C. Guatemala

Guatemala was heavily impacted by Hurricane Mitch, but to a lesser extent than other Central American countries. Hurricane Mitch killed 256 people and forced the evacuation of 80,000 people. The storm caused millions of dollars in damages to property and agriculture.

FEMA contributed to the USAID mission's Intermediate Result #1, "Disaster Preparedness Enhanced," by working to "strengthen the national government's capacity to respond to disasters" and "strengthen local community organizations and promote local, community-based mitigation."

1. National Emergency Management System

FEMA worked in Guatemala at the National level with the Coordinadora Nacional para la Reducción de Desastres (CONRED). FEMA attended coordination meetings conducted by USAID and made its first needs assessment visit to Guatemala City in February 2000. FEMA then hosted the Executive Secretary and CONRED staff at an Emergency Management Summit in June 2000 to discuss how emergency management functions in the U.S. and to further develop plans for FEMA's technical assistance. The institutional issues considered were the national response plan, national emergency management laws and regulations and the national emergency operations center.

FEMA enjoyed an excellent partnership with both CONRED and the USAID mission in Guatemala City. CONRED was very engaged and interested in technical assistance from FEMA, and the USAID mission did everything possible to assist with and complement the deliver of that assistance. This productive relationship enabled great progress to be made in the effort of strengthening Guatemala's emergency management system. The comprehensive approach to the strengthening of the emergency management system in Guatemala focused on the revision of regulations and plans; the establishment of a modern emergency operations center (EOC); and training in mitigation, preparedness, response, recovery.

According to the 1996 National Coordinating Law for the Reduction of Disasters (Law #109-96), CONRED is governed by a National Council made up of government and national organizations. This council makes policy and reports to the President. The CONRED Executive Secretary, who is a part of the National Council, oversees the day-to-day operations of CONRED and integrates the actions of other government agencies. CONRED is also in the process of establishing a structure at the regional, departmental, municipal, and local levels.

Guatemala has developed an emergency national response plan that addresses all hazards and involves a coordinated governmental response to emergencies. This project has received support from USAID's OFDA under the MACOE program.

CONRED chose to model its national plan on the U.S. Federal Response Plan. The foundation of the U.S. Federal Response Plan is to divide national government agencies into functional areas of responsibility. This philosophy has evolved in the U.S. because FEMA's experiences prior to 1993 illustrated the difficulties of coordinating and organizing a government disaster response effort based on the activities of individual agencies. Multiple agencies with overlapping responsibilities in many different areas of response weakened the government's ability to operate effectively. Because of these difficulties, FEMA worked with 27 other federal agencies to draft the Federal Response Plan. This plan provides an efficient mechanism for coordinating the delivery of Federal assistance and resources to augment efforts of our State and local governments overwhelmed by a major disaster or emergency.

The basis of the U.S. Federal Response Plan is that government agencies are incorporated into a structured Incident Command System. This system consists of twelve Emergency Support Functions (ESFs) that may be needed to respond to a technological or natural disaster. These functions include Transportation, Communications, Public Works and Engineering, Firefighting, Information and Planning, Mass Care, Resource Support, Health and Medical Services, Urban Search and Rescue, Hazardous Materials, Food, and Energy. Under this system, one government agency takes the lead for a specific response "function" and coordinates directly with that function's support agencies. Therefore, in a FEMA EOC, technical professionals representing each lead agency staff each function. These technical professionals are responsible for delivering the assistance required in their functional area. This system simplifies the coordination and delivery of resources and diminishes duplication of effort. It makes FEMA's mission of coordinating the entire government's response to disasters much more manageable.

Therefore, FEMA sought to assist CONRED in its efforts to take this emergency management model and adapt it to the realities of Guatemala. In July of 2000, FEMA's legislative consultant visited Guatemala City to begin the process of helping develop regulations – ultimately approved by the President – for the implementation of the 1996 National Emergency law. FEMA also drafted a design plan for one of the most crucial tools for coordination of national disaster response and recovery—an effective emergency operations center (EOC). The FEMA team assessed CONRED's EOC and made recommendations for organizational and

structural changes, equipment purchases, and operational suggestions to modernize and improve its emergency management capabilities.

This EOC project became a model of multi-agency cooperation in the Hurricane Mitch reconstruction effort. FEMA worked closely with CONRED to analyze the emergency management system and devise a new structure based on emergency support functions. FEMA experts then developed an EOC design plan based on the Guatemalan ESFs. CONRED began implementing the recommended organizational changes, and the Guatemalan Government financed the suggested structural changes to the EOC facility. The USAID mission in Guatemala City then used funds received from the Office of Foreign Disaster Assistance's Central American Mitigation Initiative to purchase the majority of the computers, equipment, and furniture necessary to outfit the operations center. FEMA purchased some additional equipment (a computer firewall, anti-virus software, and licenses) and sent a team of information technology experts to help configure the servers and establish the computer network. FEMA also provided CONRED with hurricane tracking software. In addition, OFDA worked with CONRED and the relevant national government agencies to develop plans and standard operating plans for the EOC. The EOC was officially inaugurated in a ceremony attended by the Guatemalan Vice President and the U.S. Ambassador. This was an important ceremony, as it served to underline the role of the operations center, and the need for other government Agencies to support and participate in its coordination activities.

The result of all of this effort is that Guatemala now has a fully functional, modern, emergency operations center from which it can monitor emergencies and plan and execute the national government's response. An added benefit of the establishment of this facility is that it creates an important long-term "customer" for the information provided by the equipment that other USGs installed in these countries. An effective EOC, relied upon to assist with the response to disasters, provides the government with added incentive to maintain the investments the international community has made in its country.

In support of CONRED's efforts to develop a comprehensive national emergency management training program, FEMA also delivered a train-the-trainer course in the principles of emergency management that CONRED and USAID are offering around the country. This course will serve to educate CONRED staff, and departmental and municipal officials about the improved emergency management system CONRED has created, and the role they play in that national system. CONRED showed creative initiative by engaging a University to help translate FEMA's course materials and adapt them to the realities of the Guatemala system.

Additionally, FEMA assisted with the development of a public affairs manual and helped CONRED evaluate its response to an emergency event.

One other interesting project that resulted from FEMA and CONRED's collaboration was the development of a proposed Civil Service statute for emergency managers. One of the largest impediments to creating effective emergency management systems in the region is the high turnover that occurs when governments change. Therefore, the agencies developed a proposal to professionalize the positions necessary for CONRED to function. FEMA does not see its role to be involved in the domestic politics of Guatemala. However, the Agency did assist in the development of a civil service statute similar to the beneficial one in place in the U.S. and other countries, because it would help ensure continuity this essential governmental function.

In summary, FEMA believes that the new Guatemalan EOC, and the improved emergency management system upon which it is based, will prove its value to the country and be sustained and strengthened by the Government of Guatemala. FEMA also believes that the EOC will have the added benefit of increasing the likelihood that the monitoring equipment placed in the country by other USGs will be maintained, because it, and the government agencies represented there, will serve as "customers" for the information they produce. One area of concern remains the relationship between CONRED and INSIVUMEH. FEMA understands that there are always rivalries between government agencies, and acknowledges that it took years to secure agreement on the Federal Response Plan in the U.S. However, it is important for these agencies to work together as INSIVUMEH gathers information and CONRED manages the government's response to disasters.

2. Building Disaster Resistant Communities

In Guatemala, FEMA entered into a cooperative agreement with Catholic Relief Services to facilitate the creation of a Guatemalan model for building more disaster-resistant communities. FEMA experienced some problems with the responsiveness of the NGO at times, but was pleased with the overall results of the project.

In consultation with CONRED and USAID, FEMA and CRS selected eleven small communities in the Taxisco Municpality were selected as Project Impact communities. These eleven communities have been divided into two groups: Region 1 (La Providencia, La Ceiba and Los Tapescos) and Region 2 (eight communities along the Chiquimulilla Canal Monterrico, El Pumpo, Las Quechas, El Banco, La Candelaria, Madre Vieja, El Garitón and El Sunzo). These communities engaged in a broad range of mitigation activities that can be emulated by communities all over Guatemala.

Region 1

The three communities of Providencia, Tapescos and La Ceiba have been plagued with an annual flooding problem for years. Although the best solution to the problem would be to remove the vulnerable houses, there is no area nearby that is available or adequate for housing. Elevating houses or building floodwalls around individual structures was cost-prohibitive. The best alternative was to build a small levee around the streams and canals that ring the three communities. Attempting to control a river or stream by building a levee is not normally the first choice in dealing with flooding problems, but in this situation, it was considered the only viable alternative.

The levee was built prior to the 2001 rainy season. In a visit to the area in December 2001, local residents mentioned that they had passed through the wet season without any flooding, for the first time ever. Residents are very pleased that the levee is working so well.

Projects:

Created risk maps –this project identified the most vulnerable areas in region 2.
Developed emergency plans .
Created a regional mitigation committee –the committee meets regularly.
Built a 3,300 meter dike; bamboo was planted on the top and sides of the dike –the dike will protect several hundred residents from annual flooding. This project was a model of intergovernmental cooperation. Prior to construction, the Guatemalan Environmental Agency was consulted, and they assured CRS that the dike would not adversely impact downstream communities. The U.S. Army Corps of Engineers also provided information to the community about maintaining the levee.
Cleaned riverbeds along the Tapacum and Las Vacas Rivers.
Installed a drainage pipe to drain fields in an area not served by the dike –drainage pipes were placed to connect a low-lying area with the dike. Pipes go through the dike and a backflow valve has been placed to allow water to flow only one way.

Region 2

The Chiquimulilla Canal parallels the Pacific Ocean for many miles and eight communities lie in a row between the ocean and the canal. These communities are only accessible via barge. The barges carry automobiles to access a road that leads to El Salvador. The highway parallels the ocean-side of the canal. Each community has residents that

live between the canal and the highway. Most of these structures are vulnerable to flooding, which occurs at least at a nuisance level every year, and every few years causes widespread destruction. Hurricane Mitch caused massive flooding along the canal.

When the community learned about Project Impact, they saw an opportunity to raise the levee and/or dredge the canal. However, these projects were cost-prohibitive. The best solution to the problem would be to remove all flood-vulnerable structures and relocate them in safer areas, but this alternative was also too costly. The community decided on an alternative project to elevate the most vulnerable houses and build floodwalls around less vulnerable structures.

Catholic Relief Services and PRODECO SUR, performed a study of the flood-vulnerable structures. Houses that had historic flood depths of at least one meter, were targeted to receive an elevated foundation, upon which the family could build their home with the material of their choice: cement block, wood paneling or bajareque (mud and sticks) being the most common choices. Houses with historic flood depths between .15 and one meter were targeted to receive a one-meter perimeter floodwall, with a floodgate for the door opening. Houses with less than .15 meters of historic flooding were targeted to receive sandbags and training on how to fill and place them to protect structures from flooding.

PRODECO SUR staff met with every family and discussed the voluntary flood mitigation strategy recommended to protect their house. Pamphlets and posters printed with actions to be taken before, during and after floods, earthquakes and hurricanes were made available to all residents.

A local company was contracted to build the foundations and floodwalls. The company provided the community with blueprints for elevating houses and for building floodwalls. These plans are available to any current or future homeowner in the area. Homeowners, who received foundations, grouped together to help each other out with new construction of their houses.

Projects:

Created risk maps –this project identified the most vulnerable houses along the Chiquimulilla Canal. The project groups houses by the range of annual flood depths (0 to .15 meters, between .15 and .50 meters, between .5 and 1 meter, and more than one meter). The information was used to determine the best mitigation method for each individual house.

Elevated ten house foundations –foundations were elevated to 1.35 meters. These houses will likely never flood again.
Built 27 floodwalls around the perimeter of houses –these houses had between .15 to one meter annual flood depths. Flood walls were built to one meter in height.
Developed a mitigation template for the region from the exercise of developing the risk maps and then flood-proofing homes
Developed emergency plans.
Created a regional mitigation committee –the committee meets regularly.

The initiative also featured the development of an education project to train teachers and provide information to citizens –24,000 pamphlets and 12,000 posters containing messages of what to do before, during and after a disaster were circulated; Project Impact signs were placed in the community; and teachers received training on disaster mitigation and preparedness.