USAID/EL SALVADOR HURRICANE MITCH RECONSTRUCTION COMPLETION REPORT

1. SUMMARY: USAID/El Salvador's Hurricane Mitch program was completed ahead of schedule, on September 30, 2001, having achieved impressive results in economic reactivation, restored social and economic infrastructure (roads, electrical lines, wells, potable water systems, safe havens, houses and latrines), and improved environmental management and disaster preparedness. This report discusses (a) the impact of Hurricane Mitch on El Salvador, (b) the disaster response by the US Government during both the emergency relief and reconstruction phases, (c) the major results achieved, and (d) the lessons learned. The USG-wide program was funded at $50.2 million, comprised of $5.5 million during the emergency phase and $44.7 million during the reconstruction phase, the most significant element being $27.8 million in bilateral funding and Central America and the Caribbean Emergency Disaster Recovery Fund (CACEDRF) monies. END SUMMARY

2. HURRICANE MITCH'S IMPACT: While El Salvador was not as hard hit as some of its neighbors, it suffered considerable damage as a result of Hurricane Mitch. On November 1, 1998, days of constant rain culminated in the forced release of a wall of water from the country's major hydroelectric dam, producing major mudslides on denuded hillsides and severe flooding in the coastal regions of the Rio Lempa and Rio Grande de San Miguel. By the time the rains subsided, 374 Salvadorans had perished, another 55,800 were displaced, and economic damages had exceeded $600 million. Damages to the productive sector were severe -- 65,200 hectares were badly flooded; 18% of the 1998/99 basic grain harvest was lost; and 9% of the estimated 1998/99 sugarcane crop was destroyed. Infrastructure was also badly affected as 60% of the country's 1,998 kilometers of paved roads suffered varied degrees of surface damage, and 2,653 kilometers of rural roads were left in need of major repairs. Moreover, 283 schools (6% of the total serving over 92,000 students) were damaged or destroyed by flooding and landslides, causing an estimated $5 million in damage, with $4.2 million as the replacement cost for school furniture and educational materials. In addition, 22 rural health units were damaged or destroyed, adding $2 million to the final toll.

3. EMERGENCY ASSISTANCE PHASE: The USG, through USAID and the Department of Defense (DOD), responded with $5.5 million of relief assistance. DOD contributed $420,500, comprised of engineering support, water, the opening of a health clinic, and patient treatment through medical readiness exercises. USAID provided $5.1 million, which included $1.1 million in humanitarian assistance focused on water and sanitation; a $1 million agreement with CARE for an emergency water rehabilitation activity to restore 3,000 wells and repair 2,500 latrines in Mitch-affected zones; and the re-programming of $3.9 million from core program funds to jump-start reconstruction prior to the passage of the Hurricane Mitch supplemental (CACEDRF).

4. GOVERNMENT OF EL SALVADOR (GOES) EMERGENCY RESPONSE: The GOES opened 147 emergency shelters to accommodate displaced victims, and took immediate action to repair the primary road network. Within 120 days of the hurricane, it

repaired 68% of the damaged paved roads and replaced two of the three Bailey bridges that stretched across the Lempa River. Also noteworthy, a rapid and comprehensive response by the Ministry of Health (MOH) prevented the outbreak of serious diseases. Health promoters from less affected regions together with 30 nurse assistants funded by USAID staffed health clinics around the clock to attend to the needs of flood victims. The MOH's efforts were complemented by the work of the Academy for Educational Development, a USAID contractor, which launched an extensive campaign in the affected areas to teach people how to treat contaminated water.

5. RECONSTRUCTION/RECOVERY PHASE: To address El Salvador's post-emergency reconstruction needs, USAID/El Salvador prepared a strategy document, "Reduced Vulnerability of the Rural Poor to Natural Disasters in Targeted Areas," which was approved by USAID/W in March 1999. The strategy called for the stimulation of economic activity, increased access to basic community services (investments in social infrastructure such as water systems, wells, latrines, and schools), and mitigation of the impact of future natural disasters, focused heavily on environmental management and disaster preparedness. Emphasis was placed on the 10 municipalities within the Lempa-Grande floodplain where damages were most severe. Of the 153,000 Salvadorans living in these municipalities, 147 communities with a total of 37,000 residents were identified as being the most seriously affected population. To ensure that USAID addressed the most compelling hurricane-related needs of this target group, program activities were designed in conjunction with on-site damage assessments, and included strong community participation.

6. RECONSTRUCTION FUNDING: USAID provided $27.8 million in grant funds for the reconstruction phase, including $24.8 million in bilateral CACEDRF monies, $500,000 in CSD funds, $500,000 from OFDA, and $2 million in CACEDRF monies through the G/CAP regional Hurricane Mitch program. The G/CAP contribution to El Salvador emphasized transnational management of the Rio Lempa watershed, and the establishment of regional standards for construction of roads and energy systems to better withstand future natural disasters. The $27.8 million USAID program was supplemented by $6.9 million in CACEDRF funding provided to other USG agencies working in El Salvador, a $5 million DOD New Horizons program, and a $5 million in Department of Agriculture Section 416 contribution. Under the USDA program, 40,000 tons of donated wheat and corn generated local currency that was used to reconstruct houses, rural roads, and bridges in Mitch-affected areas.

7. Significant work was carried out by USAID in the four focus areas of economic reactivation, economic and social infrastructure, environmental management, and disaster mitigation, as follows:

8. ECONOMIC REACTIVATION: USAID helped restore economy activity in the most severely affected Mitch areas. Over 5,500 farmers received agricultural inputs and technical assistance (TA) in organic farming, including soil preparation, planting, farm management, harvesting, and marketing, which led to the planting of 2,297 hectares with

high value crops. This work was carried out by two USAID partners, the Cooperative Housing Foundation (CHF) and the Cooperative League for the United States (CLUSA).

9. INFRASTRUCTURE: USAID restored and expanded access to basic community infrastructure in the hurricane-affected regions of the country. The program financed 51 small infrastructure projects including the construction of emergency shelters, bridges, dispensaries, and rural roads, benefiting over 79,000 people in 182 communities; local communities participated enthusiastically, providing labor and significant cost-sharing contributions. A total of 500 homes were built, benefiting 3,000 persons, using design standards that mitigate against future risks from flooding and other natural disasters, and 79 schools were rebuilt and re-equipped (including 4,500 new desks), serving 19,000 students in 212 communities; beneficiary communities donated construction materials, equipment, and labor. In addition, 420 solar panels were installed in 198 community facilities. In the area of potable water, sanitary seals and hand pumps were provided for 1,146 wells providing water services to over 9,500 rural poor; 5,342 latrines were built; 13 potable water systems were put in place serving over 23,000 residents; and a community health education program was successfully conducted. Local water committees also were established and community members trained to ensure sustainability. Finally, a total of 136 kilometers of rural roads were repaired benefiting more than 176,000 rural residents, and 205 kilometers of electrical distribution lines were erected providing benefits to nearly 6,000.

USAID's principal partners in the infrastructure component included CARE, which provided potable water systems and latrines, and a local NGO, CALMA, that worked on water-related education issues. Rural roads were refurbished in collaboration with the General Directorate of Highways of the Ministry of Public Work (MOP); and electrical distribution lines were erected working with the Rural Electrification Unit within the Technical Secretariat for External Financing (SETEFE) of the Ministry of Foreign Affairs. The remaining infrastructure activities described in the preceding paragraph were carried out under a cooperative agreement with the Cooperative Housing Foundation (CHF).

10. ENVIRONMENTAL MANAGEMENT: Working under a cooperative agreement with USAID, CHF provided for improved environmental management in the affected Lempa and Grande de San Miguel flood plains through a program that encompassed a number of targeted activities. Conservation activities were carried out in 36 micro-watersheds across 197 hectares. Solid waste management interventions and training focused on 10 communities and included community-led public information campaigns and clean ups efforts, emphasizing at least in part the dengue epidemic. In addition, 533 hectares were re-forested, with 297 utilizing trees produced in community nurseries. Finally, roughly 3,200 people received training in environmental management.

11. DISASTER MITIGATION: A number of activities were designed to help El Salvador prepare for future natural disasters, working through an agreement with CHF and its sub, Partners of the Americas, OFDA, and the U.S. Army Corps of Engineers (USACE), the Federal Emergency Management Agency, and the National Oceanic and

Atmospheric Administration. Over 3,000 individuals (48% women) received training in the areas of disaster vulnerability, disaster preparedness, and implementation of early warning systems, and emergency action committees were established in 118 communities that were assisted in the development of effective disaster preparedness plans. These same 118 communities benefited from workshops in first aid, rescue techniques, shelter management, and methodologies for conducting damage and needs assessments. Over 35 hectares of environmental risk mitigation work was carried out in the municipality of Berlin; the community provided equipment and proved highly proactive in supporting the initiative. Finally, 12 municipal emergency plans were reviewed and improved, while comprehensive training was provided to 146 disaster preparedness trainers.

Throughout the disaster mitigation work, an important focus was the strengthening of emergency management systems at the departmental, municipal, and community levels. A diagnostic study of equipment needs for the departmental emergency operations centers (EOCs) was carried out; equipment was purchased for five EOCs; and EOC manuals were reviewed and strengthened. To complement this effort, 12 municipalities were furnished with emergency rescue equipment, 30 communities received emergency medical kits, and 10 local emergency committees received emergency communications equipment. Finally, 20 communities were trained in disaster preparedness.

USACE developed a master flood control plan for the Lempa and Rio Grande de San Miguel watersheds, which included specific initiatives for 12 municipalities and also became a valuable asset for reconstruction after the 2001 earthquakes.

12. LESSONS LEARNED: USAID/El Salvador learned a number of important lessons from Hurricane Mitch and other disaster recovery programs, many of which are being applied under the Earthquake Reconstruction Program launched last year.

Disaster Mitigation: Under the Mitch program, USAID trained over 3,000 individuals from 118 communities and improved 10 municipal emergency plans. During the emergency phase following the 2001 earthquakes, this work paid enormous dividends, as many of these communities were effective in facilitating international assistance efforts. They quickly and accurately assessed and reported on damage estimates to the authorities, which resulted in a rapid delivery of assistance. Owing to the success of this work, the Mission's earthquake reconstruction program included a significant disaster mitigation component, focused on education, and the development of disaster management and land use plans in 47 high-risk municipalities.

Stakeholder Participation: Under the Mitch program, six major community/stakeholder meetings were held in the field with the participation of GOES officials, implementing agencies, and the donor community to obtain direct feedback from community leaders and residents. These client-focused meetings reinforced community participation and transparency, and allowed the Mission to make timely program-enhancing adjustments. Replicating this approach, USAID held a major partner/client workshop late last year under the Earthquake Recovery Program, and will carry out other major events as appropriate throughout the program.

Notwithstanding Authority: Notwithstanding Authority like that used by USAID's Office of Foreign Disaster Assistance (OFDA) to meet the critical needs of the Salvadoran people during the emergency phase of the earthquake disaster, would have been extremely helpful in responding to Hurricane Mitch. Immediately following the 2001 earthquakes, OFDA was able to negotiate directly with six PVO partners to secure their assistance without having to process time consuming waivers and other related paperwork. As a result, some 22,000 temporary housing solutions were erected in less than four months, before the rainy season, and potable water and sanitation systems were rapidly repaired. Providing bilateral missions with similar limited authority would improve their ability to work in parallel with OFDA in responding to natural disasters during the critical first days and weeks when victims are most vulnerable.

Accountability: In order to meet accountability requirements under the 1986 earthquake and 1992 Peace and National Reconstruction Programs, USAID/El Salvador used costly financial and compliance monitoring services provided by independent CPA firms. By the time that Mitch struck, the GOES Court of Accounts was able to assume this role, thanks to Mission-funded technical assistance and the efforts of the USAID Regional Inspector General's Office in San Salvador. The Court of Accounts performed timely audits of all GOES implementing entities under the Mitch program, in accordance with RIG norms and standards. Moreover, all significant audit issues were resolved quickly and effectively due in large part to the stature and performance of the Court of Accounts. An investment in the Supreme Audit Institution of a cooperating country can pay enormous dividends in terms of accountability, and can provide an extremely cost effective resource. Based on the success of the Mitch experience, we are now relying on the Court of Accounts to perform audits of GOES entities responsible for key elements of the Earthquake Recovery Program.

Accelerate Contracting: Under the Mitch program, USAID published Requests for Applications "subject to funding availability," rather than waiting for receipt of fund cites. By the time that the Mitch legislation received approval and allowances arrived, USAID/El Salvador was ready to sign grants and rapidly move forward with program implementation. The Mission also prepared Action Plans covering the entire Mitch period, some eighteen months, rather than preparing annual Action Plans. These innovations contributed importantly to the fact that the Mission's Hurricane Mitch program was completed sooner than had been anticipated by USAID/W, Congress, and OMB – the end of FY 2001. The Mission has adopted a similar approach for the second year of its ERP, striving to have programmatic and contracting actions in hand by the time funding allowances arrive. This is a critical management approach

USAID also canvassed other Mission's with Mitch programs to see what lessons could be gleaned from their efforts. In the case of USAID/Guatemala, it successfully used the Fixed Amount Reimbursement contracting methodology for roads, avoiding difficult delays generally encountered in using host-country contracting. USAID/El Salvador is also utilizing a fixed amount reimbursement arrangement with our GOES housing partner under the earthquake recovery program, which has greatly expedited implementation.

Based on the USAID/Honduras experience, the Mission is also testing the use of mandated Environmental Guidelines. Six separate sets of guidelines have been prepared for use under our earthquake recovery program. USAID/Honduras discovered under its Mitch program that unless it conducted inspections at the activity sites, the guidelines would not be adhered to. Hence, USAID/El Salvador is verifying every environmental checklist in the field under its earthquake program to ensure compliance.

Cost-Sharing: Make sure that agreements do not have unreasonable cost-sharing requirements, recognizing also that the actions that implementing partners have already taken to address the major emergency needs of disaster-affected communities have left them with scant resources. Within its work for community infrastructure under its Mitch program, CHF had expected to cover cost-sharing requirements with contributions by the Germans through FISDL. When that fell through, it sought out the municipalities who also could not come up with the requisite monies because their coffers were empty owing to Mitch-mandated spending requirements. CHF also did not have monies of its own. Hence, CHF had to come back to USAID to re-negotiate the program, leading to program implementation delays. At the end, CHF achieved the original cost-sharing level with community, municipalities and other donor contributions, but this required an enormous effort that could have been invested in accelerate program implementation. Therefore, recognizing the need for a fast implementation of disaster assistance programs, under its earthquake reconstruction program, USAID/El Salvador made sure that its agreemens did not have unreasonable cost-sharing requirements.

13. SUSTAINABILITY: In designing and implementing the Mitch program, USAID paid particular attention to sustainability issues. For activities related to wells, latrines, and potable water systems, local water committees were established as an important sustainability element. CARE, which implemented this component of the Mitch program, is also using core program funds to provide important follow-up, while working to strengthen local committees to provide for sustainable administration of water systems.

USAID also encouraged maximum cost-sharing on the part of its beneficiaries. In the case of schools, beneficiary communities donated sizable amounts of construction materials, equipment, and labor, developments that augur well for future sustainability through an enhanced sense of ownership. In the case of small infrastructure activities, municipalities and communities provided valuable cost-sharing as well. Under our ongoing environmental management activities that focus on reforestation and conservation activities in micro-watersheds, communities are being encouraged to take care of the conservation works and the flora that were planted under the Mitch program.

In addition, the Mission made ample use of technical assistance and training to ensure sustainability. Specific to disaster management, training, workshops, and municipal emergency plans were carried out with staff assigned by the Ministry of Governance working side-by-side with CHF technicians, a development that contributed greatly to sustainability. In the case of the rehabilitated rural roads, the Ministry of Public Works has agreed to assist beneficiary municipalities with ongoing maintenance. For the

investment in electrical distribution lines, the mayors of the beneficiary communities have entered into an agreement with the national electrical company to maintain the lines.

Finally, in the case of housing, design innovations were introduced that will minimize the risk of damage from flooding and other natural disasters, developments that will help sustain these investments.

14. CORRUPTION & IMPROVED TRANSPARENCY:

The USAID Regional Inspector General's Office in San Salvador contributed by provided courses on fraud awareness to USAID partner institutions responsible for Mitch program implementation. In addition, USAID/El Salvador and RIG arranged for concurrent audits of key components of the program based on a risk analysis.
This work as well as concurrent audit coverage by the Court of Accounts and the RIG led to the quick and effective resolution of all audit findings. As a consequence, all audit findings were closed before the end of calendar year 2001.

15. DONOR COORDINATION: Donor coordination under USAIDs Mitch program took place at four levels. Periodic meetings were held with the participation of representatives from the principal donors, including Canada, Germany, Spain, Sweden, Japan, and the United States. The USAID Director represented the United States Government at these meetings. Key topics at these meeting included the resolution of implementation problems involving the GOES, and tracking and reporting on donor pledges of assistance. At the next level down, roundtable discussions were convened for technical staff by the UNDP on a regular basis. These meetings, involving technical representatives from the donors, GOES officials, personnel from local governments and municipalities, and NGO representatives were held to prevent duplication of effort and to devise solutions to shared implementation problems. The third level of coordination was at the community level, with municipalities and recipients of the Mission's Mitch programs. The last level of coordination took place directly with the GOES. USAID held regular meetings with each of the participating GOES ministries to preclude duplication and resolve issues. Our implementing partners such as CARE and CHF participated in these meetings. The end product was improved program effectiveness, as evidenced by the results cited throughout this 'report.

16. COORDINATION WITH OTHER USG AGENCIES: A number of other USG agencies were involved in the Mitch reconstruction effort in El Salvador, contributing $6.9 million in CACEDRF funding. This effort included: (a) CDC (enhanced disease surveillance capacity at the national level with the Ministry of Health); (b) EPA (improved quality of water through equipment and technical assistance to the Ministry of Health and the country's national water authority; (c) FEMA (assessment of the national emergency operations center); (d) NOAA (establishment of meteorological stations as well as participation in the installation and maintenance of the Rio Lempa Hydrologic Forecast System and the Rio Grande de San Miguel flood early warning system); (e) USACE (master flood control plan for the Rio Lempa and the Rio Grande de San Miguel basins); (f) USDA (rehabilitation of damaged watersheds); and (g) USGS (landslide

monitoring reports focused on volcanoes and equipment such as stream monitoring gauges to help mitigate the damages associated with future flooding).

UNITED STATES GOVERNMENT: HURRICANE-MITCH ASSISTANCE FOR EL SALVADOR
(U.S. Dollars)

EMERGENCY HELP	**$ 5,489,070**
USAID	5,065,508
Office of Foreign Disaster Assistance (OFDA):	
- Ambassador's Disaster Assistance Authority	25,000
- Assistance in Kind	98,451
- Water & Sanitation/CARE	1,000,000
- Logistical Support	5,000
OFDA Sub-Total	1,128,451
USAID/El Salvador Reprogrammed Funds	3,940,057
United States Department of Defense:	420,562
Engineering/Design Support	297,044
Military Hospital/Medical Readiness Exercises	123,518
RECONSTRUCTION/RECOVERY PHASE	**44,718,501**
USAID	27,800,000
USAID/EL SALVADOR CACEDRF*	24,800,000
USAID/EL SALVADOR CSD**	500,000
USAID/G-CAP CACEDRF	2,000,000
OFDA	500,000
DEPARTMENT OF DEFENSE (New Horizons Prog.)	5,000,000
DEPARTMENT OF AGRICULTURE (USDA)	5,000,000

CACEDRF ALLOCATIONS TO OTHER USG AGENCIES:

CENTERS FOR DISEASE CONTROL & PREVENTION	1,932,768
DEPARTMENT OF STATE	950,000
ENVIRONMENTAL PROTECTION AGENCY	930,000
FEDERAL EMERGENCY MANAGENT AGENCY	500,000
NATIONAL OCEANIC & ATMOSPHERIC ADMIN	1,184,000
USDA	206,733
UNITED STATES GEOLOGICAL SURVEY	1,215,000
Sub-Total	6,918,501

GRAND TOTAL **$50,207,571**

*Central America and the Caribbean Emergency Disaster Recovery Fund
**Child Survival & Disease

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OTHER US AGENCIES ASSISTANCE

For information purposes, and according to USAID knowledge and understanding, below is a summary of other US Agencies work implemented in El Salvador.

CDC ($1.933 million): For its part, CDC planned, organized, and developed the first National Congress of Epidemiology that included the participation of 150 health sector staff. With CDC help, 39 staff members graduated, securing the Qualified Diploma in Data for Decision-Making; another 80 staff completed the coursework for the "Principles of Epidemiology" with the final exam for the class administered this January. Also, CDC prepared and implemented an anti bio-terrorism plan and produced an epidemiological surveillance guide for HIV/AIDS. Other accomplishments have included (a) the development of a preliminary information system work plan for diseases, (b) a functioning situation room that is generating useful information for the control and prevention of priority pathologies, (c) the production of a national pilot plan for sentinel surveillance in hospitals, (d) equipment and reagents for the central laboratory and national laboratory network, (e) the improvement of two laboratories (Las Presitas and La Union), (f) the preparation of four manuals and their delivery to laboratories, and (g) community interventions in the control and spread of dengue. Finally, CDC has obtained $30,000 from the U.S. Military Group in El Salvador that is being utilized to identify transmission routes and pathogenic agents that cause vector and rodent-borne diseases in the country.

EPA ($930,00): Focusing on water quality, the EPA program was formalized through a 3-step process that included gaining El Salvador high-level administrative support, developing an El Salvador team to conduct Comprehensive Performance Evaluations (CPEs), and establishing a select operators' training program to address the most important factors limiting performance of surface water treatment plants. A key EPA intermediary was ANDA where the focus was assessing the performance of El Salvador's treatment plants. Having introduced the CPE for all El Salvador's water treatment plants, EPA held workshops attended by officials from the Pan American Health Organization, the El Salvador Ministry of Health and ANDA. These individuals will be responsible for the conduct and transfer of CPE capabilities to other water treatment professionals in Latin America. The first in-country demonstration of a CPE was performed at the Guluchapa Water Treatment Plant in El Salvador, the main one serving metropolitan San Salvador.

DEPARTMENT OF STATE ($950,000): For a description of its activities, please refer to paragraph #14 above on Corruption & Improved Transparency.

FEMA ($500,000): FEMA evaluated the National Emergency Committee's emergency command center, as well as a representative departmental command center, providing recommendations and plans for improvements. The anticipation is that the recommendations for the representative departmental command center could be applied to such centers nationwide. The Agency also reviewed COEN's national response plan, finding it to be technically comprehensive and well prepared, as well as providing

recommendations for its further improvement. In addition, FEMA through CHF implemented specific landslide mitigation initiatives in three municipalities (Alegria, Berlin, and Usulutan).

NOAA ($1,184,000): NOAA installed four meteorological stations, in addition to reconstructing and improving meteorological data collection networks. The entity also improved the geodetic networks, including putting in place tide gauges, developing satellite data receiving and processing, and providing analysis for the newly-created forecast center. It also worked with the Ministry of Environment on a Gulf of Fonseca water and sediment quality analysis component. In addition, it assisted in the establishment of the alert flood forecast systems for the Lempa and Rio Grande de San Miguel rivers. Finally, it provided extensive technical support to the establishment of the Government of El Salvador's new earth sciences agency SNET (Servicio Nacional de Estudios Territoriales).

USACE (USACE did not allocate any of its own monies to the Mitch reconstruction effort in El Salvador; it was funded with the Mission's Hurricane Mitch monies under a PASA arrangement): The principal focus of USACE's in country efforts was the preparation of a study of the Rio Lempa and Rio Grande de San Miguel river basins and floodplains that provided long-term recommendations regarding measures that could be taken to reduce the devastation caused by any future floods. These measures were presented on a prioritized basis. This major report was complemented by a number of more specific reports that amplified on themes developed in the larger study. These themes consisted of improved watershed management, site specific flood damage reduction measures, and landslide control interventions. One such specific report related to the San Felipe Flood Canal, proposed to help channel water flows away from flood-prone areas and an action that would require an investment of $14.2 million. All these studies were carried out by a team comprised of employees of USACE, USAID/El Salvador, the GOES Ministries of Agriculture (MAG) and Environment and Natural Resources, and consultants, as required. The conclusions and recommendations of the larger report were presented to the GOES and representatives from the international donor community to enlist their financial support. Working closely with communities in the ten coastal municipalities that were most severely affected by Hurricane Mitch, USACE also identified a number of shorter-term measures, some of which were implemented by CHF -- USAID's key partner in the environmental management component of its Hurricane Mitch program.

USDA ($207,000): The overall goal of the USDA program was the rehabilitation of damaged rural watersheds through strengthened local capacity. In partnership with CHF, USDA worked principally to protect a total of 143.5 hectares located in the Quebrada El Tránsito and El Encantando watersheds. It also carried out 20 small projects for the recovery and protection of Mitch-affected watersheds, coordinating with CHF and some 45 Peace Corps Volunteers.

USGS ($1,215,000): The USGS provided technical support in the area of hydrological monitoring, installing three telemetric stations in the Rio Lempa Watershed and two in the Rio Grande de San Miguel. The stations are connected to a forecast center. This is

providing real time data on the flow that is circulating in these important, flood-prone rivers, making possible timely alert in the event of a flood or a heavy rainstorm. The USGS also developed landslide/landslide hazard maps for the main Mitch-affected areas as well as three urban sites. This has become a most useful tool for the Mission's Earthquake Recovery Program, principally that component in which the environmental risks of potential reconstruction sites are assessed. In addition, the USGS provided specialized training in the areas of Geographic Information Systems for four municipalities (Berlin, La Palma, Jiquilisco, and San Salvador) and computer software. Finally, as part of the Mitch project, the USGS provided technical support to the GOES, principally in the form of seismic, volcano, and landslides monitoring, during the 2001 earthquakes.