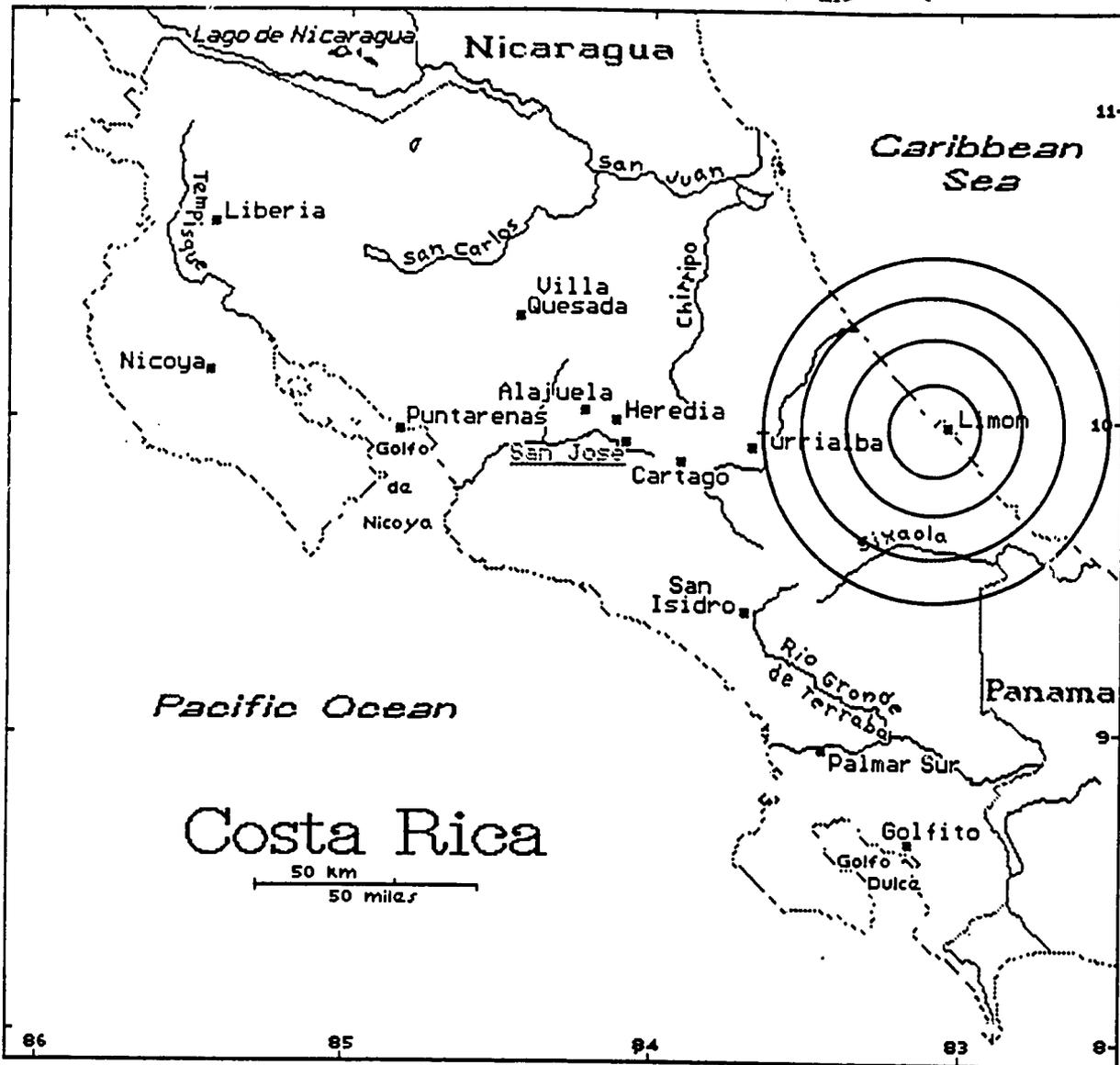


THE APRIL 22, 1991 LIMON, COSTA RICA EARTHQUAKE:
AN EVALUATION OF THE OFFICE OF US FOREIGN DISASTER
ASSISTANCE EMERGENCY RESPONSE

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EXECUTIVE SUMMARY

INTRODUCTION

The Office of U. S. Foreign Disaster Assistance (OFDA) of the United States Agency for International Development (USAID) is the mandated lead civilian agency to respond on behalf of the United States Government (USG) to disasters overseas. Once primarily a "relief" agency, OFDA has been part of the recent international trend toward disaster prevention, mitigation, and preparedness.

On Monday, April 22, 1991, an earthquake measuring 7.4 on the Richter scale struck the southeastern region of Costa Rica at 3:57 p.m. local time. The primary urban area affected was the provincial capital and main Atlantic port of Limón. The final death toll was placed at 52, and 300 persons were reported as injured sufficiently to require medical attention. Many homes and some buildings in Limón and its environs collapsed, and electricity and water services were disrupted. In addition, damage to highway bridges isolated Limón from the capital of San José and cut off the important export-oriented banana plantations south of the city from their shipping point, the Port of Limón.

On April 23, 1991, the US Ambassador to Costa Rica issued the disaster declaration necessary to trigger the initial USG response: an immediate \$25,000 to the National Emergency Commission (NEC) of the Government of Costa Rica (GOCR) to support relief. That same day, OFDA arranged for a US SOUTHCOM C-130 Hercules aircraft to assist in the transport of injured persons and the delivery of 100 rolls of plastic sheeting and other emergency supplies. Additional aircraft included three SOUTHCOM UH-60 helicopters, which provided transport for a US Army Corps of Engineers damage assessment team and then for evacuation of injured from the more remote villages. The team aided in repairs to infrastructure, distribution of food, water, and other emergency supplies, and the evacuation of US civilians.

Fortuitously, the OFDA "Regional Team" for the Latin America and Caribbean (LAC) region is based in and supported by the USAID Mission in Costa Rica, a fact which greatly facilitated the rapid and high quality USG response to the disaster.

THE RESPONSE

The United States Government and OFDA/LAC responded quickly to the disaster in spite of some early confusion at the GOCR National Emergency Commission. The USG Mission and OFDA/LAC had the human, organizational, and material resources in place and a pre-planned set of relief actions ready for implementation, which allowed OFDA/LAC to make timely decisions and take appropriate actions.

The initial confusion at the NEC and the lack of a regional emergency committee in Limón necessitated OFDA/LAC taking more of a lead role than it prefers in responding to the disaster. It hired an aircraft and made its own initial damage assessment of the affected region the morning following the earthquake. The OFDA/LAC Senior Advisor was able to provide technical advice to the President of Costa Rica which greatly reduced that leader's anxieties about the need for massive amounts of medical services and airlift capabilities.

The Mission Disaster Response Officer (MDRO) delegated management of the USG response to the OFDA/LAC Senior Advisor, who assigned the three Regional Advisors to specific functions. The Senior Advisor handled communications at the US Embassy; one Regional Advisor remained at OFDA/LAC offices to act as liaison and coordinator with the NEC; the second assisted in the airlift of the injured and the provision of supplies to remote villages; and the third traveled to monitor relief activities in neighboring Panama.

The OFDA/LAC staff was able to make accurate assessments of the relief supplies and services appropriate to the situation, and they were able to respond in a timely manner because of prior disaster experiences and the consequent ability to pre-plan initial actions.

THE NATIONAL SELF-SUFFICIENCY ISSUE

OFDA directs most of its normal (non-disaster) time and effort to the development of increased disaster management self-sufficiency among LAC region countries, the centerpiece of which is a training program comprised of a set of interrelated courses but based on a "train the trainers" approach.

Nonetheless, despite gains made over the years, the countries face high turnover rates among disaster response personnel. Moreover, a recurring problem, seen again in the Limón response, involves national leaders taking direct charge or putting a trusted friend in charge of the relief operation, thereby undercutting the authority of the official emergency agency and adding to the confusion and disarray inherent in disaster situations.

Both of these problems are politically sensitive and outside the realm of OFDA/LAC's control. OFDA, however, has to play an indirect role in attempting to minimize the negative impact of such practices.

CONCLUSIONS

* Because of the location of the OFDA/LAC Regional Team in the country where the disaster occurred, the USG was in a uniquely favorable condition to make an extremely rapid emergency response to the Limón earthquake.

* By virtue of its mandate, experience, and access to resources, OFDA/LAC is staffed and structured to act quickly. Its ability to do so, however, is conditioned by

information provided by the host government or, when necessary (as in the Limón case), by its own efforts.

* The accuracy of OFDA/LAC's initial assumptions regarding types and amounts of goods and services needed was based mainly on previous experience. This knowledge, however, was sufficient to make appropriate decisions at the outset of the response.

* Because of light construction materials and low population densities in the region around Limón, the death toll and the number of injured was relatively low. Consequently, it is believed that the number of lives saved was low.

* There were several indirect impacts of the earthquake. First, the earthquake acted as a "wake-up call" for the NEC to get its emergency plan completed, which has been since accomplished, and this must be counted as an effect of both the disaster and OFDA/LAC assistance. Second, the disaster induced the formation of regional and local emergency committees throughout Costa Rica. Third, the advantage of having the OFDA/LAC Regional Team based in a single site facilitated the resolution of the posting problem of the OFDA/LAC Regional Advisor for South America, who was reassigned to the USG Mission in Costa Rica.

* The OFDA/LAC focus on the long-term development of national disaster response self-sufficiency is appropriate and necessary. In spite of some problems, such as turnover and political interference in times of disasters, hard earned gains toward this goal are being made.

RECOMMENDATIONS

* OFDA/LAC must continue to support the NEC and explore ways to raise the professional status and public recognition of the trained cadre of disaster response technicians. In the long-run, this might include the establishment of a permanent regional educational institute or technical school. In the meantime, OFDA/LAC should continue to maintain its concentrated focus on comprehensive training and education.

* OFDA should examine its staffing needs and take the necessary actions to create a pool of candidates to meet current as well as future needs.

* OFDA/W should consider replicating the OFDA/LAC Regional Team approach in other operational areas.

* OFDA/LAC and OFDA/W should maintain the SOUTHCOM inventories.

* OFDA/LAC should establish a standardized format and the necessary disciplines to document its disaster responses.

* OFDA/LAC should improve data retrieval capabilities and record keeping on training program participants.

LESSONS LEARNED

- USG Missions abroad must keep their disaster response plans, including personnel duties, current and active.
- USG Missions cannot fulfill all the disaster assistance expectations of host governments and, therefore, should fully utilize the technical expertise of OFDA staff to assure and justify the appropriateness and adequacy of the USG response to disasters.
- Host country governments which do not have disaster response agencies and plans in place make it difficult for outside agencies, including OFDA, to respond rapidly and appropriately. The USG in general and OFDA in particular must continue to impress on host country governments the need to maintain at ready their emergency plans and associated human, organizational, and material resources.
- Disaster response evaluations should be undertaken soon after the event, while memories are still fresh and accurate.

I. INTRODUCTION

The Office of U.S. Foreign Disaster Assistance

The USAID Office of U.S. Foreign Disaster Assistance (OFDA) is the lead United States Government (USG) civilian organization charged with providing USG international disaster assistance to save lives and reduce human suffering. OFDA has regional representatives stationed in Africa, Asia, and the South Pacific, but it has a "Regional Team" for the Latin America-Caribbean (LAC) region.

The OFDA/LAC Regional Team is based in the USAID Mission in San José, Costa Rica. With a Senior Advisor, 3 Regional Advisors, and two full-time support staff, it is the only fully operational OFDA regional office. While the USAID/Costa Rica Mission Director provides general supervision and support, OFDA/LAC is operationally responsible to OFDA/Washington (OFDA/W).

Historically, disaster response agencies focused on emergency relief, and OFDA was no exception. Over the last two decades, however, and especially as worldwide losses mounted, response agencies turned increasing attention to "pre-event" programming, especially hazard reduction, mitigation, and preparedness. While OFDA continues to respond to disasters, it has developed several important pre-event "PMP" (Prevention, Mitigation, and Preparedness) programs, one of which is the OFDA/LAC Disaster Management Training Program (DMTP). The long term training goal is to assist countries in becoming as self-sufficient as possible in managing disaster responses.

OFDA in general, and, since its 1986 inception, the OFDA/LAC Regional Team specifically, has been pursuing two goals: (1) improved response to disasters as they occur in the region, and (2) the development and conduct of a "hand-off" disaster-focused training program for host country personnel. Any evaluation of OFDA activities must keep both goals in mind. Although conceptually separate, disaster response and disaster management training are interrelated in reality, as shown in the response to the Limón earthquake.

Another reality is that in the LAC region as well as worldwide, OFDA must work through host country organizations, which are often understaffed and at least initially overwhelmed by a disaster, and with other donor countries and organizations, including a variety of private voluntary organizations (PVOs) and such international organizations as the Pan American Health Organization (PAHO) and the International Red Cross (IRC). These other external donors are also often required (or at least requested) to work through a host country organization or organizations. Communication and coordination become the key challenges for all parties.

The operational complexity increases when, as in the Limón response, the affected area is distant from the host country capital and the links between the two are disrupted. In these situations, another layer of communication and coordination difficulties is added.

Evaluating An OFDA Disaster Response

This evaluation examines five key factors in the OFDA response to the Limón earthquake: (1) efficiency, (2) effectiveness, (3) appropriateness, (4) timeliness, and (5) impact. Evaluating efficiency focuses on how well USG financial, material, and human resources were organized and managed in the implementation of the disaster response. Effectiveness focuses on the degree to which the USG response provided useful inputs to the overall Government of Costa Rica (GOCR) operation. Appropriateness concerns the congruence between identified country needs and the human, material, and financial assistance provided. Timeliness refers to the gap between identifying a need and the delivery of the assistance.

Evaluating impact of disaster response is a more general attempt to assess the effects of the intervention on the lives of the victims and on the rehabilitation of services vital to public well-being.

Obviously, overlap between all factors exists in practice. Efficiency and effectiveness are especially closely linked, but it must be kept in mind that any USG response is conditioned by the quality of host country assessment and response capabilities -- over which the USG has only indirect influence.

The information provided to the evaluators for this report varied widely in both precision and reliability. Probably the most precise data was obtained from review of official USG cable traffic and OFDA/LAC files. Other data sources included interviews and reports provided by USG, GOCR, and other agencies.

Direct observations were limited. Because reconstruction of the physical infrastructure had been largely completed during the two and one-half year interval between the time of the disaster and this evaluation, only the most obvious residual physical anomalies remained to be observed, including differential settlements of bridge abutments, misalignment of structural bridge members, damaged and distorted road surfaces, and the skeletons of buildings damaged beyond repair.

The reliability of the information obtained from interviewing persons involved (see Annex 1) in the disaster relief activities also ranged widely. Because of the extended time lapse between event and evaluation, many of those interviewed had difficulty recalling actions with precision. This meant that information which could not be substantiated from other sources tended to be excluded. Where conflicting evidence existed but the differences remained unresolvable, both views are presented.

The Event

At 3:57 local time on Monday, April 22, 1991, an earthquake measuring 7.4 on the Richter scale struck the Atlantic (Caribbean) side of Costa Rica. It was the fifth major earthquake

Costa Rica had suffered in 13 months. With an epicenter approximately 110 kilometers southeast of San José, the national capital suffered only minor damage.

On the Atlantic coast, it was a different story. The epicenter was only 40 kilometers south of the city of Limón (population 65,000), a provincial capital and the nation's main port. The earthquake caused Costa Rica's east coast to rise 1.5 to 2.0 meters, leaving in its wake severe damage in the provinces of Limón and Cartago.

In Limón itself, the earthquake ruptured the main water supply aqueduct at several points and damaged holding tanks and the distribution system. The city's electrical distribution system was shut down to eliminate fire danger as well as injuries from downed power lines. Telephone service was disrupted temporarily.

The main event was followed by a series of powerful aftershocks, the largest measuring 5.9 on the Richter scale.

National infrastructure was hit particularly hard, including not only the city of Limón, but also the transportation network (including Route 32, the highway connecting Limón with San José), fruit production operations, and the nation's oil refinery.

More specifically, built-up sections of highways liquefied, and bridges either collapsed or were rendered impassable. As a result, it was difficult to evacuate the injured by road, and Limón was effectively isolated from the nation's capital except by air.

Bananas are the nation's second largest export crop, and the collapse of the highway system south of Limón halted the movement of the crop from the farms to the port for shipment. Economic losses from this breakdown alone were estimated at \$5 million per week, which placed an understandably high priority on the repair of the highway and the bridges.

Total repair/reconstruction costs were initially estimated at \$90 million (including infrastructure, buildings, and housing). The calculation, however, tended to increase as experts took into account the actual replacement costs of all losses.

The earthquake killed a reported 52 and injured some 300 people. The Costa Rica National Emergency Commission (NEC) reported 1,154 homes completely destroyed and 1,254 damaged. Reports on the number of homeless ranged from 4,000 to 30,000, the larger number reflecting a much broader category of people, namely, "persons affected" by the earthquake.

Considering the intensity of the earthquake and the estimated population (224,000) in the disaster zone, the number of deaths and injuries was relatively low. This was attributed to the comparatively light type of home construction (predominantly wood) and, except for the city of Limón, to the low population density in the area.

II. HOST COUNTRY RESPONSE

Managing The Response: The NEC

The National Emergency Commission (NEC) is the lead GOCR emergency organization. The NEC offices are located on the outskirts of San José. Prior to 1969, Costa Rica had no single agency in charge of disaster response, which was traditionally assumed by the Firefighter Corps, the Costa Rica Red Cross, and the police. The volcanic eruptions of Irazú in 1963 and Arenal in 1968 changed this traditional approach. The first National Emergency Law was drafted in August 1969, and the NEC was established shortly thereafter.

In the early 1980's, the National Emergency Law, which initially focused only on major natural disasters, was broadened to cover any national crisis. As a result, the NEC became a convenient conduit for allocating and expending government funds for a wide variety of crises, but this led to an apparent misuse of funds and an official investigation. The investigation found financial irregularities, and NEC leadership was charged with fraud.

As a result of the scandal, the NEC was refocused to its original mandate and, with the steady support and influence of OFDA/LAC, has regained much of its standing in the national disaster community. Unfortunately, the narrowing of the NEC mandate brought with it a reduced budget, and the NEC now requires assistance from other sources to fully implement its own programs.

Existing technical and organizational resources allowed several old-line GOCR ministries to initiate Limón relief activities fairly rapidly, but on their own (not unusual in the LAC region). The Ministry of Public Works and Transport concentrated on opening up the highway from San José to Limón; the Ministry of Social Security and the Ministry of Public Health worked with the Red Cross and the Pan American Health Organization to provide medical services and health care for the sick and injured; and the Costa Rican Institute of Water and Sewerage provided potable water from tanker trucks to affected areas.

Adding to the confusion of independent responses by various GOCR organizations was the fact that within hours after the disaster, a staff member of the Ministry of the Presidency was sent to Limón in a Ministry of Public Safety helicopter (which was one of only two small helicopters available in the country) to assess the damage. Because of the limitations of an aerial reconnaissance, the assessment did not provide information in great detail. It did, however, find that the highways from San José to Limón and from Limón south to the Panama border were impassable because most, if not all, of the bridges were damaged or destroyed. It was also observed that the residents of outlying villages had fled from their damaged homes and were congregating in open areas such as sports fields.

Within a few days of the earthquake, some quarters of the GOCR began to express dissatisfaction with NEC management of the disaster response. As a result, on Friday, April 26, 1991 (four days after the earthquake), the President of Costa Rica put the Minister of the

Presidency in charge of the overall disaster relief effort, the Minister of Agriculture in charge of the disaster zone, and the President of the National Institute of Housing and Urbanism in charge of the district of Matina.

Removing control demoralized the NEC staff and further reduced their effectiveness. From the OFDA/LAC viewpoint, the change also constituted a major reversal in the development of self-sufficiency and precipitated a meeting with top GOCR officials attended by the OFDA/LAC Senior Advisor, the Country Director of the PAHO Emergency and Disaster Program, and others. The meeting reversed the original decision, and the NEC resumed its lead role in managing the Limón relief effort.

There is disagreement among those interviewed about how this episode played out. Some believe that the president's action was warranted, while others do not. Some say that the action led to improved operations; others said that it resulted in chaos. The argument is essentially between those who believe that disaster relief should be under the command of someone at the ministerial level and those who believe that an NEC-type organization should be in charge.

Confusion did indeed exist at the National Emergency Commission, much of which was attributed to the fact that a new administration had taken the reins of government less than a year before the earthquake. This change meant that key disaster relief agencies, including the National Emergency Commission, had relatively new and inexperienced leadership at the time of the event. Many mid-level managers at the NEC, however, had participated in OFDA/LAC-sponsored courses and constituted a core of trained personnel capable of taking responsive action to the earthquake. While most respondents to the evaluation agreed that there was initial confusion in the NEC, there was disagreement about how widespread it was and how long it lasted.

The larger point, however, is that in the LAC region, disasters (and therefore effective disaster response) become rapidly political. Tension will continue to exist between (normal time) attempts to "professionalize" and mandate lead disaster response agencies and the tendency and temptation to assume more direct "political" control when a disaster actually strikes. This tension will not be resolved anytime soon and must be considered an unavoidable fact of life for OFDA activities in the LAC region.

Managing The Response: The Disaster Zone

In the city of Limón and surrounding region, the people were completely unprepared for an earthquake, largely because earthquakes were believed (erroneously) to occur only in the western half of the country. In recent years, Limón had experienced hurricanes which were usually tracked for days ahead, giving residents time to make preparations. The earthquake gave no warning signals, however, and Limón had established no formal regional emergency committee when it struck on April 22.

Shortly after the shaking stopped, local individuals and agencies in Limón carried out search and rescue efforts in collapsed buildings, using tools and equipment on hand. Tractors were brought in to clear rubble from the streets. The staff at Tony Fácio Hospital began evacuating patients from what was presumed to be a badly damaged and unstable four-story patient wing and moved them to temporary shelters on the hospital grounds. The patient wing has since been rehabilitated and put back into service.

That same afternoon, the heads of key local agencies met with the representative of the Ministry of the Presidency who had flown from San José to Limón in the Ministry of Public Safety helicopter. The president of the local Red Cross chapter played a key role in organizing an evening meeting, which was held at approximately 8:00 p.m. in the National Bank building across from the Red Cross office. The purpose of this meeting was to organize local agencies into a "Regional Emergency Committee" and plan a coordinated relief effort. This meeting was attended by the governor and heads of local agencies, including representatives of the Port Authority, the Electrical Power Institute, the Water and Sewerage Authority, the Red Cross, and the Firefighter Corps, among others.

A "Local Emergency Committee," headed by the pastor of the San Marcos Episcopal Church, was organized to transport food to victims living in remote mountain villages. Members of the church as well as volunteers from the Federation of Workers contributed to this activity. Private individuals contributed their trucks, and the Transportation Syndicate (Truckers' Union) supplied gasoline. Individuals were sent out to contact the villagers and advise them when and where food would be delivered. Trucks would transport the food, mostly rice and beans, as far as roads and topography would allow. The villagers retrieved the food and carried it back to their homes.

In the outlying rural villages, many inhabitants had been living in inadequate housing, and the earthquake only worsened their situation. Completely unaware of any anti-seismic building techniques, they were especially vulnerable to the shaking. Although many people were injured, most of the injuries were not life-threatening. Also, because of the remoteness of some of the villages, help was slow in arriving. In some places, it did not arrive for two weeks or longer.

Some donor agencies and non-governmental organizations bypassed the NEC and made their contributions directly to local authorities and groups. For example, the Canadian Episcopal Church made a monetary contribution to the San Marcos Episcopal Church, which it used to buy chainsaws and building supplies to rebuild homes in remote villages. These types of direct, independent actions resulted in assistance to certain groups of people, but because the NEC was not informed of these actions, another layer of confusion was added to the disaster response.

III. THE INTERNATIONAL RESPONSE

In the LAC region and worldwide, a pattern holds: the more severe the disaster, the larger the number of responding private, international, and bilateral agencies and organizations and the greater the amount of international assistance. Indeed, in such recent LAC region disasters as the Mexico City earthquake of 1985 and the El Salvador earthquake of 1986, a serious problem developed merely in coordinating and channeling the various international flows of assistance.

Given the relatively low life loss and the "unspectacular" nature of the damage, the Limón event obviously did not stimulate an overwhelming international response. Nonetheless, the bilateral donor list alone is significant: Argentina, Chile, Colombia, the European Community, El Salvador, Germany, Guatemala, Honduras, Japan, Mexico, Nicaragua, Spain, Switzerland, Taiwan, United Kingdom, United States, and Venezuela.

Most of this assistance came in the form of money for relief supplies through NGOs; assessment/search and rescue teams; or aircraft to create an air bridge for supplies to the affected area.

The World Bank also agreed to Costa Rica's use of a portion of a \$60 million loan initially directed for infrastructure to be redirected to the costs of earthquake reconstruction.

IV. THE USG ROLE AND RESPONSE

Declaring A Disaster and Organizing The Response

Almost immediately after the earthquake hit, the USG Mission put its "Country Disaster Response Plan" into action. The initial constraint faced by the Mission in general and OFDA/LAC in particular was the lack of specific information on the magnitude of the earthquake and the nature and pattern of the damage, a very common problem.

While OFDA/LAC is able to respond quickly to a disaster and provide technical assistance and advice, OFDA funds cannot be used until the US Ambassador or Chief of Mission determines that the following conditions are met: (1) the disaster is of such a magnitude that it is beyond the host country's ability to respond adequately; (2) the host country desires assistance; and (3) it is in the interests of the USG to provide assistance. When these conditions are met, the Ambassador or Chief of Mission can request that OFDA funds be allocated for the disaster.

Within the first few hours after the Limón earthquake, sufficient information was gathered from various sources, including the news media, to allow the Chief of Mission to make a disaster declaration and cable OFDA/Washington that evening, requesting disaster relief funds. OFDA/W sent the funding approval by return cable the next day (early morning actually), 3:17 a.m. local time, so on April 23, 1991, the Chief of Mission declared that the disaster warranted USG assistance and presented an initial \$25,000 to the NEC for use in its ongoing relief efforts.

Before firm data on the intensity and extent of damage were available, the Senior Advisor began developing a plan of action which anticipated the types and amounts of goods and services most likely needed. Estimates were based on knowledge gained from involvement in a large number of previous disasters. Preliminary plans were ready and implemented as soon as the Ambassador made the disaster declaration.

The declaration allowed the OFDA/LAC Senior Advisor to arrange an aerial inspection and initial damage assessment of the disaster zone the following morning, Tuesday, April 23.

Early that morning, a USG Mission team, including the OFDA/LAC Senior Advisor, the USAID/Costa Rica Mission Director, and the Mission Disaster Response Officer (MDRO), flew to the disaster zone to observe first-hand the intensity and extent of the damage and to make an initial assessment.

After the reconnaissance flight, the team landed at Limón airport to meet with GOCR and local officials to discuss and assess their respective findings and to plan coordination.

The USG Mission team then took several actions. First, OFDA arranged on April 23 for a US SOUTHCOM C-130 Hercules aircraft to be used in conjunction with several small

private airplanes to airlift injured civilians and to transport relief supplies. The C-130 delivered 100 rolls (260,000 sq. ft.) of reinforced plastic sheeting from the OFDA Panama stockpile. Second, a request was made for a specialized US SOUTHCOM or Army Corps of Engineers team to assess the damage to infrastructure in the Limón area, including the port and refinery facilities, major buildings, roads, and bridges.

The above request was granted, and three SOUTHCOM UH-60 helicopters were dispatched to transport the Army engineering team to the affected areas. The Army team provided assistance in repairing roads, highway and railroad bridges, port facilities, airfields, and other infrastructure.

On April 23, the GOCR made three additional requests: that certain medicines and equipment in short supply be provided (a list of which was later supplied); that the C-130 aircraft already in Costa Rica be used to transport food and water to Limón from San José; and that a small team of engineers be provided to conduct a more thorough damage assessment. The engineering assessment team, mentioned earlier, completed its survey on April 29.

Also, at the request of the Minister of Natural Resources, Energy and Mines, a team of U.S. Park Service Rangers was dispatched to Limón on May 4, 1991 to review the effect of vegetation loss on flooding patterns and watersheds. Then, in June 1991, OFDA arranged with the U.S. Geological Survey to send a three-person team (a landslide specialist, seismologist, and neotectonics expert) to meet with Costa Rican counterparts to evaluate the effects of the earthquake, subsequent aftershocks, and ground failure.

C-130 flights were continued until May 1 and helicopter flights until May 3 for transporting supplies in and casualties out of the disaster zone.

The dollar value of OFDA's contribution to the disaster assistance was \$323,961, while total USG dollar value was \$2,319,961. This does not include any calculations of the "contributed effort" (time) of the OFDA/LAC Regional Team and support staff, the MDRO, or the USG Mission in general.

Efficiency and Effectiveness

Although the initial confusion at the NEC and in the GOCR in general acted as a constraint on the USG Mission taking immediate action, it nevertheless provided OFDA/LAC the opportunity to play a leadership role in quickly responding to the disaster. As noted earlier, OFDA can provide immediate technical assistance and advice upon request from the government of the affected nation.

Key to the organization of any USG response is the Mission Disaster Response Officer (MDRO), the person directly responsible for implementing the Mission disaster response plan. In this case, however, because the OFDA/LAC Regional Team is based in

USAID/Costa Rica, the MDRO enjoys a close relationship with the OFDA/LAC Senior Advisor and staff. Because of the depth and breadth of experience of the OFDA/LAC staff, the Mission was in a favorable position to respond to the disaster.

In managing the response, the MDRO delegated responsibility to the OFDA/LAC Senior Advisor, who then assigned and deployed his staff. As a result, one of the Regional Advisors (who was out of the country) was recalled and assigned, along with the other two advisors, to specific functions.

One advisor was assigned to act as liaison with the rest of the USG Mission and with the NEC. Another was assigned to fly with the SOUTHCOM helicopters from San José airport to Limón and from there to assist in transporting food and supplies to remote villages and in evacuating the injured. Because of his direct involvement in the airlift operation, that advisor was able to report directly on how well the operation was proceeding and to recommend necessary modifications in the operation.

The third advisor flew to Panama to assess the damage sustained on that side of the common border.

During the following days, the staff rotated in assignments as needs changed. After the first rush of activities, one Regional Advisor returned to a previous commitment, thereby indicating progress toward normalcy.

Technically, OFDA/LAC's operational approach was to put into play its combined knowledge and disaster experience to assist and support the National Emergency Commission. Because of its considerable experience, the staff had practical knowledge of the types and amounts of commodities crucial to a disaster situation requiring USG assistance. The staff also had the technical knowledge of the types of aircraft needed to transport the injured as well as supplies, especially where airport runways may have been damaged and their use restricted. The staff had close working knowledge of the main host country emergency organizations and their technical and operational capabilities, e.g., the National Emergency Commission, the Red Cross and the Firefighter Corps, Civil Defense, Rural Defense, and others. OFDA/LAC has been directly involved in training many of their personnel.

As an operational, regional office, OFDA/LAC was able to quickly mobilize its four disaster relief experts as well as its office support staff, which allowed for the systematic organization of OFDA/LAC activities and assignment of staff in accordance with major operational needs. For example, OFDA/LAC was able to maintain a staff presence in the three main operational command bases for the GOCR response (the NEC office in San José, the San José airport, and the Limón airport). The command base at Limón airport, which operated from the airport building roof, controlled all air traffic in the disaster zone. Keeping aircraft from several donor nations moving smoothly and safely in and out of the airport was a key element in the rescue and supply operation.

OFDA/LAC was the main information and coordination link between USG agencies and the NEC and, through it, the hastily formed Regional Emergency Committee in Limón. OFDA/LAC staff also stayed in close touch with the crews and made some flights in the SOUTHCOM aircraft (the three Blackhawk helicopters and the C-130 Hercules) requested by OFDA/LAC and provided to the NEC.

For expert advice on health related issues, OFDA/LAC relied, as it usually does, on the Pan American Health Organization's Emergency and Disaster Program (PAHO/PED), whose subregional office also happens to be located in San José. OFDA and PAHO/PED, as well as the International Red Cross (IRC), work together very closely in coordinating their activities.

OFDA/LAC maintains a stockpile of some 10 basic disaster relief items at the SOUTHCOM U.S. Army base in nearby Panama. A few standard, including reinforced plastic sheeting to construct tents, large (3000 gallon) collapsible water tanks, and small (3 and 5 gallon) collapsible water jugs were dispatched at various points and put at the disposal of the NEC.

The OFDA/LAC Senior Advisor briefed the SOUTHCOM pilots on the overall relief operation and their role in the effort. OFDA/LAC staff accompanied some of the flights to and from Limón and San José and also from Limón to remote villages to transport food and supplies and evacuate the injured. Staff met each evening to review the day's operation and plan the following day's activities.

At the office in San José, the OFDA/LAC staff continued to collaborate with the NEC and coordinate and manage the USG assistance activities. It also met daily with PAHO and IRC representatives to update and coordinate their respective activities.

Appropriateness

It is not unusual, but it should be noted that while at the Limón airport the day following the earthquake, some of the USG Mission team members met with the President of Costa Rica, who had flown in from San José. The President made two specific requests of the Mission team: first, for a complete field hospital to be flown into Limón, and second, eight additional helicopters for disaster relief.

Based on the assessment by PAHO staff of the medical capabilities and hospital capacities existing in San José, combined with the airlift capabilities of aircraft present or en route, the case was made that a field hospital was not needed; this recommendation was communicated to and accepted by the President of Costa Rica. As to additional helicopters, the OFDA/LAC Senior Advisor calculated that the aircraft control capacity of the Limón airport command base and that of the damaged airport runway would be pushed to its limit in handling the number of aircraft already on hand or en route. He provided his assessment and

recommendation to the USAID/Costa Rica Mission Director who convinced the President that additional helicopters would be more of a burden than a help.

We should highlight the consensus among Costa Rican interviewees that OFDA/LAC dealt with the special requests effectively, giving due regard to the sensitivities of the people and the issues involved.

The provision of the C-130 Hercules airplane and the three HU-60 Blackhawk helicopters was a suitable combination for the situation. The C-130 was used to ferry supplies from San José to Limón and to evacuate the injured from Limón to San José. Helicopters were used to transport supplies from the Limón airport to the remote villages damaged by the earthquake and to evacuate the injured from those villages to Limón for link up with the C-130.

The issue of helicopters merits special mention. Costa Rica abolished its military after a revolution in 1948 and therefore has no heavy-duty military helicopters capable of carrying supplies and evacuating patients. It could be reasoned that this puts the country at a disadvantage in responding to disasters. On the other hand, it can also be reasoned that because Costa Rica does not have military forces, it poses no military threat to its neighbors, with the result that it has friendly neighbors who are ready to help.

We noted above that because of the preliminary planning of the disaster response, the C-130 arrived in San José at 8:00 a.m., the day after the earthquake, April 23. It subsequently arrived in Limón at 11:20 a.m. and made two round trips to evacuate injured from Limón to San José that same day. The three helicopters arrived the following day to start a rescue and supply effort. By all accounts of Costa Ricans interviewed, the contribution of supplies made by OFDA/LAC in conjunction with the SOUTHCOM aircraft, as well as the contribution to removing the injured, represented a timely response to critical emergency needs.

It should not be forgotten, however, that because the OFDA/LAC Regional Team is based in Costa Rica, and therefore was on-site when the earthquake hit, both the USG and the GOCR had immediate and access to their expertise. In that sense, the response to the Limón earthquake constitutes a special case.

Direct Impacts

No record of the number of lives saved exists. As usual in disasters, especially when they occur in outlying areas, only the number of deaths was recorded. Nor are there complete records of the number of injured evacuated from remote villages to Limón and then from Limón to San José. One source noted that 40 injured were evacuated on one C-130 flight to San José, but the total number of C-130 or helicopter flights was not available. Another source stated that close to 120 injured were evacuated from Limón.

The NEC initially reported 48 deaths and 585 injured. Other sources disagreed with those numbers, and the numbers kept changing, a common occurrence. The medical staff in Limón reported that most of the injuries were not life threatening.

Based on the data provided, it is safe to assume that the number of lives saved was small, but the timely response helped reduce suffering significantly.

Indirect Impacts

In 1989, OFDA/LAC began a comprehensive long-range training program which was to become its main approach to developing LAC nation self-sufficiency in disaster response. The building of a strong cadre of trained disaster professionals in each country was seen as the first step. In addition to the training program, OFDA/LAC provided technical assistance and support to designated national emergency agencies. A major goal of this assistance was to help these agencies develop emergency plans.

While there were several attempts by the NEC to prepare an emergency plan, such a plan did not exist at the time of the Limón earthquake. The absence of a completed plan was due partly to the ebb and flow of political support historically to the NEC by the GOCR. As is the case across the region, OFDA/LAC cannot impose a plan from the outside, nor would it be useful to do so. A viable emergency plan must be a product of those who are responsible

for carrying it out. In that sense, the Limón earthquake was the "wake-up call" to the nation and, specifically, to the NEC to complete its emergency plan. With the support and involvement of OFDA/LAC, the NEC completed a national emergency plan in May 1992. Albeit indirect, this must be counted as an impact of the event and of OFDA/LAC assistance.

Another indirect but important impact was the formation of regional and local emergency committees in Costa Rica. At the time of the earthquake, only two local emergency committees existed. Both were inexperienced urban groupings. The Limón disaster pointed to the need for complete national coverage by emergency committees. Of the 80 districts in the nation, 71 district committees have now been formed, and of these 71, 50 have developed emergency plans.

The final impact of note was the resolution of an OFDA/LAC staffing issue. At the time of the Limón earthquake, the Regional Advisor for South America, who had been stationed in Lima, Peru, was in the process of being reassigned due to the instabilities and dangers in that country. Following the Limón earthquake, USAID/Costa Rica quickly accepted the posting of that Regional Advisor to San José.

V. CONCLUSIONS

What Is Working: Training

OFDA/LAC's long-term goal is to assist nations in developing self-sufficiency in disaster response. To accomplish this, it has designed and is implementing a long-range educational and training program, to which OFDA/LAC devotes most of its time and energy. Because it must also respond to all disasters occurring in the region, OFDA/LAC's implementation schedule must have flexibility to adjust to emergencies.

Accepting the nature of its mandate, OFDA/LAC has been able to make the necessary adjustments and to continue to carry out its training program remarkably well. This was evidenced in its ability to carry out its dual mission during as well as in the months following the Limón earthquake.

From the beginning of 1992 through September 1993, OFDA/LAC has sponsored or assisted in 15 regional and 58 country-level training courses and seminars.

The GOCR NEC is also conducting a training program for members of emergency committees, community leaders, and others.

Through its sustained efforts over the past eight years, OFDA/LAC has been the catalyst in the NEC's struggle to regain its reputation and recognition as the official GOCR national disaster relief agency, to complete its national emergency plan, to form regional and local emergency committees, and to train their respective staffs.

Not Working: A More Favorable Context for the Training

It became apparent from the confusion that gripped the NEC during the immediate aftermath of the Limón earthquake that the long-range goal of self-sufficiency in disaster relief in Costa Rica had not been fully met. Of the two basic conditions that led to this confusion, the lack of a national emergency plan has since been addressed by that plan's completion in May 1992.

The second condition, that of the turnover of senior leadership with each change of administration, is largely an internal political issue and therefore sensitive in the host country. It is not an issue over which OFDA/LAC has direct control. OFDA/LAC, however, can and should work with the USG Mission and others in exploring methods that may alleviate the negative impact of high turnover. For example, the GOCR might be encouraged to adopt a special staffing flexibility plan for disaster relief agencies, both governmental and non-governmental, to allow use of experienced trained persons external to those agencies as temporary staff or consultants, which would allow the NEC to "recapture" relevant expertise quickly during a crisis.

Overall

The information obtained by the evaluators has led to the general conclusion that OFDA/LAC has a clear vision of its mission and has laid out a plan of action to accomplish that mission. It has prepared an implementation schedule that is comprehensive and realistic. Ongoing activities, especially those related to its training and education goal, are on track and making some hard-earned ("a slow uphill battle") gains. Operating within this framework, OFDA/LAC was able to respond efficiently, effectively, appropriately, and in a timely manner to the Limón earthquake, with due recognition to the fact that it was a uniquely favorable situation for a USG response.

Since the formation of the OFDA/LAC Regional Team in January 1986, it has received steady support and funding for its programs. The increased level of attention to disasters both at home and abroad is making the general public more aware of the problem. Within USAID leadership itself, there are signs of increased interest and focus on the subject, including public statements. This renewed interest lends support for the continuation of OFDA/LAC operations at current, if not increased levels.

VI. RECOMMENDATIONS AND LESSONS LEARNED

Six Recommendations

1. OFDA/LAC should continue to support professionalization of the NEC and also explore ways to raise the status and public recognition of its cadre of trained disaster response technicians. This might include (1) inviting top political leaders to participate in some of the training exercises as observers or even as active participants, and (2) increasing exposure in the news media and in schools through programs on disaster preparedness, safety issues, and search-and-rescue operations. The idea of establishing a permanent hemispheric training institute or technical school sponsored by some regional or international organization such as the Organization of American States, the Pan American Development Foundation, or PAHO might be worth exploring as well.
2. In anticipation of eventual retirements or other personnel changes, OFDA/LAC must begin looking to the future. The Regional Team requires individuals who have professional expertise, language skills, and familiarity with the countries and cultures in the region -- which can only be gained by having lived there and having participated in disaster management operations. OFDA should prepare an analysis of its present and long-term staffing requirements and explore ways to identify qualified individuals, both at home and abroad, for possible future employment.
3. OFDA should consider the possibility of adapting, where appropriate, the OFDA/LAC structure and strategy to other regions. OFDA/W should systematically collect, categorize, store, and update personnel information. This information could be organized geographically and by areas of technical competence and should include both US and foreign personnel.
4. OFDA/LAC should maintain its SOUTHCOM stockpile at its present level, both in type and volume of supplies. Given that disasters of various types tend to have at least somewhat predictable "needs profiles," the SOUTHCOM stockpile has proven its worth repeatedly. The OFDA/LAC draw on the stockpile for the Limón response confirms this observation.
5. OFDA/LAC should expand its record-keeping procedures to include additional training program data and improved cross referencing of entries. There should be annual reports on OFDA/LAC-sponsored training courses and seminars, listing the name, organization represented, and city of residence of each participant. This would greatly facilitate not only finding trained in-country personnel for event responses, but also evaluating the impacts of the training program itself.
6. OFDA/LAC should establish a disciplined system of "event files" to fully and consistently document OFDA/LAC disaster responses. Each event file should contain an *ex post facto* summary report describing the event and OFDA/LAC's activities, including type and amount of goods and services provided and a chronology of the decisions and actions taken by OFDA/LAC.

Four Lessons Learned

1. USG Missions must have their disaster response plans in place and up-to-date and the key operational staff, as well as a stockpile of basic emergency supplies, available for timely response. In all USG Missions, this responsibility falls on the shoulders of the MDRO. Without having these three key elements in place, it will not be possible for the Mission to make a timely response.
2. The total amount of USG assistance was reported by some local news media as being less than generous, largely because most of the attention was given to the contribution of aircraft and emergency supplies -- which only amounted to a sum of \$324,000. Less visible was a later \$5 million in reconstruction funds for road and bridge rebuilding; and \$6.3 million in local currency to rebuild homes. In a disaster response, the USG must balance what a country may "wish" and what it can reasonably "expect." USG Missions in the region should fully utilize the technical expertise of the OFDA staff in determining the kind and level of response to which it should commit. By relying on the professional judgement of the OFDA staff, the USG Mission will be in a solid position to defend its actions. The USG Mission should also see to it that its contributions are fully and accurately reported in the news media and given official recognition by the host government.
3. If the host country does not have its resources and plans in place, any disaster could lead to confusion in the relief operation and to unnecessary human suffering and loss of life. OFDA/LAC must continue to emphasize to host country governments the importance of making concerted efforts to rapidly develop their human, organizational, and material resources and to prepare their emergency response plans. Only then can governments contribute meaningfully to reducing human suffering and loss of life in the face of disaster.
4. Disaster response evaluations need to be carried out soon after the initial phases of relief are completed. Otherwise, the data collected from the interview process tend to be imprecise and unreliable. To match its response capability, OFDA should institute a more foolproof procedure to systematize and implement evaluations. Furthermore, a method for monitoring the response while it is ongoing -- a method presently being considered by OFDA and other donors -- could contribute greatly to post-disaster evaluation.

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ANNEX 1: PERSONS INTERVIEWED

1. Paul Bell, OFDA/LAC Senior Advisor
2. Alejandro James, OFDA/LAC Regional Advisor/Caribbean
3. Ricardo Bermudez, OFDA/LAC Regional Advisor/Central America
4. Rene Carrillo, OFDA/LAC Regional Advisor/South America
5. Ronald Venesia, USAID/CR Mission Director
6. Guillermo Arroyo, Costa Rica Red Cross, National Director
7. Oscar Robles Meneses, Costa Rica Red Cross
8. Heriberto Rodriguez, National Rural Electrical Cooperative
9. Milton Chaverri Soto, National Emergency Commission, Director
10. Leidy Chaves de Ellis, Governor, Limón Province
11. Eduardo Sanchez, Costa Rica Red Cross, Atlantic Zone
12. Walter Sojo, Costa Rica Institute of Electricity
13. Armando Martinez, Red Cross, Limón Branch President
14. Flora Wing Ching, Regional Emergency Commission, Coordinator
15. Elinohay Arias, Tony Facio Hospital, Emergency Chief
16. Armando Villalobos, Tony Facio Hospital, Medical Chief
17. Walter Goebels, Tony Facio Hospital, Executive Director
18. Gilberto Reed, Tony Facio Hospital, Psychiatrist
19. Donal Wilson, San Marcos Episcopal Church, Pastor
20. Allen Lavell, Social Scientist
21. Enrique Montealegre, Junta de Administracion Portuaria y de Desarrollo Economico de la Vertiente Atlantica, President
22. Juan Rafael Lizano, Minister of Agriculture and Livestock

23. Hugo Prado, PAHO/PED Director

24. Leda Campos, National Emergency Commission

25. Giovanni Rodriguez, National Emergency Commission

ANNEX 2: SCOPE OF WORK

Draft

Statement of Work

EVALUATION OF COSTA RICA EARTHQUAKE DISASTER ASSISTANCE

I. Purpose

The purpose of this evaluation is to:

- a. Appraise how the U.S. level of assistance was determined. Develop indicators of the "cutoff" point for assistance. (In other words, help answer the question of when assistance is too little, too much, or just right, and, thus, when it should be terminated.)
- b. Assess OFDA, USAID/Costa Rica, and other USG agency management organization of the disaster response.
- c. Evaluate the end results of the emergency assistance provided by OFDA to Costa Rica during the April 1991 earthquake.
- d. Develop "lessons learned" to improve future disaster response.

II. Background

The 7.4 magnitude earthquake struck Costa Rica's Atlantic Zone on April 22, 1991 at 3:57pm (local time). This was the fifth major earthquake Costa Rica had suffered in 13 months. Official recorded deaths numbered 47, with the number of injured at 189. Several thousand people were affected in 15 townships and 150 small communities. Damaged or lost homes and consequent displacement were the most common impact. According to the National Emergency Commission (NEC), 1,154 homes were completely destroyed and 1,254 damaged. Evacuation of victims by road was severely hampered by damage to roads and bridges.

The earthquake caused Costa Rica's east coast to rise 1.5 to 2.0 meters at the Port of Limon, leaving in its wake severe damage in the provinces of Limon and Cartago. National infrastructure was particularly hard hit, including the nation's main port, roads and bridges, fruit production operations, and the nation's oil refinery.

Much of the damage occurred in the high export-production area of the southeast. Besides interrupting the flow of commerce, collapsed bridges and heavily damaged roads along the major national route between San Jose and Limon (Route 32) made evacuation of earthquake victims by road very difficult. Serious adverse effects on the local water system included

damage to aqueducts, holding tanks, and distribution facilities. Total repair/reconstruction costs were estimated at \$90 million (including infrastructure, buildings, and housing).

U.S. Government (USG) Assistance On April 23, 1991, the U.S. Chief of Mission declared that the disaster warranted USG assistance. The initial request for \$25,000 was presented to the Costa Rican NEC for use in its ongoing relief efforts. An assessment team was sent to Limon that morning at 7:00.

The assessment team spent the day touring affected sites and based upon their observations took several actions. First, OFDA arranged on 23 April for a U.S. SOUTHCOM C-130 hercules aircraft to be used in conjunction with several small private airplanes to airlift injured civilians and to transport relief supplies. The C-130 delivered 100 rolls (260,000 sq. ft.) of plastic sheeting from the OFDA Panama stockpile. Second, a request was made for a U.S. Military engineering damage assessment team from SOUTHCOM or Army Corps of Engineers to assess the damage to infrastructure and engineering of the port and refinery facilities, major buildings, roads, and bridges.

The above request was granted and three SOUTHCOM UH-60 helicopters were dispatched to transport the Army engineering team to the affected areas. The Army team provided assistance in repairing roads, highway and railroad bridges, port facilities, airfields, and other kinds of infrastructure.

On April 23, the Government of Costa Rica made three requests: that certain medicines and equipment in short supply be provided (a list of which was later supplied); that the C-130 aircraft already in Costa Rica be used to transport food and water to Limon from San Jose; and that a small team of engineers be provided to conduct a more thorough damage assessment. The engineering assessment team, mentioned earlier, completed its survey on April 29.

In June 1991, OFDA arranged with the U.S. Geological Survey to send a three-person team (a landslide specialist, seismologist, and neotectonics expert) to meet with Costa Rican counterparts to evaluate the effects of the earthquake, subsequent aftershocks, and ground failure. Also, at the request of the Minister of Natural Resources, Energy and Mines, a team of U.S. Park Service Rangers was dispatched to Limon on May 4, to review the effect of vegetation loss on flooding patterns and watersheds.

C-130 flights were continued until May 1, helicopter flights until May 3 in transporting supplies into emergency areas and casualties out. The value of OFDA's contribution to the disaster assistance was \$323,961, while total USG value was \$2,319,961.

Other Donors Other countries that provided assistance in one form or the other were: Argentina, Chile, Colombia, European Community, El Salvador, Germany, Guatemala, Honduras, Japan, Mexico, Nicaragua, Spain, Switzerland, Taiwan, UK, and Venezuela. Most assistance included money for relief supplies through NGOs; assessment/search and

rescue teams; or aircraft to create an air bridge for supplies to the affected area. World Bank agreed to Costa Rica's use of a portion of a \$60 million loan initially directed for use in infrastructure to be redirected to the costs of earthquake reconstruction.

III. Scope of Work

The evaluation of the Costa Rica Earthquake Disaster Assistance will take place in-country from October ??? to ???, 1993.

A. Focal Points and Key Evaluation Questions

Several focal points and key questions are presented below. The focal points, inferred from the cable traffic, memos, and other documents on the earthquake, are not mutually exclusive. Representing functional categories, they are as follows: (1) Level and Target of the Response; (2) Assessment Methods; (3) Delivery and Distribution of Relief Fund Supplies and Commodities; (4) Timeliness of the Response, (5) Coordination of the Relief; (6) Monitoring and Reporting; (7) End Results; and (8) Lessons Learned. Each is accompanied by questions.

1. Focal Point: Level and Target of Response

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| Questions | <ul style="list-style-type: none">(a) How did OFDA determine the purpose, target population and level of disaster assistance it would provide?(b) Was the level of response commensurate with the magnitude of the disaster?(c) To what degree did needs assessments, past lessons learned, and local preparedness factor into the decisions?(d) How would OFDA response have been different if local preparedness had been stronger?(e) Were OFDA's chosen inputs the most appropriate and most needed? Were there inputs that should have been added or not provided?(f) What USG funding sources were considered (such as local currency, diversion of development resources), which were finally used, and were they most appropriate? |
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- 2. Focal Point: Assessment Methods**
- Questions**
- (a) What were the methods used to assess the disaster, measure demand for supplies, and follow up on results; how well did these work and why/why not?
 - (b) Were the assessments accurate, appropriately updated and actions changed accordingly?
 - (c) How well were early assessments in line with mid-term and final assessments?
- 3. Focal Point: Delivery and Distribution of Relief Funds, Supplies and Commodities**
- Questions**
- (a) Did the relief supplies reach the targeted population?
 - (b) Did OFDA, USAID/Costa Rica and relief recipients meet accountability requirements?
- 4. Focal Point: Timeliness of the Response**
- Questions**
- (a) Was the timeliness of OFDA and other USG response adequate?
- 5. Focal Point: Coordination of the Relief**
Effectiveness and appropriateness of OFDA's and the Mission's support role in coordinating the relief effort with Costa Rican government agencies, international relief agencies, local and US NGOs, private donors, and with other USG entities.
- Questions**
- (a) How was the U.S. coordinating role determined and how well was that function served?
 - (b) What were the actions and roles taken by the different participants in responding to and coordinating the disaster?
 - (c) How appropriate was the utilization of the Regional Advisor/Latin America?
 - (d) What were the constraints and opportunities of coordinating with several different players; what were the critical bottlenecks, if any?

6. Focal Point: Monitoring and Reporting
Quality, timeliness, usefulness and dissemination of OFDA reports in defining changing conditions of the disaster, supply needs assessments, and reporting to all concerned parties the latest findings

- Questions
- (a) Was the reporting adequate for improving over time the targeting of the response?
 - (b) Was the reporting effective in ensuring USG agencies were kept up-to-date?
 - (c) Was the reporting shared with other response agencies? Did this assist coordination?

7. Focal Point: End Results

- Questions:
- (a) Was the end use of the funds, supplies and commodities appropriate?
 - (b) Was the technical assistance and training provided appropriate and did it have the intended result?
 - (c) What problems and constraints were encountered? What enabled them (or might have) to be overcome?
 - (d) What opportunities were identified for strengthening future response, particularly via PMP strategies? Have they been acted upon?

8. Focal Point: Lessons Learned

- Questions
- (a) What lessons can be learned to improve future assistance by strengthening OFDA decision-making, management, and end results of disaster response.
 - (b) What efforts were made by OFDA to learn lessons from this disaster to strengthen future response?

B. Development of Indicators

This evaluation is directed in part to the use of indicators in disaster response efforts. The evaluators will focus on existing indicators, as well as develop new ones that advance the art of measuring success in disaster relief.

IV. Evaluation Approach and Methodology

The approach to evaluation is that of an impact evaluation. It will determine what results of disaster relief were achieved through an activity completed two years ago. At the same time, it will have to carefully examine the process of the disaster assistance from first response to last. It will also have to assess the end use of the relief coordination and supplies.

The methodology for the evaluation includes a review of relevant documentation; review and analysis of relevant statistical data; interviews with Agency relief officials and Regional Bureau officials in Washington and in Costa Rica; interviews with host country civil defense officials, USAID and Embassy officials, and representatives of donor relief agencies and organizations in-country; site visits for observation of results of relief assistance; and field use of focus-group interviews and key informant interviewing. A total of 16 days will be devoted to the evaluation, including briefing, country and site visits, debriefing and report writing and travel time. One day will be spent at AID/W at the outset and at the end for de-briefing. A total of 7 days will be spent in country.

V. Evaluation Team Composition

The evaluation requires two consultants, as follows:

the first, a disaster specialist with a background in civil engineering and/or architecture/planning and fluency in Spanish will carry out evaluative research and analysis of the following:

- initial survey/assessment by USG assessment team of affected areas and the organization of the technical team
- technical aspects of decision-making and appropriateness of delivery of emergency personnel, funds, supplies, equipment in terms of the scale and scope of the emergency
- role of the U.S. Army engineering damage assessment team in carrying out its survey and subsequent implementation of recommended assistance
- efficiency, effectiveness, and impact of technical decisions and inputs to the disaster response
- overall management of the technical component of the response

the second, a disaster specialist with a background in evaluation and management-organization and fluency in Spanish will carry out evaluative research and analysis of the following:

- management-organization of the initial response, including fielding of the assessment team, the disaster assessment, decisions based on the survey

- management-organization and coordination of the delivery of personnel, funds, supplies, equipment
- OFDA coordination with the GOCR, other USG agencies, other donors and NGOs in assessing and responding to the emergency
- impact of assistance to affected communities, public organizations, and private enterprises on social and economic recovery
- impact of assistance on affected families in terms of employment and economic productivity, shelter, schools, environmental health conditions (other)

VI. Logistics and Scheduling

Prior to the field aspect of the evaluation, the consultants will spend one day in Washington with BHM to detail their functions and schedules, meet with AID officials for briefing purposes, and review relevant documentation. At that time the country visit schedule will be reviewed with the consultants. Site visits and appointments with key officials will be reviewed with consultants. Such visits and appointments will set up in advance, where possible. The field work portion will be carried out in 7 days. A total of 16 is devoted to the evaluation. The consultants' draft report will be presented at the end of the consulting period.

VII. Reporting Requirements

The final report must be completed and approved by the project CTO.

VIII. Work Plan

A detailed work plan for the consultants will be developed with them during their Washington visit. By that time a sequence of visits will have been decided and detailed schedules of work can then be determined.