ACTIVITY COMPLETION REPORT

Guatemala Mitch Special Objective: Rural Economy Recovers from Mitch and is Less Vulnerable to Disasters (520-007)

USAID Project Nos. 520-0432, 0433 and 0434**.**
Approved: July 22, 1999
Activity Completion Date: March 31, 2002.
Total Cost: $28,000,000.
Funding Sources: $25,000,000 Central America and Caribbean Emergency Relief Fund (CACEDRF). $3,000,0000 Child Survival (CS) reprogrammed.

Intermediate Results (IR) Characteristics:
IR1, Disaster Preparedness Enhanced. $1,000,000. Funding source: CACEDRF
Principal Partners: CARE, Catholic Relief Services (Cooperative Agreements), CONRED.
Key IRs: (1) Mapping, data collection, and targeting most vulnerable communities; (2) community organizations strengthened; (3) CONRED network strengthened.
Results summary: **(1)** Guatemala's national meteorological institute, INSIVUMEH strengthened through replacement and provision of manual and automatic weather stations, rain gauges, automatic stream gauges, radios, computers, satellite weather data receiving and transmission equipment, software and training (almost all of this support provided through Inter-Agency Agreements with NOAA, $1.2 million, and USGS, $1.3 million).
(2) CARE and CRS formed 158 community-based emergency management units, of which 152 were local community and 6 municipal emergency management committees.
(3) With support from OFDA through its Central American Mitigation Initiative ($0.5 million) and FEMA through its Inter-Agency Agreement ($0.5 million), developed and implemented procedures and protocols for CONRED, Guatemala's emergency management agency, designed and equipped its state-of-the art emergency operations center, and designed and implemented a training program to extend the CONRED system to departmental, municipal and local level authorities throughout the country.

IR2, Agricultural Productivity Recovered on More Sustainable Basis, $24,000,000. Funding source: CACEDRF**. Principal Partners**: U.S. Army Corps of Engineers (PASA), Ministry of Agriculture-CIPREDA (Project Implementation Letter), National Coffee Growers Association (ANACAFE) Cooperative Agreement, Center for Tropical Agricultural Research and Education (CATIE) Cooperative Agreement, CRS (Cooperative Agreement), CARE (Cooperative Agreement), Ministry of Agriculture's Instituto de Ciencias Tecnologicas Agricolas (ICTA) Project Implementation Letter, Ministry of Agriculture-BANRURAL (Project Implementation Letter), Cooperative Housing Foundation (Cooperative Agreement).
Key IRs: (1) River, land and small-scale irrigation systems rehabilitation, (2) Polochic and Motagua watershed management, (3) Seed recovery and multiplication, (4) Microenterprise recovery and credit, (5) Rural road repair in Ixcan, Quiche, and Alta Verapaz.
Results Summary: (1) USAID and MAGA-Cipreda implemented ten projects under the Fixed Amount Reimbursable (FAR) arrangement totaling approximately $4,354,672. Nine were US Army Corps of Engineers designs and one was designed by CARE. ANACAFE rehabilitated 1,600 hectares of coffee plantations, and 18 coffee processing

plants benefiting 14,000 small coffee farmers. CRS established sustainable management practices in 17 selected micro watersheds, 164% of target; reforested/regenerated 491 hectares (881,943 trees), 246% of target; brought 494 hectares under agro-forestry cultivation (577,200 trees), 165% of target; provided 2,293 farmers with improved seed, 153% of target; trained 4,372 farmers in improved soil management, 219% of target**.**
(2) CARE, which met or exceeded all targets, produced six land use planning maps of 1:50,000 scale with digitized information on soil type and use, conflicts, social maps, population pressure on resources, and economic characteristics; developed an environmental education curriculum and manual for 3,000 3rd through 6th graders in 64 schools; developed a forest fire prevention and control strategy for 240 communities, developed four municipal forest management plans; developed a reforestation incentive scheme for 662 hectares in 270 communities paying $403,548 to 2,851 families who planted 750,000 multi-purpose tree seedlings; agro-forestry adopted by 6,248 families who planted 1,254,685 (coffee, avocado, macademia, allspice) trees planted on a total of 1,092 hectares; and 77,198 shade trees (ingas and red cedar) planted benefiting 4,130 families on 277 hectares. All targets met or exceeded.
(3) ICTA trained 371 technicians, and working through CARE, CRS, the Peace Corps and other groups trained 1,340 farmers, and produced improved seed for corn= 449,100 lbs., rice= 240,900 lbs.; sesame= 16,800 lbs.; bean= 71,708 lbs.; potato= 150,040 lbs. All targets met or exceeded.
(4) MAGA-BANRURAL extended $2,000,000 in micro enterprise credits benefiting 13,200 families. Exceeded target by 200 families.
(5) ANACAFE rehabilitated 102 kilometers of road; CHF rehabilitated 13 bridges, reconstructed one Bailey bridge; repaired one Bailey bridge, and rehabilitated 100 kilometers of highway. Fell short of original road target due to incorrect measure of the distance. Will still meet the target post-Mitch reconstruction through municipal contracts.

IR 3: Community Disease Prevention and Control Systems Strengthened, $3,000,000. Funding source: Reprogrammed CS. **Principal Partners:** CARE, CRS, Medical Research Training Unit in Guatemala of the Centers for Disease Control (MERTU/CDC).
Key IRs: (1) Local malaria prevention and control programs strengthened, (2) Household water and sanitation programs established in selected areas, and (3) Capacity to prevent and control infectious diseases enhanced.
Results Summary: Performance was exceptional. All targets were met, or greatly exceeded. **(1)** MERTU-CDC produced and distributed 14,275 insecticide- treated bed nets and established a monitoring protocol of program and control communities to determine effectiveness; trained 909 community volunteers in case detection and treatment referral, initiated a chlolorquine resistance study; enhanced the quality of the parasitological and entomological data collected at community level by training volunteer collaborators and microscopists; added computer facilities at Vector Control Offices to process computerized case data entry; conducted monthly entomological surveys from June 2000 to November 2001.
(2) CARE constructed 12 water systems; distributed 1,484 water receptacles; installed 1,472 latrines; constructed sewer systems in 10 communities receiving water systems; gave hygiene practices education to 79 community informants from 14 target communities. CRS rehabilitated /reconstructed 32 water systems; dug 148 communal

wells; distributed 7,236 5-gallon receptacles with chlorine doses in 60 communities; installed 4,016 pit latrines and dry composting latrines; prepared 213 community facilitators in hygiene practices, latrine maintenance, and water receptacle management who in turn trained 7,185 families. MERTU/G-CDC guided CARE and CRS on hygiene practices, water quality and diarrheal disease monitoring including definition of indicators, training in data collection methods, preparation of water sampling plans and management of statistical programs. Targets met or exceeded.
(3) MERTU/G-CDC assisted the Ministry of Health (MOH) develop and implement a plan for a "National Offensive for the Prevention and Control of Dengue." National laboratory capacity was strengthened and decentralized. The national central laboratory was strengthened and two regional laboratories in high-risk areas were upgraded with training and materials. Also, national capacity to diagnose and treat dengue was upgraded mainly through training of 936 health staff and 154 entomological technicians.

Lessons Learned: At the SpO Level

1. Washington pressures to meet quarterly expenditures target to meet the Hurricane Mitch reconstruction deadline as prescribed under the Central America and Caribbean Emergency Disaster Relief Fund (CACEDRF) of December 31, 2001, diverted attention from quality management and control
2. The Mission's choice of existing mechanisms to obligate funds and implement activities was well taken. It took advantage of the presence of existing partners in the Hurricane Mitch affected areas, such as CARE, CRS, ANACAFE and CHF, so that within six months after receiving CACEDRF funding, activities were up and running. The Mission employed Cooperative Agreements, Project Implementation Letters and a PASA, which achieved excellent results.
3. The Mission also initiated innovative approaches like Fixed Amount Reimbursable (FAR) contracts. The FAR arrangement employed for the implementation of construction projects worked very efficiently. Ten projects (nine designed by USACE and one by CARE) totaling $4,354,672 were implemented under FAR arrangements through MAGA. Concurrent audits confirmed the efficacy of the FAR approach.
4. When addressing a disaster, a mission should not pay undue attention to sustainability and institutional strengthening. Bypass mechanisms to get things rebuilt quickly are acceptable, if not preferred.
5. During emergency response projects, support and follow up to technical and operational exchange among partners has to be provided. Partner's institutional capacity is strengthened through the exchange of knowledge, tools and experience. The Mission's role in facilitating partner coordination during an emergency response is critical.

Lessons Learned IR1: Disaster preparedness Enhanced

1. This activity was a novel experience for USAID/Guatemala and its partners. While the successes are considerable in terms of quality and quantity, the duration and funding was too short and limited. Particularly with respect to the formation of local and municipal coordination units, additional time and resources would have led to

not only a greater number being formed, but a greater consolidation of a national system would have taken place.

2. The collaboration of USG agencies under the Mitch Reconstruction program proved to be very valuable in this IR. The different agencies brought different strengths and capabilities to the task. Most obvious were the technical strengths of NOAA and USGS, but the most surprising was FEMA, complementing OFDA's traditional disaster response capability with effective organizational talents and mitigation and prevention approaches.
3. Coordination between CONRED, USAID, and the PVO partners proved to be a must and very productive.
4. Because the formation of community committees involves the entire community, men, women and children, the impact is very positive.
5. In Guatemala, there is no prior experience with the concept of disaster mitigation; this concept was introduced through this activity.
6. CONRED's institutional capacity to provide follow up at the community level (where coordination units were formed under this project) is limited, but should be encouraged.
7. Both CARE and CRS gained entry-level experience with disaster preparedness. Consequently, both agencies acquired an appreciation for the importance of the concept and have stated they will be incorporating disaster preparedness and risk management in all future development projects.

Lessons Learned: IR2 Agricultural Productivity Recovered on More Sustainable Basis

1. The Mission entered into infrastructure construction activities while not having an engineer on the staff. This slowed down implementation, and put the Mission at a disadvantage when technical issues arose. However, once on board, an engineer proved invaluable in improving efficiency and implementation of infrastructure activities.
2. The Mission had as many as eleven Recipient-Contracted Agreements (audits) going on during the implementation of the program, which occupied more staff time than anticipated. However, implementation and accountability was deemed to have worked well, and USAID partners' internal systems were strengthened as a result.
3. The partnership between the U.S. Army Corps of Engineers and the Ministry of Agriculture in completing critical infrastructure protection and flood control infrastructure proved to be very timely and efficient. USACE identified critical needs and completed timely designs. MAGA contracted with private construction firms under a FAR arrangement with USAID while USACE continued to provide construction supervision and final inspection and certification. MAGA and the private contractors were impressed with the innovativeness of the USACE designs, the strict application of specifications for local materials, and the application of U.S. work place safety standards. MAGA requested that USACE conduct a successful stream bank protection course for local engineers.

   The Mission extended the USACE PASA using regular funding for an additional year and a half after the completion of the Mitch program to provide on-call assistance to

evaluate the response of the completed structures to climatic events as well as to provide follow up assistance to MAGA and local communities for the operation and maintenance of the structures.

Lessons Learned IR3 Community Disease Prevention and Control Systems Strengthened

1. It is risky to give assistance to partners who have never worked on the technical area for which they have received assistance in a quick response program like the Hurricane Mitch reconstruction program. For example, one PVO that worked in water and sanitation experienced a steep learning curve. USAID had to do a lot of mentoring, overseeing, and teaching in the water and sanitation area that we expected the partners to do. USAID was not staffed sufficiently to handle this technical burden.
2. A Mission cannot assume that a PVO's excellent experience and track record in a neighboring country will help them enter a new area, e.g., CRS/Honduras' extensive water and sanitation experience was not drawn upon by CRS/Guatemala.
3. At USAID's initiative, extensive water and sanitation experience in Honduras was shared and used to improve the quality of water and sanitation activities in Guatemala, such as the Regional Water and Sanitation Network for Central America (RRAS-CA).
4. CARE/Guatemala was generous and very helpful in sharing all of its water and sanitation know how with CRS.
5. Having an independent agency to test water quality, e.g., MERTU/CDC was good.
6. Getting the right levels of chlorine in water to ensure potability was a challenge never fully overcome.
7. Sustainability of chlorination and how to set up community chlorine banks needs more work.
8. Some innovative and very affordable locally made latrines were designed which were easy for kids to use.
9. CDC malaria bed net production now needs to be paired with microenterprise know how from elsewhere in the Mission to be sustained as small businesses for women. This is not a CDC strength.
10. During emergency response projects, support and follow up to technical and operational exchange among partners has to be provided. The Partner's institutional capacity is strengthened through knowledge, tools and experience exchange. IR3 Partners Coordination Committee supported problem solving and high quality technical exchange during the life of project. The Mission's role in facilitating partner's coordination during emergency response is critical.
11. Water quality and educational activities must be closely monitored in emergency response projects. The participation of partners whose strength is monitoring and evaluation can support timely information and response to water quality issues and also the development of behavior change educational material.

Indicator Assessment: The SpO tracked only output indicators (see Results Summary above). Targets for the number of bridges rehabilitated, kilometers of road reconstructed, and number of water systems built also served as indicators of progress.

Close Out Reports: The Mission has received and cleared final reports for all Cooperative Agreements, FAR contracts, and the PASA with the U.S. Army Corps of Engineers.

Results Framework Issues During Implementation: The SpO framework underwent no change during its two-year implementation. Some activities were modified, but the intermediate results and sub-results remained unchanged during the life of the activity.

Sustainability of Impact: The harder infrastructure projects are expected to endure and be able to sustain impact. This is true both for the irrigation and flood protection infrastructure built under IR2, as well as the water and sanitation systems built under IR3. Many of the softer systems and projects put in place would have benefited from a longer implementation cycle. This is true for disaster preparedness activities under IR1. At the Mission level, through Mitch and the Central American Mitigation Initiative (CAMI), significant contribution has been made to improving Guatemala's capacity to prepare for and respond to disasters. Much work remains to be done, however, especially with respect to consolidating the national system of disaster coordination units at local, municipal, and departmental level under the over all management of CONRED. The CAMI funds have made it possible to extend important work being done two years beyond Mitch, and end in 2003. Given Central America's vulnerability to an array of disasters, a longer horizon of assistance would have helped cement many of the pieces that have been put in place, and further strengthen the overall system in Guatemala.

A similar argument can be made for watershed rehabilitation activities under IR2. Much of this work included reforestation and agro-forestry activities. It will probably not be sustained by peasant farmers. While the activity was judged to be an excellent way to get peasant farmers focused on natural resource management, the two-year time frame was too short for the positive effects to become familiar to and directly understood by the peasants, especially in economic terms. Only a long-term project could realize that kind of impact.

Contact Persons:

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Brian Rudert, CTO for all the Cooperative Agreements, FARs, and the PASA with USACE, and for issues related to IR2.

Mary Ann Anderson, Chief, Office of Health and Education, for issues related to IR3.

John Chudy, Mitch Coordinator, responsible for maintaining all reports and files on the implementation of the SpO, and for issues related to IR1.

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ANNEX 1 FINAL REPORT

January 2002 (No. 10)

Guatemala Mitch Special Objective: Rural Economy Recovers from Mitch and is Less Vulnerable to Disasters

Summary: This tenth volume is the final report on USAID Guatemala's use of grant assistance under the Hurricane Mitch Special Objective (SpO). Last quarter (No. 9), we reported that virtually all program targets had been met as of September 30, 2001, although a few activities remained to be completed. This volume presents the final liquidation of expenditure accounts, a summary of the results achieved, and a review of lessons learned.

Highlights: USAID/Guatemala is pleased to report that its Mitch reconstruction program has been very successful. It has been completed within the planned time frame, it was completed on budget, and the quality and quantity of results achieved met, and in many instances, surpassed expectations. The Mission is especially proud of the overall approach it adopted early on for reconstruction, which it believes laid the foundation for success. That approach consisted mainly of working with existing partners to take advantage of their proven skills and abilities, and to complement that by obtaining needed technical assistance from other USG agencies and private contractors. USAID's clear vision for reconstruction coupled with help from other agencies created a collegial and productive atmosphere.

Key Intermediate Results: (1) Disaster preparedness enhanced; (2) Agricultural productivity recovered on more sustainable basis; (3) Community disease prevention and control systems strengthened.

IR 1: Disaster Preparedness Enhanced

Key Intermediate Results: (1) Mapping, data collection, and targeting most vulnerable communities; (2) community organizations strengthened; (3) CONRED network strengthened.

Performance and Highlights: USAID is especially proud of the achievements in this intermediate result. Lessons from Hurricane Mitch pointed to clear weaknesses in the national network of disaster response, from poor communications between central and local disaster coordination committees to the absence of identified logistical support channels and arrangements. Despite a 1996 law creating a decentralized civilian national emergency management agency, CONRED, little had been done to implement the new system. Following Hurricane Mitch, the GOG made systematic preparation for future disasters one of its highest priorities. The USG response was to provide $5.5 million to enhance disaster preparedness. USAID directly managed $1.5 million ($1.0 million CACEDRF funds and $0.5 million OFDA Central American Mitigation Initiative

(CAMI) funds), and $4 million were implemented through Inter-Agency Agreements with other USG agencies, including the National Oceanic and Atmospheric Agency (NOAA), the US Geological Survey (USGS), the Federal Emergency Management Agency (FEMA), the Centers for Disease Control (CDC), and the USDA/Forest Service.

At the close of the two-year Hurricane Mitch Reconstruction program, USAID/Guatemala is very confident that CONRED is much better prepared to respond to future disasters. Equally as important, a national system has begun to take shape with a hierarchy of responsibilities becoming manifest in the form of municipal and local disaster coordination units. Finally, the combination of efforts to strengthen both CONRED and INSIVUMEH, have laid a solid foundation for the implementation of activities directed not only at disaster response, but to mitigation and prevention as well.

How USAID, its partners, OFDA, and the other USG agencies performed is summarized below by sub-IR.

IR 1.1 ***Mapping, data collection, and targeting most vulnerable communities***. Only a small amount of USAID funding was used in direct support of this sub-IR. Most of the support was provided through the USG agencies, especially NOAA and USGS. NOAA, through its Inter-agency Agreement (IAA), invested approximately $1.4 million to strengthen Guatemala's national meteorological institute, INSIVUMEH in the form of manual and automatic weather stations, rain gauges, automatic stream gauges, radios, computers, satellite weather data receiving and transmission equipment, software and training.

In total, USGS invested $1.3 million, most of it to strengthen INSIVUMEH as well, through installation of modern equipment and training that included: telemetric stream-flow networks; UHF radios and a repeater station, landslide and volcano risk mapping capacity that included digitized maps, and computers and technical training for the establishment of an internet clearinghouse node; and CONRED and INSIVUMEH both benefited from aerial photography and satellite imagery to develop geographic information systems for improved disaster planning.

National health institutions and laboratories improved their disease prevention and response capability through epidemiological training by the CDC through a regional IAA. This regional effort channeled $300,000 towards Guatemala, and focussed on epidemiological surveillance for emergency and disaster preparedness. Three Guatemalan epidemiologists participated in the program, receiving the Field Epidemiology Training Program (FETP) masters-level training over two years. The training ends in September 2002.

The USDA/Forest Service worked with a local NGO that manages a national biosphere reserve to strengthen community-based forest fire prevention and control capabilities, monitor and analyze weather data in the reserve and share these data with INSIVUMEH, and to implement soil stabilization activities designed to prevent landslides. The Forest Service's IAA contribution was $400,000.

IR 1.2 ***Community Organizations Strengthened.*** Guatemala has 331 municipalities and over 3,200 local communities. With its limited resources, USAID was able to make a good start in tying some of these communities into a national network. Under this sub-IR, CRS and CARE were USAID's partners. They made investments worth $650,000. Both partners met and surpassed their targets.

The CRS target for the life of the SpO was to develop disaster-coordinating committees in 100 communities. CRS met and surpassed its original target by seven. A total of 107 local community disaster coordination committees (COLRED), all legalized within the CONRED system, and with community emergency management plans, were created.

CARE met its original target of forming 5 municipal (COMRED) and 25 community disaster coordination (COLRED) committees (30 total), and exceeded it by forming a sixth COMRED, and 15 additional COLRED. In total, CARE formed 51 disaster coordination units that included 6 COMRED and 45 COLRED. In all 6 COMRED and 25 of the COLRED, risk maps and emergency management plans were developed as well. In collaboration with CONRED, CARE installed 6 radio and 6 meteorological stations to function as community-based early warning systems.

Combined, CARE and CRS formed 152 COLRED and 6 COMRED for a total of 158 community-based emergency management units formed. More than numbers speak to these achievements. Both CARE and CRS developed high quality training approaches and materials in forming these emergency management units and emergency management plans. The overall system has benefited greatly from these efforts, creating a model for emulation in the country's remaining communities and municipalities. Indeed, what CARE and CRS achieved was more than the immediate result of a committee formed or an emergency management plan developed. More importantly, their efforts made tangible the hierarchy of responsibility a national system of disaster coordination should reflect at every level from national on down to local level.

IR 1.3 ***CONRED network strengthened***. USAID invested $100,000 of its CACEDRF funds for this sub-IR, and augmented that amount with $500,000 with CAMI funds for OFDA. All of the expenditures were in direct support to the CONRED system, beginning with equipping its Emergency Operations Center (EOC). The achievements under this sub-IR are results of collaboration between USAID, FEMA and USAID's Office of Foreign Disaster Assistance (OFDA).

A FEMA field report was the basis for USAID's procurement of $100,000 of computer, radio and emergency support equipment for use in the EOC. OFDA also provided technical assistance through its EOC Management Activity (MACOE) for streamlining personnel organization, staffing protocols and operations manuals, and staff training needs, and development of Guatemala's National Emergency Response Plan. OFDA further complemented the effort through a fund cite transfer of $500,000 under its Central America Mitigation Initiative (CAMI) to USAID, which was used to enhance the CONRED EOC through the provision of additional communications and support equipment and training. Purchases include over eighty computers and related communications equipment and software. In addition to equipment some CAMI funds

were programmed for a training and orientation activity to support implementation of CONRED's procedures and use of the new equipment at coordinating units at the regional, departmental and municipal level in Guatemala's interior.

Lessons Learned:

1. This activity was a novel experience for USAID/Guatemala and its partners. While the successes are considerable in terms of quality and quantity, the duration and funding was too short and limited. Particularly with respect to the formation of local and municipal coordination units, additional time and resources would have led to not only a greater number being formed, but a greater consolidation of a national system would have taken place.
2. The collaboration of USG agencies under the Mitch Reconstruction program proved to be very valuable in this IR. The different agencies brought different strengths and capabilities to the task. Most obvious were the technical strengths of NOAA and USGS, but he most surprising was FEMA, complementing OFDA's traditional disaster response capability with effective organizational talents and mitigation and prevention approaches.
3. Coordination between CONRED, USAID, and the PVO partners proved to be a must.
4. Because the formation of community committees involves the entire community, men, women and children, the impact is very positive.
5. In Guatemala, there is no prior experience with the concept of disaster mitigation; this concept was introduced through this activity.
6. CONRED's institutional capacity to provide follow up at the community level (where coordination units were formed under this project) is limited, but should be encouraged.
7. Both CARE and CRS gained entry-level experience with disaster preparedness. Consequently, both agencies acquired an appreciation for the importance of the concept and have stated they will be incorporating disaster preparedness and risk management in all future development projects.

IR 2: Agricultural Productivity Recovered on More Sustainable Basis

Key Intermediate Results: (1) River, land and small-scale irrigation systems rehabilitation, (2) Polochic and Motagua watershed management, (3) Seed recovery and multiplication, (4) Microenterprise recovery and credit, (5) Rural road repair in Ixcan, Quiche, and Alta Verapaz.

Highlights and Performance: Accounting for 80 percent of the Mission's Mitch Reconstruction program, IR2 acquired from the start grand expectations for results achievement, and in the end lived up to them. USAID's partners working to achieve results in this IR included the U.S. Army Corps of Engineers (USACE), the Ministry of Agriculture-Cipreda (MAGA-Cipreda), the National Coffee Growers Association (ANACAFE), the Center for Tropical Agricultural Research and Education (CATIE), and CRS.

Several hallmark achievements were realized. A successful Participating Agency Service Agreement (PASA) with the USACE, led to the design of twenty-two irrigation rehabilitation and flood control infrastructure projects. USACE's willingness to work with USAID in scaling their work to fit the environment of rural Guatemala, without compromising on design and construction standards, created the ingredients for success. USAID-managed Mitch funds were sufficient to implement nine of USACE's designs. Unimplemented designs are fully developed including budgets, and are ready to go as the Government of Guatemala secures funding for them.

The Fixed Amount Reimbursable (FAR) arrangement employed for the implementation of construction projects worked very efficiently. Ten projects, totaling $4,354,672, were implemented through MAGA-CIPREDA. Concurrent audits confirmed the efficacy of the FAR approach.

Rehabilitation targets for roads, bridges, and hectares of watershed, hectares of farmland, coffee mills, and small enterprises were met, and often exceeded. The productive lives of people were restored, as had been the original objective of this intermediate result.

Final results by sub-IR were:

IR 2.1 River, land and small-scale irrigation systems rehabilitation

USAID and MAGA-Cipreda implemented ten projects under the Fixed Amount Reimbursable (FAR) arrangement totaling approximately $4,354,672. These include:

Santa Lucia =	$780,763	Cahaboncito =	$ 471,500
La Playa =	$450,510	Cabañas =	$1,034,400
Quirigua =	$399,341	El Jicaro =	$ 482,460
El Rancho #1=	$186,394	La Tinta =	$ 620,000
El Rancho #2=	$ 75,075	Flor de Sesajal road =	$ 466,229

Nine of the projects were based on USACE designs, which were irrigation rehabilitation and flood control projects. A tenth FAR *the Flor de Sesajal road* was added when funds were returned by CRS.

ANACAFE rehabilitated 1,600 hectares of coffee plantations, and 18 coffee processing plants benefiting 14,000 small coffee farmers.

CRS had four objectives. (1) Sustainable management of soil, water and forest resources in 11 micro-watersheds (reduced from 24). (2) Improved crop productivity of 2,000 hectares damaged by Mitch (was reduced from 3,000 hectares); (3) Promote land tenure security in 43 communities to contribute to sustainable management of soil, water and natural resources (was reduced from 100); (4) Improve income generating capacity of 500 farm families (reduced from 2000). CRS' results were:

Cumulative achievements for objective one:
a) 11 selected micro watersheds = 17 established, 164% of target.
b) 200 hectares reforested/regenerated = 491 hectares (881,943 trees), 246% of target.
c) 300 hectares under agro-forestry = 494 hectares (577,200 trees), 165% of target.

Cumulative achievements for objective two:
a) 25% increase in crop productivity =26% achieved.
b) 1,500 farmers planting with improved seed = 2,293 farmers (153% of target).
c) 2,000 farmers with improved soil management = 4,372 farmers (219% of target).
d) 2,000 hectares under improved practices = 1,517 hectares (76% of target).

Cumulative achievements for objective three:
a) Promote land tenure security of 43 communities (land tenure analysis, land measurement, land titling/legalization process) = 53 (123% of target).
b) Communities completing legalization process for title to land = 57 (133% of target).

Cumulative achievements for the fourth objective:
a) 32 community banks trained and operating = 51 (159% of target).
b) 500 families receiving credit to date = 1,126 (225% of target)
c) 40 local producers using improved seeds with ICTA = 124(310 % of target).
d) 200 grain storage units (silos) = 366 (183% of target).

IR 2.2 <u>Polochic watershed management</u>

CARE and MAGA-Cipreda were the two partners working under this IR. CARE's two objectives were: (1) rehabilitation of agriculture and watershed areas through reforestation and improved natural resource management in 270 communities along the Polochic and Cahabon river valleys and their tributaries, and (2) assist 10,800 farming families from 270 communities in the departments of Alta and Baja Verapaz adopt soil conservation, agroforestry and diversified agricultural techniques. Under its first objective CARE targeted 8 results. A summary of results follows:

1) ***SpO Target: work with five municipalities to develop land use planning maps –*** **Result:** Six maps of 1:50,000 scale for San Pedro Carchá, Lanquín, Cahabón, Panzos, Senahú, and the Matanzas river watershed were completed. The digitized information contains data on soil type and use, conflicts, social maps, population pressure on resources, and economic characteristics.
2) ***SpO Target: develop an environmental education program for 2,600 primary school kids in 52 schools.*** **Result:** A curriculum and manual for 3rd through 6th graders was designed reaching 3,000 students in 64 schools.
3) ***SpO Target: develop a municipal strategy for forest fire prevention and control –*** **Result:** 55 extension workers and 540 forestry promoters trained in 240 communities in forest fire prevention and fire fighting; a campaign organized.
4) ***SpO Target: develop forest management plans in four intervention municipalities-*** **Result:** Four forest management plans completed for San Pedro Carchá, and San Miguel Tucuru, Panzos and Lanquín.
5) ***SpO Target: develop a training program for 12 municipal forestry technicians***. **Result:** One seminar for municipal forestry technicians on forest management and forest inventories was conducted by INAB, the National Forest Service, in January 2001.
6) ***SpO Target: develop a reforestation incentive scheme for 669 hectares in 270 communities paying $488,185 to 2,851 families who will also plant 712,750 multipurpose (pine, cyprus, maple) trees.*** **Result:** 240 communities organized, 2,703 families benefited, 750,000 seedlings distributed for a total of 662 hectares reforested, $403,548 of forestry incentives paid out.
7) ***SpO Target: 2,851 families adopt rational use of forest resources.*** **Result:** Training of 2,973 families on forest management topics continues; 56 municipal extension workers and 540 forestry promoters trained in soil conservation, crop diversification, analysis of the use, sub-use and over-use of soils, and forestry incentives. Achieved.
8) ***SpO Target: strengthen the capacity of the 15 municipal governments in the two Verapaz departments in natural resource management.*** **Result:** A training plan has been developed divided into sectors based on Polochic sub-watershed areas.

Under its second objective CARE targeted 2 results. The results are as follows:

1) ***SpO Target: Agro-forestry adopted by 5,680 families who will plant 688,936 coffee, macadamia, cacao, citrus, and allspice trees; 2,700 families will plant 35,100 multi-purpose shade trees.*** **Result:** 6,248 families have planted 1,254,685 (coffee, avocado, macademia, allspice) trees planted on a total of 1,092 hectares; 77,198 shade trees (ingas and red cedar) have been planted benefiting 4,130 families on a total of 277 hectares.

2) ***SpO Target: soil conservation techniques imparted to 1,340 families; 37 extensionists and 486 promoters trained; 174,000 vegetative soil protection materials distributed.*** **Result:** 1,600 families have been trained in soil conservation techniques; 42 extensionists and 540 promoters trained; 269,000 vegetative soil protection materials distributed (pineapple, vetiver, and flower shoots).

CARE also completed two small-scale irrigation systems servicing about 69 acres.

CARE sub-contracted with SHARE and "*Fundacion de Defensores de la Naturaleza*" (Defenders of Nature) (FDN) to each implement work plans directed at watershed rehabilitation and reforestation. A third sub-contract to experiment with renewable energy was let with the Solar Foundation. All three sub-contractors completed their respective workplans.

FDN's work plan had two results. They were:

1) Rehabilitate watersheds and agricultural areas in the Sierra de las Minas Biosphere Reserve (SMBR) by reforesting 10 hectares, training 150 families in 15 communities in forest management practices and development and diffusion of a campaign for the prevention and combating of forest fires. Cumulative result: 45 hectares reforested. 70 families trained in 7 communities. Forest management training given in 9 communities. Forest fire campaign on radio for four months along with publication and distribution of 1000 posters, 2000 brochures and forest fire training conferences held in 5 communities.

2) Orient 375 agricultural families in the SMBR toward sustainable agricultural practices. Cumulative result: Over 400 families received benefits that included workshops held in 15 communities on agro-foresty methodologies; coffee seed nurseries started with 3000 lbs. of coffee seed; organic fertilizers distributed.

SHARE targeted two results. First, rehabilitate 550 hectares of at-risk and degraded land in the Motagua watershed through reforestation, training on improved natural resources management practices, and distribution of wood-saving stoves. Second, help 600 small farm families recover their agricultural production through the adoption of sustainable agricultural practices including agro-forestry. SHARE surpassed its targets. The cumulative results with respect to major indicators are:

Result	**Indicator Description**	**Life of Project Target**	**Actual Achieved**	**Percentage Achieved**
No. 1.	Hectares reforested	550	632.84	115 %
	People trained and knowledgeable about improved watershed management practices	2,300	3,708	161 %
	Households using efficient wood-saving stoves	300	383	128 %
No. 2.	Farm families have recuperated their productive capacity	600	2,561	427 %

The Solar Foundation targeted the installation of 812 photovoltaic units for electric energy production and 812 improved cook stoves (that use fire wood efficiently) in 14 communities. Cumulative result: Installed 812 photovoltaic systems and 812 improved cook stoves. Community committees formed and trained in 14 communities to oversee maintenance, spare parts, and bookkeeping.

IR 2.3 Seed recovery and multiplication

The Ministry of Agriculture, through Cipreda and its technology unit ICTA, was the partner for this letter for this $1.0 million seed recovery and multiplication IR.

MAGA-Cipreda-ICTA's target was to bring improved seed to 17,000 producers who lost seed stocks during Mitch. The production of improved seed for corn, rice, black bean, potato, and sesame involved a multi-step process, from an initial base seed and then multiplication by trained farmers to produce certified seed. ICTA directly trained 371 technicians, and working through CARE, CRS, the Peace Corps and other groups trained 1,340 farmers. ICTA's production targets for certified seed for each seed type were, corn= 430,000 lbs.; bean= 50,000 lbs.; rice= 200,000 lbs.; potato= 150,000 lbs.; sesame= 15,000 lbs.

- Results for each crop is corn= 449,100 lbs. (104% of target); rice= 240,900 lbs. (120% of target); sesame= 16,800 lbs. (112% of target); bean= 71,708 lbs. (143% of target); potato= 150,400 lbs. (100%).

IR 2.4 Microenterprise recovery and credit

- MAGA-BANRURAL is the main partner for the $2 million provided under a project implementation letter. MAGA- BANRURAL met its target earlier in 2001 having extended $2,000,000 in micro enterprise credits benefiting 13,200 families (200 over the original target).

IR 2.5 <u>Rural road repair in Ixcan, Quiche, and Alta Verapaz</u>

ANACAFE, under its $3 million Cooperative Agreement is the largest partner for this IR. Their SpO targets included: 130 kilometers of road rehabilitated that will benefit 52,000 small coffee growers. The USAID road engineer continues to monitor the technical progress of the work. Following the engineer's accurate measure of the programmed road length, a revised target of 88.40 kilometers was set. ANACAFE has to date:

- Rehabilitated 102 kilometers of road.

<u>Comment:</u> Although the Cooperative Agreement has been completed, ANACAFE still expects to complete the original 130-kilometer target by December 31, 2001. As reported last quarter, ANACAFE is leveraging the corrected 88.4 kilometers target using multiple agreements with municipalities. As of September 30, 2001 three municipalities (Santa Cruz, Alta Verapaz, Cahabon, and San Pedro Carcha) had already entered into co-financed agreements with ANACAFE. Through these arrangements ANACAFE expects to complete the remaining 28 kilometers by December 2001.

Through its $1.95 million Cooperative Agreement, CHF is rehabilitating rural roads and bridges in Ixcán. Their SpO targets are: (1) reconstruct 13 concrete vehicular bridges; (2) reconstruct one Bailey vehicular bridge, (3) repair one Bailey vehicular bridge, and (4) reconstruct 100 kilometers of gravel roadway (the Northern Transversal Highway). Cumulative achievements are:

- Thirteen bridges completed and open to regular traffic.
- Install one bridge (Santa Maria Dolores Bailey Bridge) underway; completed.
- Repair of one Bailey bridge (Xalbal Bridge) completed.
- Rehabilitated 100 kilometers of the Northern Transversal Highway.

Lessons Learned:

1. The Mission entered into infrastructure construction activities while not having an engineer on the staff. This slowed down implementation, and put the Mission at a disadvantage when technical issues arose. However, once on board, an engineer proved invaluable in improving efficiency and implementation of infrastructure activities.
2. The Mission had as many as eleven Recipient-Contracted Agreements (audits) going on during the implementation of the program, which occupied more staff time than anticipated. However, implementation and accountability was deemed to have worked well, and USAID partners' internal systems were strengthened as a result.
3. The partnership between the U.S. Army Corps of Engineers and the Ministry of Agriculture in completing critical infrastructure protection and flood control infrastructure proved to be very timely and efficient. USACE identified critical needs and completed timely designs. MAGA contracted with private construction firms under a FAR arrangement with USAID while USACE continued to provide construction supervision and final inspection and certification. MAGA and the private contractors were impressed with the innovativeness of the USACE designs, the strict application of specifications for local materials, and the application of U.S. work place safety standards. MAGA requested that USACE conduct a successful stream bank protection course for local engineers.

   The Mission extended the USACE PASA using regular funding for an additional year and a half after the completion of the Mitch program to provide on-call assistance to evaluate the response of the completed structures to climatic events as well as to provide follow up assistance to MAGA and local communities for the operation and maintenance of the structures.

IR 3: Community Disease Prevention and Control Systems Strengthened

Key Intermediate Results: (1) Local malaria prevention and control programs strengthened, (2) Household water and sanitation programs established in selected areas, and (3) Capacity to prevent and control infectious diseases enhanced.

Performance: All three components of this Intermediate Result led to strengthened community disease prevention and control by improving community disease response and better household health practices. CARE and CRS, principal partners in this IR for water and sanitation activities, achieved their respective work plan targets, and MERTU-CDC met its targets of supporting CARE and CRS in their water and sanitation efforts as well as meeting malaria and dengue control targets.

IR 3.1 Local malaria prevention and control programs strengthened

MERTU-CDC targeted four results for this activity: (1) the distribution of insecticide-treated bed nets (ITN) in high-risk malaria villages; (2) improved malaria case detection and treatment among lab workers in the affected health areas of Ixcán, Izabal and Escuintla; (3) epidemiological surveillance; and (4) monitoring and evaluation. MERTU-CDC 's achievements include:

Result #1 – Bed nets:

- Bed net production has been completed with a total of 14,275 units treated and delivered as follows, 10,199 in Ixcán, 1,500 in Izabal (El Estor), and 2,576 in Escuintla (Tiquiste).
- Delivery of bed nets to date:
  Ixcan: No. Communities 46__ No. Homes 3,096
  Izabal: No. of Communities __1__No. Homes_360
  Escuintla: No Communities__2__No. Homes__956
- Bed net extension community promotion activities to date:
  Ixcan: No. of Communities visited __46__No. Homes 3,096
  Izabal: No. of Communities visited ___1__No. Homes ___360
  Escuintla: No Communities visited ___2__No Homes ___960

Result #2 – Malaria case detection and treatment:

- Volunteer Collaborator (VC) training to date:
  Ixcan: No. VC trained ___300__No. beneficiary residents covered/VC(233)_70,000
  Izabal: No VC trained ___344__No. beneficiary residents covered/VC(100) __34,498
  Escuintla: No VC trained 265__No. beneficiary residents covered/VC(100) __26,442
- Malaria cases were promptly diagnosed and treatment delivered by trained personnel. In addition to active surveillance, passive case detection has been strengthened through the systematic supervision of volunteer collaborators.

- Five malaria diagnostic centers serving 176 villages were set up; 3 in Ixcán and one each in El Estor, and Escuintla.
- Estimates of Chloroquine resistance. Data collection for *in vio* tests started in August 2001. Malaria patients, 68 with P. vivax and 3 with P. falciparum infections were enrolled in the study. Preliminary analysis demonstrated that 29% (20 cases) of P. vivax was resistant, while none of P. falciparum were resistant.

Result # 3 – Epidemiological surveillance:
Enhancing the quality of the parasitological and entomological data collected at community level was the basic approach to improving surveillance. Training of volunteer collaborators and microscopists was undertaken. Additionally, computer facilities were installed at Vector Control Offices to process computerized data entry. This system is produced the official E-1 form and monthly reports of the status of malaria at the local level.

Result # 4 - Monitoring and Evaluation
Monthly entomological surveys were conducted from June 2000 to November 2001 in the 26 original study communities in Ixcán. Baseline data was collected to March 2001, prior to bed net distribution. Data to August 2001 showed that the vector population was composed of. *Anopheles darlingi* 37.5% (n=2345), *An. Vestitipennis*, 41.2% (n=2578), *An. Albimanus*, 7.1% (n=446, *An. Pseudopunctipennis*, 0.4% (n=28), *and An. Apicimacula* & *Punctimacula*, 13.4% (n=843).

IR 3.2 <u>Household water and sanitation programs established in selected areas</u>

CARE and CRS were the principal partners in this sub-IR with technical support from MERTU-CDC.

CARE
CARE's objective for this IR is by August 2001 was to have reduced by 15% the prevalence of diarrheal diseases in children less than 5 years of age in 14 rural communities in 5 municipalities of Alta and Baja Verapaz. To achieve this result, CARE is making available community water systems and latrines to 6,029 beneficiaries (1,176 families), and promoting adequate hygiene practices. CARE is constructing 12 water systems that will serve 14 communities, distributing 1,484 water receptacles for household treatment and storage of water, and constructing 1,472 latrines. Cumulative progress to date is:

- Twelve water systems serving 14 communities have been completed and inaugurated.
- 1,484 water receptacles have been distributed – target met.
- Completed 1,472 latrines (100% of target).
- Sewer systems completed: CARE targeted gravel-filled sewer systems completed at the household level in 10 communities receiving water systems. Sewer systems have been constructed in 10 (989 households) communities. Target met.
- Hygiene practices education continues with the training of 79 community informants from the 14 target communities. Target met.

- Additionally Health Guardians, Midwives and School age children have been trained in diarrheal disease prevention.
- Women participation in project implementation and training has been encouraged and supported.
- Monitoring of water quality in coordination with CDC/Mertu was completed.

Note: During the quarter, CRS amended its cooperative agreement that included the return to USAID of $45,015 from the IR3 element of the agreement. These funds were transferred to CARE to increase and amend its cooperative agreement under this element by the corresponding amount. CARE will use the $45,015 to purchase chlorine stocks for use in potable systems constructed under the Mitch program. The stocks will be held in regional chlorine banks that CARE will be establishing during the final months of the Mitch reconstruction program.

CRS

CRS' objective for this IR was to reduce the incidence of diarrheal disease, especially in children under five years of age, by improving household water and sanitation conditions, and hygiene knowledge and practices. Expected results were: (a) construct or rehabilitate 28 small community water systems; (b) construct/rehabilitate 110 wells; (c) construct 2,100 latrines; (d) distribute 6,600 water receptacles with chlorine disinfectant. Working with three local counterparts, the Social Pastorate of Ixcán, the Social Pastorate of the Verapaces, and Caritas of Zacapa, CRS met or surpassed all the targets. A summary of achievements includes:

- 32 new water systems rehabilitated/reconstructed (114% of target).
- 148 communal wells rehabilitated/constructed (134% of target).
- 7,236 5-gallon receptacles distributed and chlorine doses distributed in 60 communities (120% of target).
- 4,016 pit latrines and dry composting latrines installed (191% of target).
- 213 community facilitators trained in hygiene practices, latrine maintenance, and water receptacle management who in turn trained 7,185 families.
- In coordination with MERTU/CDC health and hygiene practices monitoring and evaluation plans completed.
- Monitoring activities for water quality with MERTU/CDC were completed.

CDC

MERTU/G-CDC provided assistance to CARE and CRS to establish an evaluation and monitoring system focused on hygiene practices, water quality and diarrheal disease. Including definition of indicators, training in data collection methods, preparation of water sampling plans and management of statistical programs.

IR 3.3 Capacity to prevent and control infectious diseases enhanced

- MERTU/G-CDC assisted the Ministry of Health (MOH) with a plan for a "National Offensive for the Prevention and Control of Dengue." The plan consisted of two major objectives to enhance preparedness for an epidemic. The first objective involved strengthening and decentralization of national laboratory capacity. The central laboratory was strengthened and two regional laboratories were established in

high-risk areas. The CDC helped equip the two regional labs and provided training to 7 MOH technicians. The second objective was to enhance national capacity to promptly diagnose and effectively treat cases of dengue and hemorrhagic fever. To accomplish this 1,150 medical and auxiliary health personnel received training. CDC's Dengue Branch in Puerto Rico provided training. CDC also coordinated this activity with PAHO and other donor efforts to improve dengue preparedness.

Lessons Learned:

1. It is risky to give assistance to partners who have never worked on the technical area for which they have received assistance in a quick response program like the Hurricane Mitch reconstruction program. For example, one PVO that worked in water and sanitation experienced a steep learning curve. USAID had to do a lot of mentoring, overseeing, and teaching in the water and sanitation area that we expected the partners to do. USAID was not staffed sufficiently to handle this technical burden.
2. A Mission cannot assume that a PVO's excellent experience and track record in a neighboring country will help them enter a new area, e.g., CRS/Honduras' extensive water and sanitation experience was not drawn upon by CRS/Guatemala.
3. At USAID's initiative, extensive water and sanitation experience in Honduras was shared and used to improve the quality of water and sanitation activities in Guatemala, such as the Regional Water and Sanitation Network for Central America (RRAS-CA).
4. CARE/Guatemala was generous and very helpful in sharing all of its water and sanitation know how with CRS.
5. Having an independent agency to test water quality, e.g., MERTU/CDC was good.
6. Getting the right levels of chlorine in water to ensure potability was a challenge never fully overcome.
7. Sustainability of chlorination and how to set up community chlorine banks needs more work.
8. Some innovative and very affordable locally made latrines were designed which were easy for kids to use.
9. CDC malaria bed net production now needs to be paired with microenterprise know how from elsewhere in the Mission to be sustained as small businesses for women. This is not a CDC strength.
10. During emergency response projects, support and follow up to technical and operational exchange among partners has to be provided. Partner's institutional capacity is strengthened through knowledge, tools and experience exchange. IR3 Partners Coordination Committee supported problem solving and high quality technical exchange during the life of project. The Mission's role in facilitating partner coordination during emergency response is critical.
11. Water quality and educational activities must be closely monitored in emergency response projects. The participation of partners whose strength is monitoring and evaluation, can support timely information and response to water quality issues and also the development of behavior change educational material.

Financial Summary

As of December 31, 2001, the Mission had sub-obligated 100% of funds under the three intermediate results; i.e., $27.96 million committed with implementing agencies (see table attached). Accrued expenditures for all three IRs had reached 99.49% i.e., $27.858 million (see graph). The Mission's accumulative expenditure target for all three IRs for the quarter was 100% or $28 million. Some administrative costs related to close out and final report preparation and one final project extended under IR2, will account for essentially the balance when tallied as of March 31, 2002.