detailed plan for how supervision and follow-up support shall be provided to those projects still under construction at the end of project.

The CARE Consortium, with USAID's oversight, should analyze and modify indicators that describe progress toward water system user coverage, water quality, and sustainability issues of operation and maintenance, and financing (see suggestions in section 3.7.3 and Table 3.7 later in this report). The results indicators should provide a clear picture of progress toward meeting target coverage. Over the next year, Project Implementers, especially the CARE Consortium, should develop indicators that measure the sustainability of the constructed water systems. Information to inform these indicators can be collected by monitoring chlorine residual at households and cantaneras taps, reviewing tariff collection receipts, evaluating operator skills and knowledge, reviewing minutes of meetings, and related activities. There should be a result and indicator, however modest, that recognizes the fact that hygiene education and thoughtful provision of sanitation systems increase the impact of water supply on the health of the users. CARE has used these indicators in other projects (i.e., PROSAGUAS) but does not take such data in AGUA outreach areas. It is not clear that there is a plan to provide competent construction supervision or follow-up to systems that are in construction at the end of the project. CARE should clarify how these will be provided for these subprojects.

3.4.2.1 SIA Water Supply Infrastructure

SIA financing, if used strategically within the AGUA umbrella, has the potential to leverage important impacts in priority watersheds and/or in large populations. SIA projects can greatly increase their impacts on sustainable management of water systems and protection of watersheds if they were to be coordinated more closely with AGUA or similar projects. AGUA should establish criteria for strategic use of SIA funding under the AGUA umbrella, which should include AGUA technical supervision, follow-up support, and watershed protection activities to the SIA communities.

3.4.2.3 Demonstration Technologies (Sanitary Landfills and Wastewater Treatment)

USAID/WE should continue and expand its focus on building the capacity of local NGOs (national and international) in the emerging technical fields of wastewater treatment and solid waste management. Given the state of the GOES ministries and USAID/El Salvador experience with private contractors, this is a valid approach and should be continued. Wastewater and solid waste management systems are difficult to sustain for a number of reasons, including: lack of perceived local demand, few incentives to properly operate infrastructures, cultural attitudes about garbage, and the politics of billing for services). USAID and its AGUA Implementers should devote the extra time and resources needed to support what are essentially "demonstration management systems" to complement these demonstration technologies. Participatory planning approaches that bring users and local decision-makers into technology and management process

Understanding that these are demonstration technologies for El Salvador, AGUA/WE Implementers , and PCI and CARE/Border Development Services in particular, should support independent technical review of designs before construction is initiated, supervise and exert quality control of construction before the plant is commissioned, and make periodic monitoring visits after commissioning to provide technical advise as may be required. NGO staffs need to understand that the purpose of an environmental impact assessment is to ensure competent engineering decisions are made that incorporate on-site and off-site issues into the design and construction planning. The USAID/El Salvador Environmental office should provide technical guidelines and support training that raises awareness and instructs technicians on EIA implementation that meets USAID requirements. For these demonstration projects, a follow-up program of technical assistance in operation, maintenance and management should be designed and implemented.

3.5 Environmental Education, Citizen Participation and Sustainable Use of Natural Resources

The environmental education component is the primary responsibility of the CARE Consortium, with SalvaNatura coordinating efforts among all members in their respective outreach areas. Also, World Vision dedicates approximately 5% of its efforts in its microwatershed projects in Ahuachapán Sur. Details on the findings, conclusions and recommendations for these activities are presented in Table 3.5.

3.5.1 Findings and Conclusions

AGUA has succeeded through environmental education activities in increasing citizen knowledge of and participation in the AGUA project, and in facilitating initiatives to protect and conserve water resources and the environment. SalvaNatura has built broad capacity within all members of the Consortium in environmental education, developing a number of especially strong educators among members' staffs. Accomplishments include development of a great number and variety of guides, innovative didactic material and educational activities both formal and non-formal learning. The Consortium has yet to

provide full training to its entire staff in the elements of environmental education and component activities. Most notable is the exclusion of staffs working in promotion and extension of soil and water conservation/agricultural diversification activities.

The Environmental Learning Centers established in various communities are seen as an integral part of the communities in which they re located, but these centers have not yet realized their full potential at the micro- and subwatershed levels. Environmental Learning Centers have put AGUA in a position to: support a more operational role in educating the public; serve local organizations that require environmental information, guidance or services; and serve as advocates for the incorporation of environmental and watershed protection in local organizational action plans. Didactic and educational materials produced and used by AGUA for environmental education have been used with youths, local leaders and local agricultural producers. This has promoted consciousness-raising and local conservationist actions on water resource management such as watershed and source protection, repair of water system conduits, composting and recycling activities, and in the case of ecotourism (i.e., Charguantique) an opportunity to leverage funding from other sources. Nevertheless, many of these materials still require field validation based on local expectations and requirements *vis a vis* environmental learning. It is not clear that the materials being used and reproduced by AGUA have been fully validated in field trials with prospective participants before they have been mass-produced and distributed throughout the Project outreach areas by CARE Consortium partners. As socioeconomic and agroecologic conditions are somewhat different among the different outreach areas (coast vs. mountains, types of agriculture and protection systems, young vs. older beneficiaries, etc), the environmental education messages need to be customized to reach these differing groups. For example, some problems were detected in the validity of several of the publications distributed by the Consortium, such as the language and approaches used in the booklets on municipal ordinances, wherein the intended messages are not adequately perceived by their intended target population. It appears that the Consortium rushed many of the materials into publication and dissemination without systematically field testing them and making necessary revisions. Some of these problems are being addressed in the more recently produced materials. Also, there is still a pending need for environmental education to play the part of a nexus of all AGUA components. The Learning Centers also spend a lot of time discussing macro issues when there are community-based, local environmental issues that they could address and then relate them to macro-issues, like global warming).

One innovation that merits special attention is that of payment of environmental services by communities served by potable water systems that use the El Imposible National Park as their water source. Communities' perception of the protected areas has been enhanced through the Project. Portions of water fees collected by these communities are financing the salaries of two park rangers—an excellent case study example of sustainability. Also, several ecotourism initiatives, one promoted by SACDEL in Charguantique and already operational, and the other in formative stages in the La Montaña de Santa Rita Protected Area, offer income producing alternatives for local communities to the destruction of their forest remnants.

3.5.2 Recommendations

AGUA should make environmental education training available to all staff, with an emphasis on applying elements of the component's objectives it to their particular activities. AGUA should also consider specialized training for staff in environmental education, using mechanisms such as intra-Consortium exchanges and cross-visits to each member's outreach areas to consolidate strategies and approaches. AGUA should, in the course of its work in this component, design and implement a process for systematically validating environmental education materials at the field level and for the varying

socioeconomic and agroecologic conditions present in the AGUA outreach areas. During the extended strategy period, it is suggested that the CARE Consortium determine the applicability and utility of those materials already produced, including an analysis of the level of understanding on the part of targeted groups of the messages presented in these materials, and make any necessary changes to these materials for subsequent use in AGUA-related activities in the future.

The Learning Centers are engaging participants in educational activities but are not engaging these participants in what would be considered to be an actual cycle of learning. The Centers must define their teaching and learning methodologies and organizations before AGUA project end and put together strategic action plans that focus their energies on issues of local environmental importance. While environmental education must touch on issues of global importance, addressing issues of local concern should be the primary activity in the Centers.

The Centers are typically not engaging in local environmental monitoring activities or thinking about charging for services of environmental monitoring as a possible income-generating activity. The Centers should see themselves not just as centers of learning but as providers of local environmental services—e.g., mobilizing or educating the community, providing environmental monitoring services, helping to develop environmental ordinances and ordinance implementation strategies—to water committees, watershed committees, municipalities, local development committees, etc. To this end, AGUA should help the Centers obtain their legal status to facilitate such actions, whether separately or as an related sub-organization of the local watershed organizations (to be legalized under the decree creating the Interinstitutional Watershed Management Commission) and focus on those income generating activities with real promise for success, using market research to drive the decisions on what activities to pursue. AGUA should also increase implementation of training of trainers activities at the Learning Centers to support sustainability of environmental education activities after AGUA's exit.

AGUA has generated a multitude of activities around water resource use and conservation and an incipient coordination between local organizations that it is hoped will help to sustain AGUA activities after the Project's exit. To strengthen this area, AGUA should put together for these organizations a methodology guide for the planning and development of water resource and watershed protection activities. AGUA should monitor and support these inter-organizational relationships and collaborations, promoting collaborative planning and socialization of priorities.

The Environmental Education component tends to count as its performance indicators activities that are also being counted by other AGUA components. How this is sorted out at the time of reporting is not clear. If environmental education is indeed a nexus for all AGUA components, counting of results and outputs toward Project IRs should be integrated on the level of the other Project components and be a topic that is addressed on the planning for the integration of project activities recommended by the Evaluation Team that should take place over the period of the extended strategy period (and subsequently extended AGUA ACD).

AGUA Activity Evaluation

Table 3.5: Environmental Education, Citizen Participation and Sustainable Use of Natural Resources

Findings and Conclusions	Observations and Recommendations
A. Accomplishments	
1. AGUA has built strong capacity in the consortia in environmental education, and especially strong educators among the consortia members.	a. Standardizing materials and training provided to staff members has brought about a standard approach to environmental education in the field, which has been successful in educating the target population.
2. AGUA has developed a great number and variety of guides, innovative didactic material and educational activities both formal and non-formal. (radio programs, puppets, etc.)	a. These materials are serving the needs of a diverse group of educators – school teachers, local promoters, and AGUA staff. b. Environmental Education is a nexus of knowledge on all of the different components of the AGUA Project.
3. The Environmental Learning Centers are successful providers of environmental information on the local level and have successfully promoted the incorporation of youth into the AGUA project.	a. Support given to the Centers has allowed them to become operational – implementing small projects b. The Centers have worked to link activities to income generation and this should continue.
4. AGUA has been able to reach both local organizations and the general public with environmental messages by engaging both in environmental education activities.	a. This has been accomplished by facilitating environmental educational processes with local leaders and through incentives targeting youths.
5. AGUA has developed or supported diagnostic activities in critical environmental initiatives around water, watershed protection system repair, composting projects, waste recycling, etc.	a. These activities have served to raise local awareness and motivate local participation in local environmental management.
6. AGUA has facilitated important pilot environmental projects in ecotourism and other areas that link resource use with natural resource conservation and protection.	a. AGUA has catalyzed local participation, opened doors to work with and strengthen organizations, leverage development resources, and build local capacity through pilot project implementation.
B. Aspects that Merit Greater Attention and Improvement	
1. Within the AGUA project itself, AGUA has not provided full training to its entire Consortium staff in the environmental education component. Most notable is the exclusion of consortia agricultural promotion/extension staff.	a. AGUA should make environmental education training available to all staff, with an emphasis on applying it to their particular component. b. AGUA should consider specialized training for staff in environmental education, using techniques such as inter-consortia exchanges/visits.
2. It is not clear that the materials being used and reproduced by AGUA have been validated in field trials.	a. AGUA should in the course of its work in this component design and implement a process of for validating AGUA environmental education materials, so that by project end any necessary changes can be made in the materials resulting in validated environmental education resources for general use
3. The learning Centers are engaging participants in educational activities but are not engaging these participants in what would be considered to be an actual cycle of learning. The Learning Centers also spend a lot of time discussing macro issues when there are community and local environmental issues that they could address.	a. The Centers must define their teaching and learning methodologies and organizations before AGUA project end. b. Each Center should put together strategic action plans that focus their energies on issues of local environmental importance. While environmental education must touch on issues of global importance, addressing issues of local concern should be the primary activity in the Centers.

Evaluation Findings, Conclusions, and Recommendations

Findings and Conclusions	Observations and Recommendations
4. The Centers are typically not engaging in local environmental monitoring activities or thinking about environmental monitoring as a possible income generating activity.	a. AGUA should build monitoring capacity as well as making the Centers places that can be used by local organizational leaders who require information on environmental rules/regulations, or who require help in developing environmental regulations of their own. b. AGUA should help the Centers focus on those income generating activities with real promise for success, using market research to drive the decisions on what activities to pursue. c. The Centers should seen as centers of learning *and* providers of local environmental services – e.g., mobilizing or educating the community, providing environmental monitoring services and advice on regulations – to water committees, watershed committees, municipalities, local development committees, etc.
5. AGUA uses a supply-side approach to environmental education, offering a general product to all of the Centers.	a. AGUA should experiment more with demand side approaches to training, performing diagnostics to either fine-tune approaches used at each center or to validate the supply-side strategy. b. AGUA should be focusing on training of trainers activities at the centers to support sustainability of environmental education activities after AGUA's exit.
6. AGUA has generated a multitude of activities around water resource use and conservation and an incipient coordination between local organizations that it is hoped will help to sustain AGUA activities after the Project's exit.	a. To strengthen this area, AGUA should put together for these organizations a methodology guide for the planning and development of water resource and watershed protection activities. b. AGUA should monitor and support these inter-organizational relationships and collaborations, promoting collaborative planning and socialization of priorities.
7. The Environmental Education component tends to count towards its Project results activities that are also being counted by other AGUA components. How this is sorted out at the time of reporting is not clear.	a. If environmental education is indeed an nexus for all AGUA components, it counting of production towards Project results should be integrated on the level of the other Project components.
8. The Environmental Education component does not have either indicators nor measuring tools to monitor its impact	a. AGUA should develop indicators and measuring activities that will capture the changes in behavior of beneficiaries as impact of the Environmental Education component.

3.6 Project Strategic Planning and Policies for Sustainable Management and Use of Water Resources

This subsection summarizes the findings, conclusions and recommendations with respect to the strategic planning approaches used by Implementers, as well as several policy and regulatory initiatives undertaken primarily by the members of the CARE Consortium to promote sustainable use of water resources and watershed management. The full list of findings and conclusions, together with recommendations concerning these activities are presented in Table 3.6.

3.6.1 Findings and Conclusions

AGUA has facilitated raising the awareness of stakeholders at varying levels of Salvadoran institutions and society of the need to sustain water resources with integrated watershed management strategies, including agricultural producer groups, municipal governments, and technical professionals. Strategic planning by AGUA Implementers has been somewhat weak, as diagnostic studies did not incorporate sufficient hydrogeomorphological and agroecological parameters, leaving the selection of projects areas biased toward the existence of interested community groups. This in part may be attributed to the pressure from USAID to achieve physical targets, but also indicates some deficiencies in the strategic planning approaches used by Implementers. Acknowledging the need to increase efforts to meet these WE targets and expand the areas of project impact to water policy improvements, solid waste treatment and wastewater treatment, USAID signed additional cooperative agreements with a number of other Implementers. However, some of this financing only marginally tied to AGUA objectives, resulting in some problems of geographic and technical project drift.

The strategy and process for promoting the issuing of municipal ordinances to encourage integrated resources management and environmental health should lead to better local control of problems leading to watershed and water resources deterioration as mechanisms are put in place to apply and enforce them. The CARE Consortium's efforts at the national level, working closely with consultants provided under USAID's Global Environmental Health Project and MARN, will hopefully lead to the establishment of the National Watershed Management Commission and facilitate legalization of local watershed committees being organized by the Consortium in project outreach efforts. Furthermore, nearly all Implementers are advancing to some degree the innovation of incorporating the costs of environmental services in water fees charged to customers of small communal and municipal water systems—a fundamental step in guaranteeing the sustainability of both water systems and the watersheds that serve them—but as yet, the policy has not been linked to irrigation water supplies.

On the other hand, AGUA has not adequately met its obligations under its Initial Environmental Examination (IEE) and no adequate environmental assessments were performed for higher-risk wastewater and solid waste management projects, presenting actual and potential problems with their construction and operation. According to the text of the AGUA Environmental Threshold Decision (LAC-IEE-98-29, authorized on September 7, 1998), under section II, Recommendation: "*If a sub-grant is proposed for an action for which there is no approved guidelines in the Mission documentation, a site specific EA should be performed. Therefore, we recommend that the environmental recommendations made in the previous Environmental Assessments be made available to the participating secondary organizations, but that no further investigation be required.*" The guidelines referred to in the Decision are those covered under the IEEs for the Public Services Improvement Project (519-0094) and the Small Infrastructure Activity (519-0094). According to Project Implementers, these guidelines were not provided by the Mission. Furthermore, the scale potential for negative environmental impacts of solid

waste and wastewater management systems should have required a more stringent environmental due-diligence. While documentation was presented to MARN under its environmental assessment regulations, the content and quality of these documents did not qualify as an EA under standards normally upheld by USAID. An amended to the IEE was issued on November 16, 2000 to cover the drilling of wells. Guidelines established in this amendment, by reference to those already in use under PROSAGUAS and standards held by ANDA, have generally been followed. However, the recommendation included in the amendment stated that: "*USAID and CARE will keep track of the results and effectiveness of the guidelines and will use this experience for improvement of [USAID] well drilling guidelines in the future. [USAID] will also provide suggestions to the Ministry of Environment and Natural Resources on the content of a National guideline for well drilling activities*." While it cannot be stated emphatically, no evidence was found during the evaluation that these actions have been taken by the Mission.

The grouping of the activities and respective performance indicators under the four AGUA components is confusing and causes difficulties in project administration and in monitoring the impacts of Project activities. The original project design did not include the indicators necessary to adequately assess the social, economic and/or environmental impacts of Project interventions and progress towards the Activity SO and IRs. Also, there is currently insufficient coordination among CTOs both within the WE Office and those of other USAID offices, as several procedures and standards differ among projects and are not being sufficiently coordinated at the field level, thereby necessitating that every project be self-sufficient in all technical areas.

3.6.2 Recommendations

AGUA Implementers should integrate all activities into a selected number of sub- and microwatersheds, using strategic planning criteria on which to base the selection of appropriate geographic areas and technical activities with linkage to potable water and irrigation systems to their watersheds. Implementers should seek collaboration among other organizations working in AGUA to complement any deficiencies in their own staffing capabilities both within and without the Consortium. Application of policies related to incorporating the costs of environmental services should be intensified and incorporated in all subprojects, and formalized in municipal ordinances and bylaws of water boards and committees. In the case of those municipal ordinances already promulgated, AGUA should assist municipalities in their adequate application and enforcement through knowledge of instruments and lessons learned in other municipalities in El Salvador and countries in the region.

USAID needs to review its internal oversight for quality control on the AGUA IEE process through more formal procedures involving its Environmental Officer and provide Implementers with adequate guidelines, standards and training to ensure compliance with the spirit and letter of the AGUA Project IEE. MARN's environmental assessment efforts are in their infancy and the Ministry does not have sufficient personnel with the professional skills necessary to ensure the environmental viability of subprojects promoted under AGUA. USAID's own procedures should include requirements to consider at least 3 alternative sites for wastewater and solid waste management projects, as selection of an adequate site is the most important step in ensuring the environmental sustainability of the operation of these works. Even as land is at a premium in El Salvador, this requirement will also serve to reduce the politics surrounding the purchase of land for such projects, including problems of land/price speculation and corruption.

USAID should also make an effort to unify technical procedures and standards, during both design and operational phases, for all projects within the mission, regardless of the geographical focus or counterpart organizations, and promote greater geographic and technical coordination among projects regardless of

which SO or office where assigned. For instance, WE should coordinate the provision of technical and operational outreach in aspects of integrated water resources/watershed management with HO and Earthquake Reconstruction Program (ERP) where these offices promotes improved water and sanitation services, and with EGE where water resources are being used for diversified agriculture and agroindustry. Concomitantly, HO and EGE should coordinate delivery of services provided under projects financed out of these offices to cover needs that WE does not routinely handle under its SO. This should achieve mutual technical and impact-related "value-added" among all projects, contribute to all projects' sustainability objectives, and reduce problems of project drift. Also, impact indicators related to IRs for WE can be improved based on the experience of HO and, depending on the adoption of some of the indicators suggested in Table 3.7 below, WE can contribute to the cross-referencing of indicators that can enrich the assessment of impacts of activities promoted under projects financed by the other offices in the Mission.

USAID, in close consultation with its Implementers, should reorder AGUA activities under the existing components in order to facilitate more efficient administration, monitoring and evaluation of Project activities. USAID and Implementers should also review the utility and validity of current performance indicators, consider reducing their number and improving the instruments used to track the indicators of those found most useful, and include additional indicators to more accurately monitor the impact of project interventions and progress toward meeting SO4 and IRs.

AGUA Activity Evaluation
Table 3-6: Findings, Conclusions and Recommendations for Strategic Planning and Policies for Sustainable Management and Use of Water Resources

Findings and Conclusions	Observations and Recommendations
A. Accomplishments	
1. The innovation of promoting consortia among NGOs to carry out collaborative implementation of the AGUA Activity has worked out well, albeit after an initial year of interrelational growing pains. Individual NGOs have also carried out their duties without any major problems.	a. While the CARE/SalvaNatura/FUNDAMUNI/SACDEL Consortium has worked out well, USAID should continue to support activities through individual NGOs to engender competition and innovation, but encourage more collaboration among these in priority geographic areas based on their respective specialties to address integrated program needs.
2. The Project has facilitated raising consciousness at varying levels of El Salvadoran society about the importance of sustaining water resources with integrated watershed management strategies, including agricultural producer groups, municipal governments and technical professionals.	a. This accomplishments represents one of the most important advances under the Project, as such actions are fundamental to guaranteeing the sustainability of project-sponsored activities in water resources management.
3. Project Implementers were able to consolidate groups that they previously had assisted under other projects (including PROMESA/GreenProject financed by USAID) which permitted reestablishment of demonstration sites and a quick startup of activities in AGUA outreach areas.	a. Earlier projects were not able to achieve local development and consciousness-raising goals nor reach a critical mass of the population due to restrictions of time and resources. AGUA has capitalized on these earlier projects and has been able to fulfill many of the goals of capacity building and technology transfer.
4. AGUA's strategic focus on the watershed as a planning unit is gaining acceptance at local levels as citizens and local government officials are relating the quality and quantity of their water resources to the condition of local and regional watersheds.	a. The Project has facilitated the creation of sub- and microwatershed committees that combine representatives of civic and government organizations of one or more municipalities and numerous *cantones* in efforts to collectively manage water resources shared by all parties—one of the principal objectives of the proposed regulation to establish the Interinstitutional Watershed Commission and local watershed organizations.
5. The approach of promoting the promulgation of municipal ordinances to encourage environmental protection and water resources conservation is the correct one, as long as mechanisms are put in place to apply and enforce them.	a. The next step in applying and enforcing municipal ordinances needs to be articulated and promoted under the Project, using precedents in other municipalities as these may be available in El Salvador or neighboring countries.
6. Efforts at the national level through the National Water and Sanitary Network and MARN have served to educate a broad cross-section of Salvadoran society in the need for cohesive and equitable water resource laws and a draft executive decree to establish a regulation to the National Environmental Law to create a national watershed management commission and facilitate legalization of local watershed committees.	a. CARE should continue its efforts with MARN to see through efforts to establish the Interinstitutional Watershed Commission, but increase emphasis on the establishment and strengthening of subwatershed and microwatershed committees (note that the draft regulation tends to support establishment of larger watershed organizations in deference to microwatershed committees). b. It is suggested that all activities of the Project concerning the General Water Law be ended and any remaining activities be dealt with directly by the Water and Sanitation Network acting as advocate.

Findings and Conclusions	Observations and Recommendations
7. The Project has been innovative in its promotion of including the costs of environmental services as a line item in water fees charged to customers of small communal and municipal water systems. While these efforts are incipient, such actions represent a fundamental step in guaranteeing the sustainability of both water systems and the watersheds that serve them.	a. The inclusion of such charges needs to be promoted uniformly throughout the Project outreach area by all Implementers. b. A minimum of 10% of water fees charged should be directed to conserving and improving conditions in the upland watersheds. c. Charges for environmental services should be formally incorporated into tariff structures vis-à-vis statutes of each water board's bylaws and municipal ordinances.
8. The CLARA Program represents a promising strategy and mechanism for use in monitoring of water sources and potable water systems, and as an environmental health education tool.	a. The current CLARA program, administered by FUNDAMUNI, is restricted to a limited number of schools in Usulután but, based on the success of the program to date, should be expanded throughout all of AGUA's outreach area. b. CLARA work on water quality monitoring should be disseminated throughout AGUA's outreach areas, with data systematically collected and analyzed as an impact indicator.
B. Aspects that Merit Greater Attention and Improvement	
1. The municipal and subwatershed diagnoses using gender as an axis, while very useful to profile socioeconomic and environmental conditions in project areas, have not included elements of strategic planning necessary to prioritize geographic areas and techniques to deal with problems in watersheds.	a. On a positive note, diagnoses produced profiles of problems from men and women's perspectives, thus guiding program development. b. AGUA Implementers (esp. CARE Consortium) should revisit guidelines for diagnostic studies & include strategic elements to facilitate prioritizing problems and solutions with both a geographic and socioeconomic context.
2. Deficiencies in strategic planning have resulted in the dispersion of project interventions without regard to geographical watershed management priorities as these relate to integrated water resources management. Several of the sub- and microwatershed plans place too much emphasis on socioeconomic & agroecologic descriptions/problems, followed by a long list of proposed subprojects, many of which have little relation to the AGUA objectives. On the other hand, most of these plans are being presented late in the AGUA Project cycle and may be of limited use for guiding activities.	a. AGUA activities should be consolidated into a selected number of sub- and microwatersheds integrating all salient elements that may be currently missing, and linking potable water and irrigation systems to their tributary microwatersheds. b. According to the menu of activities selected, Implementers should seek collaboration among other organizations working in AGUA to complement any deficiencies in their own staffing capabilities (within/without the Consortium).
3. Environmental assessment of AGUA subprojects, especially those of higher environmental risk such as wastewater treatment and solid waste landfills, have been deficient. While MARN has approved these subprojects based on limited and incomplete information, these documents do not meet minimum regional standards or USAID's requirements under the AGUA Activity IEE. Minor to moderate environmental problems have been detected in relation to most of these projects.	a. USAID should review its internal oversight for quality control on the AGUA IEE process, provide necessary guidelines and facilitate training to ensure compliance. This should include requirements to consider at least 3 alternative sites for wastewater and solid waste management projects. b. Demonstration efforts in agricultural diversification and irrigation, marketing, solid waste management and wastewater treatment and disposal should be accompanied by higher-quality diagnostic analyses in order to project potential social, economic and environmental impacts and incorporate necessary design changes and mitigation.

Findings and Conclusions	Observations and Recommendations
4. There is insufficient coordination among CTOs and their respective projects in the application of standards, and supervision of quality control among the differing sources of financing. Also, projects financed by USAID under other SOs are not being coordinated at the field level to interchange complementary technical services, thus requiring that every project be self-sufficient in all technical areas (very inefficient).	a. USAID should make an effort to unify technical standards for all projects within the mission, regardless of the geographical focus or counterpart organizations. b. USAID should promote synergies among projects regardless of which SO or office where assigned. Such synergies should consider advantages of geographic overlap to achieve "value-added" among projects, and the provision of specialty services from one project's executing agencies to others where such capability may not exist.
5. The counting of "water-related changes" under IR 4.3, More Effective Citizen Actions to Address Water Issues, is very ambiguous and includes a large number of activities, some double counted under other IRs (such as the repair of water systems).	a. While it is understood that such "changes" are difficult to define, AGUA Implementers should dedicate part of the aforementioned effort to reorder activities and indicators within the components to more precise definitions of what such changes entail. These changes should be limited to the outputs/products that spring from environmental education per se, and not confused with such activities as repair of water systems, adding chlorinators to water systems and/or reforestation activities that would normally be counted under other activities.
6. The current grouping of the activities (and indicators of execution) under AGUA components is confusing and complicates their administration as well as efforts to monitor the impacts of Project activities. For example, soil/water conservation and agroforestry activities are budgeted under the same component with wastewater treatment and solid waste management.	a. To better administrate and monitor AGUA activities, USAID and Implementers should analyze and propose a reordering of activities under the existing components. b. USAID and Implementers should also review the utility and validity of current performance indicators and consider reducing their number and improving the instruments used to track the indicators of those found most useful.
7. Some double counting of beneficiaries is occurring across several components in areas where two or more organizations are working in collaboration (primarily assumed to affect PCI and FUNDAMUNI in Usulután). Also, the interpretation of what constitutes fulfillment of an indicator and when an activity can be counted is very subjective to interpretation.	a. As part of the recommended exercise to reorder activities and indicators under each Project component, it is suggested that definitions for these indicators be refined so as to reflect "hard numbers" limited to an established set of qualifiers. b. Where certain activities yield products that do not fit exactly into the aforementioned indicators, then any anomalies should be clarified with a technical footnote.
8. The original project design did not include, nor is the Project now monitoring, the indicators necessary to appropriately and quantitatively determine the social, economic and/or environmental impacts of Project interventions and progress in achieving IRs	a. Throughout the Mission's extended strategy period and extended AGUA ACD, USAID should encourage the establishment of a minimum number of impact indicators with direct relevance to the AGUA IRs (see Table 3.7), establish an adequate baseline (where one has not yet exist) and monitor these throughout the period of the extended ACD (until 9/30/04).

3.7 General Recommendations to USAID regarding the AGUA/WE Activity

Recommendations which respond to the general findings and conclusions presented in section 3.1 are presented in more detail in Table 3.1. The following subsection focuses on some of the more important general recommendations of the evaluation. The principal recommendation of the evaluation, applicable to the Mission's extended strategy period until September 30, 2004, is as follows:

> *USAID should extend existing cooperative agreements and provide those funds necessary beyond the actual AGUA ACD and until the end of the extended strategy period (until September of 2004) so that current Implementers consolidate project activities in selected sub- and microwatersheds in order to establish integrated models of decentralized management and sustainable use of water resources. These models should include all elements currently being promoted in different parts of the project area by implementing organizations, including:*

- A participatory water resources/watershed management plan supported by all relevant groups;
- Municipal ordinances regulating environmental health and integrated water resources management;
- One or more water systems (for potable and/or irrigation uses) served by respective watersheds;
- Environmental and public health education and awareness programs, and civic groups active in water resources advocacy;
- Water use tariff structures that include a minimum 10% of fees dedicated to management of contributing watersheds; and
- A more science-based monitoring and evaluation system based on indicators of impact as well as performance indicators.

The Evaluation Team finds that all Implementers are doing an admirable job in meeting their targets and promoting most of the elements of SO4. The CARE Consortium in particular is promoting all elements of the sub- and microwatershed management model as a basis to achieve the integrated management of water resources, albeit with some exceptions as noted in the preceding sections of this report. Implementers have made important advances in developing a decentralized integrated water resources management model linking the sustainability of potable water and irrigation systems to the integrated management of their tributary watersheds. However, due to short period of execution (three years to date) and interruptions brought about by the January and February 2001 earthquakes, activities under AGUA have not yet reached the critical point necessary to ensure their sustainability, nor have the various technical, institutional and financial instruments being promoted by Implementers been sufficiently consolidated into proven and replicable models in El Salvador. It would be counterproductive at this juncture to re-compete the cooperative agreements necessary to implement activities during the extended strategy period for the following reasons:

i) the experience in working with local community groups and under those socioeconomic and agroecologic represented in the Project's targeted outreach areas could be lost with replacement of one or more of the implementers;

ii) a new competition would produce disruption and break in continuity of activities still in execution, especially demonstration projects, and result in lost momentum, disillusionment of project participants/beneficiaries and probable irretrievable loss of counterpart and cost-share funding;

iii) should current Implementers be changed, then this would compound the impacts of the upcoming municipal and congressional elections on AGUA efforts, as the cast of new actors on both sides—implementers and participants—will most probably produce chaos and drastically reduce the potential for reaching AGUA/WE objectives; and

iv) other similar efforts by USAID to re-compete the management of activities already in execution (for example, PROARCA) have ended up in the selection of the same implementing organizations which have had to re-mobilize project activities after a one-year break, resulting in serious cost inefficiencies applicable to USAID and the organizations involved, and necessitating the rehiring and retraining of staff resources and additional logistical expenditures related to re-mobilization.

The decisions on how to proceed with the reassignment or suspension of cooperative agreements with those Implementers promoting activities with only marginal applicability to AGUA objectives (i.e., agricultural diversification and marketing) should be taken within the context of USAID's Mission portfolio and overall development strategy for El Salvador (see below).

3.7.1 Strategic Focus of Activities until FY04

As part of the effort to implement the principal recommendation of the evaluation indicated above, USAID and Implementers should Implementers should develop a series of criteria on which to base the selection of those sub- and microwatersheds for consolidation. The principal strategic element to consider is that of linking water systems (potable and/or irrigation) to their tributary watersheds.[15] Efforts should be made to complement any missing elements of the integrated model indicated above. In response to the eventual selection of the sub- and microwatersheds and technical activities to be consolidated therein, where Implementers may not have sufficient expertise or experience for particular technical approaches, they should seek collaboration among other organizations working in AGUA/WE activities in order to complement any deficiencies in their own staffing and outreach capabilities (this is already happening among the Consortium partners and to a limited extent among the other implementing organizations).

While agricultural diversification and marketing activities were not considered part of the original thrust of the Project, they are relevant to ensuring that intensified agricultural production with irrigation succeeds economically, and should be continued but under different arrangements. Hence, it would be worthwhile for USAID to continue the funding of CRS and IICA/CAMAGRO activities, but they should be funded and administered under a different SO (i.e., Economic Growth) with outreach services offered, if not strategically oriented, to specific areas in the AGUA outreach area. On the other hand, agricultural diversification activities promoted under the Economic Growth SOs that deal with water supply for irrigation and/or agroindustry should embrace the principles of integrated water resources management, including soil and water conservation and upland watershed management and can access services from AGUA/WE Implementers. This strategic approach would facilitate cost-effective synergies and impacts of added value to both Strategic Objectives.

Concerning the policy initiatives, CARE Consortium members should assist municipalities in articulating equitable mechanisms to apply and enforce municipal ordinances promulgated with assistance of the Project, preferably considering similar precedents in other municipalities as these may be available in El Salvador or neighboring countries (especially Costa Rica and Mexico). CARE should continue its efforts

[15] As an objective of the AGUA/SO4 Activity is to integrally manage watersheds, for water systems that use wells as a water source, activities should be linked to the micro- or subwatersheds within which the respective communities reside, even if the source for the well water is hydrogeologically outside of these geographic limits.

with MARN in support of the initiative to establish the Interinstitutional Watershed Commission, but increase emphasis on the establishment and strengthening of subwatershed and microwatershed committees, as such efforts in Cara Sucia, Rio Borbollón, El Zúngaro and Rio Corinto (among others) are quite promising and should be cultivated as models for eventual replication. AGUA activities related to the General Water Law should be concluded and the Water and Sanitation Network, currently coordinated by PCI, should act as advocate.

3.7.2 Reordering of Activities under Existing Components and IRs

USAID should convene a working group with the CARE Consortium and PCI to analyze and propose a reordering of activities under the existing components. Such a reordering should consider criteria that would facilitate administration (grouping of purchases of goods and services, and accounting categories), annual project planning and reporting (work plans and reports), and the grouping of similar and/or integrated activities. As a starting point, the following suggestions may be considered:

Component 1 and IR 4.1: *Improved Quality of Water Sources through Strategic Watershed Management*

This component would include such activities: as soil and water conservation, agricultural diversification and home gardens, reforestation, agroforestry, improved pasture and cattle management, stream corridor management, and protected areas management. All training and extension activities related to these elements would be budgeted under this component. Performance and impact indicators would be assigned accordingly.

Component 2 and IR 4.2: *Improved Performance of Water Delivery System, Waste Management Infrastructure and Civil Works for Risk Management*

This component would include: repair or expansion of existing and construction of new water systems, water source improvement and protection (to enhance access and quality of traditional water sources of water holes and artisanal wells), construction and operation of wastewater treatment facilities (both municipal-scale and household-level sanitary solutions), solid waste management infrastructure (including municipal-scale solutions such as trash separation and composting), civil works to remediate or reduce the risks of landslides and other natural hazards, and reservoirs for provision of potable and/or multiple use water supplies (excluding simple systems dedicated to agricultural use, which would be in Component 1). All training and technical assistance activities related to these elements would be budgeted under this component. Performance and impact indicators would be assigned accordingly.

Component 3 and IR 4.3: *Improved Awareness and Policies to Address Water Resources Management Issues*

This component would encompass those activities relating to environmental education (formal and non-formal), community and advocacy group cleanup and recycling activities, dissemination of public information of appropriate water resources management and environmental health practices, advocacy activities with municipalities in areas of ordinances for improved water resources management, environmental protection and public health, and activities related to policy initiatives at the national and microregional or subwatershed levels (including the Interinstitutional Watershed Commission). All training and technical assistance activities related to these elements would be budgeted under this component. Performance and impact indicators would be assigned accordingly.

Component 4 and IR 4.4: *Decentralized and Participatory Organizations Planning and Administering Programs of Integrated Water Resources Management*

This component would include all those activities currently considered part of the CARE Consortium's Component "0", including organizational development and strengthening, training of community and municipal leaders, facilitation of micro- and subwatershed committees (or organizations as they are referred to in the draft executive decree for establishing the Interinstitutional Watershed Commission), local and regional development and watershed management planning (and plans), and facilitation of advocacy and technical assistance networks among collaborating organizations at the inter-municipal, regional and/or national level. All training and technical assistance activities related to these elements would be budgeted under this component. Performance and impact indicators would be assigned accordingly.

3.7.3 Establishment and Monitoring of Impact Indicators

As indicated in preceding subsections, the AGUA/WE design and subsequent implementation have not included the establishment of adequate baseline and indicators needed to appropriately quantify and analyze the social, economic and environmental impacts of activities in execution. In order to determine real progress toward meeting Strategic Objective 4 and the associated IRs, USAID and Project Implementers should modify the current list of Performance Indicators to include a minimum number of impact indicators for each group of component activities to more efficiently and effectively monitor the social, economic and environmental impacts of project activities. CARE has developed a monitoring and evaluation (M&E) system proposal which is under consideration for application to AGUA Project activities, but the proposal still focuses almost entirely on performance indicators—that is, counting outputs in relation to activity targets (i.e., annual goals). Table 3.7 presents an annotated list of impact indicators that can be considered by USAID/WE and AGUA Activity Implementers.

Once a new (or at least additional) set of impact indicators has been selected, USAID and Implementers should modify their own M&E instruments and reporting systems. This list is intended to offer alternatives of impact indicators by the categories of activities and can be selected depending on the interest, capability and budgets available to Implementers and USAID's needs for better feedback. Most are relatively inexpensive to monitor, several of which cab incorporated into survey instruments already in use by Project Implementers. Another potential mechanism for monitoring and evaluation could be established through collaborations with Salvadoran universities. Professors and students could take on specific impact and technology adoption/spread studies for particular activity areas, including such aspects as water quality monitoring, acceptance indices

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Table 3-7: Impact Indicators with Potential Applicability to AGUA Intermediate Results Package

Impact Indicator	Instrument	Frequency
1. Repaired, Expanded and/or New Water Systems		
a. % of households (rep. sample) in project outreach area meeting both quality & time standard (data taken in outreach/control areas): i. Hours of water service/day/week ii. Chlorine residual iii. Quality control of chlorine residual & Total/E. coliforms	 - Household survey - Household survey & CLARA Program - 5-10% sample to lab analysis	 Twice/year Twice/year Once/year
b. Number of activity sites with at least a 26% reduction in diarrhea among children under 5-years old	- Household survey - Survey of health centers (crosscheck)	Twice/year Twice/year
c. No. and % of households using water conservation mechanisms	- Number & % of households on water meters	Annual
2. Household Sanitation		
a. No. of households with sanitary disposal vs. water hookup	- Household survey & inspection	Once (at hookup)
b. Incidence of overflow (seasonal & reasons)	- Household survey & inspection	Twice/year
c. % doing septic tank/compost latrine maintenance (clean-out)	- Household survey & inspection	Twice/year
d. Water quality of streams in selected microwatersheds	- Total/E. coliform sampling	4/year
3. Wastewater Treatment Systems		
a. Functionality of WWT systems	- Sample BOD_5 of inflow & outflow - Accumulation & disposal of solids - Sample WQ of receiving stream (BOD_5)	Monthly/quarter Monthly or more Monthly/quarter
b. Incidence of improper disposal of solid waste in WWT system	- Screenings volume/type count	1-2/year
c. Odors	- Household survey	Daily/weekly
4. Solid Waste Management		
a. % of households doing garbage separation (rep. sample)	- Household inspection at time of pickup	Weekly/monthly
b. Incidence of garbage in streets, streams, vacant lots, etc.	- Neighborhood inspections	Monthly
c. Functionality of solid waste landfills	- Presence of vultures, gulls, rodents, flies - Odors - Volume and WQ of leacheate - Seepage of leacheate (core sampling)	Daily/weekly Daily/weekly Monthly Annual/Bian.
5. Soil and Water Conservation, Agroforestry		
a. Area (Has.) under improved practices in *active use for 2 years*: i. No-burn & slash mgmt & no-till ii. No-burn & rock or green barriers iii. Reforested areas (closed canopy) iv. Live fencing (Linear mts) v. Improved pasture (no-burn grasses, paddock division)	- Farm records & inspections	Dry/wet season
b. Soil organic material content (*proxy*: erosion control/infiltration)	- Laboratory analysis of field samples	Dry/wet season
c. Incidence of technology uptake by practice (% adopting/2 yrs)	- Home/Farm survey & inspection	Annual
d. Water quality in streams/rivers (*proxy*: watershed improvement)	- Suspended solids of treated vs. control in selected microwatersheds	4/year
6. Environmental Education and Awareness		
a. Incidence of garbage in streets, streams, vacant lots, etc.	- Neighborhood inspections	Monthly
b. % of municipal budget dedicated to water, watershed and environmental activities	- Annual budgets & expenditures	Annual

Impact Indicator	Instrument	Frequency
c. Change in the land area dedicated to protected areas and biodiversity protection (including stream corridors)	- Aerial and ground surveys to determine protected areas (Has.) and length of stream corridor protected (mts.)	Annual
d. No. of municipalities systematically applying ordinances in environmental protection, no-burn, open dumping of solid waste, deforestation, etc. (*Note*: logs must be kept)	- Incidence of complaints registered - No. of complaints responded to (actions)	Monthly Monthly
e. Level of participation of citizens in pro watershed/environment actions by type (water conservation; trash cleanups; chlorinating water; paying their water, sewer and/or solid waste fees; actively supporting ecotourism and protected areas projects, etc.)	- Log of people attending WS & environ. committees meetings & events (by gender) - Household survey to determine incidence & type of actions taken (by gender/age)	Quarterly/ Annual 1-2/year
7. Decentralization, Participation and Local Development		
a. No. and % of groups/organizations with watershed management & environmental protection activities as part of operational plans	- Review of development/operational plans - No. of watershed groups organized	Annually Annually
b. No. (as % of those promoted) of municipalities with integrated water resource management plans adopted with budgets disbursing	- Review of plans and monitor of execution	Annually
c. % of municipal budget dedicated to water, watershed and environmental activities	- Annual budgets & expenditures	Annually
d. Level of participation of members of organization	- Logs of participation in meeting and events	Annually
e. Level of competence/success of organizations in facilitating execution of development plans	- Amounts ($) and sources (No.) of funding sources included in budgets - No. of projects in work plan completed as a % of development plans	Annually Annually
8. Institutional/Financial Sustainability for Operation & Maintenance of Water Systems & Watershed Management		
a. No. of organizations & municipalities (as % of those promoted) formally including the payment of the costs of environmental services in water fees and transferring these to WSM activities	- Statutes/bylaws of the organization approved and in force	As per Bylaws
b. % of water consumers (households) paying their monthly fees	- Administrative records/accounts receivable - % of customers in arrears	Quarterly Quarterly
c. No. (as % of those promoted) of municipalities with integrated water resource management plans adopted with budgets disbursing	- Review of plans and monitor of execution	Annually
d. % of budgets of Municipalities, CDLs, ADESCOs, and others dedicated to water, watershed and environmental activities	- Annual budgets & expenditures - % of operation/maintenance costs covered by water fees	Annual Annual
e. No. of organizations actively operating and developing water resource management activities and/or water systems after end of project assistance	- Survey of organizations' work plans, budgets and projects in execution 1 & 2 years after date withdrawal of assistance	1st & 2nd years

4.0 Lessons Learned and Development Impact of Project Activities

Implementation to date of the AGUA Activity, and other related activities financed under USAID/El Salvador's Strategic Objective 4, have provided a series of lessons learned. The lessons are applicable to both the remainder of the execution period though FY 2004 and to future strategies to be developed by the Mission's Water and Environment Office. While there are many lessons learned from the last 3 years of AGUA implementation, those presented in the following sections are some of the most important.

4.1 Overall Project Strategy, Management and Monitoring

a. The overall AGUA project strategy—that of integrating the sustainability of water systems with their management by local community groups and rehabilitation and maintenance of tributary watersheds—is deemed the most appropriate way to ensure sustainability in social, economic, political and environmental contexts in El Salvador.

b. The innovation of establishing a consortium of local and international NGOs to pool their particular talents to implement project activities and administrate AGUA resources has been successful. Member organizations have each learned from the other and have all been strengthened by the process, and have even entered into other consortia to manage other development assistance projects in the country.

c. The original AGUA design grouped project activities into four components in a somewhat confusing manner. While this has not unduly affected the quality of project execution, the reordering of activities under existing components is necessary to simplify project administration and facilitate more effective monitoring of performance and impact indicators.

d. As AGUA did not include sufficient nor appropriate indicators in the project design to adequately assess the socioeconomic and agroecological impact of project activities, it is necessary to establish a baseline and select a minimum number of such indicators to accurately quantify the progress toward meeting the overall Strategic Objective and Intermediate Results.

4.2. Decentralization and Local Management Capability Development

a. The CARE Consortium's strategy of facilitating the development of local and subregional integrated water resource management plans based on principles of watershed management is catalyzing the participation of a wide variety of stakeholders with multiple interests in seeking sustainable solutions for water supply and environmental health. These actions are contributing to national decentralization and democratic initiatives and facilitating the local governance mandates of municipal governments while strengthening numerous local organizations.

b. AGUA has pioneered efforts in El Salvador in the formation of watershed management committees which will be among the first to be legalized under the new executive decree for establishing a national watershed commission and related local watershed organizations. AGUA still needs to define those conditions (size, economic activity, presence of water systems, size and quality of water sources, population demographics, leadership etc.) that are optimal for the sustainability and operation of a watershed committee.

c. The use of incentives as an entrance strategy, while important to facilitate attracting participants to join local organizations and the testing and adoption of conservationist and/or income-producing technologies, can only be considered successful when participants begin participating and

adopting without continuing such assistance. Thus, the development and application of the exit strategy is just as important as the entrance strategy.

d. The incorporation of costs of environmental services in tariffs charged to water system users is a fundamental step in ensuring the sustainability of both the integrated water resources/watershed management and local development strategies.

4.3 Watershed Management, Water Source Protection and Sustainable Agroforestry

a. On areas treated, soil and water conservation practices promoted by the project are having a very positive impact en terms of reducing runoff and erosion, increasing organic material, improving soil structure and cation exchange capacity, increasing infiltration of rainwater and aquifer recharge—all contributing to maintenance and/or improvement of watershed conditions. The greatest level of acceptance on the part of the participating farm families are: i) no-burn; ii) crop residue (*rastrojo*) management; iii) green barriers of vetiver; iv) live fence posts; v) home gardens; and iv) fruit trees on individual terraces.

b. More time will be required to ascertain the cost effectiveness and sustainability of diversification and commercial horticultural production practices, as well as some of the techniques being promoted for diversion and storage of water for these activities.

c. Water source protection techniques provide low-cost, high-impact solutions for improving rural populations' access to cleaner water.

d. Promotion of soil and water conservation and crop diversification does not consistently adhere to strategic planning related to the overall objectives of the Project, especially in terms of selecting priority intervention areas and techniques according to watershed management needs.

4.4 Potable Water Systems, Wastewater and Solid Waste Management Infrastructure

a. The CARE Consortium is applying a comprehensive model for water supply that can be replicated throughout El Salvador and other countries Latin America that is resulting in the establishment of high quality potable water infrastructure that is operated, maintained and managed in a sustainable fashion, with strong institutional support for watershed protection and local preventative health extension.

b. NGOs can provide critical support in design and construction management, institutional development and strengthening, O&M capacity-building for potable water systems, and integrate these with local community action for watershed protection and local health extension to donors interested in building infrastructure.

c. Even with the best intentions under the SIA, infrastructure projects implemented without technical norms, technical oversight, and strong support of water management institutions, the quality and sustainability of the infrastructure cannot be assured.

d. Small amounts of money for high-demand infrastructure improvement (as in the case of water supply under SIA) can leverage impressive positive impacts on large populations by complementing the small investments in infrastructure with the comprehensive CARE Consortium training and extension package.

e. Demonstration technologies for unfamiliar and novel infrastructure, such as wastewater treatment systems and solid waste landfills, requires extra attention and oversight to deal with technical issues during site assessment, design, and construction. Extra time and resources to support the

establishment of sustainable management, administrative, cost recovery, and operation and maintenance systems is especially important for infrastructure that is not in high demand by users (compared to water supply infrastructure). Follow-up support after system commissioning is especially important if the systems are to be effectively operated and maintained for the long-term.

4.5. Lesson Learned in Environmental Education, Citizen Participation and Use of Natural Resources

a. Environmental Education activities have succeeded in involving youth in community environmental issues such as solid waste management and the need to rehabilitate and protect microwatersheds, and offered ecotourism demonstration projects as an alternative source of income that serves the dual purpose of protecting water resources and biodiversity.

b. The Environmental Learning Centers are succeeding in educating interested citizens, particularly youth on environmental issues, but AGUA is not implementing a strategic vision for these centers as sustainable environmental service providers. The Centers could function as local knowledge banks, community catalysts around environmental issues, sources of technical information and assistance on environmental issues, self sustaining educational operations, local environmental monitoring and ultimately as providers of environmental extension services.

c. Environmental education can contribute to the overall objectives and enrich the integrity of water resources management when its elements are incorporated as a nexus for all Project component activities.

4.6 Project Strategic Planning and Policies for Sustainable Management and Use of Water Resources

a. The use of strategic watershed management criteria would have improved the selection of priority intervention areas and technologies, and have minimized the incidence of dispersion in the Project's geographic outreach and missed opportunities for integration and synergy.

b. AGUA's strategy to focus on developing municipal ordinances should yield more positive results in efforts to reduce contamination, promote environmental health and rehabilitate watersheds.

c. The inclusion of a line item in water fees charged to customers of small communal and municipal water systems, although incipient, is a groundbreaking and fundamental step in guaranteeing the sustainability of both water systems and the watersheds that serve them.

d. It is important to analyze the potential social, economic and environmental impacts of waste management and agricultural diversification infrastructure before proceeding with construction and operation in order to reduce the risks of contamination, operational failures and/or adversely impacting other resource users.

5.0 Strategic Guidance for Future AGUA Activity

Problems of access to clean water can be expected to continue at a relatively static rate in El Salvador for next 5 to 10 years. The improving trend in the development of community water infrastructure was catastrophically set back with the disasters of Hurricane Mitch and the January 13 and February 13, 2001 earthquakes. The Government, with international assistance, is just barely getting back to the level of service provided before these events. With more than 50% of citizens lacking such access, current efforts just barely manage to maintain access at that rate and on a very slow rate of increase in coverage, as many efforts are oriented to rehabilitation of preexisting systems which were malfunctioning or stopped working altogether due primarily to poor maintenance and operation.

The physical conditions of watersheds, also adversely affected by the two aforementioned disasters, are actually improving. While poverty, the crash of the coffee market and general worldwide economic turndown have contributed to a recent spike in illegal cutting and clearing of the remnant forests and areas previously abandoned to farming, remittances reaching rural areas are facilitating the reduction in pressure on land conversion and farming pressure in upland watersheds. Deforestation rates are also either stable or in gradual decline. Still, land is not being managed adequately in the majority of the country and watersheds are still not in conditions conducive to producing reliable surface and subsurface water supplies, especially during the 6-month dry season.

On the other hand, there persists great competition among residential, agricultural and industrial users. The absence of a modern and equitable water law has resulted in a state of chaos wherein water is deemed more of an open-access resource available for those with the economic means to tap the supplies and lock them up on a first-come-first-serve basis. This competition, especially in rural areas, will increase as agriculturists seek to diversify their production to year-round commercial vegetable and fruit production which requires access to water supplies throughout the year. The AGUA Activity, through its Implementers, has been directly dealing with all these realities in the outreach areas served, by the Project and associated cooperative agreements, and has made important progress in developing approaches that can contribute to, if not guarantee, sustainable access to and management of water resources in rural areas. Still however, with just 2-3 years of implementation, as the evaluation indicates, there are still improvements required to reach a critical mass of success and establish replicable models as the basis for expanding to additional areas in the country where such assistance is required to deal with similar water resource issues.

The main body of the present report is dedicated to the findings and conclusions of the formative evaluation of project execution to date and recommendations for guiding implementation until the end of the Mission's extended strategy period of September 30, 2004. It is also incumbent upon the Evaluation Team to provide USAID/El Salvador with strategic guidance in order to orient the Mission's programming for the next 3-10 years. The following sections provide a series of suggestions for future programming to be considered by the Mission at the date of its next round of strategic planning, currently scheduled for early 2003.

5.1 Integration of Actions for Sustained Production, Access and Management of Water Resources and Expansion to Additional Critical Areas using Strategic Planning Tools

The recommendations presented in this evaluation report are intended to facilitate the consolidation of all activities currently deemed successful into more integral package in precise and strategic geographic

areas, specifically, in selected sub- and microwatersheds. This will require that Implementers take a close look at the distribution of activities, determine which are missing from the full menu of the integrated package, and redouble efforts to integrate the suite of technical and local development organizational actions necessary to establish model project areas.[16] At the point that approximates the current AGUA ACD, or at least by the end of the Mission's extended strategy period (September 30, 2004), it is expected that a succinct group of models/demonstration areas will have been established.

The Evaluation Team finds that the wording of the current Strategic Objective should be changed to reflect the suggested focus of activities, essentially those comprising the models. Hence, the following conceptual wording is proposed for consideration by USAID for its next Strategic Objective to be addressed primarily by the Water and Environment Office:

> *Integrated Management of Watersheds for Sustained Production and Management of Water Resources for Human Consumption and Maintenance of Environmental Services.*

This SO has two principal objectives requiring the application of appropriate land and resource management, rehabilitation and/or improvement of watersheds: i) *sustainable production of water* for human consumption (primarily for residential and municipal purposes, followed by agriculture and industry if the former has been satisfied); and ii) *provision of environmental services* including water production, disaster mitigation and reduction of risk (preparedness) in terms of protection from floods and landslides associated with tropical storms and earthquakes, and biodiversity protection.

In order to respond to this SO, before the current AGUA Activity is completed USAID should begin assessing progress in the consolidation of project activities into discrete models/demonstration areas in the differing outreach areas and packaging models for the next SO activity period. Once these models are established within demonstration sub- and microwatershed, USAID should consider financing the expansion into additional areas, strategically selected by means of science-based criteria rooted in the context of watershed management, disaster mitigation and biodiversity protection, such as:

- Comparing actual land use to land-use capacity to determine areas in conflict;
- Hydrogeomorphological surveys to determine critical aquifer recharge areas and areas prone to gullying, mass wasting/land slippage and flash-flooding;
- Sub-regional runoff, erosion and sedimentation surveys to determine critical microwatersheds for rehabilitation;
- Habitat mapping to assess existence, composition and condition of floral and faunal communities;
- Rural road drainage assessments to pinpoint areas needing remediation; and
- Inventories of permanent and ephemeral water supplies and their user base.

[16] As previously indicated in the report, these models should include, as appropriate under as local socioeconomic and agroecological conditions dictate, all elements currently being promoted in different parts of the project area by implementing organizations, including:

- A participatory water resources/watershed management plan supported by all relevant groups
- Municipal ordinances regulating environmental protection and water resources conservation
- One or more water systems (for potable and/or irrigation uses) served by respective watersheds
- Environmental and health education and awareness programs, and civic groups active in water resources advocacy
- Water use tariff structures that include a minimum 10% of fees dedicated to management of contributing watersheds
- A science-based monitoring and evaluation system based on indicators of impact as well as performance indicators.

Information from these databases would then crossed, preferably utilizing a geographic information system (GIS), with data on population distribution, poverty and health conditions, and the existence and management capacities of local government and civic groups and their respective priorities and development plans. This approach differs somewhat from the instruments used by AGUA Activity Implementers in that it promotes the use of more strategic planning geared to watershed functions in order to avoid the tendency to select areas primarily on the existence and interest of community groups.

5.2 Collaboration with Other Development Assistance Institutions and Alternative Financing Mechanisms

The magnitude of resources required to respond to the needs of sustainable integrated water resources management in El Salvador goes way beyond the levels available to USAID and Implementers' traditional contributors. It is therefore necessary for USAID and its implementing organizations to seek collaborators in order to expand the spread of the integrated water resources management models to be packaged over the next two-and-a-half years under the AGUA Activity. The following strategies are suggested as worthy of development within the next 1-3 years:

- *Special reduction of electricity tariffs.* A campaign should be mounted to solicit a reduction of electricity rates from CEL/CAESS. El Salvador's tariff structure is regressive and sells at a lower rate to larger-scale consumers (maquiladora industry, agroindustry), but its residential rates are the highest in Central America. A special provision should be sought achieve a reduced rate for rural water systems that must use wells and electrical pumps. The NGO community should start the campaign, but enlist the lobbying of ANDA, MARN, Ministry of Health, churches and others as appropriate to bring about a minimum 50% decrease (from $0.0827/kWh to $0.0414/kWh). This would make a huge difference in providing access to pumped well water and potentially free up a larger portion of the water fees for watershed management.
- *Continue linkages with FISDL and FIAES for co-financing of subprojects.* These funds have been successfully accessed during the first three years of AGUA/WE execution and Implementers should continue, if not expand the practice of presenting proposals for co-financing of rural water, wastewater, solid waste management and protected areas management.
- *Seek out co-financing under other programs financed in MARN by the Inter-American Development Bank, World Bank and the European Union*. MARN is currently managing some US$58 million in projects financed by these development assistance institutions, including: Decontamination of Critical Areas (IDB/$32.8 million); Management of Zones at Risk (IDB/US$12 million); two technical cooperations in areas of environmental services and hydrological balance (IDB/US$3 million); and two projects for strengthening MARN's role as the national environmental agency (WB and EU/US$10 million each). Several of the components under these projects are related to AGUA/WE objectives and could offer co-financing possibilities, including the establishment of a project-wide environmental monitoring program.
- *Promotion of larger-scale loan operations with the Inter-American Development Bank*. The IDB has been working in the water and wastewater sector in El Salvador for more than 30 years and has been active in environmental protection and watershed management in the last decade. IDB's traditional partner in water and wastewater has been ANDA and the larger municipalities (especially San Salvador). The Bank currently is beginning a second stage of its water loan with ANDA that includes rehabilitation and new decentralized management strategies for some 63 water systems, about half of which will be in the more rural areas encompassing smaller water systems and communities. USAID and current AGUA Implementers should research the possibilities with ANDA and the Bank of

applying its methodologies of water system improvement and management by local community organizations, coupled with its integrated management of tributary watersheds. A second tier of project development should be held with ANDA and IDB concerning a new project dedicated to water systems servicing communities of 100-1,000 families, this under a new loan that would take some 2+ years to bring online.

- *Salvadoran Liaison Groups in the United States*. Remittances account for one-third of the gross national product of El Salvador. There are more than 2 million Salvadorans living in the USA with 16 communities of more than 30,000, with more than 800,000 in Los Angeles, 425,000 in New York, another 200,000+ in San Francisco and more 150,000 in Washington D.C. All of these communities have numerous support groups (*asociaciones de salvodoreños* and *grupos de enlace)*, many already contributing funds for special projects with a number of individual communities in El Salvador. The AGUA Evaluation Team found that most communities within the AGUA outreach area have members with family in the USA and receive remittances from them and manage their property, including farms. This is a huge untapped source of cost-share funding for AGUA activities. Implementers should use their own institutional networks to develop strategies to contact and attract funding for collaborative projects. This could be done with a "sister-community" approach or even on a larger programmatic scale. USAID could facilitate such collaborations through State Department contacts with Ministry of Foreign Relations and the Salvadoran Embassy, Consuls and Commercial Attaches.

5.3 Demonstrating, Proving and Packaging Alternative Approaches and Technologies for Sustainable Development and Management of Water Resources and Environmental Health and Protection

USAID has played an important role in many countries pioneering innovative development approaches and technologies. Under the Mission's PROMESA/GreenCom and GreenProject programs, USAID broke new ground in environmental education, sustainable use of land and resources in upland watersheds, and contributing to the drafting of the National Environmental Law and establishment of the Ministry of Environmental and Natural Resources and environmental protection regulations. Many of these efforts were expanded under the AGUA Activity and are just now being packaged into replicable models. Some of the novel technologies and approaches being tested by AGUA Innovators include: temporary/portable mini-dams for seasonally diverting streamflow for irrigating horticultural crops, low-head and drip irrigation techniques, composting of organic garbage and refuse, artisanry with recycled materials, small-bore septic treatment systems, and rainwater catchment and storage. While several of these techniques are still in the development stages, they hold great promise and wide applicability if they are found to be viable.

As part of the Mission's strategy for the sector in the next 3-10 years, it would be advantageous to continue its financing of demonstration projects in a range of technologies that could respond to the challenges of sustainable water resources management. This approach fits into the strategy of using USAID assistance as an "*incubator*" of both technology and sustainable project models. A non-exclusive list of some of the thematic areas in which USAID could provide assistance is presented below.

- *Alternative low-tech strategies and techniques for solid waste disposal*. There are several lower-cost alternative approaches for safe disposal of solid waste that would not require installation of costly geotextiles and leacheate treatment facilities. These would involve smaller facilities using solid waste separation to remove potentially toxic substances, disposal in clay-lined pits and trenches, daily covering with local soils and revegetation.

- *Alternative wastewater treatment strategies.* The costs of the infrastructure required to meet stringent national and international BOD standards is out of reach for most rural communities in the country. It would be better to have collection and at least secondary treatment of wastewater than to continue the unsanitary practices of open ditch sewers and cesspools. Several technologies, along the line of the small-bore septic should be field tested under differing environmental conditions in El Salvador. These include: community septic tanks, oxidation lagoons, constructed wetlands, and smaller secondary wastewater treatment facilities with higher Biological Oxygen Demand (BOD) thresholds (yields of 100-200+).
- *Wind-based powered pumps*. This would be a back-to-the-future strategy and involve traditional windmills for turning pumps in wells located primarily along the Pacific Coast and piedmont, and certain higher elevations with unencumbered fetch. The costs of electricity can make electrical pumps prohibitively expensive for many communities.
- *Rainwater catchment and storage*. This is already a topic of applied research in AGUA outreach areas, primarily with Project Concern, International. There are other catchment and storage techniques that are practiced especially on islands in the Caribbean that could have widespread applicability in El Salvador.
- *Alluvial storage reservoirs*. These approach consists primarily of storing water collected in the rainy season in larger (1,000-5,000 cubic meters and larger) sand reservoirs and their tapping with shallow pumps or gravity taps during the dry season.

In all cases, the selection and demonstration of these techniques and strategies would need to respond to certain criteria of success and viability before they could be packages for dissemination, including:

- Appropriateness and applicability under socioeconomic and agroecologic conditions in El Salvador;
- Responsiveness to one or more environmental health and natural resource problem;
- Ease of access, adoption and operation by a representative sector of the population;
- Cost-effectiveness in terms of capitalization, operation and maintenance; and
- Viability in terms of social, economic and environmental impacts.

Also, as sustainability is also couched in economic terms, USAID should refine and promote adoption of auto-financing mechanisms to pay the costs of environmental services that are provide by watersheds and protected areas. MARN is already developing a series of strategies for payment of the costs of environmental services, much of this linked in principal to the pending executive decree to create the Interinstitutional Watershed Commission and legalize the establishment of local and regional watershed organizations. USAID should continue to insist on the incorporation of such costs for all types of development assistance activities it facilitates in the country, potentially as a component of each project, no matter what the sector, or as condition to receiving assistance.

ANNEXES

Annex 1: USAID/El Salvador Scope of Work for the Evaluation of the AGUA Activity

USAID El Salvador Scope of Work for The Evaluation of the AGUA Activity

1.1 Title

Access, Management and Rational Use of Water

1.2 Background

The USAID/El Salvador Water Strategy and Results Framework was approved by Washington in October 1997. The Water Strategy's Intermediate Results for achieving the Strategic Objective (SO) "Increased Access by Rural Households to Clean Water" are: Improved Quality of Water Sources; Improved Performance of Water Delivery Systems; More Effective Citizen Participation; and Enhance Municipal Management.

Subsequently, the Mission approved its Results Package Document and the New Activity Document (NAD) for the AGUA (Access, Management, and Rational Use of Water) Activity in February and September 1998, respectively. The purpose of AGUA is to increase access to clean water for rural Salvadorans in an environmentally sustainable way.

A three-year Strategic Objective Grant Agreement (SOAG) for the AGUA Activity was signed with the Government of El Salvador (SOAG) in September 1998 at a funding level of $15.6 million which was later increased to $17.2 million. Activity implementation began in June 1999 with the signing of a $12.6 million Cooperative Agreement with CARE – El Salvador, whose primary objective mirrored the NAD and whose target area is 18 municipalities located within El Salvador's three major watersheds. Within the following year, six smaller agreements were signed with World Vision, Catholic Relief Services, Project Concern International, ICCA – CAMAGRO, Border Development Services, and the Environmental Health Project. These additional activities complemented the various components of the AGUA program and included environmentally sound agricultural practices, solid and liquid waste management, and water policy initiatives.

Measured results compared against benchmark indicators for AGUA are showing varying levels of success. It appears that most indicators will be achieved at the planned end of activity date in September 2002, and some have been greatly surpassed requiring adjustments to final indicator goals. Rural Salvadoran access to clean water, the strategic objective indicator, is on track to achieve the established end of life target.

The Mission Strategy, originally from FY 1997 to FY 2002, has been extended for two additional years from FY 2002 to FY 2004. During the process to amend the AGUA NAD to cover this additional period, the Mission decided first to evaluate current strategy vis-à-vis its results framework as well as individual activities in order to better plan future interventions.

1.3 Purpose

The purpose of this contract is to carry out an evaluation of the AGUA Activity in order to appraise progress in implementation, assess the likelihood of achieving Activity Results, identify

elements constraining its successful execution, and report lessons learned to date. The evaluation will be used as an independent assessment of the validity of this approach. Specifically, it will help determine if the current strategy is having a sustainable impact and if there are alternatives or opportunities to increase rural access to clean water.

1.4 Statement of Work

This effort will examine, (1) whether AGUA strategy is appropriate and effective and whether the objective and results are relevant and are being met; (2) program planning, design, implementation and management performance by implementers; (3) implementation arrangements and conditions; (4) ultimate beneficiary participation and satisfaction, at all levels, i.e., mission strategy, strategic framework (SO and Intermediate Results), other planned and unplanned activity-level results and implementation activities, along with related indicators, targets and means of measurement, from the date of approval of AGUA to the present; and (5) the sustainability of project interventions – this can include a measure of community participation/acceptance of, behavior changes brought about by, and local demand for sub-projects and tasks carried out during the Activity life.

Applying the methods and procedures specified in the next section, the evaluators will carry out the tasks enumerated below, and such other tasks as may be necessary and appropriate to realize the evaluation purposes. An illustrative list of questions to answer during the course of sub-project evaluation is included in Attachment 2.

The evaluation will examine project strategies and impacts, and make *implementation recommendations for the two-year extension period for achievement of sustainable clean water access for rural Salvadorans*. Progress and strategic success of individual activities/contracts within the Water and Environment (WE) Office will be evaluated against planned outcomes, as well as the cumulative impact of AGUA. Compliance with Regulation 216 will also be evaluated.

The following specific implementing instruments will be evaluated in accordance with the described tasks:

CARE – AGUA
World Vision
Catholic Relief Services
Project Concern International
IICCA-CAMAGRO
Border Development Services
Environmental Health Project
USAID/Small Infrastructure Activity (SIA)

Task 1

Describe, compare, and analyze designed, approved, and actual undertakings and their respective accomplishments in the implementation of the following components:

- Improved Quality of Water Sources;
- Improved Performance of Water Delivery Systems;
- More Effective Citizen Actions to Address Water Issues; and
- Improved Municipal Management of Water Resources.

Task 2

Based on findings, comparisons, and analyses from task 1, formulate conclusions about quality and adequacy of the planning, design, and implementation process, including significant divergences and/or inconsistencies from one stage to another of the process, progress in achieving expected results as well as in achieving unexpected or unanticipated results that may be identified during the evaluation, both in terms of indicators and targets selected, as well as of other important indicators/targets that may be identified during the evaluation.

Task 3

Based on the findings and conclusions from the previous two tasks specified, formulate recommendations for mission management related to: 1) more effective utilization of resources in implementation, 2) adjustments in implementation arrangements to improve effectiveness and efficiency, 3) actions to improve management effectiveness, and 4) adjustments to or changes in focus, structure and/or content of sub-activities (components, sub-components) and action, and/or funding allocations, to improve activity performance in achieving specified results.

1. 5 Methods and Procedures

Generally acceptable evaluation methodologies for USAID programs and activities will be used. Relevant planning, design, programming, implementation and progress reporting documents will be reviewed, as well as other appropriate reports and studies related to the subject matter, whether or not generated with assistance under the AGUA program.

Initial orientation, basic document review, team building and preparation of a draft work plan and schedule will take place at contractor's headquarters and/or in AID/W. All necessary project documentation and information will be provided to the evaluation team in advance? The draft work plan will be forwarded to the WE core team for comments prior to travel and should include a draft schedule of consultations with WE core members, implementers, and host government institutions. It should be emphasized that this evaluation is intended to be an interactive effort between evaluation team members and the WE core team. Thus, a continuing process of close consultation, exchange of information, views and impressions, and interaction among and between members of all participants will take place from the preparation of the work plan to the presentation of the final report.

Upon arrival of the evaluation team in El Salvador, orientation meetings will be held with the Mission Evaluation Committee (MEC) to finalize the work plan and discuss detailed guidance and further specification of expectations. Site visits will be scheduled by USAID at this time and should be sufficient to impart a sense of the accomplishments and field impacts. The MEC is

formed by selected WE core team members, SDO, and other selected USAID technical offices and/or support offices, as appropriate.

One member of the WE core team will be designated as the USAID – El Salvador liaison with the evaluation team. The liaison (or other WE team member, as appropriate) will accompany evaluation team members in meetings with partners and on site visits. Weekly progress meetings will be held with. WE team members will be available for consultation to the extent feasible.

Interviews will be held with key program, activity, and sub-activity (component) technical assistance personnel, with host country partner institution counterparts, with participating grantees/subcontractors, with USAID – El Salvador Mission management and support office staff, as appropriate, and with a sampling of intended intermediate customers and ultimate customers (beneficiaries).

Rapid appraisal techniques may be applied to determine impact of activities/components on intended customers. The team will review all documents and data relevant to quantifying progress, as well as to determine quality of actions supported and results achieved. The approach will be to determine and document facts and objective findings, apply evaluators' expert interpretations and judgements to draw conclusions based on facts/findings, and to formulate recommendations based on findings and conclusions from the evaluation exercise.

Information gathering and interpretation by the evaluators should be an iterative process in which feedback from component and sub-activity level information and interpretation will guide evaluation conclusions and recommendations.

Other related SO teams and Activity level partners, will assist the team, as appropriate, to access relevant documents, to arrange interviews and to plan and carry out site visits. Each major partner will designate a liaison person to facilitate the work and activities of relevant evaluation team members.

Lessons learned to guide future design, planning, programming and implementation, and issues that require immediate USAID and/or implementing partner's attention, along with recommended option(s) for issue resolution, will be provided. The activity, component and/or sub-activity evaluation process also **is expected to provide sufficient information to prepare the WE two-year strategy extension for the AGUA Activity.**

1.6 Reporting Requirements

1. A draft Work Plan and Schedule will be submitted to USAID/El Salvador for comment 3 working days prior to arrival in-country of the team leader, and a final work plan and schedule will be presented within one working day of arrival;

2. **Draft Report**. A preliminary draft evaluation report in English will be presented to USAID/El Salvador at least 5 working days prior to the departure of the evaluation team leader at the end of in-country efforts. The contractor shall participate in a MEC review of

this draft 3 days after the date of submission of the draft. The evaluator will use comments, both written and oral, from this meeting to revise this draft.

The contractor shall incorporate the suggested comments and recommendations into a final draft to be left with USAID prior to departure. USAID will have 4 working days to review this final draft before returning it to the contractor;

3. The evaluation team will participate in entrance and exit briefings for the MEC and Mission Management. Through the official mission debriefing, the revised final draft evaluation report, taking into account timely USAID observations/comments, will be presented to USAID/El Salvador prior to the departure of the evaluation team at the end of in-country efforts;

4. **Final Report**. Within 10 days of receipt of USAID comments, the contractor shall incorporate drafting and substantive changes and send to USAID ten copies of the final report: 5 in English and 5 in Spanish. In addition, CD's of all required reports and all annexes will be provided (MS Word 97/Excel 97). The evaluation report will include the following sections:

   - **Executive Summary**. Including purpose of the evaluation, methodology used, findings, conclusions and recommendations. It will also include comments on development impact and lessons learned. It should be complete enough so that the reader can understand the evaluation without having to read the entire document. The summary should be a self-contained document.

   - **Scope of Work and Methodology**. A copy of the initial scope of work and detailed outline of methodology used will be included. Any deviation from the scope will be explained.

   - **Evaluation Team**. A complete list of evaluation team members, including host country personnel, their field of expertise and the role they played on the team.

   - **Evaluation Findings, Conclusions and Recommendations**. In a separate section of the report if possible. Recommendations should be priority actions that can be taken by the USAID and implementing entities.

   - **Lessons Learned**. This section should describe the causal relationship factors that proved critical to project success or failure, including political, policy, economic, social and bureaucratic preconditions within the host-country and USAID. This section should also include a discussion of the techniques or approaches which proved most effective or had to be changed and why. Lessons relating to replicability and sustainability will also be discussed.

   - **Paginated Table of Contents**.

5. Required length of the evaluation report should not exceed 25 pages, without annexes and tables, as appropriate.

Other Terms of Reference

Laptop Computers.

Each team member will have a laptop computer for personal use, and will be familiar with its use for purposes of the evaluation. Additionally, contractor will make arrangements for access to printing and copying services.

Logistic Support.

Although USAID/El Salvador and partners will assist in coordinating interviews and site visits, contractor must provide for team member logistic support such as space for internal team meetings, arranging and managing appointments, local and in-country travel, etc.

Changes in Terms of Reference.

The contractor's proposal must conform substantially to these terms of reference, but may offer specific changes and/or adjustments. Proposed substantive changes/adjustments in (1) the statement of work, (2) required reports, (3) overall or individual team member levels-of-effort, (4) team member minimum qualifications and major responsibilities, (5) timetable for the evaluation, and, (5) other substantive changes proposed, must be approved in writing by the WE Core team and by the Contracting Officer.

Suggested Reading and background information.

The contractor shall review the following documents for background information:

- The Water Strategy and Results Framework

- Results Package and New Activity Document for the AGUA Activity
- The SOAG, contracts and cooperative agreements signed with implementing institutions.
- Implementing instruments' work plans and quarterly reports.

ATTACHMENT 2

Illustrative Questions for Evaluation Process

1) Has the choice of technologies been appropriate?
2) Have the necessary stakeholders been involved in the process?
3) Are performance indicators appropriate and are they an accurate representation?
4) Are policy/regulation initiatives appropriate and on track?
5) Is the USAID mission aware of project successes and importance? How can this be improved?
6) Is the current mix of infrastructure, policy, management, and education/community participation the best mix for *sustainable* rural access to clean water (right proportion of money and time)?
7) If more funds were made available, what would be your recommendation for the most effective investment?
8) Is the geographic area of current activities appropriate?
9) How can USAID – El Salvador most effectively respond to drought and/or floods?
10) Is the emphasis on agriculture in watersheds appropriate?
11) Is the current emphasis on solid and liquid waste treatment appropriate?
12) Is there a need for more drinking water monitoring and source protection than what has been provided through AGUA?
13) Are the citizen participation/awareness activities effective?
14) Does the Activity have the necessary support from the beneficiaries, e.g. in the form of active participation in operation/management of water services?
15) Do the institutions or individuals involved in sustaining the benefits of the Activity have the capacity to do so?
16) What activities and instruments should continue to ensure benefit sustainability?
17) Is there enough political support at both the local and national level for benefits to continue?
18) What macroeconomic policies can affect the chances for benefit sustainability, i.e., the water laws?
19) To what extent both sexes participate in project activities and how do gender roles affect programmatic results?
20) Is the data quality of indicators appropriate?

Moreover, the proposed changes to Statement of Work has been incorporated as part of this statement of work.

PROPOSED CHANGES TO STATEMENT OF WORK

The Mission has made some revisions to Proposed Changes to Statement of Work as follows:

We have indicated in our proposed Time Schedule/Execution Plan for the evaluation a methodology that we have found works for most USAID missions. This has been tested with success in over six missions. Most of these relate to the SOW dealing with Reporting Requirements.

The team will presents it preliminary findings and conclusions, and propose an initial set of recommendations to USAID on September 6 using a workshop setting and a PowerPoint Presentation format. We have found that having an interactive workshop-like setting for the vetting of findings facilitates more discussion and gets out key issues that may not be apparent prior to this. The team would receive comments at that time and use these comments in its preparation of the final draft report. Implementers such as CARE would be encouraged to attend.

Final reports shall be in printed format, with five (5) copies each in English and Spanish. One CD of each report and its associated annexes will be provided to the Mission. The reports will be shipped via DHL on Friday, September 27 for delivery the following week.

Annex 2: Revised Evaluation Work Plan

Access, Management and Rational Use of Water (AGUA)
Revised Evaluation Work Plan

Presented to USAID/El Salvador by ARD, Inc.

The following work plan has been revised to reflect discussions held with USAID/El Salvador on August 16 and orientation meetings held with project Implementers during the week of August 19-23, 2002.

I. Background and Objectives of the Evaluation

The USAID/El Salvador Water Strategy and Results Framework was approved by Washington in October 1997. The Water Strategy's Intermediate Results for achieving the Strategic Objective (SO), "Increased Access by Rural Households to Clean Water," are: Improved Quality of Water Sources; Improved Performance of Water Delivery Systems; More Effective Citizen Actions to Address Water Issues; and Greater Municipal Participation in Water Resources Management.

Subsequently, the Mission approved its Results Package Document and the New Activity Document (NAD) for the AGUA (Access, Management, and Rational Use of Water) Activity in February and September 1998, respectively. The purpose of AGUA is to increase access to clean water for rural Salvadorans in an environmentally sustainable way. A three-year Strategic Objective Grant Agreement (SOAG) for the AGUA Activity was signed with the Government of El Salvador (GOES) in September 1998 at a funding level of $15.6 million which was later increased to $17.2 million. Activity implementation began in June 1999 with the signing of a $12.6 million Cooperative Agreement with CARE – El Salvador, whose primary objective mirrored the NAD and whose target area is 18 municipalities located within El Salvador's three major watersheds. Within the following year, six smaller agreements were signed with World Vision, Catholic Relief Services, Project Concern International, IICA/CAMAGRO, Border Development Services, and the Environmental Health Project. These additional activities complemented the various components of the AGUA program and included environmentally sound agricultural practices, solid and liquid waste management, and water policy initiatives.

Measured results compared against benchmark indicators for AGUA are showing varying levels of success. It appears that most indicators will be achieved at the planned end of the activity date in September 2002, and some have been greatly surpassed requiring adjustments to final indicator goals. Rural Salvadoran access to clean water, the strategic objective indicator, is on track to achieve the established end of life target. The Mission Strategy, originally from FY 1997 to FY 2002, has been extended for two additional years from FY 2002 to FY 2004. During the process to amend the AGUA NAD to cover this additional period, the Mission decided first to evaluate current strategy vis-à-vis its results framework as well as individual activities in order to better plan future interventions.

The principal objective of the Evaluation of the AGUA Activity is to determine whether the current AGUA strategy is appropriate and effective and whether the objective and results are relevant and are being met, as these are directly related to mission strategy, Strategic Objective #4 and Intermediate Results. The evaluation will be comprised primarily of the analysis of

planned and unplanned activities and their results, along with related indicators, targets and means of measurement, from the date of approval of AGUA to the present. The evaluation will also analyze the following aspects of project implementation: i) program planning, design, implementation and management performance by Implementers; ii) implementation arrangements between USAID and Implementers and between Implementers and their targeted and/or beneficiary communities; iii) participation and satisfaction of beneficiaries/participants at all levels; iv) the development impact and the sustainability of project interventions; and v) the operational vision for the next 2 years until the end of the period of the current mission strategy, and the strategic vision of the AGUA Activity for the following 3 years (5 years total). The firm Associates in Rural Development, Inc. (ARD) has been contracted to carry out an evaluation of the AGUA Activity in order to appraise progress in implementation, assess the likelihood of achieving Activity Results, identify elements constraining its successful execution, and report lessons learned to date.

The evaluation will be used as an independent assessment of the validity of this approach and determine if the current strategy is having a sustainable impact and if there are alternatives or opportunities to increase rural access to clean water. The evaluation will examine project strategies and impacts, and make recommendations regarding the implementation of project activities for the two-year extension period for achievement of sustainable clean water access for rural Salvadorans. Progress and strategic success of individual activities/contracts within the Water and Environment (WE) Office will be evaluated against planned outcomes, as well as the cumulative impact of AGUA. Compliance with Regulation 216 (environmental assessment) will also be evaluated. The ARD Evaluation Team (ET) will coordinate the evaluation effort with the WE Office and Mission Evaluation Committee (MEC) and will liaise primarily with a staff member designated by the Mission.

II. Principal Tasks for the ARD Evaluation Team, General Methodology and Plan of Execution

The tasks described below respond directly to USAID/El Salvador's Statement of Work (SOW) for the evaluation effort. The methods intended for deployment for the evaluation are directly related to the tasks listed in the Evaluation Execution Plan presented in Attachment 2 and the ET's formulation of responses to the questions posed in Attachment 1. ARD and ET members intend to fully involve USAID and Implementers' staff in this evaluation effort, so that the results are arrived at in an air of mutual agreement. USAID/El Salvador will designate a WE core member as liaison for the evaluation, who will accompany ET members on many of the interviews and site visits (other WE and/or MEC members may also accompany the ET on site visits). The ET will, as possible, provide USAID/El Salvador staff with weekly briefings on progress of the evaluation effort, including the presentation of preliminary findings for discussion.

The general methodology proposed for each of the primary tasks is presented in the following sections. Note that the exact nature and order of these methods are subject to change pending further discussions with USAID during the review of the work plan and will take on more details after initial discussions with Implementers. The ET will gauge the evaluation in terms of USAID/El Salvador's Strategic Objective 4 (SO4) and related Intermediate Results as follows:

4.1 *Improved Quality of Water Sources*
4.1.1 Area covered by improved soil conservation/reforestation, organic cropping, and integrated pest management practices
4.1.2 Increased Use of Improved Waste Management Practices
4.1.3 Increased Use of Improved Industrial Practices

4.2 *Improved Performance of Water Delivery Systems*
4.2.1 Number of rehabilitated, expanded and new systems
4.2.2 Improved Local Management and Technical Human Resources Capacity

4.3 *More Effective Citizen Actions to Address Water Issues*
4.3.1 Water-related changes resulting from citizen-group actions
4.3.2 Increased Understanding of Solutions for Unclean Water
4.3.3 Communities More Organized Around Water Issues

4.4 *Greater Municipal Participation in Water Resources Management*
4.4.1 Water-related ordinances passed
4.4.2 Resources Invested in Water-Related Projects
4.4.3 Municipalities with water resource management plans

A. Meetings w/ USAID, GOES and Implementers, and Review of Relevant Documentation

In coordination with USAID, ET members will carry out various meetings and interviews with relevant USAID/El Salvador offices (WE, MEC, SO members), and managerial, administrative and technical staff of the respective Implementers. These Implementers include:

- Consortium CARE/SalvaNATURA/SACDEL
- Project Concern International
- World Vision
- Catholic Relief Services
- IICA/CAMAGRO

Meetings will also be held to determine linkages with the following entities managing activities in relation to SO4 activities:

- Border Development Services
- Environmental Health Project
- USAID/Small Infrastructure Activity (SIA)

Analysis of aspects of policy and legislation initiatives will require interviews with local government officials at local and, potentially, the national level. Also, depending on advancement of improved industrial practices (clean technologies), it may be necessary to interview personnel at several industries and/or industrial associations. USAID/El Salvador and

CARE will provide guidance as to the final list of agencies and organizations that should be consulted.

The initial meeting with USAID/El Salvador staff should serve to determine the relevant documentation that ET members should review. (Note that some of the most relevant documents have been received from USAID by ARD/ET and will have been reviewed before the Team arrives in San Salvador.) Meetings with Implementers and other activity managers should facilitate acquiring other information useful to the evaluation effort, including such documents as: training plans and manuals; technical manuals and guidelines; information concerning techniques used to collect performance and impact monitoring data; as well as information concerning the numerous beneficiary groups and their organizations. Documents will be reviewed as much as possible during the first week of work in San Salvador and as time allows, especially during weekends.

B. Site Visits, Interviews with Implementers' Field Staff, Subproject Assessments, and Survey of Beneficiaries

The ET proposes to conduct site visits for a representative sample of subprojects. The exact number of site visits will depend on their geographical location, proximity to each other and travel time. The schedule for these site visits will be discussed with Implementers, especially CARE, during the initial meetings and interviews. At least provisionally, one day will be scheduled with each of the Implementers (although two or more days may be required to visit subproject sites managed by the CARE Consortium as are the largest Implementer). A total of 9 days have been scheduled for site visits. The following evaluation activities will be carried during site visits, relying on three principal instruments: i) *interviews with field staff* should provide necessary information concerning planning and outreach approaches and methods (including data and georeferenced products), as well as an understanding of factors that facilitate or restrict successful subproject implementation; ii) the *Rapid Field Assessment Instruments* (see description below under the section on Products and Deliverables) will be used to systematically collect information from all interviewees, while a special instrument will be applied to a sample of subproject participants/beneficiaries, the number of which will be determined with Implementers, and should yield information necessary to ascertain participants/beneficiaries' opinions on subproject development, levels of participation, actual benefits and improvements in their wellbeing, as well as an assessment of pending needs; and iii) *technical and operational field assessments* by members of the ET, who will use previously-developed checklists and interview guides and their professional judgment as to the validity, quality and applicability of subproject interventions. ET members will take systematic field notes for assimilation at the end of each day's site visits and discuss findings every evening. Team members will take photographs while in the field for presentation during the workshop planned for presentation of the preliminary results of the evaluation (see section below). Some of the aspects to be considered during the site visits are indicated below in a non-inclusive list:

- Assessment of on-site planning and setting of priorities;
- Capability of field staff;
- Promotion, extension and training approaches used in connection with each subproject type;

- Review of pertinent socioeconomic and agro-ecologic data for the areas and communities served;
- Organizational levels and stability of community groups, including aspects of gender and equitable participation and benefit;
- Assessment of the technical quality and operability of water supply, wastewater and solid waste infrastructure (including reliability and maintenance);
- Capability of municipal and community water association staff;
- Levels of municipal participation and management of water resources;
- Water quality, quantity and conservation practices;
- Watershed (water source) conditions and tenure;
- Coverage and spread of agricultural and soil and water conservation techniques;
- Approaches and outreach of education and training programs, and their impacts;
- Citizen awareness and organized efforts in advocacy of water issues;
- Financial and payment models for water, wastewater and solid waste services;
- Appropriateness of non-planned activities and their relation to overall project objectives and Intermediate Results package; and
- Determination of the validity of advancements and quality in meeting targets as reported.

C. Analysis of Information Collected and Formulation of Preliminary Findings, Conclusions and Recommendations by Evaluation Team

At the end of the site visit phase, tendencies will be analyzed and follow-up interviews with Implementers' staff may be required. ET members will address any pending queries with USAID and/or Implementer staff. Upon finalizing all site visits and necessary interviews, ET members will sequester themselves for approximately 4 days in order to analyze information collected and address their particular assignments for their respective specialty areas. Team members will meet each day to exchange and analyze findings and preliminary conclusions, and strategize on recommendations. These analyses will attempt to answer the questions presented in Attachment 1, but be organized around the SO/IR framework.

As requested in USAID's SOW for the evaluation activity, recommendations will formulated for Mission management so as to facilitate: i) more effective utilization of resources in implementation; ii) adjustments in implementation arrangements to improve effectiveness and efficiency; iii) actions to improve management effectiveness; and iv) adjustments to, or changes in focus, structure and/or content of sub-activities (components, sub-components) and/or funding allocations, to improve activity performance in achieving specified results. Team members will also prepare their assessment of lessons learned during the first four years of AGUA Activity, both positive and negative, will serve to orient USAID and Implementers in: i) capitalizing on promising approaches and techniques; ii) resolution of outstanding managerial, administrative and/or technical issues; and iii) provide strategic guidance for future design, planning, programming and implementation. Lessons learned and recommendations should serve to provide sufficient information to prepare the USAID/WE's two-year strategy extension for the AGUA Activity. Recommendations will also be developed to provide strategic guidance to the Mission concerning the focus and development of the AGUA Activity (and/or other complementary strategic areas) for a 5-year planning horizon.

D. Workshop for Presentation and Discussion of Preliminary Findings, Conclusions and Recommendations

The ET will succinctly draft members' collective findings, conclusions and recommendations in tabular and graphic form for inclusion in a PowerPoint presentation. The PowerPoint presentation will be used as a basis for an interactive workshop. Participants in this workshop shall be vetted by the Mission and shall include ET members, USAID/El Salvador (WE and MEC members) and selected Implementer representatives. Participants shall critically evaluate the ET's findings and conclusions and exchange points of view on preliminary recommendations. Workshop participants' comments and observations will be recorded and used as guidance by the ET in the preparation of the draft Evaluation Report. The workshop is scheduled for September 6 at a location to be determined by ARD's ET in coordination with USAID. A summary overview of the methodology to be used in the workshop is provided below.

Elements of the Methodology to be used in the Evaluation Workshop

The ET Team Leader will moderate the one-day workshop and will establish the "rules of engagement" in terms of participants' input. The ET will make it clear that the workshop will be used as a forum for feedback to and interchange with stakeholders, and as an additional analytical tool to be used by the ET. Emphasis will be placed on collegiality among those gathered and horizontal interchanges, wherein all opinions are valid and will be offered in a constructive manner. It will be made clear that the workshop will *not* be used to defend a particular position or any aspect of project implementation that may be found to be deficient by the ET. The moderator will control the timbre and direction of the discussions in a constructive manner. The moderator will also emphasize to participants that the most important aspect of the evaluation is that of: *moving forward with what is working well, rectifying project management and/or technological deficiencies, and positioning all aspects of project implementation to maximize outputs and the impact of activities during the last two years of the planned implementation period of the AGUA Activity*. Once the ground rules have been established, the following steps will be used during the workshop:

1. *Presentation of findings and conclusions*. ET members will present their preliminary findings and conclusions via a PowerPoint presentation, with a copy of the same to be provided to each workshop participant. The presentation will be organized around the principal project themes of the evaluation: project management and administration; extension outreach and training models; technological interventions by type (water, wastewater, solid waste, watershed management/water source protection); water policy initiatives, including the establishment of watershed committees, municipal ordinances and follow-up actions; impact indicators and monitoring; and sustainability of project interventions.

2. *Discussion and feedback among workshop participants*. ET members will request any corrections, clarifications and/or additions to their interpretations of data collected. Participants will be encouraged to request clarification and discuss ET members' findings and conclusions, but shall not challenge them unless they are based on erroneous or misinterpreted data. Participants' comments, corrections to ET members' findings, and/or

observations as to the Team's conclusions will be recorded for consideration in the drafting of the evaluation report.

3. *Distribution of participants into workgroups and development of recommendations*. Participants will be distributed into thematic workgroups, with an effort to distribute representatives of those organizations present among each of the workgroups. Workgroups will be given specific instructions to analyze the findings and conclusions of the ET (as may be modified during discussion and feedback) and formulate recommendations oriented to fulfill the most important aspect of the evaluation (see italicized sentence preceding the workshop steps). Workgroups will post their recommendations on flipchart paper in large letters.

4. *Plenary session for presenting and considering workgroup products and comparison with ET recommendations*. Each workgroup will present their recommendations to the assembled participants in a plenary session and receive and discuss comments. Once all workgroups have presented their recommendations, the ET will present their own preliminary recommendations (these will have been formulated before the workshop but kept under wraps until this time) and compare these with workgroup recommendations. Similarities and/or divergences in recommendations will be discussed and an effort made to come to closure on the general direction of recommendations for each of the thematic areas. Workgroup recommendations and all additional commentary will be recorded for consideration by the ET in preparation of the first draft of the evaluation report.

E. Principal Responsibilities of ARD Evaluation Team Members

All ET members will participate in a collegial manner to answer the principal evaluation questions posed in Attachment 1 of the work plan. The interdisciplinary composition and shared experience of the Team will facilitate cross-fertilization of analysis and recommendations. All members will, toward their particular professional assignments, evaluate aspects of: the development impact of activities; institutional, financial and environmental sustainability of project initiatives; performance and impact indicators; and strategic direction of the project to date, and future considerations.

Paul Dulin, Environmental and Natural Resources Management Specialist/Team Leader. Mr. Dulin will serve as Team Leader, coordinate all facets of the evaluation effort and serve as principal liaison with USAID/El Salvador. Mr. Dulin will take the lead on analysis of: project planning, management, and administration activities of both USAID and Implementers; project coordination with GOES agencies; overall policy and legislative initiatives; CFR 22, Part 216 compliance; watershed management and soil/water conservation techniques (including training in these techniques); and overall strategic planning for the AGUA Activity in the future. Mr. will also be responsible for coordinating the evaluation workshop and report preparation.

Mr. Scott Tobias, Rural Water Supply Specialist. Mr. Tobias will have lead responsibility in the analysis of: municipal and rural water collection, treatment and distribution systems; wastewater and solid waste management subprojects and techniques; clean technologies for industrial processes; technical aspects of policy and legislative efforts in water, wastewater, solid waste

and clean technologies; water quality monitoring; and technical aspects of water resources planning and management. Mr. Tobias will also analyze technical training approaches involving water, wastewater and clean technology areas.

Mr. Carlos Zavala, Community Development/Participation Specialist. Mr. Zavala will carry out analyses related to community, local government and local organization participation at all stages of project development and execution, environmental education and training approaches, citizen actions to address water issues, and capabilities in infrastructure management and operation. He will take the lead in preparing and administering the Rapid Field Assessment Instrument for determining the nature and levels of participation of beneficiaries/participants for each subproject type. Mr. Zavala will also analyze the cohesiveness and effectiveness of community organizations and local governments in the management of rural water and waste management infrastructure, and aspects of the institutional and financial sustainability of these organizations.

Ms. Margarita Palomo, Administrative Assistant. Ms. Palomo will assist other Team Members with logistical needs, administration of contract finances, contacting relevant institutions and organizations to arrange meetings, procurement of materials as required, data assimilation, report preparation, and in the organization of the proposed workshop evaluation.

III. Products and Deliverables

The following products and deliverables will be presented to USAID/El Salvador for analysis and discussion.

1. *Rapid Field Assessment Instruments.* The ET will seek USAID input before proceeding with field application of this form. The ET will formulate guided interview forms and/or checklists to be used to elicit feedback from Implementers, GOES representatives, and subproject participants/beneficiaries at the field level during site visits proposed during the 2nd and 3rd weeks of the evaluation period. The instrument to be used specifically for garnering input from subproject participants/beneficiaries will be presented to WE and MEC team members before initiating field visits in order to ensure that the instrument will consider USAID/El Salvador's priority evaluation issues. This instrument will include those aspects deemed necessary to answer the questions posed in Attachment 1 including such aspects as: participants/beneficiaries' level of participation in all phases of projects development; satisfaction with the quality and timeliness of services; applicability of project activities to local agro-ecologic and socioeconomic conditions; levels of technology adoption/adaptation; and sustainability of project-facilitated activities from socioeconomic and local institutional (support) perspectives. The ET prefers that this instrument be used in small focus group sessions with a minimum of 4 and maximum of 10 subproject participants/beneficiaries, but can also be applied on an individual basis with qualified community informants. Implementers will assist the ET in arranging for meetings with these focus groups in selected communities to be visited during the field analysis phase of the evaluation.

2. *Workshop for Presentation of Preliminary Findings, Conclusions and Recommendations of the Evaluation.* The ET will analyze information collected during interviews, documentation review and field site visits and render its preliminary findings, conclusions and recommendations in succinct format to be shared using in a PowerPoint presentation with USAID's WE and MEC team members and selected Implementers' representatives in an interactive workshop scheduled for September 6th. Participants' views will be catalogued and the Evaluation Team will use these in preparing the draft Evaluation Report. The workshop will be delivered at a location to be determined by ARD in coordination with USAID.

3. *Draft Evaluation Report*. The draft Evaluation Report, in English, will be presented to USAID/El Salvador on September 13th. This draft will consider the comments and suggestions made by USAID and AGUA Implementers during the September 6th workshop. USAID/El Salvador (WE, MEC) and Implementers will take 4 working days to review the draft report. USAID/El Salvador will then collate comments from all parties and send the consolidated comments on the draft report to ARD by COB on September 20th.

4. *Final Evaluation Report*. Upon receipt of the consolidated comments from USAID/El Salvador (scheduled for September 20th), ARD/ET will then consider the consolidated comments in the preparation of the final Evaluation Report that will be submitted to USAID/El Salvador, in its English-language version, on September 27th. The Spanish-language version will then be prepared and sent to USAID/El Salvador on October 7. The evaluation report is intended to have a length of no more than 25 pages, not including tables incorporated in the body of the report. All other relevant material will be presented as attachments or annexes at the end of the report. The final Evaluation Report will include, at a minimum, the following sections:

    - *Executive Summary*. Including purpose of the evaluation, methodology, findings, conclusions and recommendations. It will also include comments on development impact and lessons learned. This summary will be a self-contained document and provide enough detail so as to convey the most important results of the evaluation.

    - *Objectives, Scope of Work and Methodology*. The principal and intermediate objectives of the evaluation will be stated. The original (contracted) scope of work will be included as an attachment, and an annotated outline of methodology used will be presented in the body of the report. Any deviation from the original scope of work will be explained. All instruments and sources used during the evaluation will be included as attachments, including but not necessarily limited to: rapid field assessment instrument; list of persons, institutions and organizations contacted; itinerary and final evaluation execution plan; and list of documents reviewed.

    - *Evaluation Team*. A complete list of evaluation team members will be included as an attachment. This list will include all international and host country personnel, their fields of expertise and responsibilities during the evaluation effort.

- *Evaluation Findings, Conclusions and Recommendations*. Principal findings and conclusions will be presented in a separate section of the report, and used to assess the advances made in project development, as well as any deficiencies noted by the ET. Responding directly to each of the principal conclusions, a separate section will be used to present the recommendations of the ET. It is expected that recommendations will presented for each principal project activity, for each Implementer, and for USAID/El Salvador so that each entity will have clear direction in responding to the results of the evaluation as applicable to the planned final two years of implementation of the AGUA Activity.

- *Lessons Learned and the Development Impact of Project Activities*. This section will describe the causal relationship factors that proved critical to project success or failure, including political, policy, economic, social and bureaucratic preconditions within the host-country and USAID. A review of technological approaches and implementation/participation models will serve to distinguish among those that are more successful or promising from those that are failing or are less likely to succeed and why. Lessons learned as to the replicability and sustainability of technological approaches and implementation models will also be discussed. The Evaluation Team will also analyze social, economic and environmental project results that may have not been contemplated by the Mission or the original design and attempt to qualify these. Finally, this section will assess the evolution of project activities and whether they are having, or will have, the desired development impact, both in terms of the wellbeing of their beneficiaries and the agro-ecologic environment.

- *Strategic Guidance for Future AGUA Activities*. This final section addresses the principle reason for the AGUA evaluation. Clear guidance will be provided to USAID/El Salvador for further developing the AGA Activity for the medium to long term (five to ten years) in increasing sustainable access to clean water in El Salvador and how these strategies will impact current and changing conditions in the country. Performance indicators shall be reviewed and recommendations made for improvement. Through this analysis the ET intends to provide USAID/El Salvador with its vision and strategic recommendations for furthering the objectives of the Mission's AGUA Activity including, as necessary, reorientation of Strategic Objectives and/or the Results package.

ATTACHMENT 1

Non-exclusive List of Questions to be Answered during the Evaluation Process (*Based on Attachment 2 of the SOW as adapted and expanded by ARD*)

Project and Activities Management and Administration

1) Are the Implementers' project management procedures (planning, performance monitoring, reporting) appropriate and efficient?
2) Are activities carried out effectively in terms of plans and targets?
3) Are the Implementers' administration procedures efficient in time and quality (logistics, budgeting cycles, personnel management)?
4) Do technical staffs have the necessary level of capability to carry out assigned tasks?
5) Are staff orientation and training activities effective?
6) Is the geographic area of current activities appropriate?
7) Has the selection of targeted communities and beneficiary groups been appropriate in terms of reaching project objectives?
8) Have CFR 22, Part 216 Regulations, concerning the environmental impact of proposed/planned activities, been implemented in a timely fashion and of acceptable technical standards?
9) Has USAID/El Salvador's project supervision and administration been effective in time and quality?

Technological Considerations

10) Has the choice of technologies been appropriate (for each of the principal groups of project interventions in relation to SO/IR Framework)?
11) Are policy/regulation initiatives appropriate and on track?
12) Is the emphasis on agriculture in watersheds appropriate?
13) Are watersheds being maintained in, or improved to, conditions consistent with objectives of sustainable production of water resources to water supply systems as designed?
14) Is there the current level of water source protection (wells, springs and stream catchments) sufficient to guarantee the potable quality of the water delivered to beneficiaries?
15) Is the current emphasis on solid and liquid waste treatment appropriate?
16) Are project interventions effective during both wet and dry seasons in El Salvador?
17) If more funds were made available, what would be your recommendation for the most effective investment?

Consultation with and Participation of Beneficiaries of, and Those Affected by, Project Activities

18) Have the necessary stakeholders been involved in the process?
19) To what extent both sexes participate in project activities and how do gender roles affect programmatic results?
20) Are community organizations cohesive and stable?
21) Do community-level beneficiaries think that the interventions are having a desired impact on their livelihood and/or wellbeing?

22) Is there an increasing demand by citizens to participate and/or benefit from project interventions (as determined by non-marketed demand)?
23) Are any groups being adversely affected by project interventions?
24) Are the citizen participation/awareness activities effective?
25) Does the Activity have the necessary support from the beneficiaries, e.g. in the form of active participation in operation/management of water services?
26) Are citizens/beneficiaries financing a part of project interventions?
27) At what point will community organizations and municipalities be capable of managing their projects without further USAID assistance?

Monitoring of Project/Activity Interventions: Performance vs. Impact Indicators

28) Are performance indicators appropriate and are they an accurate representation of reality as determined in the field?
29) Is the quality of indicators appropriate and sufficient?
30) Which of the performance indicators are good proxies for monitoring impact?
31) Are there sufficient and effective impact indicators currently being monitored?
32) Are current performance and impact monitoring activities cost-effective?
33) Is the current level of drinking water monitoring sufficient to guarantee the potable quality of the water delivered to beneficiaries?

Impact and Sustainability of Project Interventions and Improvements: Strategic Considerations

34) Is the current mix of infrastructure, policy, management, and education/community participation the best mix for *sustainable* rural access to clean water (right proportion of money and time)?
35) What is the impact of solid and liquid waste treatment technologies on the surrounding and downstream environment?
36) How has the health and wellbeing of beneficiaries been impacted by project interventions?
37) Do the institutions or individuals involved in sustaining the benefits of project activities have the capacity to do so?
38) Have policy and legislation initiatives been timely implemented with the provisions/regulations necessary to decentralize authority to the local level?
39) Is there enough political support at both the local and national level for benefits to continue?
40) What macroeconomic policies can affect the chances for benefit sustainability, i.e., the water laws?
41) If more funds were made available, what would be the Evaluation Team's recommendations for the most effective investment in terms of reaching the SOs an IRs?

Questions with Relevance to USAID/El Salvador's Results Framework and Strategic Objectives

42) Is the current AGUA strategy appropriate and effective, and are the objectives and results relevant and being met?

43) Is the USAID mission aware of project successes and importance, and of any deficiencies that may be affecting project execution?
44) How can communication, supervision and project communication with USAID be improved?
45) How can USAID/El Salvador, under its AGUA Activity most effectively respond to drought and/or floods?
46) What activities and instruments should be continued to ensure the sustainability of project activities and benefits?
47) Which are the most efficient indicators for gauging the impact of the interventions under the AGUA Activity?
48) What should be USAID/El Salvador's general strategy for the AGUA Activity for next 5-10 years?

ATTACHMENT 2

Evaluation of El Salvador AGUA Activity (USAID No. 519-0443): Evaluation Execution Plan

Activity	Deliverables	Schedule (# days) – Duration of Tasks**								Responsible Parties*
		Aug 7-9	Aug 12-18	Aug 19-25	Aug 26-31	Sept 2-8	Sept 9-15	Sept 16-22	Sept 23-27	
1. Preparation of work plan prior to arrival	Draft work plan (Aug. 9) to USAID via email	2								TL, ARD
2. Review of draft work plan (concurrent with Team travel)	Comments (Aug 15) to ARD		3							USAID
3. Arrival of Evaluation Team Leader & Members	Initial USAID meeting (Aug 15)		0.5							ET, USAID
4. Discuss & revise work plan	Final work plan (Aug 16)		1.5							ET/USAID
5. Meetings w/ USAID, GOES & Implementers; review of documentation (may include some field visits)	Interviews, review of USAID & Implementers' documents			3						ET with USAID as assigned
6. Site visits, interviews w/ field staffs, subproject assessments, survey of beneficiaries	Internal field notes, completed focus group surveys			3	6					ET with USAID as assigned
7. Formulation of preliminary findings, conclusions & recommendations by Evaluation Team	Internal discussions & preparation of results					4				ET
8. Workshop for presentation of preliminary findings, conclusions; proposal of recommendations to USAID & Implementers; discussion of comments and recommendations	PowerPoint presentation, discussion & reception of comments for draft report (9/6)					1				ET with input of USAID & implementers
9. Preparation/submission of draft report to USAID	Draft Report (9/13)					1	5			ET
10. Departure of Evaluation Team	Departure (9/14)						1			ET
11. Draft report review by USAID & Implementers	Review comments consolidated & sent to ARD (Sept 20)							5		USAID, Implementers
12. Revision & presentation of final evaluation report (English)	Final Eval. Report (9/27)								5	ET/ARD
13. Translation of report to Spanish & presentation to USAID	Reports presented (10/07)								5	ARD

* TL Team Leader
ARD ARD, Inc. (Management)
USAID USAID/El Salvador, including as appropriate: Water & Environment Office (WE), Mission Evaluation Committee (MEC), SDO, Directors
ET Evaluation Team (including TL and all members)
GOES Government of El Salvador (Ministry of Foreign Relations, and other ministries and directorates as required)

** Number of working days. Note that 36 working/travel days are allocated to each team member, with 6-day workweek authorized.

Annex 3: Key Qualifications of Evaluation Team

This annex contains the Key Qualification Summaries of the three-person Evaluation Team. The Team members were:

- Paul Dulin – Team Leader and Technical Specialist in Integrated Water Resources
- Scott Tobias – Rural Water Supply Specialist
- Carlos Zavala - Community Development and Participation Specialist

MR. PAUL DULIN - TEAM LEADER AND TECHNICAL SPECIALIST IN INTEGRATED WATER RESOURCES

Mr. Paul Dulin has more than 25 years of professional experience in project design, implementation and evaluation; environmental impact assessment, mitigation, and monitoring; natural resources, water resources, and watershed management; land and natural resource assessments and sustainable development planning; analysis of climatological, ecological, hydrological, socioeconomic, and land-use parameters; remote sensing and geographic information systems; and community participation, extension, and training techniques. He has specific experience in supervision and evaluation of donor-assisted development projects in Central America, with the IDB (five projects) and USAID, including the regional project PROARCA I and bilateral Honduran Environmental Protection Fund. His country experience in El Salvador includes conducting project supervision and evaluation for IDB-funded projects and the USAID PROARCA I evaluation, providing technical assistance to the Ministry of Environment and Natural Resources, and to the *Programa Ambiental de El Salvador* (PAES). Mr. Dulin has extensive long- and short-term field experience in the United States, Mexico, Belize, Honduras, Guatemala, El Salvador, Nicaragua, Costa Rica, Panama, Colombia, Venezuela, Peru, Bolivia, Argentina, Ecuador, Uruguay, Paraguay, Chile, Haiti, St. Lucia, Jamaica, Bahamas, Barbados, Trinidad & Tobago, Guyana, Dominican Republic, Somalia, Bangladesh, and regional Caribbean, Central America and South America. He is fully fluent in written and spoken English and Spanish; and has extensive Chief of Party and Team Leader experience on project designs, evaluations, and activities in execution.

MR. SCOTT TOBIAS - RURAL WATER SUPPLY SPECIALIST

Mr. Scott Tobias has a M.S. in Environmental Engineering, is full-time home office staff for ARD, and will work on issues relating to water, sanitation, health, and disaster mitigation. Mr. Tobias has over 15 years of international experience in international development projects focusing on water supply, sanitation, and health with most of this experience in Latin America. He has managed a major USAID community water supply, sanitation, and development project in Bolivia, and designed water supply and sanitation projects for major USAID-funded NGO efforts in Bolivia and Nicaragua. For the Environmental Health Project (EHP) he has supervised the implementation of three pilot planning activities for provision of wastewater collection and treatment for small towns in Ecuador, Jamaica and Panama. He has worked on various USAID evaluation activities, having conducted a PEA for USAID/El Salvador in July 2001, and the Title II Integrated Food Security Project in Bangladesh in February 2001. He has experience in disaster planning and response, having led water and sanitation assessments in Turkey and Mozambique as a member of USAID DARTs. He has done mitigation planning for a mass migration in Rwanda (1996) and evaluated one of the most comprehensive disaster readiness and

response programs in the world, the USAID-funded CARE/Bangladesh Disaster Response Component of the Integrated Food for Development project in 1999.

ING. CARLOS ZAVALA - COMMUNITY DEVELOPMENT AND PARTICIPATION SPECIALIST

Ing. Carlos Antonio Zavala is an Agricultural Engineer with a Master's Degree in Business Administration and will cover technical areas related to agriculture and economic activity. As a consultant with a principal focus in El Salvador, Ing. Zavala has worked in dozens of projects in El Salvador related to a wide range of environmental, agricultural and income generation topics. He has worked on several projects with USAID funding, the most recent being the AGUAS Project, where he is developing environmental education materials and participating on work in Bajo Lempa. Over the last eight years as an independent contractor and during his tenure with DEICO, S.A, he has focused on building sustainable institutional systems for environmental, business, and agricultural projects. These include environmental feasibility studies, monitoring and evaluation systems, financial management systems, institutional strengthening plans, and participatory planning procedures. He has worked extensively with municipal governments and with the El Salvadoran Ministry of the Environment, the *Sistema Nacional de Medio Ambiente* (SINAMA), and FISDL. Ing. Zavala provides the team with a broad base of experience in economic enhancement and agricultural activities, all grounded in years of experience in the environmental field.

Annex 4: Project Site Visits: Schedule and Summary Field Notes

Horario	Actividad / Lugar	Componentes, Actividades, Observaciones
Areas Atendidas por SalvaNatura en Ahuachapán Sur		
22 de Agosto 9:00 – 10:00 AM P. Dulin	Visita Caserío El Refugio, Cantón San Benito, San Francisco Menéndez *Participantes*: Miembros de comité de agua y ADESCO	Visita al pequeño sistema de agua con 60 familias conectadas; bien construida y mantenida; se habló de actividades de protección de fuentes y manejo de cuencas (existen pocas actividades en la actualidad); las prácticas de no-quemar son las más impactantes de acuerdo a los agricultores.
9:00 – 10:00 AM S. Tobias y C. Zavala	Visita a Centro Educativo Cara Sucia *Participantes*: Maestras y alumnos	El grupo ha respondido a las demandas de apoyo del proyecto, su actual organización es incipiente y requiere de apoyo para consolidar su gestión en la solución de problemas locales de drenaje de aguas servidas y lluvias, servicios sanitarios. Tienen programa radial de educación ambiental; paquete de sitio de aprendizaje, programa de separación de basura, taller escolar de reciclaje de papel.
10:30 – 11:30 AM P. Dulin, S. Tobias y C. Zavala	Visita a Proyecto construcción lavaderos en Río Cara Sucia y parcelas demostrativas de prácticas de conservación de suelos *Participantes*: Miembros de Comité transitorio subcuenca Cara Sucia, Junta de Agua ACEPROS (SAP Cara Sucia)	Trabajando sobre un plan de manejo de la subcuenca con varios proyectos en ejecución, ordenanzas para denuncias ambientales; problemas muy importantes de residuos sólidos; el Comité de Cuencas está en un proceso de organización incipiente, requieren de apoyo para su conformación. Plan de Manejo de la Cuenca esta en proceso, así como los proyectos de lavaderos, requieren apoyo en el seguimiento de denuncias locales del excesivo uso del agua con fines de riego y en la descontaminación del agua (conflictos entre usuarios tradicionales vs. poderosos); tiene un proceso judicial en proceso. SAP bien administrado con sistema computacional. Productor demostrador tiene más que 5 años en GreenProject y AGUA; parcelas sin quemar con barreras vivas de vetiver en buen estado, árboles frutales intercalados y forestales como cerca viva . Solo hombres en el grupo. Cultivo combinado de pipián, ejote, okra y ayote, plátano y guineo de seda en regular estado; falta de obras de conservación del drenaje principal de la parcela en la parte cercana a fuente de agua (pozo artesiano); nótese que varias de las comunidades estaban atendidas bajo el GreenProject a través de SalvaNatura y CENTA, así continuando procesos iniciados pero no consolidados. OJO: La bomba del SAP no está funcionando.
12:00 – 1:30 PM P. Dulin, S. Tobias y C. Zavala	Almuerzo en Cara Sucia *Participantes*: ADESCOs, Alcaldía, juntas de agua, Red de Juntas de Agua, CDL	Con lideres comunales de la zona, incluyendo: Comité Transitorio de Subcuenca, ADESCOs ACEPROS, Red de Juntas de Agua, y CDL San Francisco Menéndez. Técnicos SalvaNatura, CARE y de PCI. Sistemas de Aprovisionamiento de Agua Potable, logros palpables del proyecto, y tendencia acelerada de conformación de Red de Juntas de Administradores de Agua al nivel de la Región Occidental. Buenos líderes locales con visión de manejo de cuencas bien desarrollada. Conciencia evidente entre los representantes de todos los grupos presentes.

Horario	Actividad / Lugar	Componentes, Actividades, Observaciones
1:30-2:00 PM P. Dulin, S. Tobias y C. Zavala	Proyecto de relleno sanitario en San Fco. de Melendez *Participantes:* PCI, contratista, comité encargado de la construcción	Falta de estudio de sitios alternativos y un estudio de impacto ambiental (Según SalvaNatura, no lo han terminado aún). El sitio no es ideal por el pendiente y cercanía próxima a una quebrada; problemas con el drenaje por no aislar el relleno, causando daños a la laguna de evaporación; problemas por falta de la compactación de los terraplenes y declive inverso al diseño; la laguna podría ser subdiseñado por la cantidad de lluvias en el área; camino de difícil acceso que dañaría los camiones.
1:30 – 2:30 PM S. Tobias y C. Zavala	Visita SAP Puente Arce y Radio interactiva *Participantes*: Miembros Junta de Agua ACAGUAPA	Diseño SAP y capacidad para 800 familias de usuarios (a la fecha poseen 433 familias con acometidas). Entre los logros se encuentran: ADESCO fortalecida en su capacidad de gestión de proyecto de agua y de otros proyectos de beneficio comunitarios, experiencia relevante en tratamiento de conflictos sociales de agua. Requieren apoyo en mejorar eficiencia institucional y en la gerencia de servicios de calidad. Falta incluir disposición de aguas grises y negras en hogares (no-concurrente con el sistema/planta de tratamiento).
1:30 – 2:30 PM P. Dulin	Visita ADESCO La Ceiba, Santa Rita *Participantes*: Miembros de 3 ADESCOS	Proyecto de protección de Área Natural Salta Rita (remanente de bosques en galería de zonas bajas con conexión a la Barra de Santiago); problemas con residuos sólidos en las quebradas; ideas incipientes de manejar el área para el ecoturismo y educación ambiental; tienen un guarda recursos contratados con fondos comunitarios y esperan entrenar guías ecoturísticos locales; bien concienciados. Falta conformar un comité o asociación para administrar el área y gestionar ante MARN para el derecho (concesión?) de administrar el AP.
2:30 – 3:30 PM P. Dulin, S. Tobias y C. Zavala	Visita Planta de tratamiento de aguas en San Rafael *Participantes*: Comité communal	Sistema de tanques sépticos individuales y de dos casas de polietileno conectados a una planta de tratamiento de recirculación en filtros de arena (biofiltración) y lagunas de sedimentación en proceso de prueba; problemas con el rebalsado de los tanques grandes con lluvias fuertes; la envergadura y costos de la obra pueden sobrepasar el alcance de la mayoría de las pequeñas comunidades en El Salvador. Organización de reciente reactivación con limitados acceso a recursos económicos invertidos en proceso de instalación de una planta de; obra iba a ser terminado en tres meses y lleva nueve meses. Decisiones en cuanto al reuso de agua tratada aún pendientes. Falta entrenar el comité y beneficiarios en el mantenimiento.
4:00 – 5:00 PM P. Dulin, S. Tobias y C. Zavala	Visita a SAP Quebracho – Calderones *Participantes*: Miembros de comité de agua del SAP	Llegó el Equipo Evaluador muy tarde y no se pudo ver el tanque; los pobladores muy ansiosos por haber gestionado un proyecto de agua por más de 7 años; pozo ubicado 4,5 km aguas abajo requiriendo el bombeo por eléctrico (muy costoso). Organización en proceso de conformación paralela al trámite y gestión del proyecto, que en su mayor parte es financiado por el FISDL. Considerando la fecha de culminación del proyecto se requiere de apoyo para lograr el crecimiento y desarrollo institucional. Se relacionan pocas actividades de conservación en las cuencas.

Horario	Actividad / Lugar	Componentes, Actividades, Observaciones
23 de Agosto 9:00 – 10:15 AM P. Dulin	Visita dos fincas demostrativas municipio Guaymango y un microproyecto de mejoramiento de una fuente de agua comunal y lavanderos *Participantes*: Productores demostradores	Solo los productores demostradores están manejan planes de finca en un grupo (de conservación en milpas), mientras en otro grupo (diversificación de hortalizas con riego y un tanque de poli) todos tienen sus planes. En el primero tienen barreras vivas de brizantha y gandul, no-quemar, incorporación de rastrojos, siembra al contorno. Se estaba gestionando una reunión con SEGEM y la Bolsa de valores para la comercialización del maicillo y compra asociativa de insumos. Bonito proyecto de tecnología apropiada en el mejoramiento del nacimiento local. Solo hombres forman miembros de los grupos. Falta relacionar algunas actividades de conservación directamente con el manejo de las microcuencas estratégicas. En la segunda finca, se nota lo intensivo de la producción (frutales, hortalizas, riego) y la prueba de pesticidas orgánicas—pero al mismo tiempo los agricultores siguen usando Tamarón (etiqueta roja). Barreras de vetiver y brizantha, frutales, fertilizantes foliares. Varias parcelitas de reforestación cerca las casas, pero no tanto en los sitios de protección de cuencas y quebradas.
9:00 – 10:15 AM S. Tobias y C. Zavala	Vista Sitio de Aprendizaje Casa de la Cultura San Pedro Tuxtla y Juventud Activa 2000; y *Participantes*: Director Casa de la Cultura, colaboradores locales de sitios	Organización apoya esfuerzos del coordinador de Casa de la Cultura y de SalvaNatura; no cuenta con plan de trabajo grupal o de expansión institucional en actividades educativas. Tiene grupo de títeres (que no querrían estrenar por pena), artesanías con materiales de desechos, biblioteca de materiales AGUA. Jóvenes con proyecto de separación de basura (han visitado a Suchitoto), pero no tienen idea sobre las metas del proyecto
10:30-11:00 AM C. Zavala	Visita a Grupo de Hortalizeros de San Pedro Puxtla *Participantes*: SEGEM-CAMAGRO, ADESCO El Cortés	Organización de productores que comparten vivero techada (productor de plantines) para el autoconsumo y venta local de los productos. Así como el trabajo a base de la Vinagrera.
11:00 – 12:00 PM P. Dulin, S. Tobias y C. Zavala	Visita a Junta de Agua CORDURGUATEX *Participantes*: Presidente Red de Juntas de Agua, colaboradores locales del sitio, otros miembros de Junta de Agua	SAP construido con fondos de la Unión Europea; muchos problemas. Falta mucho trabajo organizacional; falta mediadores. AGUA ha rescatado este proyecto con apoyo técnico y organizacional.. La Red de Juntas de Agua ha apoyado la junta local.
12:30 – 2:00 PM P. Dulin, S. Tobias y C. Zavala	Reunión – Almuerzo con CODEGUAY. Casa Comunal Guaymango *Participantes*: Alcalde de Guaymango, Presidente de CDL de Guaymango, Jujutla y San Francisco Menéndez, miembros de CODEGUAY	Agrupación de varios grupos bajo la microregión Ahuachapán Sur reunidos mayormente por las necesidades de agua. Proyectos de SAP con FISDL para 3 cantones. La alcaldía quiere adquirir responsabilidad de manejar el SAP de ANDA pero la infraestructura está en mal estado. Parece unos grupos bien concienciados y promovidos por SalvaNatura. Ha sido promovido por RTI (Proyecto de Des. Mun.). El CDL tiene un plan de manejo, preparado de manera participativo, de 5 años de vigencia (50 proyectos con 32 ya planificados). Tienen 7 mesas sectoriales y 70 organizaciones territoriales. Proponen manejar un relleno sanitario entre 4 municipios. Desarrollo Local: Capacitación y organización de CDLs, Proceso de conformación de micro región Ahuachapán Sur, plan de acción conjunto.

Horario	Actividad / Lugar	Componentes, Actividades, Observaciones
Áreas Atendidas por Visión Mundial en Ahuachapán Sur		
23 de Agosto 2:00 – 5:00 PM P. Dulin	Visitas a parcelas demostrativas en la comunidad de Hoja de Sal *Participantes*: Productores Demostradores, Carlos Gómes, Noé Hernández	Situación ideal con la microcuenca atendida abasteciendo el SAP de la comunidad. Hay grupos de hombres (parcelas agrícolas) y mujeres (huertas). Hay conciencia entre la población sobre la necesidad de manejar la microcuenca, incluyendo reforestación al margen de quebradas. Parcelas demostrativas de barreras de vetiver y gliricidia, no-quemar (más aceptado), siembra al contorno, policultivos en huertas, hortalizas y frutales en huertas y en campos (diversificación), agroforestería, reforestación de boquetes, ovejas para carne. Todos manejan su propio plan de finca. El técnico fue capacitado bajo GreenProject y técnicos de Banco de Fomento habían promovido no-quemar. Promoción con empresa privada el cultivo de limón pérsico (potencial en la zona) y liga con la Asoc. de Productores de Limón Pérsico. Nótese que cuatro agricultores han plantado un millar de arboles de marañón, en posturas demasiado próximas como barrera viva (no es técnica apta), y sin idea que hacer con la producción eventual.
2:00 – 5:00 PM S. Tobias	SAP de Hoja de Sal	Caja grande de unos $30m^3$ que rebasa cuando está lleno; algunos problemas de tipo técnico con el clorador. Tiene conexiones domiciliarias y cantaneras, este último dificultando el cobro de tarifas. Se incluye una partida para la cuenca.
2:00 – 5:00 PM S. Tobias y C. Zavala	ADESCO El Progreso y comité de agua adscrito	Organización con experiencia en la obtención y traslado de fondos a los usuarios del SAP. Poca capitalización interna de los asociados y no tienen plan de trabajo y presupuesto en forma participativo.
Planta de Tratamiento de Aguas Servidas e Suchitoto (atendida por PCI)		
24 de Agosto 9:00 AM–3:00 PM P. Dulin, S. Tobias y C. Zavala	Participantes: Secretario Municipal, Vicepresidente y Tesorero de EMASA, CTO de USAID	Reunión en Alcaldía de Suchitoto en donde el Secretario Municipal explicó como el proyecto fue desarrollado, y la decisión de juntar el SAP y planta de tratamiento bajo EMASA. La planta de tratamiento está ubicada en un sitio apropiado, pero faltaba un tratamiento paisajístico y hay problemas de erosión. LA planta tiene algunos desperfectos relacionados a la construcción (distribución desigual de aguas en el biofiltro, problemas en el sitio del desagüe). Hay larva en el tanque clarificador y moscas negras abundante y otros temas a esperar en su operación con el tiempo. Todavía no existe un plan de reuso de las aguas tratadas y el plazo para concluir el sistema está por cerrar. También se hizo una visita a la planta de compostaje de desechos sólidos, lo cual parece bien manejado y en buen funcionamiento (hay muchos visitantes y el Proyecto AGUA lo usa como sitio de aprendizaje), aunque tienen un problema con las aguas lixiviadas. También se visitó el sitio del nuevo relleno sanitario bajo construcción cerca el centro de compostaje.

Horario	Actividad / Lugar	Componentes, Actividades, Observaciones
Áreas Atendidas por SalvaNatura en Usulután		
27 de Agosto 8:00- 8:45 Paul Dulin, Scott Tobias, Carlos Zavala	Visita a sitio de Aprendizaje Centro Escolar Dolores de Jesús Montoya. Santiago de Maria *Participantes*: Miembros de sitios de Aprendizaje y maestros, Patricia Magaña y Ligia Zavala	Proyectito de demostración de compostaje como aprendizaje del reciclaje de materia orgánica y su conversión a bienes de valor. Unos dos alumnos iniciaron composteras en sus propias casas. Se revisó el currículum del Centro Escolar en materias de medio ambiente, las mismas desarrolladas durante el Proyecto GreenProject-GreenCom financiado por USAID (que bueno de verlas en uso!). Hace falta un jardín escolar para utilizar el abono de la compostera.
8:45-9:45 Paul Dulin	Visita a MIBERLIN. Municipio de Berlín. Oficina de CODECO *Participantes*: Miembros del Grupo Femenino de MIBERLIN, Patricia Magaña y Ligia Zavala	Proceso de reciclaje de papel, centro de acopio y conformación de la microempresa. Grupo conformado de mujeres solteras. Muy buena cohesión organizacional. Tienen una tienda para la venta de artesanías y han exportado artesanías a Canadá y España en forma demostrativa. Están gestionando un proyecto con la Alcaldía para la separación de los residuos sólidos (orgánico del no-orgánico) para abastecer sus trabajos. Problemas del local y están buscando otro.
8:45-9:45 Scott Tobias, Carlos Zavala	Visita a sitio de aprendizaje ADESCO San Juan I Municipio de Alegría. Tanque de captación *Participantes*: Miembros de ADESCO y comité agua San Juan I, Patricia Magaña y Ligia Zavala	El ADESCO de Laguna de Alegría maneja el proyecto de abastecimiento de agua de un reservorio por medio de tanque de agua lluvia de 115 m^3, han recibido capacitación sobre protección de la fuente y del proceso de cloración del agua de consumo a nivel domiciliar.
9:45-11:20 Paul Dulin	Visita Protección de fuente de agua EL Jolete, Cantón San Juan Loma Alta. Berlín *Participantes*: Lideres de ADESCO, COMITÉ DE AGUA, agricultores promotores Patricia Magaña, Ligia Zavala y Nilton Navas	Grupo de Arrendatarios han aplicado prácticas de no-quemar (su más popular) con barreras vivas en parcelas demostrativas y irradiadas en tierras arrendadas (OJO: Un indicador de la gran aceptabilidad de estas prácticas y su efectividad en incrementar la productividad e infiltración y controlar erosión!). El proyecto de protección del fuente en El Jolete ha sido muy exitoso, funcional y de bajo costo. Problema en que gente de otros pueblos vienen a aprovechar el agua. Miembros del comité de agua entusiasmado y incluyen algunos agricultores demostradores. No tienen una política de cobrar por el agua. Se vio el proyectito de hipochloración en el tanque distribución de SAP San Juan Loma Alta. Problemas por la adición de muchas familias aprovechando el sistema. Pleito con el Municipio de Alegría que quiere quitar acceso a la fuente por razón que este está en su municipio y el sistema de agua está en el Municipio de Berlín.

Horario	Actividad / Lugar	Componentes, Actividades, Observaciones
9:45 – 10:45 Scott Tobias, Carlos Zavala	Visita a comités de agua El Caulote y Jocotillo La Puerta. Mercedes Umaña y Estancuelas. Tanque de distribución, carretera Panamericana. *Participantes*: Directivos de comité de agua de El Caulote y Miembros del comité transitorio del proyecto Jocotillo La Puerta, Ricardo Mejía, Nicolás Méndez y Mario Rivas	Reunión con directivos, discusión del proceso social y la obra física. Organización en proceso de conformación paralelo a proceso constructivo y de reparación del Sistema de Abastecimiento de agua y tanques de agua con re-bombeo (115 m^3 c/u). No ha definido todavía la política de la tarifa a pagar los consumidores del SAP.
10:45 – 11:30 Scott Tobias, Carlos Zavala	Visita Col. Las Flores. Cantón Santa Anita. Mercedes Umaña. Vivienda de presidente de ADESCO, *Participantes*: ADESCO Col. Las Flores, Ricardo Mejía, Nicolás Méndez y Mario Rivas	Recorrido proyecto piloto de pozos de absorción en Cantón Santa Anita.
11:30 – 12:00 Scott Tobias, Carlos Zavala	Comité de Subcuenca del Río San Simón. *Participantes*: miembros del Comité, Mario Rivas	Un movimiento ambiental para proteger el Río San Simón se convirtió en el Comité de la Subcuenca. El tema más importante es la legalización del Comité. Estaban preparando su plan de manejo. Petrología recolecta US$4,000/año específicamente para la cuenca que no se está utilizando para su protección.
Áreas Atendidas por SACDEL en Usulután		
2:00 -3:00 PM Paul Dulin, Scott Tobias, Carlos Zavala	Almuerzo y reunión con Concejales de Alcaldía Municipal de Jiquilisco y Usulután, así como con miembros del Comité Gestor de la Subcuenca El Borbollón, incluyendo representantes de los ADESCOs y comités de agua de las 28 comunidades afiliadas al Proyecto SAP del Bajo Lempa)	Se dividieron los consultores en tres grupos mezclados. CZ entrevistó a los concejales sobre su colaboración con el Proyecto AGUA y de las ordenanzas municipales. Se nota amplia experiencia en metodologías participativa para el establecimiento de ordenanzas municipales, falta apoyo en mecanismo de implementación y de control. Alcaldías son muy colaboradoras y agradecidas por el apoyo del Proyecto. PD y ST se entrevistó con miembros del Comité de Subcuenca Borbollón. Tienen un buen concepto y plan de manejo; proceso muy participativo; tienen lenguaje en sus estatutos para separar una partida del pago de tarifas de agua para manejar la cuenca (buena nota). ST discutió el SAP del Bajo Lempa, de agua bombeada de un pozo para beneficiar 28 comunidades, construida con fondos de la Cooperación Española pero sin capacitación en cómo manejar un sistema de agua (Consorcio está apoyando en este último).
3:00-3:30 Carlos Zavala	Visita a ADESCO El Tercio.	Organización con experiencia en tratamiento de conflicto social alrededor del abastecimiento de agua.
3:30-4:30 PM Scott Tobias	Visita al SAP de El Quebracho	AGUA apoyó en la legalización de la junta de agua. Medidas de construcción bien ejecutadas y supervisadas. La bomba no está funcionando. Conexiones domiciliarias con PVC. Tienen sus pozos de absorción.

Horario	Actividad / Lugar	Componentes, Actividades, Observaciones
3:30-4:30 PM Paul Dulin, Carlos Zavala	Comité Turístico de Chaguantique	Reunión con el comité turístico de Chaguantique para conocer la experiencia del proyecto de desarrollo económico local., y gira al Centro de Interpretación y a uno de los bosques, acompañado por una de las guías. (OJO: Sería bueno que el grupo de Santa Rita venga a conocer la experiencia de Chaguantique.)
2:00 -3:00 PM Paul Dulin, Scott Tobias, Carlos Zavala	Comunidad de Río Rosa en Usulután, proyecto de manejo de desechos sólidos	Proyecto de compostaje en su fase inicial. El sitio para la compostera no parece muy adecuado, ya que está muy cerca la colonia (potencial de olores y moscas) y está en una zona inundable. No contó con un estudio de impacto ambiental. Reunión de medio ambiente sobre el proyecto de separación y compostaje con miembros de la comunidad quienes expresaron su preocupación por la ubicación.
Áreas Atendidas por FUNDAMUNI y PCI en Usulután		
28 de Agosto 8:00-9:30 AM Paul Dulin	Reunión con Junta Administradora del Sistema de Agua del Cantón El Cerrito *Participantes*: Miembros de al Junta, Cecilia Gómez, Equipo FUNDAMUNI	Son 7 caseríos y 352 hogares que reciben agua del SAP. Antes compraron su agua por 60 colones por barril más el transporte. Proyecto es de pozo con bomba eléctrica. ADESCO supervisó la construcción y luego formaron una junta para administrar el SAP (2 juntas, una de administración y otra de vigilancia). Fontaneros parecen bien estrenados y ahora muy experimentados (tuvieron bastantes rupturas al inicio por malas conexiones). Tuvieron problemas con la bomba hasta que la casa comercial la reemplazaron. Sistema computerizado de administración contable. Hay 7 productores demostradores con grupos de 10-15 c/u trabajando en la cuenca de la zona (CHF promovió acequias de infiltración a 30 colones por jornada). Cuentan con sus pozos de absorción y letrinas. Se está discutiendo la inclusión de una partida de la tarifa de agua para el manejo de la microcuenca (aunque no sea la abastecedora).
10:00-11:00 AM Paul Dulin	Reunión con el Comité Gestor de la Microcuenca El Zúngaro, Municipio de San Francisco Javier *Participantes*: Miembros del Comité, Cecilia Gómez, Equipo FUNDAMUNI	Amplia participación de varias organizaciones en el Comité: escuelas, centro de salud, Alcaldía, agricultores, ADESCOs, etc. Se estaba discutiendo el borrador del plan de manejo y la priorización de proyectos. Algunos agricultores comentaron dos agricultores su interés en reservorios como se está implementando en la zona atendida por PCI (reunión está prevista con PCI). También se pudo apreciar el trabajo de jóvenes en CLARA (*OJO*: potencial para todo el área de Proyecto AGUA).
11:00-12:00 Paul Dulin	Recorrido de parcelas del subproyecto "Conservación de Suelo y Mitigación de Riesgos Microcuenca El Zúngaro" *Participantes*: Productores Demostradores, Equipo de FUNDAMUNI	Parcela con acequias de infiltración en parcelas propiedad de no-participantes en el Proyecto. Parcelas son activamente pastoreadas por bovinos. Acequias promovidas con pagos por trabajo de CHF. No es práctica recomendable las acequias en potreros por daños del pisoteo de vacas. Mejor sería la reforestación en parcela pura o agroforestería. (*OJO*: AGUA no incluye práctica con ganaderos)
8:00-10:00 Scott Tobias, Carlos Zavala	Visita a El Palmital, Municipio de Ozatlán, Proyecto de mitigación de deslaves *Participantes*: John McPhail, Nicolás Coto y Andrea Lamer de PCI	Construcción de gaviones de protección al lado del río en varios lugares apoyado por alimentos de trabajo post terremoto. Se notan algunos problemas de erosión de laterales. No se ejecutó un EIA para una obra muy importante. Las estructuras no han sido inspeccionadas por ingenieros de USAID ni USGS. OJO: debe el Proyecto AGUA estar financiando este tipo de estructuras?

Horario	Actividad / Lugar	Componentes, Actividades, Observaciones
10:00-12:30 Scott Tobias, Carlos Zavala	Visita a empresa Avícola en Loma Pacha y Proyecto de Comercialización en El Moro en Tecapán *Participantes*: John McPhail, Nicolas Coto y Andrea Lamer de PCI	Grupo de 4 jóvenes deseosos de aumentar sus ingresos actuales a base de protección de la tortuga marina. Al lado de la carretera que conduce a Usulután, Lideres discuten enfoque de contenido de fondos a la luz de la energía para el ECOCENTRO, un lugar de agronegocio. Actividades creativas para generar ingreso.
12:30-1:45 PM Paul Dulin, Scott Tobias, Carlos Zavala	Almuerzo con representantes de PCI y FUNDAMUNI	Discusión de estrategias y planes futuros de las dos organizaciones
2:30-4:00 Scott Tobias, Carlos Zavala	Reunión Directiva Comunal y productores del Cantón Las Trancas, Municipio Ozatlán y visita a parcelas demostrativas *Participantes*: Cecilia Gómez, Equipo FUNDAMUNI	FUNDAMUNI apoya en aspecto del SAP, mientras PCI en aspectos de producción y agroforestería (se está doble-contando beneficiarios). El ADESCO ha priorizado el desarrollo local por medio de SAP. Sin embargo, se percibe una doble dualidad ente los coordinadores y los subordinados. Visitas a parcelas demostrativas en compañía del Productor Demostrador. Observación de técnicas de no-quemar con barreras vivas, cercas, acequias de infiltración, cultivos combinados de maíz con frijol mucuna. Los reservorios son fuertes y aceptados por sus beneficiarios. SAP programada para 6 caseríos del cantón.
2:30-4:00 Paul Dulin	Visita a la finca demostradora de Ernesto Gracia en El Delirio *Participantes*: John Mcphail, Andrea Lamer, Sergio Rivera de PCI	Diversificación con hortalizas a base de riego por goteo. Reservorio de 15 mts cúbicos; captación de agua de lluvias del techo. Venta de pepinos europeos, papayas, y oroco. No hay fuentes de agua potable y hallen el agua de 5 kms de distancia para beber. Perforaron un pozo bajo el programa de nuevos horizontes pero no esta habilitado por falta de conexión eléctrica y agua de alto contenido de hierro. Agrupación de hecho (sin intención de legalizarlo). Pocas mujeres organizadas en grupo. Falta de una estrategia de salida en la metodología de extensión.
4:00-5:00 Paul Dulin	Visita a vivero de rootrainers en las Trancas. Participantes: Grupo La Renovación, Noel Santamaría, Efrain Cortéz, Andrea Lamer de PCI	Grupo de mujeres laborando en un vivero de rootrainers. Problemas con la mezcla de abonos de gallinaza y plagas en las plantas. Producción de especies forestales y frutales (eventuales) para la venta a la comunidad y trabajos de extensión de PCI en la zona. Buena estrategia de viveros comunitarios para generar ingreso local y suministrar plantas a afíliales de PCI.
Áreas Atendidas por FUNDAMUNI, CRS y PCI en Corinto, Morazán		
30 de Agosto 9:00-10:00	Reunión con miembros del Comité de Medio Ambiente de Corinto *Participantes*: Varios líderes cantonales, Alcalde de Corinto, ADESCOs y Comité del Medio Ambiente de Corinto, Equipo FUNDAMUNI	Discusión de los intereses y conceptos en manejo de la Subcuenca del Río Corinto. Ya existe el Plan de Manejo de la Subcuenca del Rió Corinto/Río Torola, preparado de manera participativa por los asistentes. Grupo concientizado sobre la necesidad de conservar la cuenca. Falta de agua es problema más importante (solo 5 de los 53 caseríos tiene su SAP). El plan tiene varios subproyectos para que se está gestionando recursos, incluyendo SAPs. Deforestación es un problema crítico. FUNDAMUNI está en la zona desde 1997. Ya promulgaron ordenanzas y están apenas empezando pensar en como aplicarlas.

Horario	Actividad / Lugar	Componentes, Actividades, Observaciones
10:00-12:00 Paul Dulin	Recorrido de parcelas de Productores Demostradores en el Alto de Aguacate, Cantón El Corralito *Participantes*: Demostradores, Ricardo Pérez de FUNDAMUNI y Carlos Huezo y Roney Gutiérrez de CARE	Uso de tanque de 22,000 litros de polietileno, conectado a un nacimiento que acaba de secar por primera vez. Se usa tecnología de riego por goteo, pero en suelos marginales de alto pendiente (OJO: costo-eficiencia y económico de este tipo de sistema). La microcuenca abastecedora está parcialmente protegida, pero se necesita trabajar con los dueños de tierras en la parte alta. Mucha gente tiene familiares en los EE.UU. y hay fuerte dependencia a remesas. Hay tierra no cultivadas propiedades de dueños en los EE.UU. (OJO: Potencial de ligar remesas con el financiamiento de proyectos AGUA—FUNDAMUNI está gestionando con grupos de enlace en los EE.UU.). Algunas deficiencias en el enfoque estratégico en donde trabajar en la microcuenca.
12:00-12:30 Paul Dulin	Visita a Radio Corinto *Participantes*: Miembros de la Junta y Comentaristas de la Radio, Equipos FUNDAMUNI y CARE	La emisora fue establecida con fondos de contraparte de FUNDAMUNI bajo el Proyecto AGUA, bajo la condición de 35% de la programación se orienta a medio ambiente. Programas radiales de conservación de suelo, no quemar, Casa El Agua, anti-dengue, residuos sólidos, y promoción de las ordenanzas.
8:30-10:30 Scott Tobias, Carlos Zavala	Reunión sobre el Proyecto de Diversificación y Comercialización CRS/PHOC *Participantes*: Equipo CRS, Miembros de la Directiva y productores de PHOC, CDL de Corinto	Entrevistas con miembros de la Junta Directiva, extensionistas comunitarios, jóvenes de formación de Gerentes Campesinos, Comité de Mercadeo, y Comité de Mujeres de Centros de Empaque. Organización conformada por productores de la zona con apoyo de técnicos de CRS. Tienen avances en el proceso de comercialización y de preparación de jóvenes para tareas de gerencia y de administración de la empresa. Parecen todos de la organización bien informadas. Con el Comité de Desarrollo Local de Corinto se analizó el proceso de priorización de proyectos del PADL, con participación de la ciudadanía.
10:30-12:30 Scott Tobias, Carlos Zavala	Visita a Centro de Empaque y Puesto de Mercadeo en Corinto y visitas a Cantón Honorable para ver parcelas demostrativas de cons. de suelos *Participantes*: Equipo CRS, Miembros de la Directiva y productores de PHOC	Se observa dominio de aspectos técnicos y de manejo de los cultivos en manos de los productores demostradores. Los técnicos de CRS apoyan el proceso de comercialización y uso de técnicas de riego y manejo fitosanitario de los cultivos. Cercas vivas, cero labranza, reservorio construido con apoyo de PCI. *OJO*: Hay pocas actividades de protección y conservación de la cuenca receptora.
1:00-2:00 Paul Dulin, Scott Tobias, Carlos Zavala	Inspección del Relleno Sanitario de Corinto. *Participantes*: Alcalde de Corinto y vocales, Iliana Amaya y Orlando Luna de PCI	Reacomodaron el botadero anterior a un relleno moderno. Se nota buen saneamiento y operación (no ni moscas ni zopilotes). Alcalde opera un solo camión para recoger orgánicos un día y no-orgánicos el otro día. Parece que está funcionando bien. Centro de separación y compostaje operando, con demostraciones del uso de en fincas al lado. Algunas dificultades de operación y tratamiento de lixiviados en el digestor de flujo ascendente (requiere de ajustes en el proceso previsto). No hubo EIA para el proyecto.

Horario	Actividad / Lugar	Componentes, Actividades, Observaciones
2:30-5:00 Paul Dulin, Carlos Zavala	Visita a parcelas de dos demostración de diversificación y la mini-represa desarmable en la quebrada Participantes: Productores demostradores y Equipo CRS	Producción de chile, tomate, pipián y pepino bajo riego de aspersión. Problemas de babosa. Buenas cosechas y primer pago recibido por Don Lucas era de US$1,760!! Las parcelas están cultivadas hasta la ribera de la quebrada (*OJO*: Violación de la Ley de Medio Ambiente). Mini-represa en una quebrada muy correntosa durante el invierno (mucha roca grande!). No se hizo EIA para el subproyecto y se desconoce el impacto aguas debajo de desviar las aguas para seis parcelas de membresía PHOC. Otra parcela cultivada con uso de riego por goteo; parece funcional y bien manejada por los agricultores. OJO: El acceso a Quebrada Honda es difícil y problemático con las lluvias (costo-beneficio?). Tiene un programa de crédito incipiente pero funcional. CRS está manejando casi todos los aspectos de mercadeo (registros, transporte, negocio con la Dispensa de Don Juan) y está donando en comodato un camión refrigerado para el transporte. Puede volverse paternalista si no se establezca la estrategia de salida y liberación del grupo y el plazo.
2:00-4:00 Scott Tobias	Inspección del SAP de Quebrada Honda *Participantes*: Miembros de la Junta de Agua, Técnicos de FUNDAMUNI y CRS	Inversión de SIA-FUNDAMUNI. Tanque nuevo *sin* hipochlorador. Sistema tiene algunas deficiencias técnicas; no tiene subproyectos de pozos de absorción ni letrinas, ni hay mediadores. Hay problemas de abastecimiento durante el verano.
4:00-5:00 Scott Tobias	Centro de Empaque PHOC de Quebrada Honda *Participantes*: Extensionista de CRS	Extensionista está llevando todo los registros y llevando los productos empacados al mercado (OJO: Cómo y cuándo pasarían estas labores a los miembros del Centro de Empaque? Y la estrategia de salida?).
Áreas Atendidas por FUNDAMUNI en Usulután		
31 de Agosto 10:00-11:30 Scott Tobias	Visita a Subproyecto SIA Fuete de Agua en San Mauricio *Participantes*: Miembros de la Junta, Cecilia Gómez	Manantial grande distribuido entre dos SAP y una cooperativa de café. Mejoramiento de la captación (caja de cemento) y 20 lavaderos con trampa de filtración. FUNDAMUNI está facilitando la organización de la junta y mejorar el servicio de los SAPs. El manejo adecuado de la microcuenca es muy importante para estos SAP.
11:00-1:00 PM Scott Tobias	Reunión con Miembros y Visita del SAP de Visita a Subproyecto SIA en Santa Fe-Los Chiles *Participantes*: Miembros de la Junta, Cecilia Gómez y Nancy Amaya	Nuevo tanque de captación y rehabilitación del SAP. La junta está en proceso de organización. Hay algunas observaciones sobre el diseño y construcción.

Annex 5: List of Persons and Organizations Contacted During the AGUA Evaluation Project

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COLONIA EL CERRITO- AUGUST 28, 2002

José Antonio Vargas
Tesorero, Asociación Comunal, Junta de Agua

Juan Anselmo Mendoza
Vice-Presidente
Junta Administradora de Agua

Oscar Armando Chavarría
Presidente, Junta Directiva
Administradora de Agua

Oscar Armando Chavarría Portillo
Tesorero "A de cor"

José Fernando de Paz
Vice-Presidente ADESCO

Pedro Vidal Cavaría
Secretario "ADESCO" Y Administrador de l Sistema

Ricardo de La O Pineda
Secretario de Actas de La Junta Administradora de Agua

Raúl Pineda Beltrán
Socio Y Beneficiario Dl Sistema de Agua

Jesús Portillo Mejia
Presidente "ADESCO"

Francisco de Jesús Funes
Vocal "ADESCO Y Vocal Junta de Agua

José Emilio Arias Machado
Junta de Agua

PRODUCTORES DE HORTALIZAS ORGÁNICAS DE CORINTO (PHOC)/CRS, 30 DE AGOSTO, 2002

Mario Reyes
Vocal de Phoc

Julia Granados
Phoc SC de R..L.
Vocal Junta Directiva

Elizabeth Méndez
Phoc SC de R..L.
Secretaria Junta Directiva

Sara Ángel Medina
Phoc SC de R..L.
Presidente, Junta Directiva

Héctor Mauricio Vásquez
Coordinador de Merca de o
Phoc SC de R..L.

Fausto Argueta
Suplente de la Directiva Phoc
Phoc SC de R..L.

Ismael Guzmán
Productor Extensionista de Phoc
Phoc SC de R..L.

Guillermo Granados
Directiva de Centro de Empaque de Hondable de Phoc
Phoc SC de R..L.

Maria Lorena Urquilla
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CENTA SEP 2, 2002

Ing Carlos Mario …
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CENTA

Lic. Margarita Ledezma
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ADESCO- LAS TRANCAS- FUNDAMUNI – AUGUST 8, 2002

Santiago López
Vocal de ADESCO

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Alicia Maribel Rodríguez
Comité de Apoyo Las Trancas

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Juan Carlos Argueta
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Efraín Cortés
Presidente ADESCO

Cecilia Gómez
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CHAGUANTIQUE-SACDEL- AUGUST 27, 2002

Concepción de Lourdes Mustajo
Secretaria Proyecto Agua Zona
Comunidad Bajo Lempa

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Proyecto Agua Bajo Lempa

Rosa Aminta Orellana
Comité Nuevo Amanecer
Presidente Ote de Mujeres

José Adán Saravia
Comité, Salinas Sisiguayo
Comité Gestor Cuenca Rió Borbollón

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Ricardo Antonio Mejia
Educador Ambiental
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SALVANATURA

SITIO DE APRENDIZAJE RIO ROSA, USULUTÁN-SACDEL AUGUST 28, 2002 5:00PM

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Pro-Rescate de l Rió
Molino de Salud

Víctor M. Esperanza
V de S Molino
Ministerio de Salud

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Col. Rió Rosa, Usulután

Vilma Iris Cerna
Comisión de Usuario
Col. Miramar Usulután

Néstor Ama de Quintanilla
comisión Usuario
Colonia Rió Rosa

Mario Garcia Gómez
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Sector # 1 Colonia Rió Rosa

Edwin Wilfredo Cortés
comisión Usuario
Colonia Rió Rosa

Blanca Lidia de Cristales
Comité Usuario
Colonia Rió Rosa

Oswaldo Rodríguez
Comité Jóvenes
Colonia Rió Sosa

Cecilia Lourdes Zaragoza
Comité Jóvenes
Colonia Rió Rosa

José Manuel Quintanilla
Partos
Iglesia Evangélica

MESA DE DIALOGO-SALVANATURA- CARASUCIA AUG. 22, 2002

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Salvanatura

Francisco Estrada
Coordinador funciones
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Colaborador ADESCO

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Elías Antonio Cruz
Presidente Junta de Vigilancia-ACEPROS Cara Sucia

Roney Gutiérrez
Gerente de Proyecto Agua-Cara-El Salvador

Brad Carr
Gerente de Proyecto
USAID

Mariana Márquez
Vice-Presidente ACEPROS

José Natividad Ramiro
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Joel Alirio Moreno
Motorista
Salvanatura

Ruth Marina Cardón
Técnica de Educación Ambiental Y PC.
Salvanatura

Margarita Rosa Álvarez
Técnico En Educación Ambiental Y Participación Ciudadana-
Agua-
Salvanatura

Alfredo Paz Lemus
Técnico, Proyecto, Agua-
Salvanatura

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P C I

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Paul Dulin
Coordinador Equipo Evaluador.
ARD, Inc

SAP- PUENTE ARCE, ACAGUAPA-SALVANATURA –AUGUST 22, 2002

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Sindico Acaguapa

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Armando Arnoldo Mendoza
Secretario Medio Ambiente

Moisés Quintanilla
Vice-Presidente

Rosa Miriam Ramos
Secretaria Orientación Social

Henry Oswaldo Retana
Proyecto Agua-Salvanatura, Técnico En El Area de Organización Social

Mario E. Ruedes
Administrador de Acaguapa

Amílcar Orantes
Proyecto A.
Salvanatura-Infraestructura

CODEGUAY- MICROCUENCA SUR DE AHUACHAPÁN- GUAYMANGO –AUGUST 23, 2002

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Presidente C.G.D.L.
San Francisco Menéndez

Valentín Méndez L.
Alcalde de Guaymango

Rosibel M. Chávez
Consejo Municipal

Enma Luz Moran Aquino
Pro-Tesorero del CODEGUAY

Mardoqueo López
Jujutla Cantón Las Mesas

Jovel Antonio Centeno
Tesorero de C.D.L

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Miembro Consejo M.M.

Humberto Ruiz
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C D L San Pedro, Puxtla

Jaime A Castaneda M
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CODEGUAY
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José Enrique Damian
Colaborador
San Pedro Puxtla

INTERVIEWED BY SCOTT TOBÍAS, INDEPENDENT FROM PAUL DULIN AND CARLOS ZAVALA

Corduratex – Junta de Agua In San Pedro Tuxtla (Municipality Guaymango) Ahuachapán (Visitado 23 Agosto), José Enrique Damian
Presidente

Alexander Cuellar
Primer Vocal

Antonio Garcia
Tesorero

José Luis Jiménez
Sindico

ADESCO COLONIA LAS FLORES, CANTÓN SANTA ANITA USULUTÁN (POZOS ABSORCIÓN) AUGUST 27, 2002

Israel Gaitan
Presidente ADESCO

Eugenio Orellana
Agricultura Promotor

COMITÉ DE SUBCUENCA RIÓ SAN SIMÓN, USULUTÁN, AUGUST 27, 2002

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Hacienda Santa Anita

Luis Rivera
Hacienda Santa Anita

Susana González
Caserío El Jícaro

Marla Argueta
Cantón Santa Anita

Jesús Iraheta
Presidente, Mercedes Umaña

COMUNIDAD QUEBRADO, (EL TERCIO) CANTÓN SAN JOSÉ JIQUILISCO, USULUTÁN SAP, AUGUST 27, 2002

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Presidente Cooperativa El Tercio, Presidente ADESCO de Agua La Reforma

Juan Aviles
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Daniel Rivera
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Martha Rodríguez
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Freddy Gutiérrez
Encargado de Medio Ambiente, Tesoro Cooperativa El Tercero

José Bermúdez
Secretario de Actas de l Cooperativa El Tercero

RIÓ MOLINO COMPOSTAJE, USULUTÁN, AUGUST 27, 2002

Julio Cáceres
SAC de l Promotor

Víctor Esperanza
Unidad de Salud Usulután

QUEBRADA HONDA, ADESCO DE AGUA POTABLE, CORINTO, MORAZÁN, AUGUST 30, 2002

José Manuel Amaya
Secretario Adesco
Socio Phoc, Comité Comercialización Phoc

Raúl Álvarez
Presidente ADESCO de Agua

SAN MAURICIO, PASO GUALACHE USULUTÁN – COOPERATIVA CAFETERO SAN MAURICIO, COMITÉ DE AGUA PASO GUALACHE, COMITÉ DE AGUA SAN MAURICIO, COMITÉ DE GESTIÓN DE MICROCUENCA SAN MAURICIO, AUGUST 30, 2002

José Parado
Presidente - Junta de Agua Paso Gualache,
Vice-Presidente Codelteco, Presidente Comité General

Juana del Carmen Díaz
Secretaria Junta de Agua Paso Gualache
Miembro Comité de Microcueca San Mauricio

José Antonio Navarro
Presidente Cooperativa San Mauricio, Miembro Comité de Gestión de Microcuenca San Mauricio, Representante Ambiental Comité de Agua San Mauricio

SANTA FE Y CASERÍO LOS CHILES, SAP, JUNTA DE AGUA, CANTÓN LOS HORNOS, MUNICIPIO SAN FRANCISCO JAVIER, USULUTÁN, AUGUST 31, 2002

Juan Luis Rodrigue
Tesorero Junta Directiva Comunal

Julio Rodrigo Moz
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José Domingo Escobar
Vicepresidente Junta de Agua

Juan Álvaro Torres
Presidente Junta de Agua

José David López
Vocal Junta de Agua

José Pedro Ramos
Sindico, Junta de Agua

José Wilfredo Martínez
Presidente ADESCO

Glendis Guerrero
Tesorera Junta de Agua

Annex 6: Evaluation Workshop: Agenda, Workshop Outputs and List of Participants

SEMINARIO TALLER

Evaluación de las Actividades Ejecutadas bajo el Proyecto AGUA

Agenda

San Salvador, 6 Septiembre del 2002

8:00 Inscripción de participantes y entrega de material.

8:30 Introducción / bienvenida (Brad Carr, Oficina de Agua y Medio Ambiente, USAID/El Salvador)

8:35 Objetivos, Metodología del Taller, y las Reglas de Participación (Paul Dulin, Coordinador del Equipo Evaluador).

8:45 Hallazgos y Conclusiones Generales de la Evaluación (Paul Dulin).

9:00 ***Presentación y Discusión*:** Hallazgos y Conclusiones sobre los aspectos de Descentralización, Desarrollo Local, y el Fortalecimiento de Organizaciones (Carlos Zavala)

9:30 ***Presentación y Discusión*:** Hallazgos y Conclusiones sobre las Prácticas de Manejo de Cuencas, Protección de Fuentes, y Producción Agroforestal Sostenible (Paul Dulin)

10:00 ***Presentación y Discusión*:** Hallazgos y Conclusiones sobre la construcción, rehabilitación y mantenimiento de Infraestructura de Agua Potable, y Colección y Disposición de Desechos Líquidos y Sólido (Scott Tobias)

10:30 Refrigerio

11:00 ***Presentación y Discusión***: Hallazgos y Conclusiones sobre los aspectos de Educación Ambiental, Participación Ciudadana, y el Uso Sostenible de los Recursos Naturales y Ecoturismo (Equipo Evaluador)

11:30 ***Presentación y Discusión*:** Hallazgos y Conclusiones sobre los elementos de Planificación Estratégica, Priorización de Acciones, e Instrumentos Políticos para el Aprovechamiento Sostenible de los Recursos Hídricos (Paul Dulin)

12:00 Discusión y validación de las conclusiones del Equipo Evaluador: Preguntas y Respuestas.

SEMINARIO TALLER

Evaluación de las Actividades Ejecutadas bajo el Proyecto AGUA

12:30 Almuerzo

1:30 Explicación de la metodología, distribución de los participantes e inicio del trabajo de los Grupos de Tarea:

- *Grupo 1*. Descentralización, Desarrollo Local, Fortalecimiento de Organizaciones.
- *Grupo 2*. Prácticas de Manejo de Cuencas, Protección de Fuentes, y Producción Agroforestal Sostenible.
- *Grupo 3*. Infraestructura de Agua Potable, y Colección y Disposición de Desechos Líquidos y Sólido.
- *Grupo 4*. Educación Ambiental, Participación Ciudadana, Usos Sostenibles de los Recursos Naturales y Ecoturismo.
- *Grupo 5*. Planificación Estratégica, Priorización de Acciones, e Instrumentos Políticos para el Aprovechamiento Sostenible de los Recursos Hídricos.

3:00 Refrigerio

3:15 Presentación y breve discusión en plenaria de los resultados de los Grupos de Tarea y su comparación con las recomendaciones preliminares del Equipo Evaluador (15 minutos por Grupo)

4:30 Conclusiones y Recomendaciones del Seminario-Taller: Discusión en plenaria (Participantes y el Equipo Evaluador)

5:00 Cierre del Seminario-Taller y agradecimientos (Paul Dulin y Brad Carr)

Objetivos, Metodología del Taller, y las Reglas de Participación

El Equipo Evaluador ve la evaluación como formativa para los próximos dos años de ejecución, previa un análisis de las experiencias de los primeros tres años de ejecución del Proyecto. El *objetivo principal* del Seminario-Taller es facilitar la retroalimentación de los hallazgos y conclusiones del Equipo Evaluador del Proyecto AGUA con el afán de analizarlas en conjunto con representantes de los organismos ejecutores de las actividades del Proyecto y su institución financiera, la USAID. Como resultados del Seminario-Taller, el Equipo Evaluador espera aclarar cualquier duda o interpretación sobre la información recopilada durante el período de la evaluación, validar las conclusiones presentadas, y obtener aportes de todos los participantes en cómo maximizar las oportunidades de éxito del Proyecto en los próximos dos años de ejecución.

La *metodología* del taller consiste en dos partes principales: i) la presentación y discusión de los hallazgos y conclusiones preliminares del Equipo de Evaluación (véase agenda de la mañana); seguido por ii) la distribución de los participantes en cinco grupos de tarea (o mesas de trabajo) para contestar una serie de preguntas suministradas por el Equipo Evaluador relacionadas a áreas específicas por materia en donde aún se requiere el Proyecto algún refuerzo y/o mejoras.

Las Reglas de Participación en el Taller

- *Dejen sus agendas en la puerta*: El taller es un foro de intercambio horizontal. No estamos aquí para negociar una extensión de un convenio o hablar de asuntos contractuales.

- *El criterio del Equipo Evaluador es independiente*: Los miembros del Equipo Evaluador tienen sus propias interpretaciones a lo observado y tienen derecho de representar sus opiniones profesionales. Si el Equipo Evaluador haya mal interpretado o no hubiese contado con la suficiente información sobre cual basar sus análisis, los participantes interesados tiene el derecho de llamarle la atención. Tampoco es de esperar que el trabajo del Equipo Evaluador sea perfecto (no somos tan creídos).

- *Todos nos equivocamos y todos tenemos la razón*: Cada participante debe de participar sin tratar de usurpar la palabra o defenderse. Levántese la mano para ser reconocido. Trate de ser breve en sus preguntas y comentarios.

- *La perfección es el enemigo del bueno*: La perfección nunca se consigue, entonces por favor no insiste que su estrategia o metodología es la mejor. Debe respetar la opinión del otro, igual como usted quiere que su opinión sea respetada.

- *Toda crítica debe ser constructiva*: No tiene uno el derecho de criticar si no tiene una recomendación en cómo mejorar la situación.

Situaciones Estructurales en el País que han Afectado la Ejecución del Proyecto AGUA

- El Proyecto nace en 1999 sobre la cola de la devastación del Huracán Mitch ocurrido el 28 de octubre al 2 de septiembre de 1998 y encuentra condiciones de devastación y reconstrucción cuando se iniciaron las actividades.

- La región centroamericana sufrió una sequía importante entre 2000 y 2001, afectando negativamente los esfuerzos de reforestación, siembras de barreras vivas y la economía rural.

- El terremoto pegó fuerte a El Salvador el 13 de enero de 2001, especialmente en Usulután, requiriendo la reorientación de los esfuerzos del Proyecto de un programa de concientización y actuación en el bien de los recursos naturales de mediano plazo, a un proyecto emergente.

Hallazgos y Conclusiones Generales de la Evaluación

Logros y Aspectos Positivos

1. Se está cumpliendo mayormente, sino superando los indicadores de implementación incluidos en Documento de Actividad Nueva (NAD) y los convenios adscritos entre USAID y las Organizaciones Ejecutoras.

2. Los esfuerzos de desarrollo local promovido por los Ejecutores—incluyendo el fortalecimiento de grupos existentes (ADESCOs, juntas de agua, municipalidades, etc.) y el establecimiento de nuevos grupos activos en los aspectos de gestión y uso racional del agua—están contribuyendo grandemente a los objetivos nacionales de descentralización y democratización

3. El concepto de planificación del desarrollo local-municipal por subcuenca, y especialmente por microcuencas, es el más apropiado para las zonas rurales en el país.

4. Las prácticas de conservación de suelo y agua y agroforestería promovidas por el Proyecto son, en su mayoría, apropiadas y están contribuyendo a la conservación de los recursos hídricos en las áreas de intervención directa y al menor grado aguas abajo.

5. Se puede notar un cambio en la actitud y el hablar de las poblaciones en las áreas atendidas por el Proyecto, hacia una mayor apreciación de su entorno, la protección del medio ambiente y la relación del agua con las cuencas hidrográficas.

6. La incorporación de partidas para financiar las actividades de manejo de cuencas (servicios ambientales) en las tarifas de agua para varios SAP, aunque sea incipiente, es en sí un paso fundamental en la sostenibilidad de las actividades promovidas por el Proyecto.

7. El Proyecto AGUA, entre las actividades promovidas por sus diversas organizaciones ejecutoras, tiene los elementos para establecer “modelos” para la gestión integral de los recursos hídricos al nivel local.

Areas que Requieren Refuerzo y/o Mejoras

1. La agrupación de las actividades (e indicadores de ejecución) en los componentes hace difícil dar un seguimiento administrativo, y el monitoreo del impacto por componente. Por ejemplo, las actividades de conservación de suelos y agroforestería están juntos con los subproyectos de plantas de tratamiento de aguas residuales y los rellenos sanitarios.

2. Existen ciertas carencias en la planificación estratégica que ha resultado en la fragmentación y dispersión geográfica de actividades sin su efectiva integración al nivel de las comunidades meta y/o objetivos mayores de conservación de las microcuencas.

3. Desviación de algunas de las actividades más allá de los objetivos mayores y las orientaciones técnicas del diseño original.

4. Potencial de crear una plétora de organizaciones locales y microregionales que podrían competir con las autoridades gubernamentales locales y/o concentrar el poder de decisión en manos de pocas personas.

5. Las estrategias de promoción, organización, capacitación y el uso de incentivos no siempre son suficientemente claras para determinar en qué momento se podría liberar un grupo de participantes/beneficiarios y reducir o cortar la asistencia del Proyecto.

6. Promoción de ciertas tecnologías sin conocer o haberse analizado con cautela sus impactos potenciales social, económico y ambiental (incluyendo los procedimientos EIA).

7. El sector de agua potable está aún sumamente descuidado.

8. Doble conteo de beneficiarios en áreas en donde dos o más organizaciones están trabajando en forma colaborativa.

9. Falta monitorear los indicadores apropiados de impacto social y ambiental para poder analizar el avance real hacia los objetivos fundamentales del Proyecto.

10. Los esfuerzos de incidencia, mientras hayan tenido sus efectos deseados al nivel municipal, no han resultado en cambios significantes al nivel nacional.

Hallazgos y Conclusiones sobre las Prácticas de Manejo de Cuencas, Protección de Fuentes y Producción Agroforestal Sostenible

Logros y Aspectos Positivos

1. Las prácticas y algunas obras están teniendo un impacto muy positivo en términos de reducir la escurrentía y erosión, incrementar el contenido de materia orgánica, mejorar la estructura e iones intercambio iónico, y aumentar la infiltración al suelo y mantos freáticas—en sí contribuyendo al mantenimiento y/o mejoramiento de las condiciones en las cuencas hidrográficas.

2. En los ejemplos observados, los pequeños subproyectos de mejoramiento y protección de fuentes de agua han tenido un impacto muy importante, aún que sea a nivel puntual local.

3. El uso de planes de finca está relativamente bien generalizado, aún que con diversos enfoques en algunos lugares.

4. La selección de prácticas es mayormente adecuado, especialmente en los terrenos de granos básicos atendidos bajo el Proyecto, en donde las siguientes han tenido amplia aceptación como son:

    - No-quemar y regado de los rastrojos (y/o su incorporación al suelo)
    - Labranza mínima y siembra al contorno
    - Barreras vivas de Vetiver y Brizantha
    - Cercas vivas
    - Huertas de hortalizas y frutales (cerca la casa)

5. Las siguientes prácticas, entre otras, están aún en prueba, pero bien intencionadas por la escasez de agua en las zonas atendidas y/o la promoción de diversificación para generar ingresos a las familias:

    - Reservorios de suelo cementado (semi-esféricos de $15m^3$)
    - Tanques de polietileno de 2.500 hasta 22.000 lts.
    - Sistemas de captación de aguas de lluvias (algunos ligados a los anteriores)
    - Mini-represas desarmables puesto en aforos de los ríos y quebradas
    - Diversificación en la producción de hortalizas y frutales para su comercialización a mercados formales e informales
    - Ecoturismo comunitario

Areas que Requieren Refuerzo y/o Mejoras

1. La promoción de actividades de conservación de suelos y agua no siempre obedece a una planificación estratégica en función a los objetivos del Proyecto AGUA, en términos de la priorización de las técnicas y sitios geográficos acorde con el manejo de cuencas. Se observan grupos que no están relacionado sus actividades a las necesidades de recuperar/manejar de cuencas.

2. En algunas zonas de promoción de diversificación y producción hortícola bajo riego, no se está atendiendo a productores en las tierras más altas en donde se está presenciando una deforestación y degradación de las cuencas abastecedoras del agua para los proyectos de riego.

3. Se observan ciertas deficiencias relacionadas con el control de calidad en la selección y promoción de prácticas no apropiadas (algunas en respuesta a las campañas de promoción de remuneración por trabajo de la reconstrucción post-terremoto), como son:

    - Plantación de árboles por debajo la sombra de otros árboles
    - Acequias de ladera y/o de infiltración en potreros aún en uso
    - Barreras vivas en tierras dedicadas a producción de granos básicos en donde se meten el ganado en el verano
    - Arboles frutales como barreras vivas
    - Plantación en grande de especies frutales cuyo potencial se desconoce en la zona ni las posibilidades para su comercialización
    - Promoción de la producción de hortalizas y/o frutales en parcelas muy distantes a mercados reales o potenciales, muchos con restricciones de acceso
    - Producción de hortalizas por dentro la faja prohibida (50m cada lado de un río o quebrada)
    - Promoción de pesticidas orgánicos aún en donde los agricultores siguen utilizando pesticidas y herbicidas de alta toxicidad (Categoría I/Etiqueta Roja)

4. No se detecta mayor actividad en ciertas prácticas apropiadas como es la reforestación y/o protección de riberas de los ríos y quebradas, faldas y terrenos en zonas de recarga acuífera, sea en tierras fiscales o privadas.

5. Parece que existe alguna confusión de terminología en qué comprenden las actividades de protección de fuentes, las cuales algunos utilizan intercambiablemente con las acciones de manejo de cuencas y conservación de suelo.

6. No se han desarrollado actividades en el rubro del control de la contaminación industrial; no se ha logrado mayor impacto ni alcanzado los indicadores de ejecución para esta actividad.

7. Las Organizaciones Ejecutoras no están reuniéndose entre sí periódicamente para compartir experiencias sobre la aplicación de las prácticas de conservación y diversificación.

Hallazgos y Conclusiones sobre los Elementos de Planificación Estratégica, Priorización de Actividades, e Instrumentos Políticos para el Aprovechamiento Sostenible de los Recursos Hídricos

Logros y Aspectos Positivos

1. La innovación de agrupar las cuatro ONGs en un consorcio ha funcionado bien, aunque después de un año de "interrelación". De igual manera, las ONGs individuales están teniendo sus propios éxitos.

2. El Proyecto ha contribuido a levantar la conciencia sobre la importancia de proteger y manejar las cuencas hidrográficas como parte integral de los sistemas de producción de agua en varias comunidades.

3. El hecho de ya haber trabajado las Organizaciones Ejecutoras en las zonas seleccionadas para el Proyecto (GreenProject y otros) permitió un inicio rápido con las comunidades metas del AGUA y la consolidación de los trabajos aún a medio camino de los proyectos anteriores.

4. El enfoque de en las cuencas, como unidad de planificación, está ganando aceptación al nivel local y municipal en las zonas atendidas por el Proyecto. También es valioso crear comités de cuencas cuando se merece para gestionar los recursos de agua de manera sostenible al nivel comunitario y inter-cantonal y/o municipal (especialmente en el ámbito de la microcuenca).

5. El enfoque del Proyecto de promover la preparación y promulgación de las ordenanzas ambientales es el correcto, siempre y cuando se las apliquen a través de mecanismos de vigilancia civil y policiales adecuados (aún no-definidos).

6. El trabajo de la Red de Agua y Saneamiento ha contribuido a la unificación de muchos criterios de varios actores privados, gubernamentales y empresariales en el pro del uso sostenible de los recursos hídricos, incluyendo sus aportes a los esfuerzos de establecer el nuevo marco legal para la concesión equitativa y manejo sostenible de los RR.HH. (Ley General de Aguas) y la creación del Comité Interinstitucional Nacional de Planificación, Gestión y Uso Sostenible de Cuencas Hidrográficas y sus organizaciones descentralizadas.

7. El Proyecto ha sido innovador en la incorporación de partidas para financiar la manutención y/o recuperación de los servicios ambientales que ofrecen las cuencas hidrográficas como parte de las tarifas de agua para varios SAP. Aunque sea incipiente, esta política es en sí un paso fundamental en la sostenibilidad de las actividades promovidas por el Proyecto.

8. El programa CLARA representa una estrategia e instrumento de gran potencial para el monitoreo de las fuentes y sistemas de distribución de agua potable, y un buen medio para educación ambiental.

Areas que Requieren Refuerzo y/o Mejoras

1. Mientras representan una referencia muy importante para perfilar los municipios del punto de vista socioeconómico y los rasgos biofísicos, los diagnósticos de municipio y los diagnósticos de subcuenca no incluyen un enfoque estratégico en términos de la priorización de problemas, sino se tratan todos los problemas de igual importancia. Estos diagnósticos tampoco incluyeron elementos que se consideran estratégicamente muy importantes, como son:

    - Uso actual del suelo
    - La capacidad de uso y uso potencial de suelo
    - Las zonas en conflicto de uso
    - Las zonas más probables de recarga acuífera
    - Condición de los caminos con relación al drenaje y concentración de aguas
    - Tenencia de la tierra
    - La distribución y utilización de remesas en las comunidades.

2. Existen ciertas carencias en la planificación estratégica que ha resultado en la fragmentación y dispersión geográfica de actividades sin su efectiva integración al nivel de las comunidades meta y/o objetivos mayores de conservación de las microcuencas.

3. Algunos de los planes de subcuenca y microcuenca también tienen limitaciones en cuanto al enfoque estratégico, incluyendo una gran descripción de los rasgos socioeconómicos y agroecológicas, seguido por una lista larga de subproyectos de todo índole—varios a duras penas relacionadas con los objetivos de AGUA.

4. Los planes de manejo de subcuencas y microcuencas están siendo presentados tarde en el ciclo del Proyecto AGUA, potencialmente limitando su valor como base analítica en la selección, financiamiento y ejecución de actividades propuestas en ellos.

5. Existen carencias sistemáticas en el análisis ambiental de los subproyectos—especialmente los subproyectos de colección y tratamiento de aguas servidas, rellenos sanitarios y algunos otros—por la ausencia de pautas y guías uniformes por sector de obra. Los documentos presentados con el afán de cumplir con la normativa ambiental (MARN) no cumplen con los estándares mínimos para este tipo de estudio o análisis y mayormente no responden al Examen Ambiental Inicial (IEE) de USAID.

6. Al nivel de USAID, hace falta una coordinación más estrecha en la supervisión y control de calidad (estándares) entre los CTOs y sus respectivos programas/fuentes de financiamiento.

7. El concepto de ligar el abastecimiento de agua para riego para fines de diversificación/intensificación de la producción a la conservación de las cuencas mayormente no ha sido diseminado.

8. El trabajo de CARE en coordinación con el MARN en la promoción de instrumentos para mejorar el marco legal y normativo al nivel nacional ha tenido un impacto menor de lo esperado por factores de "política" y cambios de actores claves especialmente al nivel de MARN y ANDA, especialmente con relación al marco legal de los recursos hídricos.

9. La agrupación de las actividades (e indicadores de ejecución) en los componentes hace difícil dar un seguimiento administrativo, y el monitoreo del impacto por componente. Por ejemplo, las actividades de conservación de suelos y agroforestería están juntas con los subproyectos de plantas de tratamiento de aguas residuales y los rellenos sanitarios.

10. No se está monitoreando los parámetros que sirven de indicadores de impacto, dificultando los esfuerzos de estimar el avance del Proyecto en el alcance de sus objetivos mayores, como son entre otros:

    - Hogares rurales alcanzando los estándares de calidad y tiempo de servicio de agua potable
    - Industrias utilizando practicas para reducir o evitar contaminación
    - Hogares pagando los costos de los servicios de agua potable (o de riego)
    - Efectividad de las prácticas de conservación de suelos
    - Cambios en la calidad de las cuencas hidrográficas con relación al ritmo y cobertura de prácticas de conservación de suelos y agroforestería

11. El conteo de indicadores de ejecución bajo el componente 3, "cambios relacionados a acciones de grupos de ciudadanos", es de manera *suigeneris* e incluye un sinnúmero de acciones, incluyendo el doble conteo de reparaciones de proyectos de agua y otras actividades ya incluidas bajo otros componentes.

Educación Ambiental y uso sostenible de RN
Logros y aspectos positivos

- Capacitación a educadores ambientales integrantes del Consorcio de AGUA.
- Desarrollo de guías, materiales y formas innovativas de educación no formal e informal.
- Desarrollo conceptual y operativo de Sitios de Aprendizaje y de su efectividad.
- Jóvenes motivados participan en sitios de aprendizaje.

Logros y aspectos positivos

- Desarrollo de actividades de sensibilización con participación ciudadana con organizaciones locales.
- Diagnósticos y caracterización de iniciativas criticas y apoyo a cambios a favor del agua.
- Iniciativas de ecoturismo y apoyo a propuestas innovativas que ligan la utilización, protección y conservación de los RN.

Areas sujetas de mejora

- Cobertura limitada de la educación ambiental para todo el personal del proyecto agua.
- Falta sistematización de validación de materiales educativos, previo a su reproducción.
- Falta de organización y plan del ciclo de formación y aprendizaje a impulsar en cada sitio.
- Tendencia de Sitios de Aprendizaje en escuelas focalizadas hacia el exterior del grupo.

Areas sujetas de mejora

- Capacidades limitadas en sitios de aprendizaje para el monitoreo cualitativo y cuantitativo de los servicios de empresas locales de servicio o para el establecimiento y gestión ambiental de sus iniciativas empresariales.
- Definir proceso de formación profesional del personal del proyecto y de las organizaciones atendidas en acciones complementarias de educación ambiental en funciones

Areas sujetas de mejora

- Incipiente coordinación interinstitucional local para el seguimiento de actividades y acciones de cambios a favor del agua con participación ciudadana.

INFRAESTRUCTURA

Logros y Aspectos Positivos (Generales)

Sistemas de Agua Potable con alta nivel de servicio.

- Sistemas grandes y complicados del punto de vista técnica
- una panorama de actores y participantes grande y diversas
- Operación y mantenimiento y administración complejo

A través de AT y supervisión técnica además de fortalecimiento institucional, ha logrado rescatar varias SAPs construido a través de otros donantes y/o proyectos, resultando en el salvaje de millones de dolores.

Se ha logrado que el SAP no es un fin en el desarrollo, sino pude funcionar como motor que maneja un proceso de desarrollo mucho más amplio – organización comunitaria y empresarial, impactos al salud, concientización y movilización en la protección del medio ambiente para sostener recursos hídricos.

El Red de Juntas de AP en Ahuachapán, muestra posibilidades de proveer una gama de servicios a las juntas afiliadas – O y M, resolución de conflictos, administración, contabilidad, contratación de personería Jurídica. Además de enlaces y contactos a otros macro-organizaciones como ANDA, Comités de Cuenca, empresas privados, ONGs, gobiernos municipales, LDCs, Donantes Nacionales y internacionales.

Áreas Que Requieren Re-fuerzo y/o Mejoras (en general)

Tamaño y complejidad del proyecto presenta desafíos grandes en cuanto a la coordinación entre los socios del consorcio y entre los componentes.

Uso de fondos para pequeña infraestructura dentro de un marco más estratégico. Ahora los fondos están utilizados en responder a solicitudes de comunidades sin coordinar con esfuerzos del proyecto agua en la conservación de recursos hídricos y protección de cuencas.

Proyectos en pequeña infraestructura puede mejorar en la utilización de normas técnicas de USAID/El Salvador, en mejorar la justificación de diseños

Enlaces estratégicos entre los grandes proyectos de infraestructura y otras actividades del proyecto. Deben de servir como motores que provocan participación en otros componentes del proyecto.

SISTEMAS DE AGUA POTABLE –
Proyecto AGUA

Logros y Aspectos Positivos

Sobretodo los diseños están bien hechos, apropriados y bien presentados.

Sobretodo, Construcción es de muy buena calidad

El medidor es la policía en cuanto a la calidad de materiales y construcción de instalaciones domiciliarias.

Ha logrado en recibir aportes en material, fondos y equipo de un diverso grupo de instituciones gubernamentales, ONGs y donantes, asegurando que se siguen a las normas de AGUA.

Ha logrado apoyar a proyectos auspiciados por otros donantes con CHA, supervisión de construcción, y fortalecimiento institucional, seguimiento a las normas de ANDA. Este ha sido un aspecto muy positivo.

Criterio es importante a nivel del usuario se satisfacen antes de que el usuario pueda recibir servicio. (descarga de aguas residuales, letrinas o alcantarillado)

Una fortaleza del proyecto – Juntas son legales, sofisticados, complejos y efectivos. Están manejando los sistemas, recolectando y manejando fondos en forma responsable. Tarifas cubren costos recurrentes, de depreciación, y en unos casos apoyo a la protección de la cuenca y promoción de salud ambiental.

Fondos generados por tarifas están apoyando a protección de cuencas y extensión en salud en unos casos, pero este no ha sido formalizado en todos los SAPs y no encuentra en varios estatutos.

Sistema de crear un comité para la construcción y otro comité para la operación se resulta muy bien.

Utilización del modelo CEFA (Competencia Económica Basada en la Formación de Empresas) en la formación de juntas de agua potable ha sido muy exitosa en crear organizaciones independientes, confidentes, y capaces.

El Desempeño de los fontaneros y operadores es bueno- fontaneros y operadores están operando los sistemas de acuerdo a un horario.

Sistema de CARE de ofrecer seis meses de seguimiento a la junta es excelente. El equipo está colaborando con los socios para asegurar que problemas de cualquier naturaleza reciben atención del proyecto.

Hallazgos/Conclusiones Neutrales

Proyectos seleccionados en base de criterios de demanda, necesidad y oportunidad. En general, la selección no esta basada en una estrategia de cuencas prioritarias.

Normas de diseño de ANDA no son muy detalladas y permite una amplia interpretación. No son exigentes y permiten el diseño y construcción de obras de calidad variable. Se anota que no hay normas sobre rompe presión, control de caudales en la red de distribución, carcamos de bombeo, protección de obras, protección de cuencas,

Generalmente, AGUA requiere un apoyo de mano de obra no calificada y no requiere apoyo en materiales locales, transporte, efectivo..

No ha confirmado que AGUA esta apoyando a todos los ADESCOS o Juntas de AP en las zonas de trabajo de los Socios. Entrevistas indican alrededor de 90% cobertura, pero no puedo confirmarlo en los informes de AGUA.

Ordenanzas que controla la calidad de la conexión domiciliaria no se encuentran, mas bien esta dejado al sistema de medidores.

Areas que Requieren Refuerzo y/o Mejoras

A dedicarse a la construcción de un proyecto, no hay una estrategia comprehensiva de utilizar el SAP como núcleo o eje de actividades de los demás de los componentes.

En cuanto al cumplimiento de normas de ANDA, se anota que AGUA tiene que analizar su Selección de bombas. Parece que las normas de ANDA no están usando y posiblemente que las bombas y sus caudales son sobredimensionados.

Si las bombas son sobredimensionadas, se ve que las líneas de impulsión serian sobredimensionados también.

Las Memorias Técnicas puede explicar en mejor detalle, el porque, de unas decisiones que tiene gran impacto sobre el costo y operación futuro del proyecto, e.g.:

- Contemplación de la incorporación futura de otros poblaciones/comunidades
- Calculo de población futura del diseño (Puente Arce/Jocotillo)
- Selección de material de tubería (El Quebracho línea de impulsión)
- Selección del tamaño de los tanques de almacenamiento
- Selección de ramales principales paralelas(Suchitoto? Puente Arce?)
- Regulación de caudales dentro de redes de distribuciones

Las materiales usados en la capacitación de los fontaneros se puede mejorar. Dibujos no son claros. Faltan unos asuntos técnicas importantes.

No se encuentra que cada fontanero esta estableciendo un calendario de O y M de acuerdo de un formato general.

Operadores no muestran que dominan los conceptos de caudal, volúmenes diarios, y dotación, sin los cuales se hace difícil el diagnostico de problemas en el sistema

Apoyo dirigido directamente al O y M no está tan fuerte como lo ofrecido a la junta. No esta programado revisar y retroalimentar a los operadores y fontaneros. Hay seguimiento técnico cuando se aparecen problemas.

No hay todavía un sistema de seguimiento formal para el largo plazo.

PROYECTOS DE INFRAESTRUCTURA PEQUEÑA (incluye proyectos de VM)

Logros y Aspectos Positivos

Están logrando proveer acceso al agua a pequeñas comunidades con necesidades.

Están utilizando los fondos en unos casos entrar en actividades de rehabilitación mientras que palancan la participación en actividades de otros componentes del proyecto AGUA – fortalecimiento institucional, protección de fuentes y cuencas, pago de tarifas…

La calidad de la construcción es, es su mayoría es buena.

Para actividades que impactan a poblaciones grandes (rehabilitación o protección de fuentes), se están aprovechando la oportunidad provisto por la infraestructura capacitar y fortalecer los ADESCOs y/o Juntas de AP.

Como anotado, los Socios están capacitando a los líderes de las organizaciones y fortaleciendo las instituciones locales, a pesar de que se lo hace después de la entrega de la infraestructura.

Hallazgos/Conclusiones Neutrales

EL criterio de selección no es claro, pero parece que están basadas mas en oportunidad que otro. Proyectitos no están entrando en una marca estratégica coordinada.

Proyectos son de montos mínimos, pero en cuanto a las actividades en rehabilitación están impactando a sistemas y poblaciones muy grandes.

Están asegurando que los lideres reciben capacitación aunque sea después de la entrega de los sistemas o obras físicas a la comunidad.

Areas que Requieren Refuerzo y/o Mejoras

Falta dirección estratégica, y problemas can asistencia técnica del diseño y construcción. Difícil crear sistemas de gerencia, administración y O y M cuando no hay medidores y/o el servicio esta por cantoneras. Sistemas gerenciales y tarifarías en pequeñas sistemas no son fuertes.

En cuanto a los sistemas pequeños construidos por el programa, no se muestra que las comunidades están listas recibir y manejar los sistemas. Falta de soluciones para la descarga de aguas residuales. Capacitación de Juntas y fontaneros no esta completa a la entrega. Hipocloradores no son

Proyectos están entregados sin satisfacer unos criterios importantes

- Falta de sistemas de manejo de aguas servidas
- Falta de hipocloradores

Debilidades en la presentación de proyectos en las memorias técnicas:

- No se encuentra justificación por escrito de decisiones técnicas, aunque las decisiones sean justificables.
- Mala representación de la figura / situación técnica actual en las memorias técnicas.
- Falta de medidores y instalaciones de cantoneras son difíciles manejar del punto de vista de la junta

Diseño de tratamiento de aguas servidas de lavadoras requiere análisis

Se ha observado deficiencias en la construcción

- Problemas con la instalación de válvulas de control
- Falta de protección de válvulas, hipocloradores
- Mal operación de sistemas de clorinación

Hay sistemas de O y M en los pequeños proyectos, aunque a veces no hay fontaneros, el trabajo es echo por miembros de la junta.

Se anota que todavía los operadores faltan capacidad, quizás faltan todavía capacitación
Problemas con clorinación de agua.

En SAPs con cantoneras se presentan problemas a las comunidades en establecer y manejar sistemas tarifarias.

No hay sistema formal de seguimiento a las juntas/ADESCOs o los operadores. Provisión de Seguimiento ocurre a través de la presencia de funcionarios de los Socios.

No hay un plan de seguimiento de largo plazo.

ALCANTARILLADO Y PLANTAS DE TRATAMIENTO DE AGUAS SERVIDAS

Logros y Aspectos Positivos

Están tomando pasos muy importantes en crear una base de experiencia con nuevas tecnologías.

Hallazgos/Conclusiones Neutrales

Selección de las comunidades se ha hecho en base de oportunidad

Areas que Requieren Refuerzo y/o Mejoras

Son Proyectos pilotos para tecnologías nuevas para El Salvador, pero no son pilotos de gerencia o sistemas de manejo

Estudios de Impacto Ambientales no se han encontrado hechos para estos proyectos

Los sitios seleccionados para las obras se han presentados problemas en la construcción y operación de los proyectos

Caracterización de flujo de aguas servidas no ha sido bien realizado

Se han entrado en el diseño y construcción de los sistemas sin haber definido los sistemas de gerencia, cobro, manejo, administración, O y M

Son pilotos técnicos y los diseños han fallado, especialmente con relación a los problemas presentados por los sitios

Los diseños no han logrado enfrentar a los problemas presentados por los sitios

Hay problemas en la construcción relacionado a la novedad de las tecnologías,

Hay unos problemas de construcción relacionados a la supervisión de las obras

Ha empezado operación cuando las obras no fueron terminadas de acuerdo a los diseños

Han tenido que reaccionar a los desafíos presentados por los sitios (lluvia, inclinación, nivel freático) durante la construcción por no los haber tratado en el diseño.

Sistemas gerencial y administrativas no reciban la atención que han recibido las tecnologías todavía faltan sistemas gerenciales, programas de capacitación para funcionarios para estos sistemas

Hay inquietudes en como se va a poder operar y mantener estos sistemas en el corto y largo plazo relacionado a:

- la falta de servicios existentes en el manejo de Sólidos,
- la situación de tarifas destinados a las plantas,
- corrección de problemas en la construcción de las plantas,
- plazo de los Acuerdos Cooperativos entre USAID/El Salvador y los ejecutores (1 año para tecnologías no bien conocidos)

No hay planes formales del seguimiento de la operación, gerencia, mantenimiento de las plantas. (Se supone que el seguimiento en el corto plazo sea provisto por los socios de AGUA o el proyecto de RTI en el caso de Suchitoto)

RELLENOS SANITARIOS

Logros y Aspectos Positivos

Están tomando pasos muy importantes en crear una base de experiencia con nuevas tecnologías.

Hallazgos/Conclusiones Neutrales

Realmente son tecnologías pilotas para El Salvador, lo que crea desafíos en la construcción y operación futura de los rellenos y sus plantas de tratamiento.

No se anota criterio de selección de los sitios, han sido selecciones oportunas.

Áreas que Requieren Refuerzo y/o Mejoras

No se ha encontrado estudios formales de impacto ambientales.

Los proyectos se encuentran en sitios difíciles por su inclinación, acceso, distancia de las poblaciones servidas.

Hay varias inquietudes sobre los diseños por su novedad en El Salador y su presentación en las memorias técnicas:

- Un criterio muy importante (índice de infiltración) que afecta a los tamaños de obras requiere estudio.
- Diseños para zanjas de coronamiento faltan claridad
- Criterio para el uso de los geomembranas falta claridad
- Análisis del sitio en la memoria descriptiva cuenta con contradicciones.
- Planos de clausura de los rellenos y las plantas y sus sistemas de tratamiento.

En cuanto a la construcción:

- Problemas con los sitios están impactando a la operación de las plantas de tratamiento
- Sitios difíciles han provocado cambios en los diseños, realizados en marcha
- Relleno recibiendo basura sin haber terminado la construcción y instalación de la maquinaria

Falta claridad en como una población pagaría por el servicio y construcción está ocurriendo antes de que sistemas de gerencia y tarifa sean establecidos

Operadores falta conocimiento de las plantas de tratamiento todavía

Laguna de aguas infiltrantes están rebalsando

Será realizado por la presencia continua de los socios de AGUA, pero no hay planos formales

ACTIVIDADES EN MITIGACIÓN

Áreas que Requieren Refuerzo y/o Mejoras

Trabajo en mitigación tiene que respetar a las normas y reglas manejado por la oficina de reconstrucción de USAID/El Salvador, especialmente con relación a los estudios de impacto ambiental.

Se ha identificado unas inquietudes técnicas en la construcción de gaviones en quebradas.

INDICADORES

Áreas que Requieren Refuerzo y/o Mejoras

Metas de producción - numero de sistemas construidos, número de comunidades, número de usuarios, número de juntas establecidos, número de sistemas rehabilitados, numero de usuarios en sistemas rehabilitados, etc. no se puede encontrar fácilmente. Toda la información está perdida dentro de la presentación en porcentajes.

Impacto falta conseguir datos en las comunidades sobre la operación de sistemas y su provisión de agua de calidad.

Hallazgos Preliminares
Desarrollo Local y Participación
Logros y Aspectos Positivos

- Conformación y mejora de la coordinación y apoyo mutuo del Consorcio de Agua, con las potencialidades de los asociados en esta y otras actividades...
- Inicio de proceso integrador de Red de Juntas de Agua a nivel regional.
- Efecto catalizador en procesos organizativos por medio del proyecto.

Logros y aspectos positivos

- Apoyo al proceso de gestión intermunicipal para abordaje de problemas comunes (SAP El Caulote, CODEGUAY, Corinto y zona de costera Usulután).
- Mayor apalancamiento de recursos y desarrollo de la capacidad de gestión local y municipal (Fondos FISDL. FANTEL, SIA, y de otros Cooperantes).
- Mutua identificación de representantes locales con los técnicos y las actividades del proyecto.

Logros y aspectos positivos

- Promoción y formalización de organizaciones como Empresas Locales de Servicio especializado (AGUA, PHOC, y otras) y de carácter participativo (CDL) y de Comités de Cuenca.
- Fortalecimiento empresarial y de mercadeo en forma ínter cooperantes. (USAID-BID).
- Motivación y promoción de la participación de la sociedad civil con conocimientos y pensamientos a favor del MA.

Logros y aspectos positivos

- Apoyo al proceso de legitimización del rol de las organizaciones fortalecidas.
- Ampliación de la base social de beneficiarios a usuarios de empresas locales de servicios.
- Descentralización de sistemas de agua construidos y reconstruidos por el proyecto, que han ampliado el acceso a agua.
- Ampliación de la experiencia local en solución de conflictos relacionadas con el acceso de agua y en la canalización de recursos.

Logros y aspectos positivos

- Conformación y capacitación básica de organizaciones promovidas.
- Preparación de base gerencial para la gestión empresarial local y apoyo al proceso de consultoria para uso del agua para riego.

- Experiencia institucional en el traslado directo de incentivos, con enfoques variados de corto y largo plazo.

Logros y aspectos positivos

- Diagnósticos, determinación y actualización de Planes de Desarrollo y de Reconstrucción con enfoque de Género.
- Apoyo al proceso de legitimización del rol de CDL y Comités de Desarrollo Comunal.
- Establecimiento de bases legales (ordenanzas y UAS) para la gestión ambiental a nivel municipal y búsqueda de las interrelaciones.

Logros y Aspectos Positivos

- Diagnósticos y preparación de Planes de cuenca.
- Promoción y apoyo a la conformación de Comités a nivel micro, sub y de Cuenca.
- Establecimiento de bases del organismos de cuenca en El Salvador y para el fortalecimiento del subsector de Agua y Saneamiento.

Areas sujetas de mejora

- Capacidad limitada de gestión y sostenibilidad de largo plazo de organizaciones pequeñas y en proceso de conformación.
- Organizaciones de Empresas Locales de Servicio (Agua, Mercadeo, Artesanias y Turismo) focalizadas en la operatividad de corto plazo.
- Poca rotación y conformación de cuadros mínimos de liderazgo local.
- Falta de mecanismos y normas formales de aplicación del enfoque de cuenca en las organizaciones promovidas como usuarias de los recursos locales.

Areas sujetas de mejora

- Falta de mecanismos de financiamiento de apoyo al funcionamiento estratégico y operativo de los organismos sociales y de participación promovidos.
- Planes de Acción para el Desarrollo Local con enfoque localizado en consultas y demandas inmediatas, con ausencia de enfoque estratégico de cuencas.
- Planes de Inversión Municipal (PIM) con enfasís en lo físico y falta articulación a estrategias de de desarrollo económico en armonia con el medio ambiente.

Areas sujetas de mejora o refuerzo

- Falta de establecimiento de Linea de Base en procesos de planificación y gestión participativa.

- Ordenanzas municipales necesitan armonización y coherencia a nivel regional, así como de mecanismos de aplicación, financiameinto, control y seguimiento en forma participativa.

Areas sujetas de mejora o refuerzo

- Definición de enfoque estratégico de utilización de incentivos para potenciar el Pago por Servicios Ambientales (PSA) a nivel local y la creación de reservas ambientales en las cuencas.
- Indefinición de proceso organizativo de acompañamiento y estrategia de salida para el fortalecimiento institucional relacionado con el Desarrollo Local y el enfoque de cuencas, con la empresas de servicio local a cargo de la infraestructura descentralizada y la participación de otros actores.

Areas sujetas de mejora o refuerzo

- Definición de enfoque estratégico de utilización de incentivos para potenciar el Pago por Servicios Ambientales (PSA) a nivel local y la creación de reservas ambientales en las cuencas.
- Indefinición de proceso de acompañamiento en el fortalecimiento institucional para el Desarrollo Local y estrategia de salida.

MESA 1

DESCENTRALIZACIÓN, DESARROLLO LOCAL, FORTALECIMIENTODE ORGANIZACIONES

1. Desde su óptica, ¿Cuales han sido los logros más significativos del proyecto AGUA, que están directamente relacionados con el tema de interés asignado?

- Fortalecer y establecer organizaciones para la búsqueda de nuevas soluciones.
- Reconocimiento de la población. de la legitimidad de los mecanismos de participación ciudadana para la resolución de problemas.
- Fortalecimiento de municipalidades en la prestación de servicios.
- Conformación de Redes Internacionales – Municipales / Micro regiones.
- Fortalecimiento de capacidades locales para procesos de descentralización.
- Tras al debate publico el tema de CUENCA.

2. ¿Cuales serian las estrategias para mejorar la capacidad de gestión de las organizaciones y en los procesos de conformación, y de las empresas locales de servicio (Agua, Mercadeo y Economía)

- Asistencia técnica empresarial, con énfasis en la capacidad "gerencial".
- Asociati*vidad / Legalización.*
- Especialización (volumen / calidad)
- Visión Estratégica.
- Promoción.

3. Cuales serían las formas para impulsar la rotación y conformación de cuadros amplios de liderazgo local.

- Mayor concientización para la aplicación de reglamentos y normativas.
- Formación de lideres (jóvenes)
- Apoyo con organizaciones locales reconocidas y confiables (Iglesias)
- Crear en la población confianza en los procesos participativos y democráticos.

4. Como podríamos aplicar el enfoque de cuenca en las normativas de organizaciones y en los procesos de planificación estratégica participativa de planes de reconstrucción y desarrollo.

- Crear los espacios para la investigación comprensión de los actores clave en el enfoque de cuencas.
- Revisión y actualización de los Planes de Acción Municipal con enfoque de cuencas.
- Integración institucional para unificación de esfuerzos en el enfoque de Cuencas (Gestión)

5. ¿Cuales serían las recomendaciones para instalar un proceso de pago por servicios ambientales a partir de los incentivos?

- Establecimiento de tarifas.
- Capital semilla.
- Ordenanzas.

6. ¿Cómo sugiere evaluar el impacto de las actividades desarrolladas en descentralización, desarrollo local y fortalecimiento de organizaciones?

- CDL funcionales (Legitimidad)
- Inversión Publica Transparente.
- Porcentaje de implementación del plan de desarrollo.
- Menor dependencia de subsidios (%)
- Fuentes alternativas de financiamiento.
- Porcentaje de Organizaciones aportando para la proteccion de cuenca.

MESA 2

PRACTICAS DE MANEJO DE CUENCAS, PROTECCION DE FUENTES, Y PRODUCCIÓN AGROFORESTAL SOSTENIBLE

1. ¿En su opinión, que practicas agroforestales han tenido mayor aceptación y adopción en el área del proyecto y porque?

- *No hacer quemas:* Cero costo, implemento fácil.
- *Manejo de rastrojos*: Implemento fácil, beneficio a corto plazo.
- *Barreras vivas*: Doble beneficio: Disminuye la erosión y aumenta la alimentación para el ganado.
- *Cercas vivas*: Frutos, postes, leña, hay que cercar.
- *Siembras en curvas a nivel*: Funcionamiento sistemático de riego, disminuye erosión, aumenta la infiltración de agua, aumenta el aprovechamiento de fertilizantes.

2. ¿Qué ha sido la experiencia en cuanto a los reservorios y que tecnologías son las más prometedoras y porque?

5 Tipos: Tanques plásticos, Represas desmontables, Familiares de 15m cúbicos, Cisternas de concreto, y Caja de captación de cemento en nacimientos.

Ante la escasez y necesidad de agua, la gente acepta la opción en que han visto beneficios y se adaptan a sus condiciones. (Topográficas, Económicas, Sociales, Disponibilidad de agua, etc...)

3. ¿Cómo se puede mejorar la selección de tecnologías / practicas a promover por zona geográfica?

- La propuesta debe ser técnicamente fundamentada a solucionar la problemática de los productores, quienes deben de participar en el proceso.
- Divulgación y evaluación de opciones tecnológicas, giras de intercambio de experiencias, capacitaciones y acompañamiento técnico son necesarias para escoger la mejor tecnología.

4. ¿Piensa que las actividades de control de contaminación industrial deberían formar parte del proyecto AGUA?(¿Por que sí? ¿Por qué no?).

No, ya que dada la complejidad y magnitud del problema merece un proyecto paralelo.

5. ¿Piensa que las actividades de diversificación e intensificación de la producción de hortaliza y frutales debe ser una actividad promovida bajo el proyecto AGUA o bajo otro proyecto en las zonas atendidas? (Explique)

Sí, porque la diversificación contribuye a la sostenibilidad de las practicas de conservación a través de mejorar la dieta e incrementar los ingresos. AGUA debería de incluir un componente de mercadeo.

Otros Comentarios de la Mesa 2:

Las mesas de trabajo, específicamente Agroforestaria, teníamos preguntas acerca del proyecto Agua específicamente 3, 4, y 5.

El 4 es difícil contestar como otra ONG en la misma zona trabajando en agricultura, porque decir si puede crear competencia pero a la vez es importante en áreas no atendidos por ONG´s trabajando en agricultura.

6. Indique, en orden prioritario, no más de cinco indicadores de impacto que vale la pena medir bajo proyecto AGUA para las actividades de manejo de cuencas, proteccion de fuentes y Agroforestería. También, para cada indicador, ¿Explique cómo y organismo debería de llevar a cabo, el monitoreo, y conque frecuencia?

i) Incremento en la calidad y cantidad del agua. Análisis de calidad y cantidad de agua en las fuentes y sistemas. Parámetros se tendrán que definir posteriormente.
ii) Incremento en conocimiento sobre practicas de conservación y manejo de cuencas. Pruebas de conocimiento.
iii) Número de prácticas (y número de fincas) de conservación de suelo y agua.
iv) Número y porcentaje de familias que ejecutan obras de conservación de suelos y agua.
v) Porcentaje de área con cambio de uso de suelos.

MESA 3

INFRAESTRUCTURA DE AGUA POTABLE, Y COLECCIÓN Y DISPOSICIÓN DE DESECHOS LIQUIDOS Y SÓLIDOS

OJO: Se dividieron en dos el grupo general, la mitad trabajen con SAP de AGUA y proyectos de pequeña infraestructura, a la segunda con Tecnologías Pilotas – Rellenos Sanitarios y Agua Servida. Cada grupito tiene una hora para contestar las siguientes preguntas. Se pretende unir los dos grupitos por media hora para revisar su trabajo entre todo el Grupo de Tarea #3.

1. ¿Cuales son las conclusiones más importantes para Uds. en cuanto al impacto y sostenibilidad de esta infraestructura? (5 conclusiones, puede añadir conclusiones)

- Responsabilidad y participación ciudadana.
- Separación de los desechos en la fuente en orgánicos e inorgánicos.
- Tarifa de cobro apropiada y método de cobro efectivo.
- Cumplimiento de los procesos de operación y mantenimiento.
- La aplicación y cumplimiento de la ordenanza.

Conclusiones:

La capacitación de miembros de la comunidad en aspectos administrativos y de operación y mantenimiento es un aspecto clave para la sostenibilidad.

El estado legal de las juntas administrativas y la elaboración de estatutos y reglamentos internos.

La instalación de medidores es muy importante para regular el consumo y contribuye a la administración del sistema.

La cultura de pago de tarifas es ahora una realidad en nuestras intervenciones.

El fortalecimiento de juntas administradoras de sistemas existentes y la promoción de asistencia técnica para la asociatividad entre juntas.

Aumento de cobertura a familias rurales con acceso a agua potable.

2. ¿Qué acciones inmediatas se deben tomar para rectificar problemas o concretizar / fortalecer éxitos?

- Plan de monitoreo y acompañamiento de por lo menos 1 año.
- Proyectos de rellenos sanitarios y plantas de tratamiento deben de tener mas de 1 año para implementación.
- Profundizar y simplificar los requerimientos de EIA entre el MARN y USAID.

- Los EIA deben de estar presupuestados en cada proyecto.
- Plan de retroalimentación en los procesos educativos.

Acciones inmediatas:

- Para proyectos SIA, es recomendable asignar los fondos adecuados, para el diseño y formulación.
- Obligar el uso de bitácora en cada proyecto para documentar los cambios realizados durante la ejecución de los proyectos.
- Agregar a los requerimientos de pequeños proyectos, que al final de la ejecución le sea entregada a la comunidad una carpeta con los cambios efectuados con la construccion, con copia a USAID.
- Sistematizar el proceso de capacitación a fontaneros.
- Verificar entrega de carpeta "así se construyo y manual de operación y mantenimiento que incorpore una rutina sugerida al fontanero como guía de inspección de instalación.

3. ¿Qué actividades ha hecho dentro de su trabajo en infraestructura (e.g. selección de sitio, estudios de factibilidad, diseño, construcción, fortalecimiento institucional, capacitación de funcionarios, seguimiento, etc.) son fortalezas, en cuanto a su apoyo en maximizar impacto y sostenibilidad?

- Capacidad institucional en palancar fondos con otras institucionales.
- Fortalecimiento institucional en cuanto a la aplicación de metodologías replicables.
- Conocimiento / fortalecimiento en todo el proceso de implementación de un proyecto.
- Asesoría técnica especializada en: i) Capacidad de selección de sitio; y ii) Coordinación Institucional.

Fortalezas:

- SIA permite que pequeñas comunidades tengan acceso a agua potable.
- Se cuenta con el proceso para la legalización de entidades administrativas.
- Se cuenta con capacidad técnica para diseño y ejecución de infraestructura de sistemas de agua potable de acuerdo a normativa.
- Criterios para determinar estructura tarifaría para garantizar sostenibilidad.
- Equipo técnico fortalecido durante la marcha.

4. ¿Dentro del marco de la provisión de infraestructura sostenible, que actividades en el componente se deben reesforzar y continuar en los próximos dos años?

- Velar por la construcción de las etapas que no se hayan finalizado por parte de la municipalidad.
- Que los proyectos pilotos sirvan para capacitar a las municipalidades / comunidades.

Continuar:

- Capacitación / fortalecimientos de juntas administrativas.
- Búsqueda de asociaciones, para implementación de proyectos.
- Esfuerzos de asociatividad de juntas administrativas.
- Asistencia técnica a comunidades y un porcentaje a instituciones para la construcción de sistemas de agua potable.
- Estructura tarifaría de pagos de servicios ambientales.
- Implementación de proyectos priorizados en planes de sub cuencas / municipios.

5. ¿Cuál es el rol estratégico de esta infraestructura dentro del marco del objetivo general?(Desarrollo integral para el mejoramiento de la calidad de recursos hídricos) ¿Cómo se puede aprovechar proyectos de esta infraestructura en promover impacto sostenible en esta meta global?

- Garantizar la no-contaminación de los mantos acuíferos.
- Trabajo integral con un equipo multidisciplinarios.

Rol Estratégico:

- Las juntas administradoras legalizadas pueden proveer asistencia técnica a pequeños sistemas, así como representarlos y apoyarlos es su gestión.
- Los proyectos son modelos de sostenibilidad replicables en otras comunidades contribuyendo a inducirlas en un uso racional del recurso agua con énfasis en su calidad.
- Juntas participando en comités de sub cuenca y / o CDL.
- Pago por servicios ambientales incluidos en el sistema tarifario y reglamentos.
- SAP´s son “anclas” para atraer futuros proyectos hacia las comunidades.
- Legalidad de juntas administrativas permite mayor capacidad de gestión.
- Poder pasar a la etapa de asociatividad interjuntas, para una mayor incidencia de su gestión en el ámbito municipal.

6. Provea hasta 5 indicadores que se pueden usar para monitorear y evaluar impacto en infraestructura.

- Análisis físico – químico al nivel del manto acuífero o agua superficial cerca de la obra.
- Reducción en la incidencia y prevalecía de las patologías gastrointestinales, dermatológicas y neumológicas.
- Índice bacteriológico y de cloro en el agua de consumo.
- Monitoreo de la producción de lixiviado.
- Índice de cobertura de letrinización manejo de desechos Sólidos y aguas negras.

Indicadores de impacto:

- Numero de familias con acceso a agua limpia que reúne requisitos de calidad y flujo diario.
- Numero de SAP que cubren sus costos con cobro de tarifas.
- Numero de juntas con estatutos aprobados y personalidad jurídica.
- Numero de beneficiarios capacitados en aspectos administrativos y contables por genero.
- Números de juntas administradoras de sistemas existentes han sido diagnosticados.
- Numero de juntas funcionando eficientemente(aspectos administrativos, técnicos, legalidad y financiamiento)

MESA 4

EDUCACIÓN AMBIENTAL, PARTICIPACIÓN CIUDADANA, USOS SOSTENIBLES DE LOS RECURSOS NATURALES Y ECOTURISMO"

1. Desde su óptica ¿Cuales han sido los logros más significativos del proyecto AGUA, que están directamente relacionados con el tema de interés asignado?

Sensibilización/apropiación del enfoque ambiental en diferentes niveles: i) Equipo técnico; ii) Lideres; y iii) Población.

Innovar en cuanto a metodologías: i) Formas de hacer E.A. mas allá de la charla; ii) Producción de variedad de material de apoyo para hacer educación ambiental; iii) Difusión masiva de mensajes ambientales por medios masivos.

2. ¿Cuáles serían sus sugerencias para ampliar la organización y plan de formación de sitios de aprendizaje?

- Sitios como parte de una red, conectados y no aislados.
- Insertar a los Sitios de Aprendizaje y estructuras locales permanentemente (CDL´s, comités cca)

Según criterios de:

- Ubicación geográfica priorizada.
- Capacidad / Volumen demostrada para la ejecución de actividades de proyectos
- Proyección de sostenibilidad.

3. ¿Cuáles deberían ser las estrategias para crear o mejorar las capacidades de las comunidades para el monitoreo y gestión ambiental local?

- Divulgación de ordenanzas y de mecanismos de aplicación.
- Apoyo técnico para la gestión de proyectos ambientales.
- Especialización de instancias con proyección empresarial.

4. ¿Cómo sugiere desarrollar la formación en educación ambiental para las organizaciones promovidas por el proyecto?

Planificar y operativizar participativamente la labor de E.A. de acuerdo a las necesidades básicas de la comunidad en los diferentes ámbitos (Formal, Informal y no formal)

5. ¿Cómo se puede ligar mejor las actividades de ecoturismo y artesanías a los recursos hídricos y los objetivos del proyecto AGUA?

Ecoturismo y artesanías son en algunas casos las actividades derivadas de la proteccion de RR.NN.

6. ¿Cómo sugiere evaluar el impacto de las actividades desarrolladas en educación ambiental, participación ciudadana, usos sostenibles de los recursos naturales y ecoturismo? (indique 5 indicadores)

- Numero de ordenanzas en aplicación.
- Numero de proyectos realizados.

MESA 5

PLANIFICACIÓN ESTRATEGICA, PRIORIZACIÓN DE ACCIONES, E INSTRUMENTOS POLÍTICOS PARA EL APROVECHAMIENTO SOSTENIBLE DE LOS RECURSOS HIDRICOS.

1. ¿Cómo se puede mejorar la planificación estratégica bajo el proyecto AGUA, y que son los elementos de un enfoque apropiado para el proyecto?

- Incorporar la visión nacional que responde a política y estrategias del estado / plan de nación.
- Establecer mecanismos de coordinación y cooperación de acciones.
- Desarrollar procesos metodológicos que permitan integrar a otros.
- Identificar factores críticos claves en el proceso de planificación.
- Que donantes permitan la participación de factores de la sociedad (civil, gobierno, local, central y ONG) en la planificación.
- Capitalizar experiencia del proyecto y tratar de institucionalizarla en el ANDA, MAG, MARN.

2. ¿Que debe ser la política del proyecto en términos de cobros por los servicios de agua, aguas servidas y gestión de residuos Sólidos? ¿Que consumidores y / o usuarios de estos servicios deben pagarlos y cuales no y porque?

- Política de cobro a usuarios de los sistemas (agua, servicios, MIDES, aguas servidas) mediante modalidad de pago a organizaciones de cuencas.
- Base legal en términos de la Ley de Agua, y el Reglamento O. de C.
- Usuarios deben pagar por los servicios ambientales que prestan los ecosistemas: producción de agua, dilución de contaminación, etc.
- Iniciar a nivel piloto.
- Estrategia de sensibilización, persuasión a todo nivel mediante la educación ambiental.
- Además del servicio garantizar la sostenibilidad de los sistemas.

3. ¿Qué debe ser el enfoque y los elementos de los esfuerzos del proyecto AGUA en la incidencia pro del sector de recursos hidricos durante los próximos dos años?

Enfoque sistémico: manejo integrado/agua como elemento central de cuenca/ Enfoque de participación y organización ciudadana.

Elementos de esfuerzo: i) Seguimiento a ejecución de planes de manejo integrado de cuencas; ii) Fortalecimiento de organización de cuenca; y iii) Apoyo con instrumentos legales/aplicación de ordenanza y creación de UAM

4. ¿Cómo piensa que se pretenden las alcaldías aplicar sus nuevas ordenanzas, y que instrumentos deben utilizar?

- Creación de Unidad Municipal Ambiental (UAM) con recursos y capacidad.
- Proyectos para Equipamiento y Capacitación
- Instrumento: Facilitación de plan de acción municipal
- Buscar la firma de convenio de entendimiento entre fuerzas políticas que garantice la continuidad de la UAM.
- Pieza de correspondencia Asamblea
- Cabildeo de partidos políticos
- Concientización de consejos municipales sobre el papel de UAM.

5. ¿Cómo sugiere monitorear los impactos de las actividades del proyecto, y que deben ser los indicadores mínimos a incluir en este programa?

- Establecimiento de una eficiente unidad de monitoreo y evaluación que retroalimenta a través del proceso, considerando aspectos sociales, ambientales y económicos.
- Plan de monitoreo que incluye: a) línea de base; b) SIG; y c) evaluaciones periódicas.

Indicadores mínimos:

Deben ser cualitativos y cuantitativos, mayor flexibilidad en mecanismos de recolección, procesamiento y reporte.

Dirigidos a medir el progreso de objetivos fundamentales del proyecto:

- Caudal/volumen
- Calidad coliformes
- Sedimentaciones/erosión
- Cobertura vegetal continuidad y cobertura de servicios.
- Sociales cambios de actitud.

6. ¿Cómo piensa que se podría mejorar la coordinación entre los distintos proyectos financiados por USAID y entre las organizaciones ejecutoras del proyecto AGUA?

a) Crear un comité de coordinación y seguimiento en AID

b) Coordinaciones periódicas con AID, ejecutores de proyectos AID con Otros proyectos

c) Talleres de planeamientos estratégico con actores claves a desiguales niveles: proyectos AID, BID, otros, instituciones gubernamentales, ONG

d) Coordinación técnica a nivel local.

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Annex 7: List of Documents Reviewed for the Evaluation

1. "Proyecto de Reglamento para la Creación y Funcionamiento del Comité Interinstitucional Nacional de Planificación de Gestión y Uso Sostenible de Cuencas Hidrográficas y para la Creación de Organizaciones de Cuenca Hidrográfica". Proyecto para formular la s Directrices Nacionales que Conformen la s Organizaciones de Cuenca en la República de El Salvador, Recursos Naturales, Octavo Borrador, (Elaborado por Eduardo Mestre, con base al Séptimo Borrador, Consorcio el Ministerio de MARN, Vicepresidencia, CARE, 27 Junio del 2002.

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Annex 8: Strategic Objective 4: Performance Data/Indicator Target Tables

TABLE 1. FY 1998 INDICATORS, PARTNERS AND RESULTS

INDICATORS	FY2002 TARGET	CARE AGUA (0443)	CARE- PRO SAGUAS (0320)	ROCA (0438)	CRECER (0397) and SO1[1]	SIA – Water Systems (0094)	CITIZEN PARTICIPATION AND MUNICIPAL DEVELOPMENT (0388)	CRS	FIAES	MIRA (0448)	MAS (0450)	WORLD VISION (519-99-210)	TOTAL	FY98 TARGET
4.1: Rural households in target areas with water that meets quality standards.	M: 65% F: 65%	M: 38 F: 39											M: 38 F: 38.6	M: 34 F: 31 (173,000)
4.2: Rural households nationally with water that meets quality and time standards.	M: 57% F: 57%				M: 38 F: 39								M: 38 F: 39	M:42 F:40
4.1.1: Area (Hectares) covered by improved actions.	1. 5,000 2. 1,300 3. 1,300				4031 931 1047				392				4423 931 1047	4100 900 900
4.1.1.1: Farm units utilizing improved agricultural &/or conservation practices.	TBD	TBD											TBD	
4.1.2.1: Households benefiting from improved solid-waste management.	7,905	0											0	0
4.1.2.2: Households benefiting from improved wastewater management.	1666	0											0	0
4.1.3.1: Industries using pollution prevention practices.	8							1					1	1
4.2.1: Water delivery systems that meet flow standards.	90	0											0	20
4.2.1.1: Cumulative number of rehabilitated, expanded and new systems.	1. 9 2. 20 3. 63	0 3 3											0 3 3	0 0 3
4.2.2.1: Local organization members and technicians trained.	M: 1,200 F: 1,260	M: 427 F: 343											M: 427 F: 343	M:64 F:56

[1] CRECER reports data from CENTA and CLUSA in addition to its own data.

Annex 8: SO4 Performance Data/Indicator Target Tables

INDICATORS	FY2002 TARGET	AED (0385) CARE AGUA (0443)	CARE- PRO SAGUAS (0320)	ROCA (0438)	CRECER (0397) and SO1[2]	SIA – Water Systems (0094)	CITIZEN PARTICIPATION AND MUNICIPAL DEVELOPMENT (0388)	PROARCA (CEPPI, PRO-PROLEGIS or EPA and Urban Assesment(426)	FIAES	MIRA (0448)	MAS (0450)	WORLD VISION (519-99-210)	TOTAL	FY98 TARGET
4.2.2.2: Water system costs covered by collected fees.	82 systems	0											0	4
4.3.1: Water-related changes resulting from citizen-group actions.	300	127											127	60
4.3.1.1: Salvadorans knowing at least one cause or consequence of unclean water.	M: 85 F: 87	M: 91 F: 92											M: 91 F: 92	M:20 F: 22
4.3.2.1: Salvadorans knowing at least one solution for clean water.	M: 80 F: 75	M: 94 F: 95											M: 94 F: 95	M: 39 F: 37
4.3.3.1: Organizations working on water-related issues.	50	53											53	30
4.4.1: Water related ordinances passed.	36	2											2	6
4.4.2: Percentage of municipal resources spent on water-related projects.	25%						6						6	5
4.4.1.1. Municipalities with water resource management plans.	18	0											0	6
4.4.2.1: Water resources control decentralized to municipal level.	11	0											0	2

[2] CRECER reports data from CENTA and CLUSA in addition to its own data.

TABLE 2. FY 1999 INDICATORS, PARTNERS AND RESULTS

INDICATORS	FY2002 TARGET	CARE AGUA (0443)	CARE- PRO SAGUAS (0320)	ROCA (0438)	CRECER (0397) and SO1[3]	SIA – Water Systems (0094)	CITIZEN PARTICIPATION AND MUNICIPAL DEVELOPMENT (0388)	PROARCA (LEPPI, PRO-PROLEGIS or EPA and Urban Assesment(426)	FIAES	MIRA (0448)	MAS (0450)	WORLD VISION (519-99-210)	TOTAL	FY99 TARGET
4.1: Rural households in target areas with water that meets quality standards.	M: 65% F: 65%												M: 29 F: 30	M:39 F:37 (180,00) (180,225)
4.2: Rural households nationally with water that meets quality and time standards.	M: 57% F: 57%				34								34	M:45 F:43
4.1.1: Area (Hectares) covered by improved actions.	5,000 1,300 1,300				119 8 159				177	17 540			4,736 1,479 1,206	4,250 1000 1000
4.1.1.1: Farm units utilizing improved agricultural &/or conservation practices.	TBD	2,067											2,067	TBD
4.1.2.1: Households benefiting from improved solid-waste management.	7,905	2,494											2,994	4,100
4.1.2.2: Households benefiting from improved wastewater management.	1666	516											516	845
4.1.3.1: Industries using pollution prevention practices.	8	1											2	2
4.2.1: Water delivery systems that meet flow standards.	90	31											31	35
4.2.1.1: Cumulative number of rehabilitated, expanded and new systems.	1. 9 2. 20 3. 63	0 2 16									2 0 2		4 3 18	1 4 18
4.2.2.1: Local organization members and technicians trained.	M: 1,200 F: 1,260												796 598	M:430 F:410

[3] CRECER reports data from CENTA and CLUSA in addition to its own data.

Annex 8: SO4 Performance Data/Indicator Target Tables

INDICATORS	FY2002 TARGET	AED (0385) CARE AGUA (0443)	CARE- PRO SAGUAS (0320)	ROCA (0438)	CRECER (0397) and SO1[4]	SIA – Water Systems (0094)	CITIZEN PARTICIPATION AND MUNICIPAL DEVELOPMENT (0388)	PROARCA (CEPPI, PRO-PROLEGIS or EPA and Urban Assesment(426)	FIAES	MIRA (0448)	MAS (0450)	WORLD VISION (519-99-210)	TOTAL	FY99 TARGET
4.2.2.2: Water system costs covered by collected fees.	82 systems	1											1	28
4.3.1: Water-related changes resulting from citizen-group actions.	300	0[5]											190	120
4.3.1.1: Salvadorans knowing at least one cause or consequence of unclean water.	M: 85 F: 87	45 46											M: 65 F: 28	M:30 F:32
4.3.2.1: Salvadorans knowing at least one solution for clean water.	M: 80 F: 75	45 47											M: 64 F: 27	M:50 F:45
4.3.3.1: Organizations working on water-related issues.	50	99											152	35
4.4.1: Water related ordinances passed.	36	3											5	18
4.4.2: Percentage of municipal resources spent on water-related projects.	25%	10%											10%	10
4.4.1.1. Municipalities with water resource management plans.	18	9											9	8
4.4.2.1: Water resources control decentralized to municipal level.	11	8											8	8

[4] CRECER reports data from CENTA and CLUSA in addition to its own data.
[5] This number may increase when the baseline survey is finished.

TABLE 3. FY 2000 INDICATORS, PARTNERS AND RESULTS

INDICATORS	FY2002 TARGET	CARE AGUA (0443)	CARE- PRO SAGUAS (0320)	ROCA (0438)	PCI	SIA – Water Systems (0094)	CITIZEN PARTICIPATION AND MUNICIPAL DEVELOPMENT (0388)	CRS	FIAES	MIRA (0448)	MAS (0450)	WORLD VISION (519-99-210)	TOTAL	FY00 TARGET
4.1: Rural households in target areas with water that meets quality standards.	M: 65% F: 65% (250,000)	40 48											40 48	M: 46 F: 45 (200,500)
4.2: Rural households nationally with water that meets quality and time standards.	M: 57% F: 57%	TDB											TBD	M:48 F: 47
4.1.1: Area (Hectares) covered by improved actions.	1. 5,000 2. 1,300 3. 1,300	5,853 1,482 1,553		205 741 375	 16			2 1	2,026	 408.15 245.66		200 150 150	8,286 2,781 2,341	4500 1100 1100
4.1.1.1: Farm units utilizing improved agricultural &/or conservation practices.	TBD	2,946		259	80			20		662		200	4,167	5165
4.1.2.1: Households benefiting from improved solid-waste management.	7,905	2,999								130		85	3,214	TBD
4.1.2.2: Households benefiting from improved wastewater management.	1666	1,259											1,259	1070
4.1.3.1: Industries using pollution prevention practices.	8	5											5	4
4.2.1: Water delivery systems that meet flow standards.	90	46	3								1		50	50
4.2.1.1: Cumulative number of rehabilitated, expanded and new systems.	1. 9 2. 20 3. 63	5 4 30	 3			 1 2					 1		5 5 36	3 7 34
4.2.2.1: Local organization members and technicians trained.	M: 1,200 F: 1,260	1,659 1,207			34		30 10 (Border Devel)	21 4				113 77	1,857 1,298	M:815 F:805

INDICATORS	FY2002 TARGET	CARE AGUA (0443)	CARE- PRO SAGUAS (0320)	ROCA (0438)	PCI	SIA – Water Systems (0094)	CITIZEN PARTICIPATION AND MUNICIPAL DEVELOPMENT (0388)	CRS	FIAES	MIRA (0448)	MAS (0450)	WORLD VISION (519-99-210)	TOTAL	FY99 TARGET
4.2.2.2: Water system costs covered by collected fees.	82 systems	4 (10,440)	3 (11,129)								1 (592)		8 (22,161)	54
4.3.1: Water-related changes resulting from citizen-group actions.	300	196										2	198	180
4.3.1.1: Salvadorans knowing at least one cause or consequence of unclean water.	M: 85 F: 87	89 88											89 88	M: 45 F: 47
4.3.2.1: Salvadorans knowing at least one solution for clean water.	M: 80 F: 75	90 83											90 83	M: 60 F: 55
4.3.3.1: Organizations working on water-related issues.	50	126						1				5	132	40
4.4.1: Water related ordinances passed.	36	9											9	24
4.4.2: Percentage of municipal resources spent on water-related projects.	25%	12%											12	15
4.4.1.1. Municipalities with water resource management plans.	18	10											10	12
4.4.2.1: Water resources control decentralized to municipal level.	11	8											8	9

TABLE 4. FY 2001 INDICATORS, PARTNERS AND RESULTS

INDICATORS	FY2002 TARGET	CARE AGUA (0443)	CARE- PRO SAGUAS (0320)	ROCA (0438)	CRS	SIA – Water Systems (0094)	CITIZEN PARTICIPATION AND MUNICIPAL DEVELOPMENT (0388)	PROARCA (LEPPI, PRO-PROLEGIS or EPA and Urban Assesment(426)	FIAES	PCI	MAS (0450)	WORLD VISION (519-99-210)	TOTAL	FY01 TARGET
4.1: Rural households in target areas with water that meets quality standards.	M: 65% F: 65% (250,000)	51 55											M: 51 F: 55	M:55 F: 55 (225,000)
4.2: Rural households nationally with water that meets quality and time standards.	M: 57% F: 57%													M: 52 F: 52
4.1.1: Area (Hectares) covered by improved actions.	1. 5,000 2. 1,300 3. 1,300	9905 1898 2554		292 114 760	25 11 10				5313	564		295 150 160	16394 2173 3484	4800 1200 1200
4.1.1.1: Farm units utilizing improved agricultural &/or conservation practices.	TBD	6486			88							215	6789	6535
4.1.2.1: Households benefiting from improved solid-waste management.	7,905	3299										160	3459	5165
4.1.2.2: Households benefiting from improved wastewater management.	1666	2668										100	2768	1370
4.1.3.1: Industries using pollution prevention practices.	8	6											6	6
4.2.1: Water delivery systems that meet flow standards.	90	83										2	85	70
4.2.1.1: Cumulative number of rehabilitated, expanded and new systems.	1. 9 2. 20 3. 63	20 7 49				0 4 4						0 1 2	20 12 55	6 14 49
4.2.2.1: Local organization members and technicians trained.	M: 1,200 F: 1,260	3362 1733		62								110 120	3534 1853	M:1018 F: 1022

INDICATORS	FY2002 TARGET	CARE AGUA (0443)	CARE- PRO SAGUAS (0320)	ROCA (0438)	CRECER (0397) and SO1[6]	SIA – Water Systems (0094)	CITIZEN PARTICIPATION AND MUNICIPAL DEVELOPMENT (0388)	PROARCA (CEPPI, PRO-PROLEGIS or EPA and Urban Assesment(426)	FIAES	MIRA (0448)	MAS (0450)	WORLD VISION (519-99-210)	TOTAL	FY01 TARGET
4.2.2.2: Water system costs covered by collected fees.	82 systems	16 (38,000)										2	18	68
4.3.1: Water-related changes resulting from citizen-group actions.	300	392										15	407	240
4.3.1.1: Salvadorans knowing at least one cause or consequence of unclean water.	M: 85 F: 87	99 99											99 99	M: 65 F: 67
4.3.2.1: Salvadorans knowing at least one solution for clean water.	M: 80 F: 75	97 94											97 94	M: 75 F: 70
4.3.3.1: Organizations working on water-related issues.	50	189			1							10	200	45
4.4.1: Water related ordinances passed.	36	17											17	30
4.4.2: Percentage of municipal resources spent on water-related projects.	25%												5	20
4.4.1.1. Municipalities with water resource management plans.	18	17											17	15
4.4.2.1: Water resources control decentralized to municipal level.	11	8											8	10

[6] CRECER reports data from CENTA and CLUSA in addition to its own data.

Annex 9: Evaluation Profile of the CARE Consortium

This annex provides an overview of the results of the evaluation of AGUA activities carried out by the CARE Consortium. This profile provides the Evaluation Team's findings, conclusions and recommendations for each of the principal activity areas covered by the Consortium. The CARE Consortium is responsible for implementation of the approximately 80% of al, project activities and an equal amount of the overall AGUA budget. This annex has been prepared based on the analysis of relevant documentation, interviews with Consortium staff, and the results of the field visits to project sites and meetings with participating local organizations and beneficiaries.[7]

A. General Overview of Implementation

The Consortium, made up of CARE, SalvaNatura, FUNDAMUNI and SACDEL, is responsible for approximately 80% of the overall AGUA effort (including all related SO activities among all Implementers). After a difficult first year of interrelational development, members of the Consortium have developed a good working relationship, from both the philosophical and technical standpoint and in terms of project administration. The particular strengths of each organization have served to strengthen the weakness areas of other members: FUNDAMUNI's shared its approaches in organizational development and participatory planning which were adopted by other members in their assigned geographic outreach areas; SACDEL's previous work with decentralization and municipal development has been used to develop such strategies with other members; SalvaNatura's strategies for environmental education, organic coffee, protected areas management, and alternative uses of natural resources is being promoted in all outreach areas; while CARE has used it's experience in watershed management, agroforestry, potable water infrastructure development, and the efficient administration of project resources (accounting, procurement) to strengthen its fellow Consortium members.

Implementation by the Consortium has been going well, as evidenced in the accomplishments for nearly all performance indicators for potable water, soil and water conservation and especially components dealing with local organizational development. There are serious delays with the larger wastewater treatment plant for Cara Sucia/Puente Arce due to problems for purchase of the site for the treatment plant. The San Rafael subcomponent of the wastewater collection and treatment system is also experiencing some delays, especially in aspects of training and promotion, as well as bringing the small biofiltration plant on line. The Consortium has been able to advance the objectives of integrated water resources management intended in the original AGUA design, as Consortium members have had a full complement of resources and the combined expertise of its members at its command. Hence, many of the activities among the four project components are being intrinsically promoted and linked at the micro- and subwatershed level—which was the expressed intent of the consortium approach from the beginning.

In terms of expenditures, the Consortium has expended to date about 80% of the budget of USAID funds included in the CARE/USAID cooperative agreement, but only about 47% of its agreed-upon counterpart. It should be pointed out, however, that CARE still has a large number of infrastructure subprojects in execution and does not register the counterpart amounts until the projects are completed and commissioned. Hence, the actual amount of counterpart already encumbered is probably closer to parity with the amounts reflected in USAID expenditures. This

7 See also Annex 4, Project Site Visits: Agenda and Summary Field Notes; Annex 5, List of Persons and Organizations Contacted during the Evaluation; and Annex 7, List of Documents Reviewed for the Evaluation.

implies the difficulty in attempting to evaluate the *pari-passeu* among USAID and CARE Consortium funds.

As of July 31, 2002, the Consortium had expended a total of an estimated US$12,159,954 in USAID and counterpart funds, which was distributed according to the following activity groups: 31% in activities of soil and water conservation, agroforestry, reforestation and agricultural diversification, of which 75% is oriented to soil and water conservation and the other 25% to aspects of diversification; 39% in potable water infrastructure (including a minor portion in wastewater infrastructure and soak-wells); and approximately 30% for activities in local development and participation (including aspects of water resources policy and municipal ordinances). However, once again, as many infrastructures projects still in construction have not yet been accounted for under counterpart funds, the actual distributions may differ by an important margin (potentially, infrastructure could account for up to 50% or more of total expenditures under the CARE AGUA activities).

B. Decentralization and Local Management Capability Development

The CARE Consortium however, is working on multiple levels with a specific strategy of local organizational development that goes beyond simple task groups, although these too form part of its outreach approach. The Consortium has even established its own fifth component under AGUA: Component "0", Local Development. The CARE Consortium is breaking new ground in forming micro- and subwatershed committees dedicated to the integrated planning for water resources management. The objective is to link other local development groups, including ADESCOs, CDLs, water committees, municipalities and special interest groups, into a broader regional participatory development planning and management framework. Progress to date is impressive and continued support from AGUA should lead to several replicable models.

1. Findings and Conclusions

Accomplishments

The AGUA Project has improved coordination and mutual support between constituents of the CARE Consortium, as shown by the transfer and exchange of expertise between the constituent parts which based on this experience are undertaking other activities as a consortium, while at the same time non-systematic coordination actions have been developed with other implementers of the AGUA Project.

The assisted organizations that have been the most strengthened at the Water Boards level have started a dialogue to search for solutions to common problems; one example is provided by the integration process of the Water Boards Network at the Western regional level. The catalyzing effect on organizational processes is seen by the project and support for the process of municipal management confronting common problems by supporting the 18 Local Development Committees (CDLs), six of which have legal status; at the same time AGUA has carried out Diagnostics and initial Development and Rehabilitation Plans in recent updatings in the 18 municipalities served by the project, all of them carried out with a gender approach.

A common aspect that may be found in the municipalities served is the degree of motivation and progress in the integration of micro-regions or associations of municipalities within and outside the project's priority areas. This process of organization at the basic level, and of application of participation and political will by local government, may be considered a direct effect of the AGUA project, as well as the level of maturity of the local leadership who have had a broad, existing and diversified organizational base as a setting. An example of this complex and varied organizational coexistence is given in Table 1, which partially highlights the diversity of existing grassroots organizations in the AGUA project's zone of influence, in Ahuachapán Sur.

With regard to decentralization of the water system, the project has aided at least 19 supply systems in the Ahuachapán Sur zone, with a total coverage of 4,492 families (each family with an average of 5.5. persons), representing 24,706 water system users in the area covered by the water system in the southern zone of de Ahuachapán. One is administered by the Aqueducts and Sewer Lines Administration *[Administración de Acueductos y Alcantarillados]* (ANDA), and another by the San Francisco Menéndez municipality; 8 by ADESCOS and 6 by the Community Associations for Management of Water Systems Promoted by the AGUA Project *[Asociaciones Comunales Administradoras de Sistemas de Agua, promovidas por el proyecto AGUA]***,** out of a total of at least 76 ADESCOS and 30 Committees in existence. According to research, of the 19 systems in the zone, only 9 are chlorinating the water they supply.

Table 1. Diversity of selected organizations in the Ahuachapán Sur region, some of which have been supported or sponsored by the Project

Ahuachapán Sur Municipalities	De Facto Groups	ADESCOS	Water admin assoc.	D.C. and Sub-watershed Committees and Boards	Coop. Associat.	CDL	Ahuachapán Sur Municipal. Associa.	Watershed Comm. /Round table	Water Board Network
San Francisco Menéndez	1[8]	24	2	19	7	1		1[9]	1
Jujutla	Nd	24	1	4	Nd	1			
Guaymango	Nd	28	2	8	Nd	1	1		
San Pedro P.	6		1		1	1			
Totals	**7**	**76**	**6**	**30**	**8**	**4**	**1**	**1**	**1**

Source: INTEGRAL, 2002 based on Diagnostics and CARE Consortium reports.

One direct effect of the AGUA Project in the zones covered is that it has allowed increased leveraging of resources and development of local management capacity, generating community assistance agreements (SAP Los Calderones under construction), inter-municipal agreements (SAPs Mercedes Umaña, Estanzuelas y El Caulote) and regional agreements (28 communities in Bajo Lempa), which include more than one actor or cooperating party at the local and international level. These social and civic participation processes should be supported by conversion of the practice being carried out into theory.

[8] Intercomunal is comprised of 50 communities of the southern region of Ahuachapán Sur, having experience in early warning and risk mitigation plans.

[9] While the actions of the Temporary Committee of the Sub-watershed of Cara Sucia are being supported, at the same time development of the Round Table is also being supported, which is seen as the best way to form the Comité de Cuenca Barra de Santiago El Imposible.

In sum, the project has made it possible to renew enthusiasm, provide motivation, realize larger dreams and challenges, to integrate local requirements and expectations with the agendas of cooperating parties, which logically has allowed the recovery of non-profitable investments, to complement and adapt water systems which otherwise would not be operational, while at the same time it has generated greater confidence in local capacities and possibilities; this is shown by the mutual identification of local representatives with the project's technicians and activities.

The project has allowed parallel execution of civil works with larger investments and relating to organizational formation, with which it has been possible to promote and support the formation of organizations such as specialized Local Service Companies (water supply), while at the same time organizations of a participative nature (CDL) have been strengthened; later there were 6 Sub-watershed Committees initiated, among which are the Sub-watersheds of: Corinto, El Borbollón and San Simón; micro-watersheds of La Poza, San Mauricio and el Zungano ravines, as well as the Temporary Committee of the Sub-watershed of Cara Sucia, operating with support from the El Progreso del Nuevo Siglo Water Management Association (ACEPROS) and the Barra de Santiago El Imposible Complex Round Table (BASIM), in which micro-region the Water and Biodiversity *[Agua y Biodiversidad]* Project is being developed with participation of the International Union for the Conservation of Nature and Natural Resources (UICN). As is the case with construction of the water supply systems, establishment of the Watershed Management Plans has been the direct responsibility of the project executors, plus the participation and support of local organizations which have concluded by organizing the Watershed Committees.

At the same time Project AGUA has supported the process of legitimization for the role of the strengthened organizations and for broadening the social base of beneficiaries to include users, generally in those larger projects initiated during the early phases of the project.

In conclusion, the decentralization of water systems constructed and rehabilitated by the project, has broadened access to water for the user population. The organizations that have been most strengthened have broadened their local experience in the resolution of conflicts related to the access and supply of water, as well as in the channeling of resources for community projects. The idea of focusing on the watershed as a prime way to manage water resources at the local level has been furthered.

The project has supported the process for participative creation of 37 municipal ordinances, principally concerning environmental and basic sanitation aspects, which at the same time are trending toward better use and conservation of the environment. Similarly, it is recognized that AGUA has been a pioneer in developing diagnostics and in the preparation of basic Plans for watershed management.

Aspects that Merit Greater Attention and Improvement

It is evident that small organizations, represented by ADESCOs, within which Sub-watershed, Water or Sanitation Committees have been set up, as well as those recently formed or in the process of formation, (projects in progress) have limited administrative and managerial capacity and minimal possibilities of sustainability. At the same time, those considered to be more advanced and formalized tend to focus on the short term since there is an absence of

organizational development plans for the mid and long term; watershed management plans in many cases are not coordinated with the development of water systems but when they do coincide, the watershed management plans initiate the conduct and development of activities.

2. Recommendations

In the aspect of organizational development, we recommend establishing an institutional development and strengthening policy for the project, which will give coordination and capacity for local management more potential within a strategic planning process, to include the establishment of training plans and associated technical assistance, social accounting, administration, finance and in general management of local service companies (Water Suppliers) and civic participation (CDLs and Basin Committees), as well as institution criteria for their creation or integration, according to local conditions. In this respect it is necessary to establish beforehand, before assisting a new entity such as the Micro-watershed Committees, if this function may not be better executed by the existing structures, if they are given the capability to broaden their management of resources and if their functional model is strengthened by integration of the watershed concept.

Nevertheless, the small turnover and formation of minimal cadres of local leadership are obvious, which of course have facilitated initiation and organization of new entities and the incorporation of more recent initiatives generated by the project or by the same process dynamic, for example: The micro-watershed, sub-watershed and watershed Committees, and the Network of Water Boards. This limited leadership may in the future create risks for the institutional sustainability that is being supported and the process of decentralization that has been carried out up to now with surprising results.

We recommend adapting the operational norms that provide for short and long-term application of the watershed approach. What has been expressed previously requires attention to the formation of new leadership cadres, and at the same time application of related institutional norms governing the turnover of leadership.

We also recommend the establishment of Guides or models for applying the watershed approach in carrying out the operational norms (regulations) of user organizations and of course the continuity and follow up of the study process and approval of the watershed organizations' legal framework.

The mechanisms and participative organizations that are instituted (CDLs and Watershed Committees) do not have financing mechanisms to allow their functioning in the mid-term and long-term. Local Rehabilitation and Development Plans have concentrated on consultancies and immediate demands, generally physical ones, in which there is lacking a base line for follow-up of planning and participative management.

In this respect, we recommend instituting planning and participative management linked to the local governments' budgeting and accountability processes in a way that will enable assignment of financial resources for the development of participative processes, while at the same time we recommend updating local development plans using the watershed approach, in which the

establishment of a base line will be incorporated for the planning and participative management processes.

One interesting aspect is the use and influence of incentives which at present are being used for short and mid-term purposes, for example: there are organizations within the CARE Consortium that satisfy immediate needs (plastic sheets, fertilizer, seeds, among others) of the local contributors, while another implementer has supported the planting and management of orchards which are now ready for harvest; or this reason they are identifying alternatives for marketing and for insertion of these products in export marketing chains (Persian lemon). This situation demonstrates how incentives may be sustainable over time, once provision has been made for policies, procedures and forms for re-use, which up to now have not been established.

In this respect and by the use of inter-institutional coordination, it is beneficial to define the policies, procedures and ways to reuse the incentives that well may be considered as compensation in paying for environmental services for the watersheds served by the project.

We recommend that established ordinances of an environmental and basic sanitation nature should be published, and at the same time that the establishment and operation of local mechanisms, to include strengthening the Municipal Micro-regional Environmental Units should be installed in a particular municipality; their approach and work should be carried out at the micro-region or watershed level, as should the work of applying and strengthening mechanisms for financing, control, follow-up and harmonization of the local environmental regulations.

C. Watershed Management, Water Source Protection and Sustainable Agroforestry

CARE and SalvaNatura have been working in aspects of watershed management, soil and water conservation and sustainable hillside agroforestry for a number of years. CARE has implemented several projects financed by a number of different international development agencies, including the Environmental Program of El Salvador (*Programa Ambiental de El Salvador—PAES*) financed by the Inter-American development Bank in the Upper Lempa watershed of the Cerrón Grande Hydroelectric Project in the central part of the country. SalvaNatura implemented similar activities under GreenProject financed by USAID, which was the precursor to the AGUA Activity. FUNDAMUNI's and SACDEL's capabilities in coordinating watershed management and sustainable agroforestry have been vastly strengthened under their participation in the Consortium.

1. Findings and Conclusions

The promotion/extension approach of "learn-by-doing" and working with male and female demonstration farmers is facilitating training of the 10-20 members of each group of *irradiados* and the spread of appropriate soil and water conservation and crop diversification technologies. During field visits it was observed that most group members had their own farm plan, but some of these were not fully completed, perhaps implying that some members did not completely understand how to complete them. The farm plan being used is that developed by CARE under its PAES project. A simpler plan would facilitate more comprehension of the farm plan concept and better results in farmers' filling them out and using them.

Field visits indicated to the Evaluation Team that several technologies were being adopted and spread even outside of the groups to other farmers in the watersheds not formally participating in AGUA trainings. Among all practices, the Consortium has reported a total of approximately 6,500 farm units and nearly 10,000 hectares of farmland under some combination (at least three) of soil/water conservation, agroforestry, reforestation and/or diversification practices. The most popular and widespread practices are *no-burn and minimum tillage*, packaged usually with contour planting of maize, bean and sorghum crops at appropriate seed densities (2 seeds planted every 20 cm on the contour with 75-100cm between rows) and green barriers of vetiver or brizantha (a brachiaria grass). These techniques were even being *applied on rented lands*—an important indicator of the success of such practices. This technological package is also the most cost-effective of all practices being promoted and contributes the maximum amount of soil and water conservation impact.

Improvement of home gardens and land parcels closest to the house appears to be the second most popular practice promoted by the Consortium.[10] These practices focus on diversification to horticultural crops for the double benefit of improved nutrition in the home and sale of excess production. Fruit trees are especially popular in home gardens and some farmers have planted fruit trees at wide spacing on their grain croplands. Agroforestry techniques observed and having good acceptance and spread included (in order of popularity): living fences, especially of *Gliricidia sepium*; planting of trees at wide spacing on hillside grain crop lands of exotic and native species to supply fuelwood and construction wood (poles, fence posts, vigas, saw timber); and to a lesser degree, reforestation of small parcels for rehabilitation of degraded land and aquifer recharge.

Some 1,900 hectares of organic cropping was reported by the Consortium up until the end of 2001. These areas also receive treatment in integrated pest management, and some farmers are working with organic pesticides (e.g. *vinegrera*). However, many of these same farmers are still using commercial chemical pesticides, some of toxicity Category I (*etiqueta roja*). The continuation of SalvaNatura's work in ECO-OK coffee certification with Rainforest Alliance is seen in a very positive light as a mechanism to promote improved conservation in the highland areas where these coffees are grown. The promotion of shade-grown Arabica varieties, especially when practices include the reduced use of pesticides and fungicides (or at least replacement of the traditionally more toxic chemicals with more benign compounds) contributes to watershed maintenance and improved surface and subsurface water quality.

Several small water source protection subprojects were visited. These involve small investments to improve access and the quality of surface water sources such as springs, seeps and *ojos de agua* with concrete spring boxes and a pipe to a cistern tank where water can (but usually is not) chlorinated, and the installation of a tap permits easier filling of water receptacles free of sediment.

Several quality control problems were observed during the field visits, such as planting trees in the shadow of other trees and promotion of improper techniques under certain land-use settings

[10] Farmers are hesitant to plant fruit trees and grow vegetables on land parcels located far from the house, as predial larceny is an ever-present problem in rural El Salvador.

(e.g. infiltration ditches in active pastures where cattle will walk over them and cause damage), but it is assumed that such errors, probably not that widespread, should be corrected with time. On the other hand, several practices that would contribute to improved watershed management do not seem to be in the project mix. Improper road construction and maintenance is interrupting natural drainage patterns and rainwater runoff in critical areas, which in turn causes culvert blowouts, local flash flooding, land- and mudslides, and increases sediment loading in surface waters. Revegetation/reforestation is not being promoted in stream corridors, steep hillsides and ravines, and apparent critical aquifer recharge zones. Also, no project activity was noted during the field visits in improved cattle and pasture management, where such traditional production practices of free-ranging of cattle and goats, improper fire management of *jaragua* grass and natural vegetation is negatively affecting watershed conditions.

Far fewer women's groups are being organized and attended to by the Consortium in the promotion of soil and water conservation and sustainable agriculture. Many activities in this sector can and should be promoted to women's groups, especially those involving improved home gardens and income generation through diversified agriculture, water source protection and household hygiene and water conservation. The CARE Consortium is purchasing nearly all of its plant materials (fruit trees, forest trees, green barrier grasses, etc.) from outside suppliers, in many cases far from the work sites. While this may be more cost-effective for CARE, it represents a missed opportunity to generate some entrepreneurial experience and generate income for communities located in project outreach areas—and especially for women who have shown to be quite adept at nursery management.

The AGUA Activity design had envisioned working with area industries to reduce contamination of water resources, but these are seen as outside the scope and capability of CARE and its partners. Hence, there has been little promotion of such techniques and Consortium partners have collaborated at the margins primarily in promoting the use of infiltration pits for disposal of coffee processing wastes. One of the accomplishments claimed was that of convincing CEL (the electricity company) to begin re-injecting its waste condensate waters from a geothermal plant near the Alegría Municipality in Usulután, but this action was well under way before the AGUA Activity began.

Finally, one aspect that merits mention is one that is more adequately covered in section E. below. The Evaluation Team noticed a certain level of disconnection in the geographic location of some of the groups of farmers and farms being promoted, and the selection of techniques being promoted, with potable water systems being promoted under a different project component. Soil and water conservation and/or agricultural diversification is being promoted in areas not specifically related to microwatersheds that supply water systems of the same or nearby communities; whether literally in the case of surface water based systems, or figuratively in the case of subsurface (well) based water systems. This leads to a situation of missed opportunities in terms of using the leverage of sustaining water systems to sustained management of the watersheds.

2. Recommendations

The Consortium should continue to promote the expansion of adoption of no-burn and minimum tillage packages to farmers outside of current groups in priority microwatersheds. The Consortium should also seek out collaborations with other municipal, national government and/or NGO programs to facilitate additional watershed management activities not currently in the mix promoted by the Project. These include: improved road drainage emulating natural contours and drainage ways; reforestation/protection of stream corridors (greenbelts), steep hillsides and ravines, and critical aquifer recharge zones; and the promotion of improved pasture and cattle management in the form of silvipasture, live fencing and cut-and-carry fodder.

The farm plan model currently used by the Consortium should be simplified. One alternative to consider would be to separate the farm plan into separate modules that deal with each type of farm type and crop mix, and improved strategies for each. For instance, one module should deal with hillside grain cropping, wherein such practices of no-burn, minimum tillage, green barriers, and selected agroforestry techniques would be featured. Another separate module would be used for home gardens and horticulture; still another for reforestation in critical parcels, such as critical recharge zones, stream corridors, ravines, etc. This would reduce the volume of material in a single farm plan booklet (which tends to confuse farmers) and bring more focus and specificity to each farmer's (male and female) plan.

The Consortium should carry out a monitoring program and/or specific studies on the cost/benefit of organic produce. CENTA should be involved with such and effort, and university students could be used to take data as part of their practicum or thesis work. Parameters to include in the monitoring/studies should include, among others: production costs, incidence of disease and pests and crop losses, current markets, perceived premium for organic produce, the effectiveness of organic pesticides and ease of adoption of such practices and level acceptability of participating farmers (men and women). As organic production is still in its infancy in El Salvador, subprojects should be seen as demonstration projects up until which time the applicability, economic validity and acceptance and/or adoption by farmers can be determined.

Water source protection is very popular with beneficiaries and cost-effective and should be more intensely promoted throughout the CARE Consortium's outreach area. However, in-home chlorination must be heavily promoted as it can be assumes that all of these water sources are contaminated with soil and fecal bacteria and viruses.

The CARE Consortium should strive to organize more women's groups to promote soil and water conservation as part of the diversification strategies for home gardens and water source protection. The Consortium should reconsider its current policy of purchasing plant material from outside sources and promote the establishment of community nurseries managed by women's groups.

Activities for the control of industrial contamination should be halted and removed from the Consortium's project portfolio, as these actions are seen as outside the jurisdiction and capability areas of the Consortium and are already delegated to MARN under the National Environmental Law and covered under programs financed by IDB, World Bank and other agencies.

The selection of techniques and priority locations for promotion of watershed management (including soil and water conservation, agroforestry and reforestation) could be improved with better use of strategic planning techniques to ensure that those areas treated are contributing to water resources improvements related to the improvement and sustainability of existing or new potable water and/or irrigation sources (tributary microwatersheds).

D. Potable Water Systems, and Wastewater Infrastructure

CARE-AGUA INFRASTRUCTURE

The discussion of CARE-AGUA infrastructure is presented in three parts:

1. Potable water infrastructure funded and supervised through the CARE-AGUA umbrella;
2. Potable water projects funded through the USAID Small Infrastructure Activity which were implemented by CARE-AGUA consortia (mainly FUNDAMUNI); and
3. the wastewater treatment facility in San Rafael implemented with Border Development Services.

All findings and conclusions are presented in a matrix along with their corresponding recommendations. Following each matrix are more detailed technical notes from which the Findings, Conclusions are drawn. Sanitary Landfills are addressed in Annex 10, PCI Technical Notes.

1. CARE-AGUA Potable Water Supply Projects

The CARE-AGUA potable water systems visited were:

1. Cara Sucia – built under PROSAGUAS, working with AGUA
2. Puente Arce
3. El Quebracho – under construction
4. Bajo Lempa - Conversations with SACDEL staff and community leaders
5. Caulote – visited by Carlos Zavala
6. San Pedro Tuxtla (CORDURATEX) – Built by EU
7. El Quebrado

The CARE-AGUA water supply analysis is presented in two parts:

- USAID/El Salvador SO Level Results and Indicators and CARE –AGUA Results and Indicators; and
- The CARE-AGUA Water Supply Projects themselves

USAID/El Salvador SO Level Results and Indicators and CARE –AGUA Results and Indicators for Water Supply Projects

Findings and Conclusions	Observations and Recommendations
USAID/El Salvador SO Level Results and Indicators	
A. Accomplishments	
1. Indicator Descriptions are clear and do a good job of defining the indicator and how it can be measured.	a. When redefining indicators, maintain the quality of the indicator descriptions.
2. Result 4.2, Indicator 4.2.1 is a better way of tracking progress and impact than indicators 4.1, 4.2	a. Analyze and modify indicators that describe progress toward water system user coverage. The result indicator should provide a clear picture of progress toward a target coverage. Indicator 4.2.1 provides a clearer picture at much less effort than do 4.1 and 4.2 and should serve as a model.
3. Indicators 4.2.2.2, and 4.4.2.1 are close to being indicators that measure infrastructure impact	a. These are the indicators that should receive attention from AGUA to draw conclusions on the sustainability of constructed water systems as Project ends.
B. Aspects that Merit Greater Attention and Improvement	
1. Indicators 4.1and 4.2 for Result 4, are to be expressed in percentage change over the target population. Because of changing populations, other water provision activities in the area, it is difficult to a) calculate the percentage, and b) be able to draw conclusions about project performance by analyzing the percentage figures.	See recommendation 2a above.
2. There do not appear to be actual field Activities under Result 4.1.3 Increased Use of Improved Industrial Practices	a. It is to be questioned whether the Activity can provide the resources to actually engage in substantial work toward this Result. There has been no real advance on the indicator to date. USAID should consider removing this result from the AGUA Activity.
3. As it now stands there are really no described indicators that measure the sustainability of the infrastructure installed or facilitated by the Activity	a. Simple proxy indicators that indicate that a system is functioning sustainably should be drafted and used.
4. The results framework does not link water and sanitation infrastructure to health practices or benefits	a. There is ample evidence that shows that hygiene education and thoughtful provision of sanitation systems increase the impact of water supply on the health of the users. There should be a result and indicator, however modest that recognizes this fact on the Activity Design level.
CARE-AGUA Results and Indicators for Water Supply and Sanitation	
A. Accomplishments	
1. Results and indicators serve to strategically guide Activities in high impact and sustainable directions with respect to Infrastructure implementation	a. The logic of the water supply Infrastructure indicators is sound and no radical changes are recommended.
2. Most results targets shall be met by Close of Project	With exceptions noted below in part B.
B. Aspects that Merit Greater Attention and Improvement	
1. Certain results that are used to fulfill indicator requirements are subjective in nature and whether the results satisfy the spirit of the indicator is open to interpretation i.e. Indicator 2.1.4 Inclusion of Tetralogia connections	a. CARE-AGUA and USAID/El Salvador must analyze the criteria that allow certain achievements to be counted against project result targets. Criteria should be established for results and indicators that ensure that the intent and "spirit" of the indicator is respected.

Findings and Conclusions	Observations and Recommendations
CARE-AGUA Results and Indicators for Water Supply and Sanitation	
B. Aspects that Merit Greater Attention and Improvement (continued)	
2. Indicator for sustainable system implementation (the most important Activity impact) is an output indicator (number of juntas trained) not and impact indicator. (Indicator 2.1.5) There is not an impact indicator for sustainable system implementation	a. CARE-AGUA does not currently have indicators that measure the impact of the infrastructure work nor the sustainability of the infrastructure. Several simple indicators are mentioned in this report. These should be considered and by the end of the Activity adopted to measure impact of infrastructure activities.
3. It is permissible under the accepted results framework for the project to end with Water supply systems in the middle of construction as long as financing is assured. (Indicator 2.1.4 b)	a. This is somewhat alarming. It is not clear that there is a plan to provide trustworthy construction supervision or follow-up to systems that are in construction at the end of the project. CARE-AGUA must clarify how these will be provided for these projects. (having a municipality sign a paper that says that they will assume responsibility is not sufficient)

Detailed Notes: CARE-AGUA Project Indicators for Infrastructure

- Certain results that are used to fulfill indicator requirements are subjective in nature and whether the results satisfy the spirit of the indicator is open to interpretation. Case in point is the 2,000 families/users counted from the TETRALOGIA Regional Water Project as having received potable water through construction of new or rehabilitation of existing potable water supply systems. CARE-AGUA donated 3,000 household flow meters to TETRALOGIA and it has been counted against the total expected result in the same way a family or user from a community that was part of a full water construction project has been.
- There is not an impact indicator for sustainable system implementation. The use of number of community members trained in management as an indicator for a functioning potable water supply system is not adequate.
- The CARE-AGUA Project is sanctioned, under the accepted results framework, to end the AGUA Project while water supply systems are still in the middle of construction, as long as financing for that construction is assured. These systems are not slated to receive the full CARE-AGUA package of training, institutional development and follow-up interventions as those systems completed earlier in the AGUA project cycle. This shall reduce their potential sustainability.
- USAID/El Salvador does not require the AGUA project to address sanitation or health issues related to the provision of potable water to communities. CARE-AGUA of its own accord is addressing these issues, but there is no result, objective or indicator concerned with sanitation or hygiene.

CARE-AGUA Water Supply and Sanitation - Strategy, Design, Construction, Management

Findings and Conclusions	Observations and Recommendations
CARE-AGUA Water Supply and Sanitation	**(seven systems visited)**
A. Accomplishments	
1. Infrastructure entrance strategy – driven by local development plans, prioritizing large, active and motivated populations for infrastructure, and bringing all possible local water organizations into the AGUA fold is sound.	a. In a project with a limited time frame, going with the largest and most dynamic populations and letting them serve as a nexus for other activities is a strategy that makes sense and insomuch as there are funds for large infrastructure projects can be continued as a selection mechanism.
2. The quality of design, materials, and construction, for the systems is uniformly high.	a. CARE-AGUA should capture and prepare these criteria as part of a best-practices package
3. The extremely high Coverage targets for water supply may not be met by end of project. Nevertheless given the history of AGUA implementation, the coverage that shall be obtained at Project end will be exemplary	a. CARE-AGUA should work with USAID/El Salvador to adjust the number of users counted against infrastructure coverage goals, examine project progress in meeting the goals, what projects are in the pipeline, what funds remain, and then readjust the End of Project targets, taking care to ensure that "projects in construction" at Activity end (Indicator 2.1.4 b) receive the same attention as those built before Project end.
4. The level of service provided by the CARE-AGUA water systems is uniformly high – a tremendous achievement given the size and technical complexity of the systems, the panorama of institutional collaborators in a typical implementation, and the challenges of building sustainable local administrative and O&M capacity	a. CARE-AGUA should capture and prepare these criteria as part of a best-practices package.
5. CARE-AGUA has essentially saved the investments made by other donors (Red Cross, FISDL) on large water supply projects by providing a range of services to the implementation and/or the operation of these projects	a. CARE/El Salvador's highly developed systems for design, construction, administration, formation of exemplary water management committees, and forming links between water supply and watershed conservation has been proffered to several large donors who are principally focused on building infrastructure. Pursuing further alliances with donors who are essentially construction contractors provides an invaluable service to El Salvador and an attractive short and long term strategy for AGUA infrastructure.
6. CARE-AGUA has in several cases succeeded in making the water supply system not simply an end, but a vehicle that drives greater local development – local management and institutional strength, obtaining legalization for local organizations, using funds to support water resource protection, linking to municipal governments, linking to other local and regional organizations	a. CARE-AGUA should capture and prepare these criteria as part of a best-practices package.
7. CARE-AGUA has coordinated with the infrastructure activities of the SIA fund to provide institutional strengthening services and post-inauguration	a. This coordination has been invaluable to the impact and sustainability of the SIA projects both as water supply projects and watershed conservation projects. CARE-AGUA must continue to actively bring SIA projects under its umbrella.

Findings and Conclusions	Observations and Recommendations
CARE-AGUA Water Supply and Sanitation	**(seven systems visited)**
A. Accomplishments (continued)	
8. The use of water meters is the foundation for sustainable water supply systems and metering is being successfully promoted in CARE-AGUA	a. Continue to use metering in all projects. b. Partner with appropriate SIA projects or other projects to not just provide meters, but to offer the training and institutional strengthening to make the metering a success.
9. CARE-AGUA has leveraged considerable support in funds, materials, equipment, labor and transport from a diverse set of counterparts including other international donors, FISDL, municipalities, communities.	a. This coordination is time consuming and difficult but pays dividends not only in stretching project resources but in sharing best practices with other entities. To the extent possible it should continue.
10. The use of CARE/El Salvador DASAGUA office for CARE-AGUA design work has been a successful strategy.	a. See recommendation 4a above. DASAGUA provides technical services to other projects and clients in and out of CARE and through AGUA can increase this support to external entities - e.g. Municipalities, NGOs, FISDL
11. The use of the CEFA (Economic Competence based on the Formation of Businesses) model to build administrative and management capacity in Juntas de Agua has succeeded in creating management organizations that are independent, confident, transparent, and capable	a. Continue the use of CEFA and work to spread its use to other organizations.
12. The strategy of forming a community construction committee for implementation and a new management committee (junta) for system operation has been successful.	a. Continue using this positive strategy. b. CARE-AGUA should capture and prepare these criteria as part of a best-practices package
13. The performance of the water system operators has been satisfactory and there is little reported attrition.	a. The training provided the operators has been satisfactory and work with the Water Committees has led to the operator job being one that is reasonably well compensated. No substantial changes are recommended (see below).
14. Criteria to be satisfied by a community and the future water users for system inauguration is proper and is uniformly applied for the most part.	a. CARE-AGUA should capture and prepare these criteria as part of a best-practices package.
15. CARE-AGUA offers six months of follow-up support to the Water Junta in administrative, conflict resolution, billing systems and management. The follow-up activity also identifies technical and operational difficulties, bringing them to the attention of appropriate CARE consortia staff.	a. CARE-AGUA should continue providing this service, especially to water systems that are recently completed or are in construction at Project end. b. Project follow-up practices should be captured and be included in a best-practices package that can be shared with and used to strengthen this activity in other organizations c. CARE-AGUA should actively pursue other opportunities for those providing follow-up services to work with SIA and other infrastructure projects outside of CARE-AGUA
16. Inclusion of conflict resolution training to juntas is a positive addition to the standard package of organizational management, finance, accounting, and billing systems	a. Capture this training curricula as part of a best practices package.
17. CARE-AGUA strongly supports the institutionalization of municipal ordinances that govern water use, water system management, and sanitation – a key base upon which sustainability is built.	a. Capture these techniques for a best practices package

Findings and Conclusions	Observations and Recommendations
CARE-AGUA Water Supply and Sanitation	**(seven systems visited)**
A. Accomplishments (continued)	
18. The high quality of CARE-AGUA water supply infrastructure is the result of years of involvement in the sector by USAID/El Salvador who has been able to capture key lessons learned and best practices from a number of projects and ensure that they are incorporated in this Activity.	a. USAID/El Salvador, has shown itself , with the support of the Salvadoran NGO community, to be a learning organization as far as Water supply infrastructure is concerned.
19. CARE-AGUA has done good job of producing training documents that support capacity building in the infrastructure sector.	a. CARE-AGUA should continue to look for ways to share these documents with other organizations in the field.
B. Aspects that Merit Greater Attention and Improvement	
1. The technical descriptions of the projects in the design folders were found in some cases to not describe sufficiently the criteria used to make particular design decisions that ended up being built in the field.	a. DASAGUA, serving as CARE-AGUA's technical quality control entity must ensure that technical documents are of a uniformly high quality and that changes made to a system during construction must be both reflected and justified in the technical documentation.
2. CARE-AGUA shall apparently end the Project while a number of systems are in construction. The strategy for capacity-building and follow-up on these systems is not clear.	a. A strategy and plan that provides supervision, capacity building, and follow-up that is equal to or better than that currently provided by CARE-AGUA must be developed and put into place for these projects.
3. CARE-AGUA implements projects in a relatively weak normative environment. National standards for urban and rural water systems are not very exacting and allow work of middling quality to be built. CARE-AGUA is not actively promoting its best practices to be accepted as national norms	a. The Water and Sanitation Network of El Salvador is working toward improving and standardizing norms used in water supply and sanitation infrastructure. CARE-AGUA is in a position to support these efforts and should.
4. The local counterpart contribution to the project typically consists of local non-skilled labor. CARE-AGUA has not made a great effort to examine the potential to leverage more support (and therefore higher sustainability) from local users.	a. In some projects, CARE-AGUA is succeeding in receiving greater community counterpart contribution. This can add time to project implementation but is ultimately beneficial and should be continued to the extent possible
5. The strategy of providing institutional strengthening services to the largest water committees in the project area first does not allow CARE-AGUA to target vulnerable and priority watersheds with high-impact institutional development work directed at existing Water committees.	a. CARE-AGUA should consider the strategic use of infrastructure in priority or at-risk watersheds (especially those with large surface sources) to leverage watershed management and protection practices.
6. CARE-AGUA is selecting pumps for its water supply systems that oversized considerably given ANDA design norms. This means that impulsion lines are also oversized according to norms. The criteria used to select these pumps is not sufficiently explained in the design documents.	a. Technical criteria for pump selection that explains the deviation from National norms must be developed and pump selection justified in the design documents. b. CARE-AGUA should work with the National network for water and sanitation to address any problems that might exist in the national norms governing pump selection
7. The didactic materials for the training of system operators is new, but is lacking with respect to clear graphics, training on the concepts of flow, daily consumption per user, and the formation of long-term O&M calendars.	a. The operator training manuals should be considered a work in progress. CARE-AGUA should work with members of the National Network of Water and Sanitation to access other materials and graphics so to avoid re-inventing any wheels.

Findings and Conclusions	Observations and Recommendations
CARE-AGUA Water Supply and Sanitation	**(seven systems visited)**
B. Aspects that Merit Greater Attention and Improvement (continued)	
8. The follow-up provided to system operators is not on the same level as that offered to the committees. Operators receive post-inauguration support from CARE-AGUA only when visible problems arise.	a. CARE-AGUA must develop and put a plan into place that provides a structured program of follow-up support to the operators and other technicians working on CARE-AGUA infrastructure.
9. Although CARE-AGUA has signed agreements from GOES institutions to support the community operation of the water systems, there is not yet a reliable structure for long-term support of the systems.	a. CARE-AGUA should explore and then work to implement a sustainable long-term support network for water supply systems in El Salvador. This system could include participation from regional Networks of Water Committees, GOES-sponsored "circuit riders", municipal technical groups
10. There is worry in communities with electric pumps that electric prices are rising or that consumption levels are driving the water committees into a higher billing bracket.	a. CARE-AGUA should monitor the situation and if needed help the committees find solutions for these problems – a policy issue?

Detailed Notes: CARE-AGUA Water Supply and Sanitation - Design, Construction, Management

Designs and Design Documents

Overall, AGUA water supply system designs are well done. The only observations of note concern the written justifications for design selections. Those design decisions that deviated from the Salvadoran ANDA Norms were often not clearly justified in the design documentation. In all cases observed below, staff had technical justifications for all of the "questionable" design decisions. The issue is not that the designs are not technically justified – it is that this justification is not documented as it should be. Examples of technical decisions that are not justified in the design documentation:

- El Quebracho – 4,500m impulsion line is galvanized steel pipe. The design does not discuss why the well was drilled so far from the storage tank site or why galvanized pipe is used instead of PVC. Both of these decisions have enormous cost implications.
- Puente Arce – The design population, according to norms should have been approximately 800 families (There are currently 438). The design is for 1,176 families, about 50% higher than what norms specify. The cost of the system is, of course, proportionately higher as well)
- All pumps are over-sized from the point of view of El Salvador norms. It is not clear what norms are used for pump selection.

Construction and Materials

- Materials and construction were observed to be of high quality.
- Household connections are, from the household flow meter into the yard are the responsibility of the home-owner. There are typically no local ordinances that control the quality or the type of connection. There were a variety of low quality household connections observed, where PVC pipe or plastic tube was installed instead of galvanized steel. The use of household meters should deter homeowners from allowing their connections to deteriorate.

- Most water supply systems use well water pumped by electric submersible pumps. Of the five systems visited, two had experienced serious pump breakdowns requiring replacement in the first two years of operation. AGUA was observed to be following up on this issue, diagnosing the pump failures and working to find solutions.
- Water Committees are being charged residential rates for electricity consumption and increased use is moving unit costs into higher costs brackets. This cost is threatening the ability of communities to sustain their systems through reasonable tariff charges.

System Operators

- System Operators are well trained (through participation in system construction and extra training) and following a daily schedule of operation. Operators are also appropriately compensated and have a low rate of attrition.
- The systems for replacing operators are still evolving. Water committees were having the outgoing operator train the newcomer. In situations where an outgoing operator cannot provide this service, there is not a clear system for training a new operator.
- Operators do not have long-term work-calendars that lay out a year of activities, rather a list of activities and the frequency of those activities over the course of the year.
- Operators are not monitoring system flows – using the macro-flow gauge and comparing it to the sum of the household flow meters.
- The operators were not observed to be able to manipulate flow and volume information. They should have this skill when they leave training.
- There is not a formal AGUA system for follow-up support for water system operators. The Project will respond if a community notes problems (a curative not a preventative strategy). There is not work being done to promote systems supporting operators after the AGUA project ends.

Management Organization

- The water committees are extremely strong. They are operating democratically, applying ordinances, running billing systems and savings accounts – operating large systems in a sustainable fashion. It is clear that years of lessons learned in water management are being applied by the AGUA project.
- AGUA is supporting an exciting initiative that has shown value in sharing information and TA between Water Committees. The regional network of water committees in Ahuachapán is providing a forum for committee leaders from a number of water systems of different sizes. Information on conflict resolution, management, and problem-solving is shared among the participants.
- Entrepreneurial training provided these committees by the AGUA project appears to be successfully preparing these committees to manage the systems – systems that are essentially small businesses.
- Several committees are designating a portion of the tariffs toward watershed protection and local hygiene and health services. This is an important accomplishment.
- The system used by AGUA for defining water committee ordinances has been successful.
- The follow-up support that is offered by AGUA to the water committees is excellent with respect to administration, management..

2. CARE/Small Infrastructure Activity (SIA) - most were under CARE-AGUA's FUNDAMUNI

The sites visited were:

1. Rainwater Collection System; San Juan Uno, Usulután
2. Household Graywater Absorption Pits; Las Flores Usulután
3. Improvement of Potable Water System; Santa Fe y Los Chiles, Usulután
4. Improvement of Potable Water System; San Mauricio
5. New Water Supply System; Ojos de Sal (World Vision)
6. New Water Supply System; Quebrada Honda, Morazán

Findings and Conclusions	Observations and Recommendations
Small Infrastructure Activity (SIA) Water Supply and Sanitation	
A. Accomplishments	
1. The SIA is bringing clean water to small, under-served communities	
2. The SIA has been able to leverage the participation of CARE-AGUA to support the strengthening of local management institutions for the small infrastructure, and watershed conservation activities.	a. The huge demand for convenient access to drinking water is a natural nexus for local development, and it is important that CARE-AGUA do all that it can to bring the full package of CARE-AGUA components to bear on these communities working in SIA projects.
3. The SIA is also working with large populations and systems to repair or expand service. Bringing the CARE-AGUA training and watershed activities to these large systems has leveraged considerable impact on the sustainable management of the systems.	a. This type of collaboration between SIA and CARE-AGUA has a large potential for impact. CARE-AGUA can reach large populations with its package of interventions. This type of collaboration should be actively pursued between the two projects.
4. The SIA is building O&M capacity at the local level through CARE-AGUA support	a. See 3a above
The quality of construction is, for the most part, good.	a. The skilled labor being contracted is doing an acceptable job.
B. Aspects that Merit Greater Attention and Improvement	
1. The SIA does not have a clear strategy for community selection which causes difficulties in providing training, institutional strengthening, watershed conservation activities to the projects through the AGUA umbrella.	a. The SIA, if used strategically within the AGUA umbrella has the potential to leverage important impacts in priority watersheds and/or in large populations. SIA projects can greatly increase their impacts on sustainable management of water systems, protection of watersheds if they were to be coordinated more closely with CARE-AGUA or similar project. b. It should be an AGUA priority to formally establish this coordination.
2. There are serious deficiencies in the quality of the design documents. There are cases where design selection criteria are not explained, where the technical descriptions do not match with what has been built. Budgets are not allowing for detailed design and documentation to be carried out.	a. AGUA must identify and support a mechanism that brings to the SIA the same technical criteria and standards that are used in the CARE-AGUA and other USAID-funded infrastructure projects

Findings and Conclusions	Observations and Recommendations
Small Infrastructure Activity (SIA) Water Supply and Sanitation	
B. Aspects that Merit Greater Attention and Improvement (continued)	
3. Some construction deficiencies were observed in the field – control valve installation, lack of protection for valves and chlorinators, absence of chlorinators,	a. AGUA should identify and support a mechanism that brings to the SIA the same level of technical supervision that are used in the CARE-AGUA and other USAID-funded infrastructure projects
4. Criteria that must be met by communities and users before a system can be inaugurated are not uniform. Systems are inaugurated without trained operators, without gray-water disposal, without latrines, without strong tariff systems set up (especially when public tapstands are used)	a. AGUA must identify and support a mechanism that brings to the SIA the same technical criteria and standards that are used in the CARE-AGUA and other USAID-funded infrastructure projects
5. Collecting tariffs in system with public tapstands is problematic.	a. There are innovative ways to ensure that users pay for public water –i.e. tapstand operators, neighborhood user groups that pay together and manage their own affairs, etc. These should be explored for future projects with public tapstands.
6. There is not a formal system of institutional or technical follow-up being provided to the local water organizations. CARE-AGUA consortia staff provide follow-up support non-formally.	There are not systematic technical or organizational development oversight components for the SIA projects. AGUA must see that these components are made available to communities receiving these SIA funds.

Detailed Notes: CARE/Small Infrastructure Activity (SIA)

Site Assessment Documents

No Environmental Assessments required. The discussions of the project sites in the technical memoranda of each project are cursory.

Designs

Designs in general were fine with respect to the physical infrastructure items themselves. Nevertheless the design documents were severely lacking in their technical justifications for design choices. It is not to say that designs were not correctly done and based on reasonable criteria. The issue is that the designs contain very little documentation of the criteria used to make design decisions. For example:

- Design flows for improvement project of San Mauricio was a wet season measurement. Dry season measurements of all surface sources are of critical importance.
- The selection of an 80 cubic meter storage tank for Santa Fe / Los Chiles is not justified. There is already a 35 cubic meter tank and the future population of these communities justifies the repair of the existing tank and not the construction of a new tank – of any size.
- The design for Santa Fe/Los Chiles does not mention that the existing 35 cubic meter tank is operational and its existence is only inferred in the document by one map.
- The sizing of the San Mauricio pumping tank (50 cubic meters) was not presented.
- Designs for the filters used to treat gray water coming from clothes-washing stations have shortcomings. Effluent from these filters is best discharged into large absorption trenches, not directly into the water course. These filters require maintenance (solids removal). There is

not an operator assigned to the filter in San Mauricio, nor is there a disposal destination for the solids once they are removed.
- The criteria used to size the new electric pump for San Mauricio was not provided in the design document.
- Quebrada Honda has household connections but no water meters, the tank is oversized for the future population

Field Inspection

Construction was observed to be generally good, with several minor shortcomings noted:

- Valves were placed directly on PVC pipe. A transition to galvanized steel for the valve placement is recommended.
- Valves were installed without universals. To remove a faulty valve in this situation the pipe itself must be cut.
- PVC pipe was run through the walls of tanks
- Chlorination in Quebrada Honda was not done according to an accepted system. A small amount of chlorine is periodically dumped in the storage tank. The system was commissioned without the construction of gray-water absorption pits and all areas around household connections that were observed were muddy. Half had wastewater ponding on the property. No latrines were promoted or built through the project.
- Impending cost increase in electricity was a big issue in Santa Fe / Los Chiles. With increased consumption, the water committee is moving into a different billing bracket which will radically increase the cost per unit of electricity used.

Operator

- Santa Fe/Los Chiles had a community operator who was receiving supplementary training from AGUA.
- Operators, sometimes belatedly, are receiving training by the AGUA project.
- Quebrada Honda did not have a trained operator for the already-commissioned system.
- Quebrada Honda suffers from water shortages during the dry season, but no one has diagnosed if there is a scarcity of water, or over-use, hoarding, etc. The community does not know how to diagnose the problem and without metering the source is vulnerable to overuse by individuals.

Management Organization

- Community leaders of Quebrada Honda were unable to find the copy of the system plans and technical design.
- Participation in the SIA projects have brought AGUA capacity-building activities into the target communities. San Mauricio, in particular stands to benefit the most from this intervention. The large high-quality surface source is currently used (poorly managed) by agricultural and domestic water projects. AGUA has helped dysfunctional water committees get back onto their feet and work toward sustainable management of water systems and the watershed.

3. CARE/Border Development Services: San Rafael Waste Water Treatment Plant

There is one site where CARE and Border Development Services are working together - the San Rafael neighborhood of the Puente Arce Community in Ahuachapán department. CARE and Salva-Natura have worked with Puente Arce to implement a drinking water supply project.

Findings and Conclusions	Observations and Recommendations
Waste Water Treatment Plant – San Rafael	
A. Accomplishments	
1. AGUA is supporting important first steps in the application of wastewater treatment technology in El Salvador	
2. AGUA is building important local technical capacity in NGOs that has a strong likelihood of improving over time	
3. AGUA is raising awareness of the general population and of municipalities in the field of waste water treatment	
4. AGUA is generating interest in and attention to the management and policy implications of these technologies	a. AGUA should focus on building the capacity of local NGOs (national or international) in this emerging technical field. Given the state of the GOES ministries, USAID/El Salvador experience with private contractors, this is a valid approach and should be continued b. These systems are difficult to sustain for a number of reasons (local demand, incentives to properly operate, cultural attitudes about trash, politics of billing for the service, etc.) and AGUA should devote extra time and resources to support what are essentially "demonstration management systems" to compliment these demonstration technologies.
B. Aspects that Merit Greater Attention and Improvement	
1. These are demonstration technologies in El Salvador and require special attention to not only the design and construction of the technologies but to the formation and strengthening of the local organizations that will operate, maintain and manage these systems.	a. Understanding that these are demonstration technologies for El Salvador, AGUA should support independent technical review of designs before construction takes place, of construction before the treatment plant is commissioned, as well as periodic monitoring visits after commissioning
2. It is not clear that these projects are community priorities nor that community members and future users are participating in the selection of the technologies nor in the decisions regarding their operation, maintenance, management and cost recovery	a. AGUA should consider using participatory planning activities for these technologies that brings the users into the process of information gathering, technology selection, tariff calculation. (EHP has information)
3. Environmental impact statements which serve as important tools to ensure good site-specific engineering design and construction practices are not being used as tools to this end, rather as paperwork that needs to be filled out prior to breaking ground.	a. NGO staff need understand that the purpose of the EIA is to ensure competent engineering decisions are made that incorporate the site into the design and construction planning. b. The USAID/El Salvador Environmental office should support training that raises awareness and instructs technicians on EIA implementation that meets USAID requirements.

Findings and Conclusions	Observations and Recommendations
Waste Water Treatment Plant – San Rafael	
B. Aspects that Merit Greater Attention and Improvement	
4. Design and construction of these novel systems has presented difficulties, many of which are related to difficult (low-lying) sites and local materials - national norms for waste water treatment are lacking,	a. Understanding that these are demonstration technologies for El Salvador, AGUA should support independent technical review of designs before construction takes place, of construction before the plant is commissioned, as well as periodic monitoring visits after commissioning
5. Ground is being broken on projects without clarity in how management systems will function, how operation and maintenance will be handled, how tariffs will be levied to cover recurring costs	a. Understanding that the demand for proper operation of wastewater treatment plants is quite low (compared to water supply systems), AGUA must formulate and then apply a set of criteria for institutional management that must be satisfied before construction can begin, and other criteria to be satisfied before a system can be commissioned
6. Projects and Technologies are being selected without local input – technologies are chosen and then "fit" to a community	a. This approach has a long history of management failure and in the future, AGUA should work with communities or municipalities that demonstrate demand for services and then engage in a participatory planning activity to choose technologies, financing packages, and management systems.
7. Operators of the systems are not subject to the same local oversight as a water system operator. There is much less incentive for the waste water treatment plant operator to perform at a high standard.	a. Understanding that the demand for proper operation of wastewater treatment plants is quite low (compared to water supply systems), AGUA must formulate and then implement operator training that raises the awareness of the operators with respect to performance.
8. A formal program of follow-up supervision to trouble-shoot operational problems and support the O&M and managerial systems for these novel demonstration technologies is not in place.	a. For these demonstration projects, a follow-up program of technical assistance in operation, maintenance and management should be designed and implemented.

Detailed Observations: CARE/Border Development Services Waste Water Treatment for San Rafael Neighborhood

Sites Visited

The San Rafael neighborhood of the Puente Arce Community (Waste Water Treatment Plant for 80 households)
Note that Engineers overseeing the project are US-based and did not participate in the evaluation. It is not evident that there is close coordination between the AGUA Project and the Border Development Services Team on a comprehensive project implementation (technical, social, training, ordinances, etc)
Strategy.

Site Assessment Documents

- None were available for evaluation. An environmental assessment would have been a very useful exercise. The critical site issue of the high water table has impacted construction and will impact operation as well and it is not clear that it was addressed.

- Rainy season disposal of the treated wastewater is an issue that an EIA would have dealt with.

Designs

- No designs were reviewed, only a small summary and schematic of the treatment system that did not reflect all that was being built at the site. The design for the treatment system has been used in different parts of the US and in Mexico. It is not clear that the specific design for the household septic tanks and small bore sewer have been demonstrated before.
- It is noted that the design of the system was selected prior to site review. The project is piloting a technological package. The site was selected for the technical package not the other way around.

Field Inspection

- The use of plastic water storage tanks for household septic tanks has been problematic (here as in other pilots in Central America). The tanks collapse when buried under pressure from the soil covering them. They also float out from their holes because of the high water tables. The inflow and outflow works inside the tank are very close to one another and do not appear to be separated by a baffle. It is not clear how effective solids removal will actually be in these tanks. There is no infrastructure in the region for pumping solids from the household septic tanks and disposing of those solids.
- The small-bore sewer system did not appear to have easily accessible clean-out portals (that allow a long plastic-handled brush to be inserted to remove blockages)
- The construction of the tanks and physical infrastructure appeared to be of good quality.
- There is also a danger that the sunken tanks, although built of concrete could float out of their respective holes just like the plastic tanks have done should they continue to remain empty while the water table remains at ground level.
- The exact function of all of the physical infrastructure installed at the site was not clear and the neighborhood leaders and construction supervisor were unable to explain the future function of all of the installations.

Operator

- Operators for the plant and for the small-bore sewer have not been trained, (but shall be? By whom?). Payment of the operators has not been worked out yet.
- Small bore sewers require that users receive special training on their use and O&M. Specialized operators are typically trained to provide required maintenance, repair, and education to users. Training has not yet taken place.

Management Organization

- A neighborhood organization is working with the implementers to facilitate the installation of the infrastructure. The leadership of this organization does not understand the workings of the plant, but are happy that they will have something that will replace latrines.

- Payment for operation and maintenance of the plant (there will be costs for electricity, pump maintenance and eventual replacement, and general O&M) has yet to be worked out. Links to the Puente Arce Water supply billing system have yet to be formally explored.

E. Environmental Education, Civic Participation and Sustainable Use of Natural Resources

1. Findings and Conclusions

Accomplishments

Among the significant achievements of the AGUA Project are: the training and socialization of environmental knowledge, practices and attitudes of a large part of the CARE Consortium technicians, development of a wide variety of educational materials, planning and development of education sites at different development levels, co-investment in and leveraging of local and institutional resources in order to carry out water-related activities, including eco-tourism and of course the catalyst effect of the local organizational institution and development process, among other aspects.

The benefits previously summarized represent singular opportunities and unique benefits relevant to the AGUA Project; civic willingness and participation have been broadened at the local level, along with possibilities of maintaining their impact through the sponsored radio media, as well as by the civic participation already achieved, and adoption of the watershed approach in local environmental management.

The educational materials produced have been used to support sensitizing efforts at the levels of youth, leaders and local representatives, while other materials have been used as reference documents for local contributors and institutional exchange. Studies and water-related activities have been carried out, such as: Protection of water sources, minor pipeline repairs, composting and recycling of paper, handicrafts and eco-tourism initiatives, among others, that in some cases have permitted the leveraging of resources from other sources of finance at the local and international level and the formalization of the groups served.

The educational materials produced require a validation and systematization process centered on local requirements and expectations, while at the same time there has been an analysis of the advantage focusing environmental education as a transverse axis cutting through all components of the project.

In summary, the educational and civic participation activities that have been developed have allowed the civil society to participate in managing initiatives for protection and conservation of the environment preferably, to the point where they foment projects for utilization of protected natural resources as pivots of local economic development, as an example: Changuantique and the Santa Rita Forest.

Aspects that Merit Greater Attention and Improvement.

It is also understood that the AGUA Project has had limited coverage in environmental education for all the implementers' technicians; as they said in the CARE Consortium, where they had the best coverage, the opportunities for exchange have been limited, and even less were the training opportunities among representatives and members of project implementers. The materials produced to date do not show a process of validation and systematization for their applicability and adjustment to local needs, and this compares to the lack of organization and plans of the instruction sites visited.

Another aspect that needs improvement is the minimal local capacity of the instruction sites to monitor the quality and quantity of the services provided by the local companies, among them: the administrators of water, activities of composting and eco-tourism, among others; an aspect that also influences the establishment and impact of its group initiatives.

2. Recommendations

Among the principal recommendations the following are specified:

It is recommended that the project should provide training opportunities to all personnel on aspects of environmental education and the manner of application to each component.
At the same time we recommend consideration of specialized training in the form of in-service training, exchanges between the implementers or else through processes of on-the-job technical assistance to improve the processes of environmental education.

In order to consolidate the process of preparing and publishing the educational materials, it is worthwhile to have a validation process prior to their publication to incorporate pertinent changes, so that they address the needs of the target population and later there may be systematization of the results and impact attained.

With the aim of widening the impact and sustainability of the activities carried out at each instruction site, we recommend orienting the organization toward strengthening it (where it exists), and in promoting it in case there is none, according to the project's development and institutional strengthening policy that was recommended previously.

It is advisable to determine the plan of each instruction site to be assisted, so that beginning with its strategic vision will permit determination of its plans for the actions to be carried out. In these sites we recommend focusing activities on critical areas within the communities that are assisted by those instruction sites.

We recommend supporting the improvement of capacities for resource management, and coordination with and provision of quality local services to the Water Boards, Local Governments, CDLs, Watershed Committees and other organizations. For that reason we recommend supporting the exchange of experiences with homologous projects such as the Proyecto CLARA.

We recommend increasing local capacities for follow-up and monitoring of the quality of services provided through training in the management of environmental projects.

We recommend increasing assistance in publication and harmonization of ordinances, as well as in the establishment of participative mechanisms for follow-up and control of the application of local regulations.

The sensitizing activities performed with the participation of civil society representatives and representatives of local governments are oriented according to progress reports, and to the raising of consciousness about general environmental aspects. In this respect, we recommend defining the methodological process for the recruitment and training of personnel from companies set up or strengthened by the AGUA Project; among other aspects to be strengthened, there are the establishment of a methodological guide for planning and execution of water-related activities, within the watershed and ecosystem approach.

Some of the most noticeable aspects are the lack of clarity and the tendency to use a double accounting for activities and results reported in environmental education, which at the same time form part of other project components, as well as the lack of a methodology and indicators for the monitoring and impact of environmental education.

In this respect we recommend focusing environmental education as a transverse axis in all components, the same as is done with the gender aspect, with which they will be an integral part of the other activities executed; at the same time we recommend the establishment of a methodology for integrated planning and follow-up for all project components.

F. Project Strategic Planning and Policies for Sustainable Management and Use of Water Resources

The CARE Consortium has facilitated in raising the awareness of community members through local organizations (water committees, CDLs, ADESCOs, agricultural groups, and municipal governments) and interest groups at the national level (members of congress, MARN, ANDA, Vice Presidency, technical professionals/RASES members) of the need o sustain water resources with integrated watershed management strategies. However, some aspects of strategic planning, especially in terms of watershed management could be improved.

1. Findings and Conclusions

The Consortium has facilitated the establishment of sub- and microwatershed committees that combine representatives of civic and government organizations of one or more municipalities and numerous *cantones* in efforts to collectively manage water resources shared by all parties. This is an excellent strategy as long as it does not subvert the operations of existing organizations and create competition to municipal governments' efforts to decentralize governance and investments in the public good (including water systems and natural resources management). The watershed management organizations represented in Cara Sucia, Río Borbollón, El Zúngaro

and Río Corinto are excellent examples of such committees in progress and should be consolidated and promoted as models for this type of organization.

The strategy and process for promoting promulgation of municipal ordinances to regulate integrated water and natural resources management, environmental protection, solid waste management and environmental health has been an arduous task, as the targets of establishing some 36 ordinances has been seen by Consortium members as somewhat "forced" upon them. Still, the Consortium has been successful in achieving both the goals of changing attitudes of the population to embrace environmental protection objectives and on municipal government leaders to rise to the occasion and establish regulations to guide in these efforts. These ordinances should lead to better local control of problems leading to watershed and water resources deterioration, if and when the necessary application/enforcement and incentive mechanisms are put in place.

The CARE Consortium's efforts at the national level, working closely with the National Water and Sanitary Network and MARN will hopefully lead to the establishment of the National Watershed Management Commission and facilitate legalization of local watershed committees already being organized by Consortium members in project outreach efforts. CARE's staff has worked closely with the Water and Sanitation Network (RASES), coordinated by PCI, to spearhead a series of participatory workshops and information dissemination to engage professionals in government agencies and the private sector to analyze all aspects of water resources legislation and how different approaches would impact differing water user groups. CARE's work with consultants contracted through the Environmental Heath Project (EHP) has brought the draft executive resolution for establishing and giving legal weight to the National Watershed Commission and local watershed organizations to a point of its formal presentation to the Minister of the Environment and Natural Resources for presentation to the President's Cabinet.

CARE Consortium members are promoting the incorporation of the costs of environmental services through the inclusion of a portion of water fees charged to customers of many of those small communal and municipal water systems supported under the Project. This is seen as a fundamental step in guaranteeing the sustainability of financing for both the water systems and management of their tributary microwatersheds. However, not all water committees incorporate this policy. Under two such arrangements, community water systems in the SalvaNatura outreach area are supporting management of the El Imposible National Park (the source for their water systems) by contributing to the salaries of two park rangers. This is an excellent precedent which should be replicated.

The CARE Consortium's efforts to develop participatory diagnostic studies for each of the 18 municipalities and 5 subwatersheds prioritized under the Project are admirable. While these studies provided good background on which to prioritize problems and select organizations with which to work, they lacked necessary strategic guidance on how to prioritize geographic locations and watershed management techniques in order to resolve specific watershed management challenges. These studies did not incorporate sufficient hydrogeomorphological and agroecological parameters, leaving the selection of projects areas biased toward the existence of interested community groups. This in part may be attributed to the pressure from USAID to achieve physical targets, but also indicates some deficiencies in the strategic planning

approaches used by the Consortium. Watershed management plans for the subwatersheds (and several microwatersheds) for which diagnostic studies were completed are in preparation, several of which have been presented. However, the use of strategic planning tools in the preparation of these plans was also limited, which means that some of the activities selected for promotion under the Project may be more oriented to local and regional development objectives rather then the direct objectives of the Project to promote increased access to clean water and sustain the water supplies with targeted watershed management actions.

Considering another aspect of diagnostic studies and project design, the Consortium has not adequately addressed its obligations under USAID's Initial Environmental Examination (IEE) for some of its subprojects. While clearances have been obtained from MARN[11], no adequate environmental impact assessments were performed for higher-risk wastewater and solid waste management projects (even where these are being implemented with other Implementers) and certain design and construction deficiencies have been noted by the Evaluation Team. No alternative sites to those where construction is taking place were assessed; this essentially required that these projects be imposed on these sites regardless of the environmental risks. No uniform guidelines were followed and each subproject was designed based on varying criteria and in limited consideration of environmental factors. The Evaluation Team noted several location, design and construction flaws which are presenting actual and potential problems with their construction and operation. It is noted here, however, that USAID did not present the Consortium with necessary guidelines, even as this was indicated in the IEE.

What became obvious to the Evaluation Team is that the current grouping of activities and their respective performance indicators under the four AGUA components is confusing and is causing some administrative and project management difficulties for the Consortium. This was found especially true in terms of efforts to monitor both performance indicators and indicators of the impacts of Project activities. The original project design did not include the indicators necessary to adequately assess the social, economic and/or environmental impacts of Project interventions and progress towards the SO4 and the IR package. Much effort is placed in counting the numbers of outputs in order to answer the performance indicators for USAID, but many of these are not the most relevant of indicators nor do they reflect the normal outputs of the activities promoted by the Consortium.

The original project design did not include, nor is the Project now monitoring, the indicators necessary to appropriately and quantitatively determine the social, economic and/or environmental impacts of Project interventions and progress in achieving IRs. Diagnostic studies did not include baseline parameters that can be considered for monitoring impact indicators. CARE uses a survey instrument oriented primarily to qualifying the quantity and quality of water consumed in communities at the municipal level, but the density of sampling locations (households) is deemed insufficient to accurately discern the impacts of AGUA activities on project participants. It is unfortunate that other impact indicators concerning such aspects as household sanitation and hygiene, customer satisfaction, payment of water fees, etc. that were used successfully in relation to other CARE projects (i.e. PROSAGUAS) were not included in the survey instrument used for AGUA. FUNDAMUNI's experience to date with the CLARA

[11] MARN's work on environmental impact assessment is incipient and its capability to assess the impacts of wastewater and solid waste management projects is even more limited as these types of projects are relatively new in El Salvador.

water quality monitoring/environmental health education initiative has not been extended to other Consortium outreach areas.

2. Recommendations

For the next few years of implementation until the PACD, CARE Consortium members should integrate all activities into a selected number of sub- and microwatersheds, using strategic planning criteria on which to base the selection of appropriate geographic areas and technical activities with linkage to potable water and irrigation systems to their watersheds. The efforts related to the micro' and subwatershed areas of Cara Sucia, Río Borbollón, El Zúngaro and Río Corinto, among others, would be a good place to start, as these have the potential to become models at the national level. Consortium members should compare notes on their respective experiences in these and other areas, as well as technical approaches and complement any deficiencies in their own strategies and/or staffing capabilities to fill any perceived strategic or operational voids.

Consortium members should assist municipalities in the application and enforcement of those municipal ordinances already promulgated. It is suggested that the necessary mechanisms and instruments be articulated and promoted under the Project, using precedents in other municipalities as these may be available in El Salvador or neighboring countries. Such instrument should include incentives on equal weight with penalties. Efforts should be made to engage and train the Municipal Environmental Units (UAMs) where these have been established and perhaps use the ordinances as a basis for forming these units where they have yet to be established.

CARE should continue its efforts with MARN to see through efforts to establish the Interinstitucional Watershed Commission; hopefully the executive decree will be presented to the President's Cabinet for consideration and issuance in the next few months. At the same time, however, it is suggested that the maximum effort be placed on formally establishing and strengthening the subwatershed and microwatershed committees already in progress. It is also suggested that all activities of the Project concerning the General Water Law be concluded and any follow-up work be left to the Water and Sanitation Network. However, as the country enters into its election period (elections for congress and mayorships are due in March of 2003), it may not be strategically advantageous to continue with policy reform efforts at the national level; and measures taken at the municipal level should be treated with caution until after the elections and installation of new authorities (if applicable). There may be a need to reeducate the new municipal authorities as to the AGUA initiatives to date; this should be facilitated with the local organizations whose membership would not change (CDLs, ADESCOs, watershed committees, etc.).

The CARE Consortium should intensify its efforts to include policies related to incorporation of the costs of environmental services in all potable water system projects and that these be formalized in municipal ordinances and/or bylaws of water boards and committees and paid as part of the water fees by all consumers. A minimum of 10% of the total water fees should be directed to conserving and improving conditions in the upland watersheds. Such costs should

also be included in fees paid for wastewater and solid waste management services using infrastructure financed under the Project.

The Consortium needs to improve its project design and construction supervision practices to include adequate environmental impact assessments as an integral part of its project cycle, regardless of MARN's requirements, which are usually much less rigorous. The establishment of more formal procedures using adequate guidelines provided by USAID should improve this aspect of project design and construction supervision. Guidelines should require that a minimum of 3 alternative sites for wastewater and solid waste management projects be considered as part of the EIA exercise.

The Consortium should review the utility and validity of current performance indicators and consider reducing their number to a minimum of the most relevant and efficient in terms of measuring project outputs and improving the instruments used to track the indicators of those found most useful (e.g. PROSAGUAS survey instrument). It is also suggested that the Consortium consider the incorporation of several new indicators to more accurately monitor the impact of project interventions and progress toward meeting SO4 and IRs (see Table 3.7 in the main evaluation report for some alternatives to consider).

Annex 10: Evaluation Profile of Project Concern International

This annex provides an overview of the results of the evaluation of AGUA activities carried out by Project Concern International (PCI). This profile provides the Evaluation Team's findings, conclusions and recommendations for each of the principal activity areas covered by PCI. PCI is responsible for implementation of the approximately 6% of all project activities as calculated from the total of USAID budget for SO4/AGUA. PCI began implementation of the activities included under its cooperative agreement with USAID in early 2001. Its SO4/AGUA project, "Sewage Treatment, Solid Waste Disposal, Agricultural Technology and Marketing Services", has been distributed among two principal components. The Agrosystems component, representing about 33% of all budgeted resources, includes outreach activities in agricultural diversification and marketing, and innovative techniques to harvest and store water for drip-irrigated agriculture. The Infrastructure component includes the design and construction of demonstration projects in wastewater treatment (18% of the budget), solid waste management (35% of the budget) and disaster mitigation (which has used 14% of resources budgeted under the cooperative agreement). This annex has been prepared based on the analysis of relevant documentation, interviews with PCI staff, and the results of the field visits to project sites and meetings with participating local organizations and beneficiaries.[12]

A. General Overview of Implementation

As of April 2002, *Project Concern, International* (PCI) had achieved about 75% of the life-of-project targets in its Sustainable Agriculture and Marketing component and was making good progress in its diversification/marketing program, including drip irrigation, and rainwater harvesting and storage subprojects involving small reservoirs. The Suchitoto Wastewater Treatment Plant began operation in the second trimester of 2002, and follow-up on operational aspects and training was still in progress at the time of the evaluation. Some construction and operational difficulties still need to be resolved at the plant. The solid waste landfill at Corinto has been operating with relative success since early 2002 and includes a composting facility for organic wastes. The landfill at San Francisco de Menendez is behind schedule and has experienced some design and construction quality control problems, but should be operational in the next two months. Disaster mitigation works have focused primarily on building gabion retaining walls to stabilize land slippages in the Usulután Department. PCI has been especially generous in its provision counterpart funds, exceeding the agreed upon match by 141%. Approximately 62% of the total expenditures under PCI activities, including counterpart, has been made for infrastructure, while the remaining 48% has been dedicated to its agricultural technology and marketing program. PCI is working in areas where it has traditionally worked in Usulután and also promotes potable water and environmental health activities in the same areas with financing provided by USAID under a different SO.

[12] See also Annex 4, Project Site Visits: Agenda and Summary Field Notes; Annex 5, List of Persons and Organizations Contacted during the Evaluation; and Annex 7, List of Documents Reviewed for the Evaluation.

B. Decentralization and Local Management Capability Development

1. Findings and Conclusions

Accomplishments

The farmers' groups assisted at the local level have been integrated preferentially, as have commonly involved groups of producers, youth and housewives, at the informal level, who generally form part of the Community Development Associations *[Asociaciones de Desarrollo Comunal]* (ADESCOS) and the Cooperative Associations of the Reformed and Traditional Sector *[Asociaciones Cooperativas del Sector Reformado y Tradicional]*, and whose members are receiving technical assistance for initiation and development of their activities at the small farm level, in kitchen gardens and orchards, on their houses' building lots and in community plant nurseries as well as in handicraft handling and processing, marketing lines, establishment and brand positioning strategies for roasted and ground coffee.

In the intermediate zone of Usulután (Ozatlán, Tecapán y Concepción Batres) PCI, through its participative extension program, has provided silos for grains (granaries), reservoirs for rain water, small systems for drip irrigation, promotion of organic products and reduction in the use of highly toxic pesticides, training in the handling, processing and packing of vegetables and coffee roasted in *comal*, in small-scale grinding and labeling of "Floresta" brand coffee, as well as in the establishment and participative operation of the "Centro de Agro Negocios", located in the El Moro community, where there is a cafeteria, sales room for vegetables and Floresta coffee, as well as for the roasted beans of Floresta coffee. These activities for the most part are considered to be pilot projects, since they require longer time and monitoring in order to step up their capacity for sustainability and effectiveness. An important aspect is the mobilization of local resources through non-governmental organizations, such as: COMUS, CHF, FUNDAMUNI, SACDEL, SalvaNatura, ISTA y CENTA. The level of local organization, however, is in the beginning phase.

In addition, the project has provided impetus for the establishment of community nurseries, and for production of forests and orchards that later will be used in the project's reforestation program. The establishment of farms for fattening chickens also has been started with a group of young people, who have been trained in aspects of the chicken farm's technical management, but not in the group's organizational aspects.

The project for production of the bulletin "Chuña" is in the design stage, which includes sections for exchange of information at the level of aspects concerning production and the marketing of local products, while at the same time it will present successful cases of local families at the social, economic and marketing levels, among other aspects.

In the face of the severe impacts in the El Palmital gorge caused by the earthquakes of 2,001, it was calculated that there were more than 18,000 m^3 of loose material that might be washed down by the current, for which reason it was decided to undertake the cleanup of the gorge's riverbed in the lower part, while at the same time 18 gabion structures capable of retaining 4,000 m^3 were constructed along 3 kms. of the riverbed in the upper part of the Quebrada El Palmital.

To date it is estimated that two-thirds of the aforesaid capacity has been filled with the loose material that is being carried down by the current.

In Suchitoto, PCI support has been oriented toward supervising, orienting and advising the start-up of the Sewer and Waste Water Treatment Plant *[la Planta de Tratamiento de Aguas Negras y Servidas]* (the largest part of the urban area), for which reason it is coordinating activities with the local government and the Water Supply Municipal Enterprise Mixed Association *[Asociación Mixta Empresa Municipal de Abastecimiento de Agua]* (EMASA), as well as with MARN, ANDA, FISDL and of course USAID.

In San Francisco Menéndez, the coordination has included participation of the Local Government, MARN, USAID, SalvaNatura, among others, which with PCI support and coordination, are constructing the sanitary fill for the municipality. In Corinto, with the support of PCI, FUNDAMUNI, the Ministry of Public Health, USAID, Local Government has succeeded in constructing the sanitary land fill and the reconversion of the former open-air garbage dump, while the Comité de Apoyo has been formed, which supports the activities of handling the sanitary fill, but not application of the solid waste ordinance. These are considered pilot projects the same as those previously described, since they are in the process of adjustment and fine tuning in their operation, and thus will need additional support in order to guarantee their operation.

Aspects that Merit Greater Attention and Improvement

It is obvious that the recently constituted support organizations for the water treatment and sanitary land fill pilot projects, as well as the producers' and youth groups that are being supported or reorganized with the aim of encouraging Production and Commercialization, have limited administrative capacity, managerial expertise and minimal possibilities of sustainability.

2. Recommendations

Concerning institutional development, we recommend establishing the Project AGUA institutional development and strengthening policy, which vitalizes the coordination and capacity of local management within a process of strategic planning, which includes the determination of training and associated technical assistance plans, social accounting, administration, finance and in supervisory management for the companies of local service (Boards, Production and Marketing committees), that include criteria for creating or strengthening them through integration, according to local conditions, including the aspect of organization based on the specialization of production for the first level organizations and on marketing in the second level organizations, as well as the mechanisms for integrating provision of their services.

The marketing processes established for the most part are consistent with the logic of supplying and marketing the inputs and seasonal agricultural products[13], primarily, with an incipient tendency in the last half of the year to develop the marketing of short-cycle vegetables, most of them having been lost in the rainy season. In general the marketing emphasis is focused on identifying business opportunities and points of sale at the local level. (El Moro) and at the level

[13] 17 marketing groups have been established.

of Supermarket PriceSmart on a temporary basis, without establishing a system of direct and continuous marketing; alternatives have not been identified in local and conventional markets.

In this respect we recommend establishing a global and special strategy and marketing plan adapted to the local conditions of each group receiving assistance, so that it would be they who, based on their organizational vision, would better develop and adjust their policies and procedures for marketing their products and services. It is obvious that in the process of applying their strategy and marketing plan, they will require support in their respective establishment and operation.

Similarly, we noted that the watershed approach was missing in the planning and management processes for the business initiatives being supported. What has been said previously calls for attention to the formation of new leadership cadres, while at the same time norms should be defined or put into effect that include the development of plans and concrete actions relating to the watersheds.

In order to support the formalization and therefore the institutionalization of the pilot projects aided at the levels of production and marketing, we recommend creating Guides or models for application of the watershed approach in defining operative norms (regulations) for the assisted organizations, which to date are functioning in a *de facto* way.

One interesting aspect is the present use and impact of incentives which at the moment are used for short-term objectives in crop planting and management or otherwise in the provision of materials for repairing animal shelters, and in some cases initiatives for diversification of mixed production between orchards and short-cycle vegetables, combined with works for soil and water conservation.

In this respect and through the use of inter-institutional coordination, we believe it is useful to define the policies, procedures and ways to reuse the incentives that may very well be focused on offsetting payment for environmental services benefiting the watershed.

C. Agricultural Technology and Marketing Services

PCI has organized informal task groups uses with farmers in its outreach areas, almost exclusively with men's groups. According to PCI's April 2002 Progress, improved agricultural practices (primarily diversification to horticultural crops) were being applied on a total of 654 hectares using 14 different technologies in diversification, soil and water conservation and marketing. PCI reports that a total of 6,619 families have received some sort of technical assistance under the project.[14] In marketing techniques, a total of 442 men and women organized in 21 groups have received training in how to effectively market their grain and horticultural crops.

[14] *Note*: this number may be a typographical error and the intended unit of measure may be number of people as opposed to number of families.

1. Findings and Conclusions

PCI is promoting appropriate agronomic techniques of no-burn, crop residue management, contour furrowing and green barriers, along with new technologies of drip irrigation and small reservoirs linked to gutters to harvest rain from the roofs of farmers' houses for use in supplemental irrigation during dry periods that may occur during the rainy season and to extend the growing season into the dry season. These strategies concentrate water in planting areas and facilitate water conservation in areas where the lack of surface water sources is a serious limitation to agriculture. Most of the areas worked by participating farmers are home gardens and land parcels closest to the house, as predial larceny is a serious problem in Usulután. While these practices benefit farm families with improved nutrition in the home, diversification to horticultural crops is intended to grow produce for sale. Fruit trees are also being promoted on these same parcels and are having good acceptance. Some forest trees for fuelwood and timber (as fence rows and small reforested parcels) are being promoted under the PCI initiative. The Project also promotes community-based nurseries management by community groups (including women groups) for production of plant materials of fruit tree and forestry species that will be purchased by the Project for use as incentives in PCI's outreach areas. If successful, these groups may continue the operations as a microenterprise for generating income. The Project is also promoting integrated pest management, including the production and use of organic pesticides.

PCI's strategy is primarily oriented to increasing the productivity of farm parcels through diversification and improvements in marketing of farm produce. At the farm level, producer groups are organized informally around demonstration farmers and are attended to by PCI technician. A farm plan is prepared but plans are held by the technician as a supervision tool. This tends to create a certain level of dependency of the farmers on the technician. Outreach is limited to those organized and at present, PCI has not developed a diffusion strategy to promote techniques outside of those actually participating. PCI has not yet established a formal exit strategy as part of its promotion/extension approach. Technicians felt that the Project should accompany farmers through at least two agricultural cycles including two dry seasons in order to support their adoption of technologies being promoted; but this is not a written policy.

PCI has also been innovative in promoting the establishment of *agronegocios*, small-scale marketing sites where farmers can sell their produce (in or near towns and/or along the highways). These efforts should offer participating families an outlet for their produce. Women are especially active in the marketing aspects of the Project. PCI has also facilitated farmers' participation in marketing activities managed by the Salvadoran Stock Exchange (*Bolsa de Valores*), both in the cooperative purchase of ammonium sulfate fertilizer (donated to El Salvador to generate government revenue and reduce debt) and in the sale of farmers' sorghum for a fair price to the companies making feed concentrates. These activities are oriented at reducing the costs of agricultural inputs and increasing farmers' income for marketed products.

PCI has not been as active in promoting watershed management concepts as part of its overall strategy. These actions were not included in a cohesive way in their cooperative agreement with USAID. Hence, microwatershed management is not a thrust of the project strategy and project sponsors may be missing such opportunities in terms of using the leverage of sustaining water systems (whether for agriculture or potable water) to sustained management of the watersheds.

This is in conflict with the overall objectives of the SO4/AGUA Activity and represents a strategic planning weakness on the part of both PCI and USAID.

2. Recommendations

The diversification and marketing activities should be considered demonstration projects until at which time their adoption and successful application by participating farmers can be proven. Hence, PCI should make an effort to further develop its promotion/extension approach to include an "exit strategy" in order to steer outreach efforts towards full adoption of the technological packages by participating farm families and reduction (and eventual completion) of support from the Project.

PCI should change its current approach on the use of farm plans and fully disseminate the use of farm plans to individual farmers. The plan should be simple and directly related to the types of activities promoted with each farmer (e.g. diversification to horticultural crops and marketing). As other activities are included in the farm practice mix (grain cropping with practices of no-burn, minimum tillage, green barriers, reforestation and selected agroforestry techniques) these should be presented in another module whether separate or additive to the horticultural module. Also, as PCI has promoted disaster mitigation structures (gabions), it would be advantageous to combine these with such techniques as reforestation in critical recharge zones, steeply sloping lands, stream corridors and ravines.

PCI should increase its efforts to organize more women's groups to promote soil and water conservation as part of the diversification strategies for home gardens and water harvesting/storage. PCI's strategy to promote the establishment of community nurseries managed by women's groups, depending on the success of the current efforts, should be continued and expanded.

The selection of techniques and priority locations for project activities could be improved by placing more emphasis on the concepts and principles of microwatershed management (including soil and water conservation, agroforestry and reforestation in strategic locations). This would entail better use of strategic planning techniques during its diagnostic studies to ensure that those areas treated are contributing to water resources improvements related to the improvement and sustainability of existing or new potable water and/or irrigation sources (tributary microwatersheds).

D. Wastewater and Solid Waste Management Infrastructure

The discussion of PCI infrastructure is presented in three parts:

1. Wastewater treatment infrastructure;
2. Solid Waste Landfill Construction; and
3. Mitigation

Findings, Conclusions, Recommendations and Detailed Field Notes

For the Infrastructure Sector, findings and conclusions are presented in a matrix along with their corresponding Recommendations. Following each matrix are more detailed technical notes from which the Findings, Conclusions are drawn. On-farm rainwater storage tanks and other opn-farm structures are not evaluated formally.

1. PCI Wastewater Treatment Facility

One site was visited – Suchitoto.

Findings and Conclusions	Observations and Recommendations
Waste Water Treatment Plant (Suchitoto, PCI)	
A. Accomplishments	
1. AGUA is supporting important first steps in the application of wastewater treatment technology in El Salvador	
2. AGUA is building important local technical capacity in NGOs that has a strong likelihood of improving over time	
3. AGUA is raising awareness of the general population and of municipalities in the field of waste water treatment	
4. AGUA is generating interest in and attention to the management and policy implications of these technologies	a. AGUA should focus on building the capacity of local NGOs (national or international) in this emerging technical field. Given the state of the GOES ministries, USAID/El Salvador experience with private contractors, this is a valid approach and should be continued b. These systems are difficult to sustain (local demand, incentives to properly operate, cultural attitudes about trash, politics of billing for the service, etc.) and AGUA should devote extra time and resources to support what are essentially "demonstration management systems" to compliment these demonstration technologies.
B. Aspects that Merit Greater Attention and Improvement	
1. These are demonstration technologies in El Salvador and require special attention to not only the design and construction of the technologies but to the formation and strengthening of the local organizations that will operate, maintain and manage these systems.	a. Understanding that these are demonstration technologies for El Salvador, AGUA should support independent technical review of designs before construction takes place, of construction before the treatment plant is commissioned, as well as periodic monitoring visits after commissioning
2. It is not clear that these projects are community priorities or that community members are participating in the selection of the technologies nor in the decisions regarding their operation, maintenance, management and cost recovery	a. AGUA should consider using participatory planning activities for these technologies that brings the users into the process of information gathering, technology selection, tariff calculation. (EHP has information)

Findings and Conclusions	Observations and Recommendations
Waste Water Treatment Plant (Suchitoto, PCI)	
B. Aspects that Merit Greater Attention and Improvement (continued)	
3. Environmental impact statements which serve as important tools to ensure good site-specific engineering design and construction practices are not being used as tools to this end, rather as paperwork that needs to be filled out prior to breaking ground.	a. Staff must understand that the EIA's purpose is to ensure competent engineering decisions are made that incorporate the site into the design and construction planning. b. The USAID/El Salvador Environmental office should support training that raises awareness and instructs technicians on EIA implementation that meets USAID requirements.
4. Design and construction of these novel systems has presented difficulties, many of which are related to difficult (steep or low-lying) sites and local materials - national norms for waste water treatment are lacking,	a. Understanding that these are demonstration technologies for El Salvador, AGUA should support independent technical review of designs before construction takes place, of construction before the plant is commissioned, as well as periodic monitoring visits after commissioning
5. Ground is being broken on projects without clarity in how management systems will function, how operation and maintenance will be handled, how tariffs will be levied to cover recurring costs	a. Understanding that the demand for proper operation of wastewater treatment plants is quite low (compared to water supply systems), AGUA must formulate and then apply a set of criteria for institutional management that must be satisfied before construction can begin, and other criteria to be satisfied before a system can be commissioned
6. Systems are being operated before all systems have been built to design	a. NGOs must exercise more technical control, insuring that construction is completed prior to commissioning a system.
7. Operators of the systems are not subject to the same local oversight as a water system operator. There is much less incentive for the waste water treatment plant operator to perform at a high standard.	a. Understanding that the demand for proper operation of wastewater treatment plants is quite low (compared to water supply systems), AGUA must formulate and then implement operator training that raises the awareness of the operators with respect to performance.
8. A formal program of follow-up supervision to trouble-shoot operational problems and support the O&M and managerial systems for these novel demonstration technologies is not in place.	a. For these demonstration projects, a follow-up program of technical assistance in operation, maintenance and management should be designed and implemented.

Detailed Notes: PCI – Wastewater Treatment Plant

Site Assessment Documents

- Environmental studies were prepared to satisfy El Salvadoran environmental norms. There were several shortcomings observed in the completed forms. In particular, site descriptions were not completed in the detail required to allow designers to either consider or justify important site mitigation issues.
- Severe slopes and rainfall runoff issues were not given adequate attention.
- In Suchitoto, rainwater runoff on the steep slope is causing problems with construction and threatening the physical infrastructure. Site slope was not noted as an issue in Suchitoto.
- In Suchitoto some 30 houses (if not more) have connected surface rainwater drainage into the sewer system. This was done long before the construction of the wastewater treatment plant. The rainwater is currently causing overflows in the plant itself. Sewage flows should have

been monitored after rainfall events to diagnose this problem before plant construction and commissioning.

Designs

- Area and regional maps often lack scales.
- Solids drying beds in Suchitoto are not protected against rainfall.
- Designs that address site drainage during and after construction are not prepared. (addressing these site drainage issues occurs during construction)

Field Inspection

- System in operation before all physical infrastructure completed – i.e. the final tank that is to remove any solids (floating or sinking) that escape the secondary clarifier is not completed.
- Rainfall is preventing solids from drying properly as solids drying beds are not covered.
- Solids are being removed from drying beds and stored on site, uncovered, exposed to rainfall and erosion.
- It was not clear, but it appears that delays in solids cycling caused by rainfall into the drying beds is preventing timely evacuation of digested solids from the solids' digester and properly timed solids removal from the secondary clarifier. Over-accumulation of solids in the secondary clarifier might be promoting stable anaerobic conditions in the solids bed in which certain nuisance worms and flies can breed.
- Rainwater entering the Suchitoto sewers is causing sewage overflows in the plant. This overflow is flowing onto the ground and eroding soil supporting the trickling filter tank.
- Surface flow of rainwater in the plant is eroding the hillside just below the solids' drying beds, endangering the structures themselves.
- The trickling filter has problems with flow application to the filter bed. It is estimated that 20% of the filter is heavily overloaded and 30% of the filter is not receiving any flow. This might be causing micro-environments in the filter bed that promote breeding of flies and other nuisance organisms.
- The suspended canals that apply flow to the trickling filter use toothed weirs that are fixed in the concrete canals. Adjustable weirs would make flow adjustment and re-apportionment possible.
- The design of entrance structure for the trickling filter is not serving to split the flows equally among the suspended canals.
- Investigations on opportunities for reuse of the treated wastewater are pending.
- Construction teams are reacting to problems with runoff on steep slopes as the problems occur – i.e. landslides, erosion.

Operator

- It is clear that incentives for operators of the wastewater treatment plant to properly operate and maintain their respective plants are much weaker than incentives for proper operation and maintenance of a water supply system. There are not systems in place in El Salvador that monitor the quality of wastewater treatment plant performance, and poor performance of this

infrastructure is typically not recognized by the population served. Providing competent motivated O&M for these demonstration projects is an important challenge..

- Operators do not yet understand the operation of their respective systems. At the wastewater treatment plant, the operator is involved more in landscaping activities than operation activities. Flows are not being monitored, the operator was not following a calendar of maintenance activities, and did not understand how the plant functions.
- Operator in Suchitoto is being compensated by their community and is working.
- There are not plans to support the management organizations with follow-up visits to help the organizations address technical, operation and maintenance problems.

Management Organization

- Suchitoto was a good choice for demonstrating a wastewater treatment plant. Visible wastewater impacts on a tourist resource
- It appears that construction of the infrastructure has proceeded without having defined the management, administrative, or cost recovery systems. These are being addressed concurrently with construction, and it is hoped that the communities devote the time, funding and resources necessary to sustain the infrastructure.
- There are not formal plans to support the management organizations with follow-up visits to help the organizations address conflicts, administrative, or financial problems.

2. PCI Sanitary Landfills

Two sites were visited - San Francisco de Menendez in Ahuachapán and Corinto in Morazán

Findings and Conclusions	**Observations and Recommendations**
Sanitary Landfills and Solid Waste Management	**(Two projects visited)**
A. Accomplishments	
AGUA is supporting important first steps in the application of sanitary landfill technology in El Salvador	
AGUA is building important local technical capacity in NGOs that has a strong likelihood of improving over time	
Designs provide a thorough treatment of solid waste collection in the participating communities.	
AGUA is raising awareness of the general population and of municipalities in the field of solid waste management.	
AGUA is generating interest in and attention to the management and policy implications of these technologies	a. AGUA should focus on building the capacity of local NGOs (national or international) in this emerging technical field. Given the state of the GOES ministries, USAID/El Salvador experience with private contractors, this is a valid approach and should be continued b. These systems are difficult to sustain for a number of reasons (local demand, incentives to properly operate, cultural attitudes about trash, politics of billing for the service, etc.) and AGUA should devote extra time and resources to support what are essentially "demonstration management systems" to compliment these demonstration technologies.

Findings and Conclusions	Observations and Recommendations
Sanitary Landfills and Solid Waste Management	**(Two projects visited)**
B. Aspects that Merit Greater Attention and Improvement	
1. Environmental impact statements which serve as important tools to ensure good site-specific engineering design and construction practices are not being used as tools to this end, rather as paperwork that needs to be filled out prior to breaking ground.	NGO staff need understand that the purpose of the EIA is to ensure competent engineering decisions are made that incorporate the site into the design and construction planning. The USAID/El Salvador Environmental office should support training that raises awareness and instructs technicians on EIA implementation that meets USAID requirements.
2. Systems are being approved first and then designed to fit whatever site they happen to be provided. The no-build option is not sufficiently considered.	Implementation of these unfamiliar technologies should be done with care. AGUA should establish some basic entry criteria before committing to building these projects – these should include site criteria, institutional capacity, demand and willingness to pay for services.
3. Design criteria for these novel systems are still being worked out and designs lack clarity in some important areas	Understanding that these are demonstration technologies for El Salvador, AGUA should support independent technical review of designs before construction takes place, of construction before the landfill is commissioned, as well as periodic monitoring visits after commissioning
4. Construction of these novel systems has presented difficulties, many of which are related to difficult (steep) sites.	EIAs must be completed properly to ensure that site conditions are taken into account during design and construction. An independent technical review component (3a above) would help this as well.
5. Ground is being broken on projects without clarity in how management systems will function, how tariffs will be levied to cover recurring costs	Understanding that the demand for proper operation of landfills is quite low (compared to water supply systems), AGUA must formulate and then apply a set of criteria for institutional management that must be satisfied before construction can begin, and other criteria to be satisfied before a system can be commissioned
6. Operators of the systems are not subject to the same oversight as a water system operator. There is much less incentive for the landfill operator to perform at a high level	Understanding that the demand for proper operation of landfills is quite low (compared to water supply systems), AGUA must formulate and then implement operator training that raises the awareness of the operators with respect to performance.
7. There are operational challenges that have and will present themselves. A formal program of follow-up supervision to trouble-shoot problems and support the O&M and managerial systems for the landfills is not in place.	AGUA should support an independent review of the operation of the landfills and then support local training of NGO staff , operators and managers that address any shortcomings.
8. There are not close-out strategies for these landfills (particularly important for those with life-spans of under ten years)	a. AGUA must ensure that plants have guidelines for their closeout. There are questions about the hazards posed by the infrastructure after closeout.
9. A formal program of follow-up supervision to trouble-shoot operational problems and support the O&M and managerial systems for these novel demonstration technologies is not in place.	a. For these demonstration projects, a follow-up program of technical assistance in operation, maintenance and management should be designed and implemented.

Detailed Notes: PCI Sanitary Landfills

Site Assessment Documents

- Environmental studies were prepared to satisfy El Salvadoran environmental norms. There were several shortcomings observed in the completed forms. In particular, site descriptions were not completed in the detail required to allow designers to either consider or justify important site mitigation issues.
- Projects have accepted the sites that they were "given" by the municipality. In San Francisco de Menendez, this has caused numerous problems for the implementers and will cause problems in operating the landfill in the future. The landfill is far from the populations, road access is poor (steep and narrow road) the site is on a 20% slope, soils are unstable, the site is bordered at its lowest elevation by a water course. A "no-go" option might have been considered in this case.
- Ground water issues were treated in a cursory fashion – in San Francisco de Menendez the groundwater level in a local well is given and the implications that a creek is at the base of the landfill is not discussed.
- Severe slopes and rainfall runoff issues were not given adequate attention.
- Long-term management of the landfills was not addressed – this is of particular importance in San Francisco de Menendez where the design life of the landfill is seven years.

Designs

- Leachate production rates are calculated using a factor (m/square meter/year) from California that was not adjusted to El Salvadoran rainfall rates. Given rainfall amounts in California, it appears that the factor is one fourth of what it should be for El Salvador which means that physical works are likely undersized.
- Area and regional maps often lack scales.
- The decision to use geo-membrane lining is not thoroughly explained or justified in the design documentation.
- Design of surface drainage works for the landfills (to keep surface runoff from entering the landfill area) are not clear. Leachate collected, treated is to be applied back onto the landfill surface using a pumping and sprinkler system. No pump specifications or sprinkler system designs are included.
- The upflow anaerobic filter design in the landfills lacks a clean-out valve. This is likely because solids are not to enter the tank. Nevertheless, bacterial growth will occur in the tanks and solids will accumulate. It appears that tank clean-out is to happen via backflow through the perforated pipe that serves as the inflow works.
- Designs that address site drainage during and after construction are not prepared. (addressing these site drainage issues occurs during construction)

Field Inspection

- Leachate collection ponds should be maintained as low as possible to increase capture capacity during rainfall events. The pond in Corinto was observed to be almost full during a sunny day.

- Corinto anaerobic filter is not operating at capacity because the platform for composting that drains into the filter is at an altitude some 1-½ meter below the design operational water level of the filter. (As the filter fills with leachate from the landfill the leachate exits the filter from the compost platform drainpipe.
- Exposed PVC pipe for inlets and outlets. The PVC has been painted but still is exposed to ultraviolet light.
- Construction teams are reacting to problems with runoff on steep slopes as the problems occur – i.e., landslides, erosion.

Operator

- It is clear that incentives for operators to properly operate and maintain their respective plants are much weaker than incentives for proper operation and maintenance of a water supply system. There are not systems in place in El Salvador that monitor the quality of landfill performance, and poor performance of this infrastructure is typically not recognized by the population served. Providing competent motivated O&M for these demonstration projects is an important challenge..
- Operators do not yet understand the operation of their respective systems. The operation and function of the upflow anaerobic filter could not be explained by the operator and why water was (taking up important storage space) in the leachate storage pond on a sunny day during the rainy season.
- Operators in the operational system (Corinto Landfill) are being compensated by their communities and are at their posts working.
- There are not formal plans to support the management organizations with follow-up visits to help the organizations address technical, operation and maintenance problems.

Management Organization

- Corinto's landfill is accepting garbage from the town.. Operators and garbage haulers are being paid and are at work.
- With respect to San Francisco de Menendez, it appears that construction of the infrastructure has proceeded without having defined the management, administrative, or cost recovery systems. These are being addressed concurrently with construction, and it is hoped that the communities devote the time, funding and resources necessary to sustain the infrastructure.
- There are not formal plans to support the management organizations with follow-up visits to help the organizations address conflicts, administrative, or financial problems.

3. PCI Risk Mitigation Infrastructure

One Project was visited – Sediment-capturing gabions built in a canyon-like ephemeral watercourse near the community of El Plamital, Ususlután.

Findings and Conclusions	Observations and Recommendations
Risk Mitigation Activities	
Norms for USAID/El Salvador reconstruction activities which are directed by the Reconstruction Strategic Objective govern all activities in mitigation.	a. Reconstruction activities under AGUA should be coordinated closely with the Strategic Objective office of Reconstruction
There are some technical concerns about the construction of sediment trapping gabions in perennial watercourses.	a. Independent technical evaluations have been made of the systems. The Environmental Office of USAID/El Salvador should capture observations, recommendations of these evaluations in writing and make them available to appropriate NGOs for action. b. These are often demonstration technologies and require the inclusion of a monitoring component to troubleshoot problems.

Detailed Notes: PCI Risk Mitigation Infrastructure

Site Assessment Documents

- An environmental assessment for the infrastructure was not obtained. It is not clear if an official GOES Environmental Assessment was done (or was required).
- It is not clear why proper USAID/El Salvador environmental assessment norms were not applied to this particular project. Whether this is because the norms and assessment tools were not in place by the time this project was under way or that this activity slipped through a "crack" is not clear.

Designs

- The construction of these sediment-capturing gabions in the water-course itself (where the gabions are placed as dams perpendicular to the flow of the water and anchored to the floor and side-walls of the canyon) is a pilot activity. Design criteria for this type of infrastructure are not readily available and the design and placement of the gabions was largely put together in the field by PCI staff.

Field Inspection

- Gabion dams constructed in gully through which runoff carries sediments from upstream landslides and erosion are largely stable after one year of service. Virtually all dams have basins completely full of rocks and sediments. There has been some erosion under certain gabions causing slumping and some separation of gabions from canyon side-walls. Flat top gabion dams allow water to choose its own course, in some cases water is flowing along walls, causing some gabion separation from walls.

Management

- There are not formal plans to support the management, operation and maintenance of the gabions with follow-up visits. PCI staff continue to work in the community and shall be kept abreast of the situation with the gabions while this relationship is maintained.
- The gabions should be monitored over time, both to document their efficacy and to identify any needs for maintenance.

E. Environmental Education, Citizen Participation and Sustainable Use of Natural Resources

1. Findings and Conclusions

Accomplishments

In the central Micro-region of Usulután, it is worth noting at the extension level the on-farm training and demonstrations on the fields of the farmers, field days and learning excursions in crop areas and achievement days, which have allowed familiarization with and incorporation of improvements in the production of basic grains, diversification by using vegetables and poultry houses, experimenting with and encouraging organic vegetable production, establishment of community plant nurseries, processing and packing coffee, as well as supporting and establishing the Zone Agribusiness Center *[Centro de Agro Negocios de la Zona]*.

The project is motivating establishment of permanent marketing channels for agricultural inputs (fertilizers and organic inputs) and for vegetables, for which organizational funding of the supported community structures is required.

The training process that is implemented has been very effective in the use of local materials for establishing and developing on-farm improvements, since they are handled directly by the farmers and their families, mainly with the participation of young people who also have been involved in implementing soil and water conservation practices, and in being made alert to the use of less contaminating pesticides. This is in addition to the involvement of the producers' women (wives and daughters) in the marketing of vegetables and in marketing initiatives at the local level.

At the present time there still are operational problems and lack of connections for some of the users of the Suchitoto Sewage and Waste Water Treatment Plant *[la Planta de Tratamiento de Aguas Negras y Servidas de Suchitoto]*, while at the same time the lack of systematized separation and treatment of solid waste at the Corinto land fill was also to be noted.

Aspects that Merit Greater Attention and Improvement.

The AGUA Project has had limited coverage in environmental education for all the implementers' technicians; this is also true for exchange and training opportunities between representatives and members of the AGUA implementers.

2. Recommnendations

It is recommended that the Project provide opportunities for training all personnel in aspects of environmental education and the way it may be applied to each component.

We recommend encouraging specialized training for technicians by means of in-service training, exchanges between the implementers or else through processes of on-the-job technical assistance to improve the processes being encouraged and above all, aspects of integration of new technologies and the installation of procedures with active civic participation in their operation and maintenance.

We recommend encouraging the broadening of capacities for management of resources, coordination and provision of local marketing services through the establishment of short-term Business Plans and marketing plans with a strategic focus, in which anticipated results are set forth, along with their respective contingency analyses, in order to allow for deviations or risk effects.

Also advisable is an increase in the local capacity for follow-up and monitoring the quality of services provided through training in project management and development, as well as in the establishment, implementation and adjustment of Business and Marketing Plans; this is cogent for sales of local services and products.

Defining and broadening the management capability of the marketing and local services companies through development of Management Training Plans that are socially responsible toward the environment are also recommended, in which the strengthening of direction and management of agribusinesses and in the provision of services is fundamental.

We recommend broadening inter-institutional coordination at the FISDL level and other organizations that may be developing initiatives for Mediation of Municipal Services that may support consolidation of businesses providing essential and related services.

It is recommended to broaden diffusion and support in the establishment of mechanisms for application, follow-up and control of local ordinances for handling and treatment of solid waste and wastewater.

We recommend focusing environmental education as a transverse axis through all the project components, the same as is the case with the gender aspect, with which they will be an integral part of the other activities to be implemented; at the same time we recommend establishing a methodology for planning and follow-up that is integrated into all the project components**.**

F. Project Strategic Planning and Policies for Sustainable Management and Use of Water Resources

PCI is essentially focusing on the organization of community-level task groups to transfer agricultural diversification and marketing technologies in order to improve income generate at the farm level. While these activities appear promising, they should be considered in a

demonstration mode up and until which time that farmers (both men and women) demonstrate their adoption of both technical and administrative aspects of the models being promoted. As the current activity mix under the PCI cooperative agreement does not embrace watershed management principles, PCI should seek to promote the linkage of the condition of water resources (as part of their agricultural, potable water and disaster mitigation activity packages) to microwatershed management. This would entail improved strategic planning and diagnostic analyses to prioritize geographic areas and techniques that contribute to improvement of watershed conditions as a necessary component to integrated water resources management. PCI should attempt the establishment of several model microwatershed subproject areas where all of its activities, including potable water and environmental health initiatives under other USAID and counterpart funding, are integrated with the principles of watershed management.

Considering another aspect of diagnostic and project design studies, PCI has not adequately addressed its obligations under USAID's Initial Environmental Examination (IEE) for all of its wastewater and solid waste management subprojects. While clearances have been obtained from MARN, no adequate environmental impact assessments were performed for higher-risk projects in Santiago de Menendez, Corinto and Suchitoto and certain design and construction deficiencies have been noted by the Evaluation Team. No alternative sites to those where construction is taking place were assessed; this essentially required that these projects be imposed on these sites regardless of the environmental risks. No uniform guidelines were followed and each subproject was designed based on varying criteria and in limited consideration of environmental factors. The Evaluation Team noted several location, design and construction flaws which are presenting actual and potential problems with their construction and operation. It is noted here, however, that USAID did not present PCI with necessary guidelines, even as this was indicated in the IEE.

In terms of AGUA, PCI's current monitoring and evaluation system is limited to the counting of project outputs in terms of established performance indicators. Several of its indicators can be used as impact indicators (improvements in per-land-unit-area for crop yields, on-farm income, % of post-harvest crop losses, along with their respective comparisons with non-project farm units). However, several more indicators could be added to link project activities with the impact on water resources (see Table 3.7 in the main evaluation report for some alternatives to consider). This approach should also include the adoption of a policy to incorporate the costs of environmental services in fees charged for potable water systems, irrigation systems (where these may involve use of water from surface streams and/or wells), wastewater collection and treatment, and solid waste disposal.

Annex 11: Evaluation Profile of World Vision

This annex provides an overview of the results of the evaluation of AGUA activities carried out by World Vision (WV). This profile provides the Evaluation Team's findings, conclusions and recommendations for each of the principal activity areas covered by WV. WV is responsible for implementation of the approximately only 2.6% of all project activities as calculated from the total of USAID budget for SO4/AGUA. WV began implementation of the activities included under its cooperative agreement with USAID in early 2000. Its SO4/AGUA project, "Integrated Management of 5 Watersheds in the Municipalities of Jujutla and Guaymango in the Department of Ahuachapán", is composed of two major groups of activities which contribute to the following SO4 Intermediate Results (IRs): Production of Water in Sufficient Quantity and with the Quality Required for Human Consumption (IRs 4.1 and 4.2) and Producers Adoption of a Minimum of 7 Appropriate Farming Technologies in their Demonstration Fields. (IRs 4.1.1).

A. General Overview of Implementation

World Vision has essentially met all of its agreed upon targets and has developed several successful models for microwatershed management with small communities linked to potable water supplies. The soil and water conservation activities are augmented with good agroforestry techniques and increasingly popular home gardens. World Vision has also been generous in its provision of counterpart funding to the Project, exceeding its promised match by 40%. The majority of expenditures have been oriented to soil and water conservation and diversification activities. WV has dedicated approximately 10% of its project effort to local organization of microwatershed committees and aspects of environmental education are included in the training modules. Activities also include the construction of composting latrines to reduce fecal contamination and Finland-type improved stoves to reduce fuelwood consumption. Two water systems have been constructed under a different World Vision program with USAID funding and are not considered part of AGUA financing, but have been integrated within the project strategy.

B. Decentralization and Local Management Capability Development

1. Findings and Conclusions

Accomplishments

The groups of farmers receiving assistance are integrated at the local level and receive technical assistance for establishment and development of their farming plans, through the support of the producers in liaison with them and the project's technicians who, with incentive funds are supporting development of the soil and water conservation works envisioned, as well as the planting of orchards and forests. Complementarily, Visión Mundial has mobilized counterpart funds to give coverage and service to areas bordering on the five micro-watersheds of the project, in which it is executing actions under the Cooperation Agreement with CARE, in which at the same time it is sponsoring children of the families and preventive health program coverage, as well as construction of housing, among other things.

Through focusing on management of the selected micro-watersheds, an assessment of their extent has been made, plus determination of the principal problems affecting resources; the

approach to protection of the watershed has been advanced, and soil and water conservation activities have been increased, as has agro-forestry as well.

In practice, the execution of activities envisioned in the proposal submitted for consideration of the AGUA Project has been effected, and improvements and installation of Water Supply Systems have been made; and operation has already been turned over to the Water and Sanitation Committees (CAS), the majority of which function within the Community Development Associations (ADESCOS).

The ADESCOS have legal personality and recognition at the institutional level, which has allowed them to allocate community development projects, as well as projects for the environment, health, education, social infrastructure investment (repair of farm-to-market roads and feeder roads) benefiting the community, and those of a family nature (construction of housing), without there being much direct impact on organizational administration or sustainability of the local organizations. To date, although it has defined charges for the supplying of water, these are not being collected; at the same time the local organizations' capacity for direct management is limited.

In the marketing aspect, preliminary contacts have been initiated on behalf of Visión Mundial in order to identify marketing chains that are appropriate for future production of citrus fruits at the micro-region level, in which it is estimated that somewhat more than 100 citrus trees have been planted for each farming plan instituted.

In conclusion, decentralization of water systems constructed and rehabilitated by the project has increased the user population's access to water. The small organizations have been less strengthened; nevertheless they have broadened their local experience in solving input requirements for chlorination of water, as well as the allocation of resources for community projects.

At the same time Visión Mundial has initiated organization of the Watershed Committee, which has expressed its enthusiasm in participating, as well as for the prospect of taking part in other projects and the possibility of supporting the marketing of orchard production, since vegetables at the moment are for family and community consumption, and for the local market.

Aspects that Merit Greater Attention and Improvement.

It is evident that small organizations, represented by ADESCOS, within which Health Committees or Water and Sanitation Committees for human consumption have been instituted, as well as those recently constituted or in the process of being set up, have limited administrative capacity and minimal possibilities for sustainability.

2. Recommendations

In the aspect of organizational development, we recommend establishing the institutional development and strengthening policy of the AGUA Project, which will make coordination and capacity for local management more potential within a strategic planning process, to include the

establishment of training plans and associated technical assistance, social accounting, administration, finance and in general management of local service companies (ADESCOS, Health, Water and Sanitation Committees), which include development criteria for their creation or integration, according to local conditions. In this respect, prior to assisting a new entity as in the case of the Microwatershed Committees, we need to examine whether this function might not be better performed by the existing structures, at the time they are trained to broaden their resource management and their functional model is strengthened through integrating the watershed or eco-system approaches into sustainability of the services provided.

Nevertheless, the small turnover and formation of minimal cadres of local leadership are to be noted, which of course have facilitated the institution and organization of new entities and the incorporation of more recent initiatives generated by the project or by the same process dynamic, for example: the Sub-watershed Committee, CDL and local Groups of producers. This limited leadership may in the future create risks for the institutional sustainability that is being supported and the process of improving productivity that has been carried out up to now with surprising results.

Similarly, there were observed the lack of mechanisms and formal norms to allow application of the watershed approach over the long term. The foregoing requires attention to the formation of new leadership cadres, while at the same time there is application of institutional rules regarding leadership turnover and norms are defined or updated that include development of plans and concrete actions benefiting the watersheds.

At the project level, we recommend establishing Guides or models for application of the watershed approach in updating the operational norms (regulations) of the users' organizations and of course in supporting the process for study and approval of the watershed organizations' legal framework.

One interesting aspect is the use and influence of the incentives that at present are being used for long-term purposes in the planting and management of orchards, which at the present time are beginning to bear fruit. For this reason they are identifying alternatives for marketing and for insertion of these products in export marketing chains (limón pérsico). This situation demonstrates how incentives may be sustainable over time, once provision has been made for policies, procedures and forms of re-use, which to date have not been established.

In this respect and by the use of inter-institutional coordination, it is beneficial to define the policies, procedures and ways to reuse the incentives that may well be considered as compensation in paying for environmental services benefiting the watershed.

Given the approach using multiple sources of support for community development that is being executed by Visión Mundial, we recommend defining at the Project AGUA level, the strategic plan and mid-range management plan for orchards in combination with vegetables conditioned on market requirements and focused on production systems, in which the kinds of technology and practices that are in the process of transfer or being experimented with are specified, which logically will include but not be limited to the present farming plans.

In general, the sounding out of present marketing chains has its emphasis focused on identifying business opportunities and market niches at the international level, without establishing a direct and continuous marketing system through the identification of conventional local marketing alternatives.

In this respect, we recommend the establishment of a marketing strategy and plan adapted to the local conditions of each supported group so that those groups, based on their organizational vision, would better develop and adjust their policies and procedures for marketing products and services.

C. Microwatershed Management, Agricultural Diversification and Sustainable Agroforestry

1. Findings and Conclusions

WV has developed a good package of improved technologies that are being promoted to project participants in the 5 microwatersheds. Demonstration farms are well organized and technologies are actively spreading among farmers in these communities. One of WV's technicians was recruited previously under GreenProject, a former USAID-financed effort, and was sent to Honduras for training at LUPE Project sites. This has permitted a rapid insertion of technology into the area. All farmers stated that they had farm plans which they followed. While WV has organized 5 men's groups with their respective male demonstration farmers and participants, women are participating in at least one group with a female demonstration farmer. Women are also involved in improved stove construction and environmental health aspects of the Project. In all, WV is training some 25 demonstration farmers that are having an outreach to more than 300 producers (based on the April 2002 Progress Report).

According to WV's own assessment (Acceptability Index), the package including no-burn, minimum tillage and live barriers with vetiver grass is the most popular, as witnessed by the broad application among project participants. This package is followed by several practices that, while gaining acceptance, have not been widely applied, including planting of fruit trees, live fences, and live barriers with pineapple. Less accepted have been live barriers with madder de cacao (*Gliricidia sepium*), organic insecticides and irrigation systems. Agroforestry applications include Laurel trees at wide spacings in farm fields, small woodlots of Laurel and *Gliricidia sepium*, and fruit trees being planted fairly ubiquitously throughout the community, with over 150,000 trees planted to date. Home gardens and demonstration parcels located near the house are heavily promoted and are popular, especially with women. The Project is also promoting the raising of hair sheep (Nubian) as an alternative source of protein, another activity in which women and youths are participating. The Project has also financed the construction of washstands near water sources with their respective infiltration pits.

WV is promoting a promising subprogram for fruit tree production, and the Project has secured a link with the Persian Lime Producers Association for the provision of technical services and marketing of future harvests. This is an important collaboration, as it takes the pressure off WV to continue the activity and links farmers directly with markets for their produce with no paternalism on WV's part.

On a note of concern, a total of some 1,000 trees of cashew were being planted as a live barrier at 1-2 meter spacings by 4 farmers. This is not an acceptable practice, as these trees offer no value as a live barrier. Also, the sheer number of these trees, should they come into full production, will produce an enormous quantity of cashew fruit and nuts which would far exceed any demand in the community where they are being planted. When asked, farmers had no concept of what they would do with the production (nor has WV come up with a marketing plan).

One interesting aspect of the work in the 5 microwatersheds is that WV and the community organizations have signed an agreement with the rural police to control ingress of cattle into treated parcels. Area cattlemen were advised of this policy and have not been pasturing their cattle on these treated plots. Several communities are storing excess water in a large pond for supplemental irrigation needs and as an aquaculture project (e.g. the community of Hoja de Sal).

2. Recommendations

World Vision is doing a good job in their efforts to integrate consumption of water resources with the rational land use in their tributary microwatersheds. The only recommendations are related to efforts of agricultural diversification and the need to expand and strengthen women's groups.

Several of the agricultural diversification activities, including the Persian Lime and vegetable production and promotion of other fruit trees, should be considered demonstration projects up until which time that these techniques can be effectively assimilated by project participants. While the Persian Lime Association represents a promising marketing outlet for the produce coming out of participating communities, markets for other fruit trees (e.g. cashew) and vegetable crops have not been developed and transport will always represent an important challenge to the success of these subprojects. WV should pay close attention to the levels of uptake and adoption of agricultural diversification and take data on the costs of agricultural inputs, crop production levels, transport costs, and income from the sale of produce to determine the cost/benefit of these technical packages before promoting them widely throughout the project area.

The Project should place more emphasis on the organization of women's groups in the promotion of home gardens, on-farm water conservation, and in their linkage with the marketing aspects of diversification. As the local market among communities in the 5 microwatersheds is limited, new markets will need to be established (Guaymango, Cara Sucia, the highway); WV should facilitate this process.

D. Potable Water Systems, Wastewater and Solid Waste Management Infrastructure

World Vision Infrastructure is evaluated here even though the funds for this infrastructure came through a different USAID/El Salvador project – PROSAGUAS, which was implemented through the Health SO (as opposed to the Environmental SO for the AGUA Project).

Findings, Conclusions, Recommendations and Detailed Field Notes

For the Infrastructure Sector, findings and conclusions are presented in a matrix along with their corresponding Recommendations. Following each matrix are more detailed technical notes from which the Findings, Conclusions are drawn.

One site was visited – Ojos de Sal, Ahuachapán

Findings and Conclusions	Observations and Recommendations
World Vision Small Water Supply and Sanitation	**(One project visited)**
A. Accomplishments	
1. Surface water supplies are captured and protected to provide public potable water service of reasonable quality for small communities	
2. Household sanitation is addressed formally and water's links to public health strongly reinforced	a. This is a World Vision strength that is not a part of the AGUA mandate.
3. Water committees are formed that have operating bylaws and are functioning	
4. Design and construction are for the most part of good quality	
B. Aspects that Merit Greater Attention and Improvement	
1. System operation is lacking. Managing water flow into the system is an issue.	a. Training and supervision for operators can be improved, especially with respect to water management.
2. Some design and Construction shortcomings observed – e.g., exposed valves, unprotected chlorinator, insufficient drainage at public tapstands	a. Technical criteria and oversight should prevent these shortcomings. The systems should receive a technical inspection and shortcomings addressed by the implementers
3. Collecting tariffs in system with public tapstands is problematic.	a. There are innovative ways to ensure that users pay for public water –i.e. tapstand operators, neighborhood user groups that pay together and manage their own affairs, etc. These should be explored for future projects with public tapstands.
4. Non-equitable latrine program gives latrines free to selected homes near surface water courses and nothing to other project participants	a. The project could have worked harder (and should in the future) with the community to come up with an equitable way for all who wanted them to receive latrines given the budget constraints.

Detailed Notes: World Vision Water and Sanitation Project

The Water Systems were built with funding from the USAID PROSAGUAS Project but observations of the infrastructure are provided here nonetheless.

The community supported the construction of the water system (seven public tapstands) through participation and with unskilled labor. No soak-away pits were constructed at the tapstands and latrines were given to selected families. Household pits were dug for solid waste disposal and certain.

Site Assessment Documents

- None were reviewed

Designs

- The design for the small surface captation and public tapstand distribution was not available. The field visit, occurring as it did during the wet season, did not serve to confirm the critical dry-season situation that informs much of a water system design.

Field Inspection

Construction was satisfactory for the most part. Shortcomings were observed as follows:

- Valves and the chlorination unit were not protected in boxes; the chlorination unit being covered by plastic; chlorination was not effective because of excess flow entering the storage tank; wastewater at the public tapstands is pooling and causing muddy conditions.

Operator

- There is not an operator. Training was to be provided to a designated operator during September 2002. The operator will serve as a volunteer.
- The chlorination system was not being correctly operated. The storage tank was overflowing while the chlorine was being administered based on the rate of water use by the populace, not by the rate that water was produced by the source.

Management Organization

- There were conflicting reports on payment of tariffs. There are over 80 families participating in the project but only 30 or so with easy access to the public tapstands. Collection of the 5 colon/month charge is difficult.
- The community water committee is participating in the Regional Network of water committees

E. Environmental Education, Citizen Participation and Sustainable Use of Natural Resources

1. Findings and Conclusons

Accomplishments

In the Visión Mundial project one notices the on-farm training and demonstrations in the farmers' fields, field days and learning excursions to the farms, housing plots and schools of the area, all of which have sensitized the local farmers and partners to the importance of protecting and conserving the environment, as well as exploiting natural resources for productive ends and for the social good (sanitation and potable water), by means of the micro-watershed management approach.

The project has motivated the discovery of new ways to attain its sustainability; among those are the possibility of initiating and strengthening the marketing of harvests from the recently planted orchards and the latent requirement for organizational strengthening of the community support structures (ADESCOS and their Water and Sanitation Committees, among others); at the same time, the project has achieved the preparation of training materials in production planning, and management of established short-term plantations. Aspects such as functional organization, administration, finance, post-harvest management, marketing, phytosanitary control of plantations, and management are still limited.

The training process that has been carried out has been very effective in utilizing local materials for establishing and implementing farming plans, through participation of the farmers and their families, especially young people, who also have become involved in initiating soil and water conservation practices, and initial preparation of terraces or seed beds; at the same time it was possible to note the sensitization to the use of less contaminating pesticides. And also noteworthy is the involvement of women (wives and daughters of the producers) in management of kitchen gardens, whose production is used directly for consumption. In the area where VISION MUNDIAL is working, one noticed at the same time the management and maintenance of two-purpose goats (milk and meat) and fishponds in the process of construction.

In the homes of the families served in the micro-watershed Hoja de Sal, one could see the separation and management of family compost heaps, an activity that the local partners said had been developed in the Schools they attended. One fundamental aspect that has contributed to the level of development of the educational and training activities, could be directly connected to the location, nearness and relation between the inhabitants of the micro-watershed.

Aspects that Merit Greater Attention and Improvement

Project AGUA has had a limited coverage in environmental education for all the implementers' technicians; in the exchange and training opportunities between representatives and members of the implementers, the materials utilized for the most part belong to Project AGUA, those which to date do not show a process of validation and systematization concerning their applicability and adjustment to local needs.

2. Recommendations

It is recommended that Project AGUA provide training opportunities for all personnel in aspects of environmental education and the way it may be applied to each component.

We recommend consideration of specialized training in the form of in-service training, exchanges between implementers or else through processes of on-the-job technical assistance to improve the environmental education process. At the same time, the watershed approach should be strengthened in the exploitation, conservation and protection of the watershed's water and soil resources.

To consolidate the preparation and publishing process for educational materials, the needs of the target population should be addressed, and it would be beneficial to consider a process of

validation prior to their issuance in order to incorporate pertinent adjustments so that then the results and impact achieved should be systematized.

It is advisable to determine the plan of each instruction site, so that starting from its strategic vision would allow determination of the action plans to be carried out at the School level.

We recommend expanding resource management capabilities, along with the coordination and provision of quality local services in the sites of instruction, Water and Sanitation Committees, Watershed Committees and other organizations that may contribute to their institutionalization, through training and technical assistance plans and in resources that allow continuity of functions at the level of the region served.

Support in the issuance of ordinances and in establishing mechanisms of application, follow-up and participative control of local regulations.

We recommend expanding resource management capabilities, along with coordination and provision of local services through establishment of short-term Business and Marketing Plans with strategic focuses, in which anticipated results would be determined *a priori*, with their respective contingency analyses, in order to confront deviations or risk effects.

It is advisable to increase local capabilities for follow-up and monitoring of the quality of services provided through training in project management, as well as the suggested Business and Marketing Plan.

We recommend defining and broadening the managerial capacity of the local marketing enterprise, and supporting the producers through means of specialization and business influence that is socially responsible with the environment, in which liberalization of training in direction and management of agribusiness is fundamental, as well as in the functional watershed approach and environmental education.

We recommend focusing environmental education as a transverse axis through all the project components, the same as the gender aspect, with which they will be an integral part of the other activities to be implemented; at the same time we recommend establishing a methodology for planning and follow-up that is integrated into all the project components.

F. Project Strategic Planning and Policies for Sustainable Management and Use of Water Resources

World Vision has done an admirable job of developing and integrated water resources management project using the 5 microwatersheds. This setting is a nearly perfect example of how AGUA objectives should be met. Microwatershed committees have been established for each of the five areas, with one representative of each participating in a project steering committee. Also, microwatershed management plans were prepared for each of the five project sites, using strategic criteria to select priority intervention sites and techniques, including land capability classifications, current land use and the delimitation of areas in land use conflict.

World Vision has the most comprehensive monitoring system of all AGUA Implementers. An environmental health and socioeconomic baseline was prepared on which WV is monitoring indicators appropriate to USAID's performance indicators and others not now tracked by USAID. Furthermore, WV is taking periodic water samples of streams that contribute to water systems to determine levels of fecal contamination and at the household level to determine the efficacy of chlorination. Finally, WV's Project Coordinator has field tested an innovative survey instrument, an "Acceptability Index", to determine the level of acceptance and adoption of those improved agricultural practices being promoted under the Project. It is suggested that WV's experience in monitoring be shared wit the other SO4/AGUA Implementers as a measure of comparison of how an impact monitoring program can be implemented.

Finally, WV should seek to formalize its policy for the inclusion of the environmental costs of producing water for both potable water systems and supplemental irrigation into the water fee structures for all communities. As community potable water systems have both household connections and public tapstands, this presents a challenge as to how to charge water consumers who currently do not pay for accessing water at tapstands while most of those with household connections do. WV should analyze the use of tapstand operators, neighborhood user groups or other alternatives that provide a basis for tapstands users to pay their fair share for potable water service.

Annex 12: Evaluation Profile of Catholic Relief Services

This annex provides an overview of the results of the evaluation of SO4/AGUA activities carried out by Catholic Relief Services (CRS). This profile provides the Evaluation Team's findings, conclusions and recommendations for each of the principal activity areas covered by CRS in the Corinto area of Morazán Department. CRS is responsible for implementation of the approximately 2.6% of all project activities as calculated from the total of USAID budget for SO4/AGUA. CRS began implementation of the activities included under its cooperative agreement with USAID in mid-2000. Its "Vegetable and Fruit Production and Marketing Project" is distributed among three principal components. The Sustainable Vegetable and Fruit Production component includes activities related to the development of irrigation infrastructure, expanded area dedicated to vegetable and fruit production, improved land preparation practices and diversified cropping strategies, integrated pest management and improved agricultural practice. The Improved Post-Harvest Management component emphasizes the cleaning and packaging of vegetables and fruits for market in order to achieve higher prices, with the development of packing centers and a marketing site in the Corinto market. The Entrepreneurial Organization and Competitiveness component proposes the establishment of a formal farmer-owned cooperative for production and marketing of produce, with a legal trademark and established buyers for the cooperative's produce. This annex has been prepared based on the analysis of relevant documentation, interviews with CRS staff, and the results of the field visits to project sites and meetings with participating local organizations and beneficiaries.[15]

A. General Overview of Implementation

The CRS project is implementing well farmers have expressed satisfaction with their participation, with men handling most of the productive aspects, and women taking the lead in post-harvest packaging and marketing of produce. The program includes innovative drip irrigation and water diversion (mini-dams) technologies. The cooperative, with CRS assistance, has secured an apparently limitless market for their produce with a supermarket chain in San Miguel. Problems with access may pose problems for getting produce to market during the wet season. CRS has exceeded its counterpart funding level by 13% and intends to continue supporting the project with its matching funds after USAID funds are fully expended. Approximately 77% of USAID funds had been expended at the time of the evaluation. All USAID and counterpart funds are invested in agricultural diversification investments. FUNDAMUNI collaborates in the watersheds in the general area of the CRS outreach areas with the targeting of soil and water conservation practices and agroforestry and some reforestation activities.

B. Decentralization and Local Management Capability Development

1. Findings and Conclusions

Accomplishments

The groups of farmers assisted have been integrated by every community served and are coordinating their plans for planting and marketing the production of vegetables in a phased way;

[15] See also Annex 4, Project Site Visits: Agenda and Summary Field Notes; Annex 5, List of Persons and Organizations Contacted during the Evaluation; and Annex 7, List of Documents Reviewed for the Evaluation.

at the same time they are receiving technical assistance in the operation of their working groups, post-harvest handling, as well as in construction and operation of collecting centers, and in improved irrigation methods.

The CRS support has been substantive in the organization and functioning of the Cooperative Society of Corinto Organic Vegetable Growers *[la Sociedad Cooperativa de Productores de Hortalizas Orgánicas de Corinto]* (PHOC) which has increased the marketed volume of its affiliated farmers' production by 46 %, has entered into contracts for construction of the planned Packing Centers and for a sales outlet for products in the Mercado Municipal de Corinto, for which it obtained support from the Municipal Council. In the packing centers there were contributions of local equipment and materials contributed by the farmers served, and one could see the level of close coordination with the Sociedad Cooperativa de Ahorro y Crédito de Corinto, which has primarily financed vegetable producers.

The planning capability of PHOC has been increased, since it has received support in defining its annual business plan within a strategic perspective, while at the same time the establishment of basic financial accounting records, and the number of stockholders of the Sociedad Cooperativa has been enlarged.

In the marketing aspect, it was possible to increase demand by the Despensa de Don Juan and updating the demand of supermarkets in the eastern zone preliminarily has been given technical assistance.

A noteworthy achievement is having positioned the Corinto producers' brand and increased demand, an aspect that demonstrates the growing acceptance and demand for those products, and at the same time the possible increase in the clients portfolio.

The project is supporting the growth and operation of drip irrigation users' groups, which in some cases possess technical advice for the design and development of fixed and portable reservoirs, as well as for drip irrigation systems that operate basically by agreement and by the local rules of the farmers, in which the conservation of the watershed has not been given systematic consideration.

In conclusion, decentralization of water systems constructed and rehabilitated by the project, has improved access to water for the user population. The small organizations have been the least strengthened; however they have expanded their local experience in solving requirements for inputs for water chlorination, as well as in allocating resources for community projects.

Aspects that Merit Greater Attention and Improvement

It is obvious that small organizations, represented by ADESCOS, within which Water Committees for human consumption have been instituted, as well as those recently formed or in the process of formation (Drip Irrigation Users Groups) have limited administrative capability, managerial capacity and minimal possibilities for sustainability. At the same time those considered more advanced and formalized (PHOC) are focused on the short term, since there is an absence of mid-term and long-term business development and organizational operation plans,

as well as mechanisms for adjusting to certain farmers' possible losses in times of generalized price drops; to date, however, the majority of production has been marketed during times of good prices.

2. Recommendations

In the matter of organizational development, we recommend establishing the AGUA Project institutional development and strengthening policy, which vitalizes the coordination and capability of local management, within a strategic planning process, which includes the definition of training and associated technical assistance plans, social accounting, administration, finance and in supervisory management for the local service companies (PHOC and irrigation users' groups), as well as assistance criteria for creating or strengthening them, according to local conditions. In this respect, prior to assisting a new entity as in the case of the Micro-watershed Committees, we need to examine whether this function might not be better performed by the existing structures, at the time when they are trained to broaden their resource management and their functional model is strengthened through integrating the watershed or eco-system approaches.

At the same time, the small turnover and structure of minimal cadres of local leadership is evident, which of course have facilitated the institution and organization of new entities, and the incorporation of more recent initiatives given impetus by the project or by the same processes dynamic, for example: Sub-watershed Committee, CDL and Local Producers' Groups. This limited leadership may pose a future risk for the institutional sustainability that is being supported, and the process for improvement of productivity that to date has been carried out with surprising results.

We recommend the adaptation of the operational norms that vitalize the short and long term application of the watershed approach. The foregoing considerations demand attention to the formation of new leadership, while at the same time there should be application of the institutional rules relative to the turnover of leadership.

The majority of the marketing processes established are consistent with the logic of marketing fresh vegetables in a phased manner[16] especially, with an incipient tendency in the last half of the year to develop marketing of the provisioning of inputs and the local production of short cycle vegetable plantings. In general, marketing emphasis is focused on satisfying the demand of one single wholesale purchaser and one point of sale at the municipal level on a temporary basis (two days each week), without there being a direct and continuous marketing system with more clients at the regional and national levels.

In this respect, we recommend establishing an overall and specific marketing strategy and plan adapted to the local conditions of each organization supported in the eastern region so that based on their organizational vision, they may better develop and adjust their policies and procedures for marketing products and services. It is obvious that in the process of applying their strategy and marketing plan they will need assistance in their respective establishment and operation.

[16] As support, they have programming of planting and management of vegetable crops for the local market and primarily for one purchaser (Despensa de Don Juan).

Given the focus of multiple participants on development of extension processes, it is advantageous that each group of producers served should have its phased production plan based on the requirements of the market and focused on production systems, in which the kind of technology and practices being transferred and experimented with would be described, which logically would include but not be limited to each producer's actual farming plans.

One interesting aspect concerning the relation with farmers served by FUNDAMUNI, is the use and influence of incentives that for the moment are utilized for short-term purposes, for example: they satisfy the immediate needs (plastic sheets, fertilizer, seeds, among others) of the local partners. While other implementers have supported their use in the acquisition of agricultural inputs for planting and managing vegetables, very few examples relate to the installation of irrigation systems and soil and water conservation works; this demonstrates how the incentives may be sustainable over time, once provision has been made for policies, procedures and ways to re-use them, which up to now have not been established.

In this respect and through the use of inter.-institutional coordination, we recommend defining the policies, procedures and ways to re-use the incentives that well may be considered as compensation in paying for environmental services that benefit the watersheds served by the project.

C. Horticulture Production Technologies and Marketing

As of June 2002, the CRS program had already met most of its agreed upon performance indicators. Only a few indicators are lagging, including the total number of participants (at 61% of the target of 242 producers) and in its intended quota of women's membership in the PHOC cooperative (at only 32% of the intended target of 87 participants).

1. Findings and Conclusions

CRS' approach has concentrated on training of producers in intensified horticulture using drip and low-head sprinkler irrigation on hillside land parcels. Some producers are using 22,000-liter polyethylene water storage tanks to provide water during dry periods, these being filled from springs, while innovative in-stream mini-dams have been constructed to facilitate transfer of water to parcels located near the stream banks. Farmers are provided training through demonstration farmers who use their own parcels as training grounds. CRS has intensively trained some 15 "communal producers" (demonstration farmers) and 5 marketing promoters. There are currently 20 hectares of land under intensive irrigated horticulture. CRS is promoting staggered production of 5 principal vegetables and fruits which are the most popular at San Miguel markets (including tomato, zucchini, cucumber, scallions and bell pepper), all based on a farm plan used by each of the producers. CRS provides plant materials, fertilizers, biocides and transport for produce to markets in Corinto and San Miguel, essentially facilitating all aspects of inputs and outputs during these initial stages of the project. Price information is also provided by CRS technicians as a measure to plan plantings and harvests to target the best price. Farmers outside of the current membership have expressed interest to participate in the technical

assistance project—an indicator that the strategies and practices being promoted have the potential to spread.

The PHOC cooperative has established its own trademark (still in the process of legal registry) and packages being delivered to markets bear a preliminary label representing the cooperative. PHOC sells shares in the cooperative and currently some 60 producers have purchased shares. A credit fund has been established as part of a communal savings and credit bank; farmers are repaying with a delinquency rate of about 15%, which is on the average with this type of project in the Central American region. CRS is developing the management and administration skills of certain members so that the cooperative can be run as a modern business. Two packing centers have been established at homes of farmer leaders. These centers serve as a central location for receiving, cleaning, grading and packaging produce of participating farmers for transfer to supermarkets in San Miguel. Produce that does not meet the quality standards for the supermarket chain are sold at the PHOC stand in Corinto's central market. Produce of each farmer is logged at the packing centers so that payments received from markets can then be paid accordingly.

About 70% of the produce goes to the supermarket chain, while the balance is directed to the Corinto market. The cooperative is currently grossing about US$6,000/month. The Dispensa de Don Juan supermarket chain, with three stores in San Miguel, is pleased with the quality and presentation of the products and has offered to buy all the vegetables and fruits that the cooperative can produce to offset its importations from Guatemala. This is an important accomplishment, as the producers' products should have a guaranteed market. Still, dependence on a single market is dangerous as price manipulation is always a risk.

FUNDAMUNI is coordinating with CRS farmers to include aspects of soil and water conservation, reforestation and agroforestry in their farm plans. However, field visits indicated that there was evidence of some disconnection between the agricultural diversification and marketing project and efforts of watershed management. For instance, microwatersheds that produce surface water being tapped for irrigation of horticultural parcels (in particular, the mini-dam project visited in Quebrada Honda) was being farmed under traditional methods of slash and burn with no conservation measures and that forests were still being cleared on high-risk steeply sloping land for grain crops. This puts at risk the investments being made in the irrigation infrastructure. Also, several instances of planting project trees under the shade of other trees on participating farmers' land was observed—perhaps evidence of pressure to meet numeric goals of trees planted, but defeating the objective of reforestation in areas in need of recuperation.

The Evaluation Team has concerns on two levels. The first is the fact that many of the parcels being farmed for horticulture are located in areas of poor access, where roads become impassible with rains. This may limit the ability to get perishable produce to market at scheduled times, result in delays and transport difficulties that may damage and reduce the value (price paid) for the produce and harm the relation between the cooperative and their clients. On the other hand, CRS is providing nearly all inputs to producers, including the provision of equipment, plant materials, and transport and marketing of produce. CRS is to present the cooperative with a brand new refrigerated truck within the next month (on a no-cost loan basis) to haul produce to market. It is not clear what the "exit strategy" is for CRS and how and when technical and

material assistance will be reduced or completed. Hence, there is a risk that the operation may be too dependent on CRS and could disintegrate once project assistance is completed. It is not clear if CRS is taking sufficient data on the value/costs of all inputs going into the Project at the level of all farmers. It is understandable that while such projects are in their demonstration stages, certain additional "development costs" will be required, it is necessary to calculate the cost/benefit of investments at the farm, as well as the cooperative level to determine if the activities can be sustained on economic grounds.

2. Recommendations

CRS should be vigilant of creating a dependency on the part of project beneficiaries on CRS technicians' well-intentioned provision of nearly all goods and services necessary to implement the project to date. The diversification and marketing activities should be considered demonstration projects until at which time their adoption and successful application by participating farmers can be proven. Hence, CRS should make an effort to further develop its promotion/extension approach to include an "exit strategy" in order to steer outreach efforts towards full adoption of the technological packages and the assumption of debt for all inputs by participating farm families and reduction (and eventual completion) of support from the Project. CRS should intensify its efforts to organize more women's groups, not only to tend to the packaging and marketing of produce for the cooperative, but also to promote soil and water conservation for home gardens and linkages with microwatershed management.

CRS should ensure that it is monitoring the value/costs of all inputs to the subprojects, including the time of its technicians, materials and agricultural inputs, transport of agricultural inputs and produce to and from markets, whether these are in-kind or purchased directly. A cost/benefit analysis should be performed for each participating farmer, and for the cooperative as a whole. It should be understood that some of the farms will not become cost-effective and can not (and should not) be sustained. CRS should then analyze the location of some of the farms included in its project and ascertain if these participants can, in reality, sustain horticulture production considering their location and road access. As there is a risk of promoting horticulture in areas that, under some climatic circumstances, cannot meet market obligations in time and quality, it may be necessary to cut some farmers from the project, as the cost/benefit of their activity will not be justified.

The selection of techniques and priority locations for project activities could be improved by placing more emphasis on the concepts and principles of microwatershed management, including working with soil and water conservation, agroforestry and reforestation in strategic locations of microwatersheds that produce water for irrigation. This would entail better use of strategic planning techniques during diagnostic studies (and a reassessment of subprojects currently under implementation) to ensure that those areas treated are contributing to water resources improvements related to the improvement and sustainability of irrigation sources (tributary microwatersheds).

D. Infrastructure

Infrastructure observed consisted of two concrete storage tanks for irrigation water. Other Evaluation Team Members visited small reservoirs created by building small, dams that can be adjusted and dismantled to control water storage or to pass high flows.

1. Findings and Conclusions

Storage tanks are very basic in their construction and because they serve to store water for irrigation only, technical standards for their design and construction are basic. There are no observations of note on these tanks.

The dams built across perennial watercourses are new and have not yet been put to the test during high flow periods. These dams, even when dismantled often retain permanent support structures in the stream beds. The survival of these permanent in-stream structures during high flow episodes (which often move large boulders) is still in question.

2. Recommendations

Monitor the performance of the dams during high flow episodes and evaluate the designs and construction of the dams, capturing lessons learned and best practices.

E. Environmental Education, Citizen Participation and Sustainable Use of Natural Resources

1. Findings and Conclusions

Accomplishments

At the CRS project level, there are a number of noteworthy accomplishments: training and demonstrations on the farmers' fields, in the storage centers, field days and learning tours that have sensitized the farmers and local partners to the importance of protecting and conserving the environment, as well as to using natural resources for productive and commercial purposes, through formal organization and establishment of post-harvest treatment and packing mechanisms.

The Project has stimulated the examination of new ways to attain its sustainability, among which are the possible drilling of wells and the requirement for organizational strengthening of the Sociedad Cooperativa that is receiving assistance; also it has managed to prepare training materials for phased production, management of post-harvest production and marketing. The administrative, financial and managerial aspects still are limited.

Civic willingness and participation have been broadened at the local level, along with possibilities of maintaining their impact through the supported radio media, as well as by the strengthening process and the impulse toward sustainability of the organizations being sponsored.

The processes of training and technical assistance carried out have been very effective in the use of local materials for the establishment and operation of drip irrigation systems that to date have been handled by the farmers and their families, mainly with the participation of young people who also have been involved in implementing soil and water conservation practices, initially in preparation of terraces or seed beds in the process of design, while at the same time increased sensitivity has been shown to the use of less contaminating pesticides. This is in addition to the involvement of the producers' women (wives and daughters) in the packing sheds, which also demonstrates a beneficial adoption of post-harvest practices.

However, the materials produced require a process of validation and systematization centered on local requirements and expectations, while at the same time there has been an analysis of the benefit of focusing environmental education as a transverse axis through the project components.

Aspects that Merit Greater Attention and Improvement

The AGUA Project has had limited coverage in environmental education for all the implementers' technicians; this is also true for exchange and training opportunities between representatives and members of the AGUA implementers.

2. Recommendations

It is recommended that the Project provide opportunities for training all personnel in aspects of environmental education and the way it may be applied to each component.

We recommend considering specialized training in the form of in-service training, exchanges between the implementers or else through processes of on-the-job technical assistance to improve the processes of environmental education. It would be interesting to theorize about the effectiveness and impact of the PHOC process, and the redemption of the best practices adopted at the organization, production and marketing levels. At the same time the watershed approach should be strengthened in exploitation, conservation and protection of the watershed's water and soil resources.

To consolidate the preparation and publishing process for the educational materials, the needs of the target population should be addressed, and it is desirable that those materials should have a process of validation prior to their issuance in order to incorporate pertinent adjustments, and then the results and impact achieved should be systematized.

We recommend encouraging the broadening of resource management capabilities, coordination and provision of local marketing services for production beyond vegetables, to include the provision of agricultural inputs and, in a second phase, fruit trees and the products of the local agro-industry, for which reason it is beneficial to update and broaden the present Business and Marketing Plan with a strategic focus, in which the results expected are determined intuitively, with their respective contingency analyses in order to confront deviations or risk effects.

It is beneficial to increase local capabilities for follow-up, monitoring and periodic evaluation of the quality and effectiveness of services provided through training in project management and follow-up, as well as in the Business and Marketing Plan.

In the same way, it is desirable to improve and broaden the capability of the venture providing marketing and support to the producers, by means of business influence that is socially responsible toward the environment, in which culmination of the formation of agribusinesses in direction and management is fundamental, with the functional watershed and environmental education focuses.

We recommend focusing environmental education as a transverse axis through all the project components, the same as is the case with the gender aspect, with which they will be an integral part of the other activities to be implemented; at the same time we recommend establishing a methodology for planning and follow-up that is integrated into all the project components.

F. Project Strategic Planning and Policies for Sustainable Management and Use of Water Resources

The CRS project focuses on the organization of rural producers in a cooperative and their training to diversify their agricultural strategies and crop mixes in order to improve income generation at the farm level. While these activities appear promising, they should be considered in a demonstration mode up and until which time that farmers (both men and women) demonstrate their adoption of both technical and administrative aspects of the models being promoted.

CRS has not been as active in promoting watershed management concepts as part of its overall strategy. While FUNDAMUNI is active in the same outreach areas in promoting soil and water conservation, reforestation and agroforestry, in many instances these activities are being promoted separately and not being integrated conceptually or physically with agricultural diversification activities. These actions were not included in a cohesive way in CRS' cooperative agreement with USAID. Hence, microwatershed management is not a thrust of the project strategy and project sponsors may be missing such opportunities in terms of using the leverage of sustaining water systems for irrigated agriculture to sustained management of their tributary watersheds. This is in conflict with the overall objectives of the SO4/AGUA Activity and represents a strategic planning weakness on the part of both CRS and USAID. CRS should reaffirm the linkage of the provision of water resources to horticultural production to microwatershed management. This would entail improved strategic planning and diagnostic analyses to prioritize geographic areas and techniques that contribute to improvement of watershed conditions as a necessary component to integrated water resources management. CRS, in coordination with FUNDAMUNI, should attempt the establishment of several model microwatershed subproject areas where all of its activities, including those areas served by mini-dams and other natural water sources for irrigated horticulture and possibly including linkages to the potable water and environmental health initiatives that are also underway in several of the communities (in Quebrada Honda there is a potable water project which was supported by the AGUA Activity), are integrated with the principles of watershed management.

On the aspect of environmental impact, it was noted that no assessment was carried out to determine the impact of the water diversions created by the mini-dam projects (currently there are several of theses structures in use). Apparently, no systematic analysis was performed on the impacts to downstream users of the water in these streams or its ecological impacts. While the Evaluation Team did not determine if such impacts are occurring, the fact that they were not analyzed is in conflict with the provisions of the AGUA Initial Environmental Examination (IEE). Also, intensified horticulture is being promoted on run-of-stream parcels which encroach within a few feet of the stream banks. This is in current violation of provisions of the National Environmental Law. While basic clearances may have been obtained that satisfy MARN, no adequate environmental impact assessments were performed for determining impacts of downstream users. No uniform guidelines were followed and each mini-dam subproject was designed on its own merits based primarily on the availability of water resources and with limited consideration of environmental factors. It is noted here, however, that USAID did not present CRS with necessary guidelines, even as this was indicated in the IEE.

In terms of AGUA, CRS' current monitoring and evaluation system is limited to the counting of project outputs in terms of established performance indicators. Several of its indicators can be used as impact indicators (improvements in per-land-unit-area for crop yields, on-farm income, % of post-harvest crop losses, along with their respective comparisons with non-project farm units). As the cost/benefit of project interventions is an important determinant in the sustainability of horticulture production and marketing, indicators should be established and monitored for all participating farmers and the cooperative as a whole. Several alternative indicators could be added to link project activities with the impact on water resources (see Table 3.7 in the main evaluation report for some alternatives to consider).

Also, there is no evidence that farmers have discussed or considered a policy of paying the environmental costs of the water that they are redirecting from area streams and springs (e.g. mini-dams). CRS' project approach should include the adoption of a policy to incorporate the costs of environmental services in fees charged for irrigation systems (where these may involve use of water from surface streams and/or wells), and for potable water systems as applicable.

Annex 13: Evaluation Profile of IICA/CAMAGRO

The annex provides an overview of the results of the evaluation of SO4/AGUA activities carried out by the consortium made up of the Inter-American Institute for Agricultural Cooperation and the Salvadoran Chamber of Agriculture, Livestock and Agroindustry (IICA/CAMAGRO). This profile provides the Evaluation Team's findings, conclusions and recommendations for each of the principal activity areas covered by IICA/CAMAGRO in Ahuachapán Sur, with reference to its outreach areas in the upper watershed of the Rio Lempa (tributary to the Cerrón Grande Hydroelectric Project) under the Environmental Program of El Salvador (PAES). IICA/CAMAGRO is responsible for implementation of the approximately 2.6% of all project activities as calculated from the total of USAID budget for SO4/AGUA. IICA/CAMAGRO began implementation of the activities included under its cooperative agreement with USAID in early 2001. Its "Program for Entrepreneurial Management Services in Marketing Technology" (SAGEM) is composed of four activity areas: i) strengthening of CAMAGRO's capacity as a provider of services to Salvadoran agricultural, livestock and agroindustry organizations; ii) provision of marketing information to producers to facilitate improved commerce activity; iii) training to improve management capacity of first-level organizations to improve the marketing of agricultural products; and iv) training to first-level organizations in improved agricultural technologies to fulfill market demand and sustainably manage natural resources. This annex has been prepared based on the analysis of relevant documentation, interviews with IICA/CAMAGRO staff, and the results of the field visits to project sites and meetings with participating local organizations and beneficiaries.[17]

A. General Overview of Implementation

While the most recent information on performance indicators was not made available, *IICA/CAMAGRO* appears to be on its way to achieving its outreach targets with its program of Entrepreneurial Management Services in Marketing and Technology.[18] The project has contributed, along with IICA counterpart funds, to the establishment and strengthening of the Salvadoran Chamber of Agriculture, Livestock and Agroindustry (CAMAGRO). Most of the project outreach was dedicated to the PAES outreach area already served by under an IICA/CATIE program financed by the Inter-American Development Bank in the watershed of the Cerrón Grande Hydroproject. Producers in Ahuachapán Sur (Guymango and San Pedro Puxtla) within the AGUA outreach area also received training in cooperative purchase of agricultural supplies, marketing of produce and information on agricultural commodity prices. As of June 2002, IICA/CAMAGRO was fully meeting its counterpart contributions agreed to under its cooperative agreement with USAID.

[17] See also Annex 4, Project Site Visits: Agenda and Summary Field Notes; Annex 5, List of Persons and Organizations Contacted during the Evaluation; and Annex 7, List of Documents Reviewed for the Evaluation.

[18] This assessment is made based on the content of the Second Semester Report dated July 2001 and interviews with project staff. The Evaluation Team did not visit PAES outreach areas where much of the work under the cooperative agreement was carried out, and only one project outreach site of IICA/CAMAGRO was visited in Ahuachapán Sur.

B. Decentralization and Local Management Capability Development

1. Findings and Conclusions

Accomplishments

The groups of farmers receiving assistance are integrated at the local level into Production and Marketing Committees (integral groups of producers and ADESCOS) and into Community Development Associations (ADESCOS) of the second level (Association of ADESCOS and municipal representatives, known as the Producers' Association *[Asociación de Productores]*). They receive technical assistance for establishing and developing farming plans, through support of the producers in liaison with them and the SalvaNATURA technicians, Ayuda en Acción and of the PAES, which through incentive funds are supporting development of agro-forestry activities and soil and water conservation works, as well as the planting of short-cycle vegetables in phased sowing plans, and orchards and forests in a manner combined with vegetables. At the same time, the SEGEM has assisted installation and operation of small-scale nurseries in which vegetable seedlings are produced.

It is felt that through the project's approach at least four second-level organizations[19] have been strengthened by the project, among them: CAMAGRO, APAGUA, APAGUAZAPA and the Texispulco Production and Marketing Committee *[Comité de Producción y Comercialización de Texispulco]* (formerly CODEL-San Pedro Puxtla), and have received marketing and technology services provided by the SEGEM. Some 26 first-level organizations (ADESCOS) are those whose activities include agricultural production; for others, in order to execute their activities, Committees are being organized for production, marketing, ecology, incentives and credit.

In practice, forecasting activities have been executed in the proposal submitted to USAID for its consideration.

The ADESCOS have legal personality and recognition at the institutional level, which has allowed them to allocate community development projects, as well as projects for the environment, health, education, social infrastructure investment (repair of farm-to-market roads and feeder roads) benefiting the community, and those of a family nature (execution of plans for family properties), without there being much direct impact on administrative or sustainability capacity of the local first-level organizations and some of the second level that are in the process of formation; economic benefits received by the marketing process to date have been of more benefit to the partners, than for sustainability of the mechanism being formed. To date, in the case of Texispulco, although it has defined charges for the provisioning of inputs it does not have the procedures and registers to support its operation.

In the aspect of marketing at the level of second-level organizations, the knowledge of input providers has been broadened; price records are kept of the principal inputs and products marketed, as well as in the identification of business "opportunities" (for example: purchase of

[19] Second-level organizations—owing to change in the operational strategy for motivating sustainable models, the integration of first-level organizations has been instituted (generally ADESCOS and municipal representatives) into municipal organizations of the second level, oriented to providing services emphasizing the marketing of agricultural inputs and products.

sulphate in the Agricultural Exchange), which have been usefully exploited, while the farmers receive price information in an incidental way during coordination or training meetings.

In a generalized way, the regular staff of PAES and CENTA technicians has been trained in aspects of agribusiness, as have members of the Councils of Administration and Production and Marketing Committee (CPC) in business association, internal control, agribusiness and strategic planning.

Aspects that Merit Greater Attention and Improvement

It is evident that small organizations, represented by ADESCOS and groups of farmers, within which the Production and Marketing Committees have been instituted or reorganized, have limited administrative capacity and minimal possibilities for sustainability.

2. Recommendations

In the aspect of organizational development, we recommend establishing the institutional development and strengthening policy of the AGUA Project, which will make coordination and capacity for local management have greater potential within a strategic planning process, to include the establishment of training plans and associated technical assistance, social accounting, administration, finance and in general management of local service companies (Production and Marketing Committees and Boards of the first-level ADESCOS, as well as organizations of the second level), which include development criteria for their creation or integration according to local conditions, including the aspect of organization based on specialization of production for the first-level organizations and on marketing for the second-level organizations.

Most of the marketing processes established are consistent with the logic of provisioning and marketing inputs and seasonal agricultural products[20] primarily, with an incipient tendency in the last half year to develop the marketing of short-cycle vegetables in a phased form subject for the most part to the rainy season. In general the marketing emphasis is focused on identifying opportunities for doing business and points of sale at the municipal level and in a temporary way, without establishing a direct and continuous marketing system; marketing alternatives to the local and conventional markets have not been identified, nor has packing been improved or any brand been established.

In this respect, we recommend establishing a global and particular marketing strategy and plan adapted to the local conditions of each group receiving assistance so that it would be they who, based on their organizational vision, would better develop and adjust their policies and procedures for marketing their products and services. It is obvious that in the process of applying their strategy and marketing plan, they will require support in their respective establishment and operation.

Similarly, we noted that the watershed approach was missing in the planning and management processes for the business initiatives being supported. What has been said previously calls for

[20] Of the 60 commercial links established as of December 31, 2001, 54 correspond to producers of basic grains, 2 of vegetables and 4 of papaya.

attention to the formation of new leadership cadres, while at the same time norms should be determined or put into effect that include the development of plans and concrete actions relating to the watersheds that are used in the productive processes being instituted.

Given the multiple participant approach in developing the extension processes it is desirable that each group of producers to be served should have its own phased production plan based on the requirements of the market and with an approach to production systems in which there is specified the kind of technology and practices being transferred and being experimented with, that logically would include, but not be limited to, the present farming plans, which must be complemented with the Business Plans and Marketing Plans of the groups being served..

One interesting aspect is the present use and impact of the incentives which at the moment are used for short-term objectives in crop planting and management or otherwise in the provision of materials for repairing animal shelters, and in some cases initiatives for diversification of mixed production between orchards and short-cycle vegetables, combined with works for soil and water conservation.

In this respect and through the use of inter.-institutional coordination, we believe it is useful to define the policies, procedures and ways to re-use the incentives that may very well be focused on offsetting payment for environmental services that benefit the watershed.

C. Horticulture Production Technologies and Marketing

IICA/CAMAGRO has provided technical services to a number of producer organizations in the PAES and AGUA project outreach areas.

1. Findings and Conclusions

SAGEM has facilitated strengthening of CAMAGRO through its participation in project activities. SAGEM's outreach has also helped disseminate the name of CAMAGRO among producer organizations, further improving its ability to attract membership. IICA/CAMAGRO's approach under SAGEM primarily to the training of producers and agroindustrialists to better prepare them for participating in markets and reducing production costs. In the AGUA outreach area, IICA/CAMAGRO's outreach has been limited to demonstration farmers and producer groups attended to by SalvaNatura in Ahuachapán Sur. These efforts mainly comprise the promotion of cooperative purchase among members of agricultural inputs (especially seed, fertilizers and pesticides) to obtain lower prices and reduce production costs. Producers are also oriented to take advantage of the Salvadoran Stock Exchange's program to sell ammonium sulfate fertilizer at a guaranteed low price to farmers (subsidized by the Government of Japan) and to the guaranteed minimum price for sale of sorghum to the feed concentrate industries, so that farmers do not accept lower payments for their produce.

IICA/CAMAGRO has supported PAES operations with marketing studies, training in improved horticulture techniques and training in marketing and agribusiness development. Under its SAGEM project, producers have been provided with market information to ADESCOs and producer associations necessary to make informed decisions by their members as to the best

prices for their produce. Aspects covered under SAGEM's outreach activities include: improved quality control for better produce and better pricing; how to use market information crop planning; improved horticulture and fruit production methods; post-harvest management, grading and packaging; agribusiness enterprise management; administration and accounting; dissemination of price information by radio and newspapers; and monitoring of production costs vs. sale prices to determine impacts of project activities.

2. Recommendations

While the services provided under SAGEM are seen as necessary and appropriate for participating agricultural producers/beneficiaries of SO4/AGUA, these should be provided on a cost-sharing basis with other USAID efforts. As the objectives of SO4/AGUA are oriented primarily to the provision of potable water of the quality and quantity required for human consumption, SAGEM objectives are seen as only marginally relating to those of SO4/AGUA. Therefore, any such services that may be required by farmers in the AGUA outreach areas should be provided by other organizations under other funding initiatives outside of AGUA, whether these are within or without USAID.

Any future activity in entrepreneurial and marketing that may be promoted under the AGUA Activity should embrace the principles of integrated water resources management, including watershed management and payment of the environmental costs of agricultural production. The selection of agroindustrial and marketing technologies could be improved by placing more emphasis on the concepts and principles of microwatershed management, including working with soil and water conservation, agroforestry and reforestation in strategic locations of microwatersheds that produce water for irrigation and agroindustrial processing. Also, this approach should promote the adoption of a policy to incorporate the costs of environmental services in fees charged for irrigation systems (where these may involve use of water from surface streams and/or wells), and for agroindustrial processing as applicable.

D. Potable Water Systems, Wastewater and Solid Waste Management Infrastructure

No Infrastructure was visited.

E. Environmental Education, Citizen Participation and Sustainable Use of Natural Resources

1. Findings and Conclusions

Accomplishments

In SEGEM at the group extension level based on the producer-demonstrator, it is worth highlighting the training and demonstrations on the farmers' fields, field days and learning excursions to nurseries and productive activities focused on the crops or practices instituted, while at the same time work has been determined in the establishment of educational materials dealing with marketing measures (price information), technology (technical guides for improving the production of basic grains and for diversification with vegetables, establishment of norms

and encouragement of organic production of vegetables); among the activities to be noted at the field level were the Visit to Texispulco, the production of seedlings, some results from the marketing of agricultural inputs and the incipient use of organic inputs, as well as the growing of short-cycle vegetables in combination with orchards. The project has attained significant adoption of experimental productive technology in the area such as: hydraulic ram pumps and the phased production of seedlings with community participation.

The project has motivated the establishment of permanent marketing channels for agricultural inputs (fertilizers, seedlings and organic products) and for vegetables, for which organizational funding of the supported community structures is required (ADESCOS and their Production and Marketing Committees, among others).

In summary, the SEGEM does not possess a follow-up mechanism for the strategic objective of "greater access to clean water" (with quality standards) and they believe that only 21.43 % of the total cultivated area uses technologies with improved practices for Soil Conservation, reforestation, organic crops and integrated management of pests and disease.

The training process that has been implemented has been very effective in the use of local materials for establishing and developing on-farm improvement plans, since they are managed directly by the farmers and their families, mainly with the participation of young people, who also have been involved in implementing soil and water conservation practices, initial preparation of terraces or seed beds in the process of formation over the next agricultural cycles, and in being sensitized to the use of less contaminating pesticides. This is in addition to the involvement of the producers' women (wives and daughters) in the marketing of vegetables and in marketing initiatives at the local level.

Aspects that Merit Greater Attention and Improvement

The AGUA Project has had limited coverage in environmental education for all the implementers' technicians; this is also true for exchange and training opportunities between representatives and members of the AGUA implementers. The assisted marketing mechanisms for the most part meet temporary needs, rather than respond to a permanent development model.

2. Recommendations

It is recommended that the Project provide training opportunities for all personnel in aspects of environmental education and the way it may be applied to each component.

It is also useful to consider specialized training in the form of in-service training, exchanges between implementers or else through processes of on-the-job technical assistance to improve the environmental education process. At the same time the watershed approach should be strengthened in the exploitation, conservation and protection of the watershed's water and soil resources.

To consolidate the preparation and publishing process for educational materials, the needs of the target population should be addressed; and it is desirable that those materials should have a

process of validation prior to their issuance in order to incorporate pertinent adjustments, and then that the results and impact achieved should be systematized.

We recommend expanding resource management capabilities, along with the coordination and provision of local marketing services through establishment of short-term Business Plans and plans for marketing with a strategic focus, in which anticipated results are determined, with their respective required contingency analyses, in order to confront deviations or risk effects.

It is advisable to increase local capabilities for follow-up, monitoring and periodic evaluation of the quality of services provided through training in project management, as well as the suggested Business and Marketing Plan.

We recommend defining and broadening the managerial capacity of the local marketing enterprise and supporting the producers through means of specialization and business training that is socially responsible with the environment, in which the liberalization of training in direction and management for agribusinesses is fundamental, as well as in the functional watershed approach through an ongoing program of environmental education.

It is also recommended to focus environmental education as a transverse axis through all the project components, the same as is done with the gender aspect, with which they will be an integral part of the other activities to be implemented; at the same time we recommend establishing a methodology for planning and follow-up that is integrated into all the project components.

F. Project Strategic Planning and Policies for Sustainable Management and Use of Water Resources

As IICA/CAMAGRO is providing specialized services through other implementers in the AGUA outreach area (most notably SalvaNatura) the project is not directly involved with the integrated aspects of water resources. Hence, its cooperative agreement does not provide a linkage with AGUA objectives of integrated water resources management and related activities of watershed management, reforestation, soil and water conservation, etc. except as may be covered topically during some of the training events. IICA/CAMAGRO has not been as active in promoting watershed management concepts as part of its overall strategy. These actions were not included in a cohesive way in IICA/CAMAGRO's cooperative agreement with USAID. Hence, microwatershed management is not a thrust of the project strategy and project sponsors may be missing such opportunities in terms of using the leverage of sustaining water systems for irrigated agriculture to sustained management of their tributary watersheds.

While SAGEM activities are seen as helpful and facilitate improvement of agricultural producers' production and marketing strategies, the Evaluation Team does not see them as part of the activities that should be financed under SO4/AGUA. Rather, these activities should have been financed under a different Mission SO more aligned with economic development and growth. Such services may be needed and appropriate for farmers that form the participants in AGUA activities, but the objectives of SAGEM are not seen as being directly related to those of AGUA. Therefore, the Evaluation Team suggests that any other funding that may be made by

USAID to IICA/CAMAGRO for the implementation of SAGEM be made available under a different SO. Funding for SAGEM under SO4/AGUA should be terminated as soon as the expiration date of the current cooperative agreement with IICA/CAMAGRO. Should it be deemed appropriate to continue funding the SAGEM project effort, then funding should be provided by USAID under a different SO and, as may be required, services provided to participants in AGUA through synergies among the two SOs through shared coverage of project outreach areas.