

OFDA UPDATE

Agency for International Development, February 1990



Office of U.S. Foreign Disaster Assistance, AID/OFDA, Rm. 1262A NS, Washington, DC 20523-0008

LETTER FROM THE DIRECTOR

The most distinguishing characteristic of the Office of U.S. Foreign Disaster Assistance, apart from its reputation for speed in relief response, is its interest in innovation. Innovators and risk-takers are rewarded at OFDA, a situation that is not the norm in many public institutions. This circumstance has meant that OFDA has been on the cutting edge of new ideas: in technology for use in relief response, in techniques for disaster mitigation and preparedness, in early warning systems for natural disasters and in the testing of the latest theories of disaster experts. A consequence of this culture of innovation has been rapid change in what OFDA does and how its work gets done. Because of these swift changes, we do not always inform our partners in disaster relief and preparedness work of new procedures and policies as quickly as we should. We designed this publication as a means for keeping our partners in humanitarian relief work informed of where OFDA is moving as an organization. This mechanism for publicizing our ideas and programs should facilitate cooperation in the disaster response community. We hope that our readers will write us with comments and suggestions on how to improve the Update and with contributions that we can print in future issues.

*Andrew S. Natsios
OFDA Director*

Armenia a Year Later

One of the deadliest earthquakes of modern times struck the Soviet republic of Armenia on Dec. 7, 1988, leveling over 50 cities and towns and damaging another 100. The district of Spitak (population 46,000) was reduced to rubble, and the larger cities of Leninakan and Kirovakan sustained heavy damage. The official death toll, based on the number of bodies recovered, was a staggering 25,000; however, this figure, like the official estimates of 514,000 homeless and 119,000 evacuated,

was probably low. Comparisons have since been made on the damage and loss of life in this earthquake and in the San Francisco earthquake of October 1989. Although the two quakes were similar in magnitude, San Francisco suffered far less structural damage and far fewer casualties than Armenia, due in large part to the better design standards for buildings in California.

The Soviet government's decision on Dec. 9 to accept international assistance for the victims of the earthquake prompted an almost
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Drought Mitigation: A New OFDA Initiative

African countries are having trouble feeding themselves, and natural causes are only partly to blame. While cyclical droughts have been a part of Africa's history for over a thousand years, population growth, urbanization, deforestation, political instability, disastrous agricultural policies, and infrastructural weakness have exacerbated the effects of drought. The problem of drought-related famine is most severe in Africa, but is also present in other parts of the developing world.

International donors have poured millions of dollars into drought relief programs (approximately \$900 million in 1985 and 1986 on relief efforts in Ethiopia), purchasing and transporting hundreds of thousands of tons of food to countries at risk of famine. As droughts become more frequent, and civil conflicts make relief efforts complicated, donors become frustrated with the futility of pouring money into drought stricken countries year after year. By the end of the century, international relief operations may not be able to provide enough food to enable sub-Saharan countries to feed their populations. Another approach to drought relief is needed.

If drought is treated as a chronic occurrence that governments and communities can plan for, rather than a catastrophic act of God, famine
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Marilyn Quayle's visit to Mexico

Mrs. Marilyn Quayle, accompanied by OFDA Director Andrew Natsios and OFDA/LAC Assistant Director Barry Heyman, was in Mexico from November 15-16, 1989 to attend the 25th anniversary meeting of the Partners of the Americas in Guadalajara.

Mrs. Quayle's first stop was in Mexico City, where she met privately with President Salinas and also with public and private sector organizations involved in disaster relief and preparedness. From OFDA's perspective, the highlight of her visit to Mexico City was the high level of government interest expressed by the Secretariat of Interior in opening up discussions with the U.S. on expanded disaster cooperation. U.S. Ambassador Negroponte hosted a reception for Mrs. Quayle in Mexico City with major Mexican players in the disaster field. As a result of the discussions at the reception, OFDA is considering changes to USG responses to major disasters in the future.

Mrs. Quayle's participation in the Partners meeting was also successful. More than 500 of the 25,000 Partners' volunteers attended, representing 47 of the 60 partnerships. She spoke at the Partners awards luncheon, highlighting the important roles the private sector and voluntary organizations play in both relief and preparedness.

Prior to the visit to Mexico, Director Natsios and Assistant Director Heyman spent four days in Costa Rica and Guatemala, where they met with civil defense and scientific organizations. In Guatemala they also met with participants in OFDA's course for disaster management

instructors. The visit underscored the need for close cooperation between civil defense organizations and the scientific community.

Drought, continued from page 1 need not follow in its footsteps. Preparedness and mitigation measures often cost less than relief and have equal or greater impact. International donors should study existing drought relief programs in the developing world, many of which incorporate planning and mitigation activities. India's success in dealing with the drought of 1987 is one outstanding example. The Indian government decided that providing employment in drought affected areas, so that people would have money to buy food, was the most effective strategy to avoid mass famine. Prior to the drought, state authorities selected projects for emergency employment which would help to mitigate the severity of future droughts, such as irrigation systems. These projects were set up so that emergency employment could be started 15 days after an emergency was declared.

In Botswana, a country that frequently experiences droughts, the government adopted a number of strategies which dramatically lessened the damage caused by drought. In addition to spending heavily to build up the country's infrastructure in the 1970s and 1980s, Botswana had an extensive food relief program distributing food to almost 60% of the population. Botswana also instituted a series of recovery projects which were designed to reduce livestock losses and to enable farmers to plant once the rains came.

In both cases, governments paired emergency planning with long term development, so that they were working to prevent damage from a future drought while fighting the current one. There are also a variety of water conservation techniques that small farmers can employ independent of regional or national government support.

One strategy which has been used in Mexico, Niger, and Somalia, is the building of wind fences. These fences trap moisture in the air, holding it over the area enclosed by the fence. They are easily constructed from stones that can be found on the farmer's land. Preventive measures like this, which small farmers can undertake with a minimum of training and supplies, both soften the harsh effects of drought and also promote self-reliance on the part of the farmers.

The Office of U.S. Foreign Disaster Assistance (OFDA) is exploring programs which emphasize *pre-disaster* aspects of relief work, as part of its initiative in drought mitigation. While continuing civil conflict in many African countries makes this kind of work particularly difficult, it is important to take steps in the right direction now. There are numerous ways to approach the problem: planners can focus on development oriented measures, such as developing water conservation measures, or using drought resistant crops. They can also set up systems that will make relief work easier if a famine does occur, e.g., establish networks for distribution of emergency food supplies. There is no way to prevent drought, but there are ways to prevent famine.

HEALING CHILDREN IN MOZAMBIQUE

In 1988, the Office of U.S. Foreign Disaster Assistance initiated a project with Save the Children/U.S. and Dr. Neil Boothby, a child psychologist from Duke University, to provide psychological assessment and treatment of displaced children in Mozambique. This program, funded through a Congressional earmark to support projects for orphans, grew out of an earlier OFDA-funded study. The prime targets are children who had been forced to serve as Renamo soldiers in the war between Renamo rebels and government forces.

It is estimated that some 500,000 children have become victims of this devastating civil war over the past 15 years. Dr. Boothby reports that stories of starvation, beatings, death threats and other atrocities perpetrated by Renamo soldiers against the children of Mozambique are commonplace. One child had part of his ear and several fingers cut off. Another watched as his mother was repeatedly sexually abused by Renamo combatants. Yet another was forced to set fire to his home and then watch as his family was slaughtered.

Under Dr. Boothby's guidance, Mozambique's young trauma victims are aided by over 500 individuals from organizations such as the Ministry of Health, Ministry of Education, Department of Social Welfare, Mozambican Women's Organization, Gabinete Comunicacao Social, police, and the military. Trained by Dr. Boothby to administer his

"displacement" technique, these 500 individuals teach the children to dance, draw and act out the terrible things that have happened to them. Frequently, a traumatized child will withdraw emotionally, showing no interest in the outside world. The displacement technique helps the child confront and share the trauma with others.

Dr. Boothby's program also works to reunify these children with family members. At a pilot program established at the Lhanguene Orphan Center in Maputo, 18 of the 40 children treated were reunited with their families in 1988. The program has been expanded to Gaza, Sofala, Tete, and Nampula provinces, where approximately 540 children have undergone treatment programs.

According to an AID report, as of 1989 there are

approximately 2,400 unaccompanied children in Mozambique. Families for over half of them have been located. Between January and October of 1989, 1,118 children were reunited with relatives. An important phase of this project provides follow-up counseling and monitoring services for some 200 children. Through this project, food, clothes, and educational supplies are given not only to children reunited with their families but also to an additional 2,300 children living in orphanages or with substitute families. With the success of the program in Mozambique, USAID expects to fund it into 1990. OFDA plans to use this program as a model for projects throughout the third world.

List of disasters declared by U.S. Ambassadors, in accordance with U.S. Government criteria, Oct. 1989 - Jan. 1990.

OFDA DISASTER DECLARATIONS FY 1990 (First Third)				
	<u>Country</u>	<u>Disaster</u>	<u>Date</u>	<u>* Obligation</u>
1.	Philippines	Typhoon	10/12/89	\$50,000
2.	South Africa	Food Shortage	10/13/89	\$500,000
3.	Angola	Displaced Persons	10/13/89	\$1,315,777
4.	Ethiopia	Drought	10/14/89	\$1,335,455
5.	Sudan	Civil Strife	10/19/89	\$3,046,072
6.	Mozambique	Civil Strife	10/27/89	\$950,000
7.	Thailand	Typhoon	11/06/89	\$225,000
8.	Algeria	Earthquake	11/16/89	\$95,000
9.	El Salvador	Civil Strife	11/17/89	\$556,808
10.	Yugoslavia	Mine Accident	11/21/89	\$10,000
11.	Philippines	Emergency	12/04/89	\$25,000
12.	Rwanda	Food Shortage	12/15/89	\$25,000
13.	Colombia	Emergency	12/15/89	\$5,000
14.	Panama	Emergency	12/21/89	\$708,000
15.	Romania	Civil Strife	12/26/89	\$794,450
16.	Liberia	Displaced Persons	01/16/90	\$25,000
17.	Cote D'Ivoire	Displaced Persons	01/17/90	\$25,000
18.	Somalia	Civil Strife	01/23/90	not available
19.	Madagascar	Cyclone	01/24/90	\$20,000
20.	Tunisia	Floods	01/26/90	\$340,000
21.	Indonesia	Floods	01/28/90	\$25,000

* Preliminary figures as of 01/31/90

Armenia, continued from page 1 unprecedented response. Over 67 governments offered in-kind donations, cash, and services. The reported value of international donations was over \$205 million.

The U.S. government and American private groups mobilized quickly to respond to the Soviet appeal. Eight OFDA-funded relief flights carried search and rescue teams, trauma specialists, shelter experts, pharmacists, and representatives of A.I.D., the State Department, and the Armenian-American community to the disaster site, along with commodities such as tents, blankets, plastic sheeting, hand tools, and medicines from U.S. government stockpiles. The U.S. Department of Defense provided 13 additional airlifts of donated relief goods. The Armenian-American community, the American Red Cross, and other PVOs solicited donations and organized relief flights.

The Soviet government developed a comprehensive plan to rebuild the devastated towns and cities and announced a crash

program to accomplish the reconstruction within two years. From interviews with members of the OFDA response team and PVO representatives who have returned to Armenia in the past year, a picture emerges of Armenia a year later which shows that the government's goal may have been too optimistic.

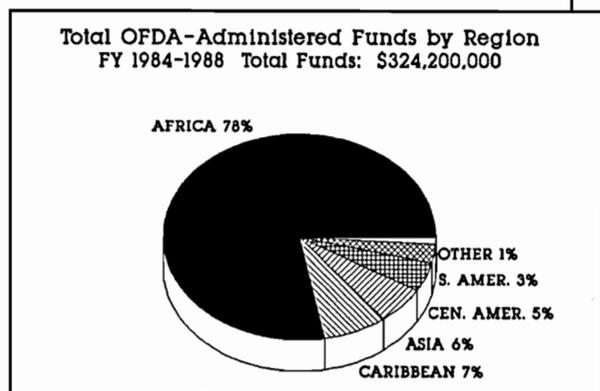
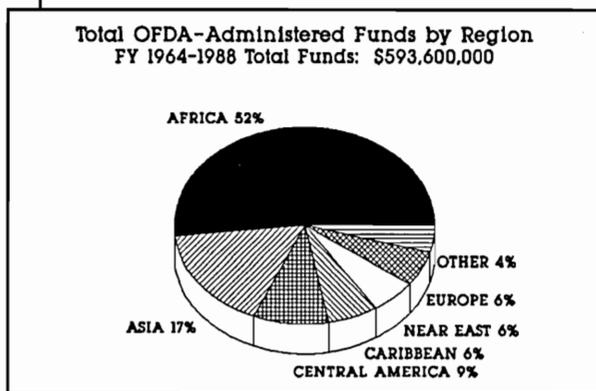
Dr. Fred Krimgold, an expert on earthquake engineering and a member of the OFDA relief team, returned to Armenia in May for a professional meeting and attended two other scientific meetings in the Soviet Union later in the year. He reports that only two of the 400 buildings projected for construction in Leninakan the first year have been completed, and they are not yet in use because they have not been connected to the district heating system. Dr. Krimgold believes that the Azerbaijani train blockade of Armenia, which prevented critically needed fuel and building materials from reaching the devastated cities during the summer and fall, was a major factor in the slow pace of reconstruction. Construction

projects of foreign governments and neighboring republics -- Austria, for example, has completed a village of 90 single family homes and Italy has built a village and clinic in Spitak -- cannot begin to provide shelter for the thousands of people displaced by the quake. Many of these people are living as evacuees in neighboring republics or in temporary shelters close to their home villages.

Dr. Krimgold credits the Soviet government for its quick action in drawing up a schematic plan for rebuilding and for significantly upgrading seismic requirements. The heaviest earthquake damage in Armenia occurred in buildings from the 1970s -- a period of accelerated construction when seismic standards had been relaxed. New construction will take geological and design factors into greater consideration, with building sites shifted to safer areas and building height restricted to four stories in Leninakan.

Dr. Claude Cadoux, a trauma specialist on the OFDA *continued on next page*

Trends In OFDA Disaster Assistance



The proportion of funds which OFDA expends for disaster relief in Africa has grown in recent years, from 50% to almost 80%. This is partly a reflection of the increasing number and seriousness of droughts on that continent: civil strife and failed economic policies have also increased the vulnerability of many Africans to the effects of disasters. On a more positive note, the pie charts reflect the fact that many countries in Asia have been able to take significant steps to mitigate the effects of catastrophes as their economies have improved.

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team sent to Armenia, revisited the area in late summer 1989. He found that international rehabilitation projects and those directed by Moscow were somewhat disjointed. Dr. Cadoux described health care in the area as rudimentary and largely dependent on international donations. A significant increase in suicide, crime, and alcoholism has been observed in the population, he reported. Contributing to the psychological trauma is the unfinished task of demolition. Although much of the debris has been removed, there are still crumpled buildings in many areas as a grim reminder of the tragedy. Fields that were once used for agriculture are now graveyards or filled with debris. Dr. Cadoux saw some heartening signs of human recovery, however, in the way that individuals are working together to assist with shelter and other needs. He described a children's rehabilitation center that he visited where play therapy was being used to deal with the deep emotional scars of children orphaned by the quake.

Americans have continued to provide assistance to the earthquake survivors during the year since the tragedy occurred. At least 15 U.S. PVOs have committed funds or are actively working on rehabilitation projects. The representatives of three organizations interviewed saw their efforts as having a potentially far-reaching impact,

despite the generally slow progress in earthquake recovery.

Project Hope is one of the organizations that has made a long-term commitment to the rehabilitation effort. Mr. Tom Kirby reported that in the first phase of its program, Project Hope brought 37 injured children to the United States for treatment. Phase two of the program will continue for five years and consists of sending teams of doctors, nurses, and physical therapists to Yerevan to work in clinics and to train local health practitioners.

Lessons Learned from Earthquakes

In order for earthquake mitigation measures to be effective, they have to be integrated into planning on an ongoing basis, not only after an earthquake has occurred.

In Armenia, batteries and mechanical parts did not work because of the cold, causing equipment to malfunction. In planning disaster assistance it is important to pick equipment that is appropriate for the disaster, the climate, and the electrical system that is used in the disaster country.

After the first 24 hours, the chances of finding live victims in the rubble significantly diminish. Search and rescue teams should arrive as soon as possible after the earthquake occurs.

AmeriCares, which also has a long-term program, brought 15 patients to the United States for treatment early in the year and, with the World Rehabilitation Fund, has established a prosthetic manufacturing facility to fit artificial limbs. AmeriCares and others have fitted 500 earthquake amputees and worked with 3,000 others who required artificial limbs prior to the earthquake. The program is also training eight Armenian students, according to Ty de Cordova, program director.

The Armenian Assembly is one of several Armenian-American groups that continue to be active in rehabilitation. This organization has established an office in Yerevan that maintains close contact with local Armenians and acts as a facilitator for other organizations working in reconstruction. Gwen Essegian of the Armenian Assembly returned from Armenia on Dec. 12. She believes the slow progress in reconstruction can be blamed on the government's lack of coordination, as well as on the Azerbaijani train blockade, which, she reports, was recently reinstated. The Armenian Assembly is constructing three plants to manufacture housing components, but their program, like that of several other donors, is on hold until spring. Building that is only in the foundation stage cannot be continued during the intensely cold winter months.

Because of the continuing critical needs of the displaced population, a group of U.S. Senators asked the State Department to approve a follow-on flight of relief goods, after the emergency phase of operations was over. A DOD airlift to Armenia on Dec. 29, 1989, carried 12 4-wheel drive trucks, 50 medium-size tents, and liners, 150 solid-fuel burning stoves, and a supply of blankets. Also, in November, the U.S. Congress approved a \$5 million offer of aid to Armenia.

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According to OFDA Director Andrew Natsios, the Armenia earthquake is a dramatic example of the need for disaster mitigation in densely populated, high risk areas: "A naturally occurring geological or meteorological event only becomes a disaster when sizeable populations are unprepared and unprotected.

Helpful? Donations

Congressional offices and private relief agencies are often under pressure to respond quickly and dramatically when a disaster occurs. The commodities mentioned below were provided by well meaning people who did not understand the needs of the disaster victims. These donations underscore the importance of informing the public that, in most cases, cash donations are more useful than goods.

In a recent drought and subsequent famine in Ethiopia, appetite suppressants, laxatives, low-calorie soup, and chocolate flavored dietary drinks were found in relief supplies which were intended for victims of starvation.

During the relief response

to Hurricane Gilbert in 1988, fur coats, high heel shoes, and heavy winter clothing were sent to the tropics to clothe the disaster victims.

Misguided donors sent frostbite medicine and electric blankets to equatorial Africa, as part of a shipment of relief supplies.

Disaster Resistant Shelter in the Philippines

Tropical cyclones destroy hundreds of thousands of homes in the Asia/South Pacific Region each year. In the Philippines these tropical storms, which have center winds in excess of 70 mph, are referred to as typhoons. For several years, OFDA has encouraged the Philippine government to build typhoon-resistant housing, particularly in the immediate aftermath of severe storms, which underscore the need for better housing stock. The Philippine Department of Social Welfare and Development (DSWD) leadership of Secretary Mita Pardo de Tavera and her staff, has been developing initiatives to respond to this need.

Recently, the OFDA funded Asian Disaster Preparedness Center (ADPC) at the Asian Institute of Technology has

provided new incentives in this area.

During brief visits to the Philippines in 1989, Dr. Satyendra Gupta, a consulting engineer on the ADPC staff, conducted several inspection/training visits of DSWD core shelter sites in typhoon-ravaged areas of the Philippines. Working directly with homeowners and community and provincial relief officials, he inspected 70 structures, noted a wide variety of deficiencies, and provided suggestions for improvements which would incorporate more effective typhoon resistant features. The training component of the visits involved 50 participants, including foremen, social workers, and engineers, in hands-on construction of a typhoon-resistant structure. The participants in these training sessions will teach others about the techniques they learned from the training. DSWD has been pleased with the technical assistance and plans to run three additional training programs. OFDA particularly values this effort in the Philippines because it involves the adaptation of practical technology at the community level. All too often, formal designs are created and neatly packaged, but never get off the planner's office shelf.

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Agency for International Development, June 1990

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LETTER FROM THE DIRECTOR

During the past year, the OFDA staff and I have undertaken an intensive review of OFDA's goals. OFDA's primary goal remains its mission to use OFDA resources to save the most lives possible. However, we have added a new emphasis on preparedness and mitigation as key elements in our strategy. Recognizing that disaster relief can not be isolated from development, and conversely, that development can not be isolated from disaster relief, we have also set ourselves the task of integrating development concepts into OFDA's relief and rehabilitation activities. In addition, we will seek to integrate disaster preparedness and mitigation into regular development projects administered by other branches of AID. We hope that the disaster mitigation, rehabilitation, and development sequence will be seen as a continuum at AID, with projects designed to overlap all three areas.

At OFDA itself, we plan to expand our preparedness and mitigation budget. We will devote some of our new resources in this program area to drought and famine mitigation. Famine has been a principal call on our funds, yet, in the past we have neglected to look seriously at mitigation measures, with the exception of famine early warning systems, for famine-prone countries. Over the past several months, we have consulted with technical experts at universities, members of the PVO community, and other experts at AID, and have devised a new famine mitigation strategy that we will begin to implement in fiscal year 1991. We will reveal the details of the specific projects at a later date. In the meantime, we continue to seek advice from the different communities with which we work on better ways to use our limited resources to save lives.

Andrew S. Natsios

Planning for Hurricane Season

As the International Decade for Natural Disaster Reduction opens, experts are making an ominous prediction: The world is facing a 10 to 20 year period of more hurricanes of greater severity. With this prediction hanging over their heads, governments in hurricane prone countries should pay close attention to disaster planning as the 1990 hurricane season approaches.

Disaster experts have identified four key areas in which planning can make a significant difference in how a country weathers a hurricane. They are:

1. Building regulations and emergency shelter
2. Emergency communications
3. Public education and training
4. Disaster management

OFDA stresses advance planning as the best to lessen the impact of a hurricane. Mitigation and preparedness play a particularly important role in the shelter and construction sector. There are many strategies for reducing hurricane damage that are relatively easy to implement. This article will briefly describe each of the key elements and provide examples of actions that could be taken in each category.

1. Building Regulations and Emergency Shelter

Shelter is the front line of defense in a hurricane. It protects both individual and public investments, such as hospitals, schools, and utilities. Preventive measures in the shelter sector can save lives and greatly reduce damage. Information about hurricane proofing steps

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Preparedness Programs in Indonesia Save Lives and Facilitate Disaster Response

Last February, Mt. Kelud volcano in Eastern Java, Indonesia, experienced a series of eruptions which killed 30 people and caused the temporary evacuation and dislocation of another 143,000. Despite the disruption to the residents around Mt. Kelud and damage to more than 2,500 structures and nearly 7,000 hectares of agricultural land, the early warning procedures and response undertaken by the Government of Indonesia (GOI) were a success.

In 1919, ash fall, pyroclastic flows (avalanches of hot volcanic material), and mud slides killed

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OFDA UPDATE Editorial Board

Renee Bafalis
Franca Brilliant
Cindy Davis

Hurricane Season, *contd.*

should be made widely available. Emergency shelter options should be assessed and planned for.

ACTIONS

- *Teach builders and homeowners to use cross bracing, hurricane straps, reinforced nails and other techniques so that roofs stay on houses when hurricane winds hit.*

- *Periodically check telephone poles to ensure that poles are sound and that their foundations are solid.*

- *Offer incentives, tax breaks or lower insurance or loan rates to builders who use hurricane proofing techniques in their buildings.*

- *Designate shelters that have been inspected prior to the hurricane. In the past winds and flying debris have broken windows and collapsed walls in emergency shelters, causing further injury.*

2. Emergency Communications

It is critical that communications systems be in place and functioning after a disaster. Effective coordination between all the players in a relief effort depends on good communication, which, in turn, depends on planning before the disaster strikes.

ACTIONS

- *Test communications systems on a regular basis and arrange backup*

power sources

- *Reinforce communications structures, e.g. towers and antennas, with guidewires so that they can withstand high winds. Provide regular maintenance, and check bolts for rust.*

- *Ensure that all local, national, and international communications networks are aware of the radio call signs of groups that may be involved in disaster relief.*

3. Public Education and Training

Education and training are both long and short term components of disaster planning. The general public should be educated about likely disasters and taught how to respond. This process should be repeated often enough--once every year or two--that people remember the steps they should take when a disaster threatens. Special groups will need more specific training: elderly populations, local community leaders who will play important roles, health and medical professionals, and others for whom specific information will be necessary.

ACTIONS

- *Institute programs for school children to teach basic safety tips for homes, schools and communities. Tell children what to do before, during, and after a disaster.*

- *Educate communities to recognize warning signs for hurricanes*

- *Publicize evacuation and emergency response plans of hospitals, clinics and other medical facilities*

4. Disaster Management

Managing disaster relief operations requires coordinating many different activities at the same time. Appointing a disaster manager and a logistics supervisor, and developing a disaster response plan

will simplify coordination and make relief operations more effective.

ACTIONS

- *Organize and test a system for receipt, warehousing, and distribution of relief supplies*

- *Establish lines of authority and official responsibility, e.g. select a single spokesperson to respond to press and diplomatic inquiries, so that all major tasks are covered without duplication*

These are some steps a country can take to lessen the damage a hurricane inflicts. This is not an exhaustive list; there are many other precautions that can improve a country's resistance.

However, implementing even this short list of recommendations can save lives and greatly reduce infrastructure damage.

Lessons Learned from Hurricanes

Establishing procedures for both the utility companies and homeowners to shut off electricity before a hurricane strikes will reduce the damage to the power grid and speed recovery.

To distinguish relief crews from media and from visiting officials, crews should wear some identification, e.g. a hat with a prominent logo.

Relief managers should try to place electrical workers with clean-up crews in areas where there are downed lines to ensure that crews maintain safety precautions and do not destroy electrical equipment.

Indonesia Programs, *contd.*

5,000 at Mt Kelud. As recently as 1966, another 200 deaths were caused by eruptions at Mount Kelud. Public reaction to the 1919 event was so strong that the government created the precursor of the Volcano Survey of Indonesia (VSI). This was the first step in the long process of developing an adequate volcano warning system in Indonesia.

During the brief period the volcano was active in February, hundreds of millions of cubic meters of lava, ash, and rock fragments were ejected from the crater. The resulting volcanic plume reached a diameter of about 160 kilometers and a height of 2 - 3,000 meters above sea level. The last eruption was not the end of the danger, as is often the case with volcanic events. Later heavy rains generated lahars (mud flows) as torrents of water mixed with the fallen ash which had

reached a thickness of 20-30 cm. Lahars are capable of carrying boulders the size of cars, or even small houses, considerable distances at speeds of between 40 and 60 miles per hour. After the February eruption, the lahars moved downslope from Mount Kelud destroying mostly vacated villages and inundating hundreds of hectares of agricultural land. Most of the deaths were caused by roofs collapsing from the weight of accumulated ash.

Why were fewer lives lost during this eruption than during the 1919 eruption, which killed 5,000? The answer lies in the protracted commitment to disaster preparedness in Indonesia during the previous decade, which made a credible early warning possible at Mount Kelud. This may be one of the more striking examples in this century of disaster preparedness programs saving lives. A wide array of monitoring equipment and

technical expertise provided by the U.S. Government, the French, the Japanese and others, and above all, the Indonesians, had enabled the volcanologists to alert the population in the vicinity of Mount Kelud to evacuate shortly before the first eruption. Once the eruptive activity began, it assured the credibility of the VSI warning. Most people left the threatened area quickly, and remained in evacuation areas until the greatest hazards had diminished. Another important factor in lessening deaths was the decrease in the water level in the crater lake which has existed on Mount Kelud for at least a thousand years. Through a series of government engineering projects, a system of drainage tunnels has been built. As a result, the lake's volume has decreased from 50 million cubic meters to 1 million, lessening the threat of lahars in the area surrounding the volcano.

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International Disaster Advisory Committee Formed by A.I.D. to Foster Corporate Support

The Agency for International Development (A.I.D.) is pleased to announce the establishment of an International Disaster Advisory Committee (IDAC), chaired by Mrs. Marilyn Quayle, who has a special concern for disaster preparedness and mitigation.

"The committee will advise A.I.D. and its Office of U.S. Foreign Disaster Assistance (OFDA) on private sector initiatives," said former OFDA Assistant Director for Operations Support, Oliver Davidson, now IDAC's Executive Director. "We will focus our efforts on governmental collaboration with the private sector to increase its



WHO'S NEW IN OFDA

OFDA Deputy Director, Dayton Maxwell

Assistant Director for Operations Support, Pete Bradford

Financial Analyst, Susie Chandler

Training Officer, Joanne Burke

File Clerk, LaShanda Minor

involvement and support for international disaster preparedness, mitigation and relief activities."

With recent disasters in the United States--Hurricane Hugo and the San Francisco earthquake--corporations have become aware of the

worldwide need to prepare their employees and facilities for a disaster or major accident. IDAC will stimulate these private sector disaster preparedness activities, as well as stimulate additional support

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New World Screwworm Fly Threatens Old World

Just as the desert locust plague of 1986-1989 was ending in Africa, the New World screwworm fly, *Cochliomyia hominivorax*, made its debut appearance outside the Western Hemisphere.

The screwworm arrived in Libya sometime in 1987, but was not formally identified until 1989. It is believed that the screwworm was brought to Libya on livestock imports from South America. It has since infested nearly 20,000 square kilometers around Tripoli, an area which includes five of Libya's 13 municipalities, and about 1.2 million head of livestock.

The New World screwworm fly is indigenous to the Americas and is a parasite of warm-blooded animals. The pregnant female is attracted to the tiniest of wounds, where she deposits her eggs. Screwworm flies mate only once, but a single female can produce as many as 2,800 eggs. The eggs hatch within 24 hours, and the larvae burrow into the wound, through flesh, bone and other tissues, for 5 to 7 days until they emerge, drop to the ground, and form a cocoon in the soil. An entire life cycle takes about 24 days.

Screwworm infections can result in traumatic injury, secondary infections, and is often fatal. Fully grown cattle can be killed within 10 days. At best, an infected animal suffers debilitated health, reduced lactation, and a low rate of weight gain. Newborn animals are most vulnerable to attack. Thousands of Libyan livestock animals have been infected.

1,938 cases were found in 1989 alone, but many others remained undetected. Thirty confirmed human cases, and up to 300 unconfirmed, were reported from Libya in 1988. The screwworm can

invade the body through open wounds, and through the ears, mouth, and eyes, but human infection most commonly occurs in the nasal passages. If not removed, the larvae can eventually enter the brain. The only certain remedy for nasal passage infections is surgery.

Because the screwworm is the most serious livestock pest in the Western Hemisphere, a concerted U.S./Mexican eradication effort has been implemented in the Americas. Prior to its eradication from the U.S. in 1982, the screwworm infested the southern part of the country and was found as far north as Canada. Screwworm-related

"In the already famine-stricken Sahel, the resulting livestock losses would be catastrophic. The injury that may be incurred by African wildlife...is incalculable."

losses in Texas in 1976 alone, were estimated at \$300 million. Over \$500 million was needed to eliminate the screwworm from the U.S. and Mexico, but the cost/benefit ratio was better than 1 in 10.

The Food and Agriculture Organization (FAO) of the U.N. is taking the lead in dealing with the screwworm in North Africa, and has helped to supply insecticide, sampling materials, and technical assistance in North Africa, the Sahel, and the Horn of Africa.

Andrew Natsios, Director of OFDA, stated that "despite survey efforts in North Africa and the Sahel, the screwworm can spread beyond Libya by flying (up to 300 km in a

lifetime) or by movement of infected livestock and wildlife across national borders."

Dr. Allan Showler, OFDA's resident entomologist, commented that "the screwworm threat exists for southern Europe, all of Africa, the Middle East, and parts of Asia. Nomadic herders frequently cross national borders undetected in the remote desert and migrating wildlife cannot be practically inspected for screwworm infection."

About 70 million head of livestock are at risk in North Africa alone, which could result in \$250 million worth of livestock damage each year. Mortality among newborn livestock in the Sahel may be as high as 80% if the screwworm crosses the Sahara.

"In the already famine-stricken Sahel, the result of livestock losses would be catastrophic," said Showler. "The injury that may be incurred by African wildlife, including already endangered species, is incalculable."

The FAO plans to implement a USDA-drafted eradication program using sterile male screwworm technology in Libya, the only known method for eradicating the pest. The process, developed by the United States and Mexico, entails irradiating male pupae (the insect stage between larvae and adult), thereby sterilizing the adult male which emerges. Tests conducted at a USDA screwworm research laboratory, using these sterile male screwworms, demonstrated that the Mexican and Libyan screwworm strains can mate successfully.

Earlier this year the U.S. Congress passed USDA-authored legislation

continued on page 5

New World Screwworm, contd.

to permit the transfer of eradication technology from the Western Hemisphere for use by the FAO in North Africa. That legislation was signed by President Bush in March.

The eradication program in North Africa will involve the release of nearly 100 million sterile male flies per week for two years. A donor commitment of about \$80 million for the two year project is required.

Showler says "it is imperative that funds be gathered as soon as possible to facilitate FAO's eradication program. If the New World screwworm spreads beyond its present range in Libya, the chances of eliminating it will become increasingly remote, especially in the vast and often inaccessible African terrain where livestock and wildlife are not systematically regulated. Screwworm dispersal outside Libya poses the threat of creating a new and permanent economic and ecological scourge in southern Europe, the Middle East, the Indian sub-continent, and an already beleaguered Africa."

Indonesia Programs, contd.

The Government of Indonesia's Directorate General of Geological and Mineral Resources has credited much of the VSI's success in this disaster to the decade long U.S. Geological Survey (USGS) assistance programs in the 1980s which were funded by both the USAID Mission in Jakarta and OFDA. The close monitoring and reporting on this disaster provided by the AID Mission Disaster Relief Officer and the Embassy Science Officer working through the Indonesia Disaster Management Center (IDMC) was also significant. The IDMC is a new preparedness

**OFDA DISASTER DECLARATIONS
FY 1990 - SECOND QUARTER**

<u>Country</u>	<u>Disaster</u>	<u>Declaration Date</u> <u>Obligation</u>
22. Paraguay	Floods	02/01/90 \$25,000
23. Guinea	Displaced Persons	02/05/90 \$25,000
24. Western Samoa	Cyclone Ofa	02/05/90 \$425,322
25. Uganda	Epidemic	02/06/90 \$13,164
26. Burma	Fire	02/08/90 \$15,700
27. Lebanon	Civil Strife	02/13/90 \$250,000
28. Tuvalu	Cyclone Ofa	02/14/90 \$15,000
29. Tonga	Cyclone Ofa	02/14/90 \$15,000
30. Turkey	Accident	02/16/90 \$5,000
31. Indonesia	Volcanic Eruption	03/05/90 \$25,000
32. Tanzania	Floods	04/02/90 \$25,000
33. Bolivia	Drought	04/29/90 \$25,000
34. Grenada	Fire	05/02/90 \$25,000
35. India	Cyclone	05/11/90 \$25,000

institution which was created in the mid 1980s under OFDA and UNDP funding. The detailed and accurate reporting greatly facilitated the U.S. Ambassador's timely and appropriate request for OFDA

funding. This funding was used to purchase potable water containers and temporary shelter materials for the displaced population.

**International Disaster
Committee, *contd.***

for country level preparedness.

"Planning for international disasters and accidents will prove most beneficial for U.S. corporations with facilities or staff overseas," said Davidson. "The Advisory Committee will identify and select corporations meeting these qualifications, to determine the extent of their preparations for disasters and major accidents. Those interested will be integrated into a network of corporations and organizations which will assist each other to develop emergency plans."

IDAC will also identify trade and professional organizations through which it hopes to stimulate either in kind or corporate financial support for priority international disaster preparedness, mitigation, and relief activities.

1990 HURRICANE FORECAST

Professor William Gray of Colorado State University has recently announced his 1990 hurricane forecast. Dr. Gray is one of the foremost experts in hurricane forecasting and his current predictions call for a worse than normal season ahead. The following chart summarizes his 1990 hurricane season Atlantic Ocean activity forecast as of June 5, 1990.

	<u>Forecast</u>	<u>1982 -1987 Average</u>
Hurricanes	7	4.0
Named Storms	11	7.5
Hurricane Days	30	32.0
Hurricane Destruction Potential	90	27.0
Intense Hurricanes	3	1.2

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LETTER FROM THE DIRECTOR

In past letters I have reported that OFDA will be strengthening its commitment to mitigation as one of the pillars of our disaster work. Some of you may be wondering how this renewed commitment will translate into practice at OFDA. In the past, we have funded a variety of disparate projects; now we will support fewer projects, more intensively, with a broader geographic distribution. We will invest in projects that use techniques we know will work. For example, there are simple, low-cost construction techniques that can make a house or building much more resistant to damage from hurricanes or earthquakes. In the Caribbean, OFDA has been supporting training for builders in hurricane-resistant building methods through local government disaster preparedness offices. Whenever OFDA gets involved in relief operations in the region, hurricane mitigation construction practices will be a part of the recovery phase of the operation. OFDA has also signed a Memorandum Of Understanding (MOU) with the A.I.D. Office of Housing indicating AID's intent to include mitigation construction in AID sponsored housing projects in disaster prone areas. In addition, under the MOU three new regional advisors will consult with AID's housing department and OFDA on ways to enhance disaster resistance in the infrastructure of countries within their regions.

Working at these different levels, we hope to make mitigation measures a routine part of construction plans in hurricane regions. However, OFDA does not have the resources to affect whole societies. One way we can increase the use of mitigation techniques is to provide economic incentives for following these models. If we train builders to construct hurricane-resistant housing at the same prices as non hurricane-resistant housing, people will choose the former. If governments and insurance and loan companies offer lower rates or tax breaks to builders, businesses and home buyers who use mitigation techniques, these techniques will become much more popular. As we face greater and greater demands on our resources, we must think of other ways to integrate disaster mitigation into normal economic activity, if we seriously intend to protect societies from the ravages of disasters.

Andrew Natsios

Relief in a War Zone: OFDA's Experience in Liberia

OFDA devotes much of its resources to the relief of civilians victimized by civil strife. Its Africa Division currently covers five major conflicts and division staff are no strangers to the misery and desolation wrought by conflicts raging on the Horn and in Southern Africa. Veteran staffers were nevertheless unprepared for the scenes witnessed in Monrovia this past July, August and September, or

for the lack of any meaningful donor capacity to deal with urgent humanitarian relief issues.

Since December 1989, when Charles Taylor's National Patriotic Front of Liberia (NPFL) first attacked the Liberian government in Nimba County, Liberia had been sliding into total chaos. Even before the death of President Samuel Doe in September 1990, Liberia's

government had become virtually powerless. Whatever powers the Government retained were used to obstruct relief efforts. By the time the first OFDA team arrived in July, food and potable water were scarce commodities in Monrovia. Most stores, hospitals and clinics were shut down. Street fighting between President Doe's troops and forces loyal to Prince Johnson, the renegade commander who
continued on page 2

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War Zone, contd.

broke away from the National Patriotic Front, made travel on foot or by car perilous. Armed troops manned the numerous checkpoints in the city and stopped civilians on the street to verify identities. In many cases, Liberians who belonged to the "wrong" tribe, or who gave an answer the soldiers did not like, were shot on the spot. In a brutal massacre, Doe's troops slaughtered six hundred defenseless people on a July evening at a displaced persons center set up by a Lutheran church.

In this chaotic environment, it was nearly impossible to carry out relief operations. The International Committee of the Red Cross (ICRC), Catholic Relief Services (CRS), Medecins Sans Frontieres/Belgium (MSF/B) and the U.S. Embassy comprised the cadre for relief operations in Monrovia. The group was successful in providing food and medical assistance for a brief period before the Presidential Mansion ordered them to halt operations. After that time, only ad hoc help could be given as the

intense fighting between Johnson and Doe forces precluded movement around the town. Direct threats by Johnson's troops against all expatriates in Monrovia and the unbridled brutality of President Doe's soldiers forced the evacuation of all relief workers from Monrovia by early August. OFDA's Joe Gettier was among the Americans taken out by Marine Corps helicopter.

"Veteran [OFDA] staffers were...unprepared for the scenes witnessed in Monrovia this past July, August and September, or the lack of any meaningful donor capacity to deal with urgent humanitarian relief issues."

OFDA's most bitter memory of Monrovia last July concerns the inability of the donor community to alleviate effectively the suffering of the Liberians trapped by the NPFL siege of the city. Spriggs Paine Airfield was closed to all traffic by mid-July, and no deliveries were coming into the port of Monrovia. The remnants of the Doe regime arrested and beat the few brave souls who persevered in relief efforts. Relief workers from Caritas, CRS and MSF/B continued to try to relieve the misery of Liberians trapped in Monrovia, after most other relief programs had ceased. Many readers will be familiar with the story of Jacques Montouroi of CRS. Montouroi

was detained by Johnson's forces while supervising distribution of relief food. He was later handcuffed to a Liberian involved in the relief effort who was shot and killed by Prince Johnson himself, while Montouroi was still handcuffed to him. Only the fact that Montouroi had an identity card which Johnson mistook for a diplomatic pass saved his life. This incident, combined with the daily terror on the streets and the impossibility of getting relief supplies, brought relief work to a virtual standstill.

In August, OFDA sent a second mission to Monrovia. Medical supplies were brought in and MSF/B returned to set up a clinic. OFDA's Dr. Ellery Gray did a survey in which he found that 277 out of 500 randomly selected people were found to be severely malnourished. Since Dr. Gray's team departed Monrovia in September, AID's Food for Peace Office succeeded in contracting the services of a regional shipper to move 1,624 MT of food into Monrovia. Assessments conducted in October indicated that approximately 80 per cent of the population of Monrovia was malnourished at that time. Fifty people a day are reportedly dying from starvation in the city. Joe Gettier and other disaster relief experts traveled to Monrovia in early November to assist in distributions, to assess further relief needs, and to make plans for delivery and distribution of supplies.

OFDA's New Famine Mitigation Initiative

In all of the current famine emergencies in Africa, civil conflict is a prominent feature complicating our emergency responses. Access to affected populations is frequently limited or cut off by the conflict. Farmers often cannot plant even after the rains return because of the fighting. Livestock losses due to disease and marauding combatants negatively affect the nutritional status and socio-economic base of pastoral societies. Conflict isolates farmers and pastoralists from essential inputs and services, forcing them to move to garrison towns where there is not enough land to grow crops or graze livestock. Traditional cultural patterns are disrupted and centuries-old coping strategies no longer work.

OFDA's new initiative attempts to address the difficulties of famine mitigation early on, in conflict as well as non-conflict environments. Activities to mitigate the effects of the famine at the community and household levels are circumscribed by the type of activity which the warring parties will tolerate. Irrigation schemes and infrastructure projects which are perceived to benefit followers of one side over the other--or to jeopardize the political/military standing of either party--are often sabotaged. Even health clinics are sometimes suspect. Under these circumstances, emergency famine

responses require specialized approaches. In Wau, Sudan, for example, when residents planted traditional sorghum around the perimeter of the town, Sudanese government soldiers burned it down because the tall sorghum stalks concealed the approach of the guerrillas. The farmers subsequently planted red sorghum, a faster growing and shorter variety. The Sudanese army did not burn this sorghum because it did not seriously obstruct their view of the countryside.

This initiative proposes to enhance the capacities of OFDA and its cooperating partners to respond quickly and effectively to the needs of smallholders and pastoralists and to avoid large-scale population movements in search of food. OFDA will focus on five kinds of interventions: 1) early warning and rapid assessment, 2) seeds and tools, 3) livestock maintenance, 4) water conservation, and 5) cash for work and cash transfer options. These interventions are proven methods which enhance traditional coping mechanisms. Under the initiative, they will be fine-tuned, and will be modified, as appropriate, to be used in conflict as well as non-conflict situations. Ultimately, OFDA plans to package specific interventions so that they can be pulled off the shelf and applied to disasters all over the world. Under this plan, OFDA hopes to mitigate the effects of droughts before they become famines.

Promoting U.S.-Soviet Disaster Management Cooperation

Following the Armenian earthquake in 1988, Soviet and U.S. disaster specialists agreed to hold discussions on bilateral disaster management cooperation. From July 30 to August 4, a six-member Soviet delegation of disaster managers met with OFDA officials in Washington, D.C. The meeting gave both the Soviets and the Americans an opportunity to learn about the structure, funding and management of disaster relief and preparedness agencies in the U.S and the U.S.S.R.

OFDA Director Andrew Natsios opened the meeting by describing OFDA operations, and explaining that the U.S. hoped to explore ways for the U.S. and the U.S.S.R. to cooperate in disaster relief efforts, such as relief projects in the Horn of Africa. The head of the Soviet delegation, Vladimir Gorchakov, who is Deputy Chairman of the State Commission on Extraordinary Situations, reviewed the Soviet disaster relief system and affirmed Soviet interest in greater cooperation with the United States. The Soviets were particularly interested in developing links with the U.S. for satellite disaster monitoring, joint research on natural disasters, joint training of disaster personnel, and exchange of information on disaster management. The Soviet delegation outlined Soviet plans to create a disaster preparedness *continued on page 6*

How to Respond to Disasters Responsibly

Whenever a disaster hits the headlines, the American public quickly responds with offers of old clothes, canned goods, volunteer assistance, and cash. Despite the public's best intentions, donations of unsolicited goods often do more harm than good. Unnecessary items frequently compete with essential relief goods for the same limited transportation and storage facilities, and they delay the delivery of requested emergency relief supplies.

By following the guidelines below, individuals and organizations can make donations that will arrive at the scene of a disaster in an orderly, timely fashion, enhancing, rather than hindering, the recovery and rebuilding process. Recipient nations receiving assistance in this way will find it easier to cope with the daunting tasks facing them.



CASH! CASH! CASH!

The most useful form of assistance is always cash. Whenever possible, donate cash or credit to the stricken country through international agencies or well established non-profit organizations, preferably those who already have a presence in the affected country. Most essential relief goods can be purchased locally or in neighboring countries. This allows goods to reach victims as

quickly as possible. Cash donations help the crippled local economy and need not be transported thousands of miles at great expense.



CLOTHING:

Generally, donations of clothing are discouraged. Clothing and shoes are usually not needed after a natural disaster. If clothing is specifically requested, new clothes are preferred. They should be sorted by category (age, sex, and type), and boxed and labeled properly. Used clothes must be in good condition and cleaned prior to shipment.



FOOD:

Donations of foodstuffs are also discouraged. In most disasters food scarcity is not an immediate problem, although distribution networks are frequently disrupted. If food is requested, donated foodstuffs must be non-perishable, appropriate to the local culture, and clearly labeled.



MEDICINES:

The arrival of unsolicited medicines at a disaster scene is usually a burden rather than an asset. Medical supplies are highly specialized commodities that must be based on World Health Organization and International Red Cross standards. Prescription labels must be translated into the language of the affected country and must have a shelf life of at least six months after arriving in the country.

Never send old prescription medicines; they may be lethal.



VOLUNTEERS:

In many countries, health, rescue and construction resources exist to cope with a disaster's immediate consequences. As a result, foreign volunteers often arrive when they are not needed. Their presence can complicate the process of recovery and lead to frustration. Often lodging and transportation are unavailable and food supplies are limited; outside volunteers, who are unfamiliar with local conditions, increase stress in an already stressful situation. Highly-skilled specialists whose help has been specifically requested by the affected government or by private voluntary organizations are exceptions. Well-intentioned foreigners lacking familiarity with the local language, customs, and conditions should remain at home.

HOW TO SEND DONATIONS:



Relief goods should not be collected or sent unless they have been specifically requested by the disaster-stricken country or by private voluntary organizations. Wait for a full determination of needs prior to soliciting donations and preparing donated goods for shipment. A well-established relief organization with personnel already on the scene is in the best position to determine the country's specific needs.

Before collecting or shipping relief
continued on next page

How to Respond, contd.

goods, a distribution partner or agency which will deliver the goods to the people in need must be identified. Never assume that unsolicited relief goods will be transported free of charge by the U.S. government or on private aircraft. It is very costly to transport goods overseas from the United States.

Additional information on appropriate relief supplies may be available from the local chapter of the American Red Cross in your community or from major private voluntary organizations.

HOW TO PACKAGE

DONATIONS: Relief goods must be high quality items that are well-packed in small, manageable containers. Boxes must be strong, weatherproof, stackable, sealed, and small enough to be carried easily by one person. Boxes should weigh no more than 55 pounds (25 kilograms); bundles or sacks should weigh no more than 110 pounds (50 kilograms). All packages should be clearly labeled in both English and the host country languages and should be addressed to a specific recipient who will receive and

distribute the goods.

WHERE TO SEND

DONATIONS: For further information or a list of private, voluntary organizations involved in international disaster relief efforts, contact Lisa Mullins, Interaction program officer for emergency/disaster response, at (202) 822-8429, or write her at Interaction, 1815 H Street, Eleventh Floor, Washington, D.C. 20006.

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DISASTER DECLARATIONS FY 1990 - SECOND HALF

	COUNTRY	DISASTER	DECLARATION DATE	OFDA SUPPORT
36.	Peru	Earthquake	06/04/90	\$25,000
37.	Zaire	Floods	06/04/90	\$25,000
38.	Sri Lanka	Civil Strife	06/21/90	\$525,000
39.	Turkey	Floods	06/21/90	\$9,993
40.	Iran	Earthquake	06/22/90	\$761,067
41.	Nicaragua	Floods	06/26/90	\$26,750
42.	China	Floods	07/07/90	\$25,000
43.	Philippines	Earthquake	07/16/90	\$472,815
44.	Trinidad	Emergency	08/03/90	\$25,000
45.	Sierra Leone	Displaced Persons	08/14/90	\$25,000
46.	Jordan	Displaced Persons	08/20/90	\$825,874
47.	Philippines	Floods	08/25/90	\$25,000
48.	Yugoslavia	Mine Accident	08/27/90	\$10,000
49.	Turkey	Displaced Persons	09/05/90	\$25,000
50.	Korea	Floods	09/12/90	\$25,000
51.	Sri Lanka	Displaced Persons	09/18/90	\$162,045
52.	Mexico	Floods	09/28/90	\$25,000

U.S.-Soviet Cooperation,
contd.

system modeled on the Soviet Union's civil defense program.

In addition to meeting with OFDA staff, the delegation also heard presentations by representatives of several other organizations, including the University of Wisconsin Disaster Management Center, the Federal Emergency Management Agency (FEMA), the Department of Defense, the United States Forest Service (USFS), the National Disaster Medical System, and the National Oceanic and Atmospheric Administration. The delegates asked their American counterparts numerous questions about practical matters, such as budget issues, the relationship between OFDA and Congress, and relations with the press during disasters. At the end of the week, the Soviets and the Americans issued a joint statement affirming their commitment to broadening bilateral cooperation on disaster issues.

As a result of the meeting, a U.S. delegation co-chaired by Andrew Natsios and Mrs. Marilyn Quayle, wife of Vice President Dan Quayle, went to the Soviet Union in November. The U.S. delegation hoped to clarify procedures for cooperation in the event of disasters in the Soviet Union, to explain how OFDA provides international disaster assistance, and to exchange technical information relating to natural hazard reduction. The delegation included representatives from FEMA, USFS, and the U.S. Public Health Service. Several members of the delegation met with Soviet disaster officials in Moscow, visited Kiev to view and discuss the Soviet response to the disaster at Chernobyl, and traveled to Armenia to meet with disaster response officials and to view disaster relief projects supported by U.S. government grants.

A ten-person Soviet delegation will come to the United States in January 1991 to study disaster management at the University of Wisconsin.

Lessons Learned Box

Temporary solutions to shelter problems tend to become permanent. There are many examples of people living in transition housing, e.g. tents and trailers, years after the disaster.

One of the best times to promote prevention, mitigation and preparedness measures is immediately after a disaster. For example, after a hurricane, people will be more interested in hurricane resistant building techniques than they are at other times.

Use indigenous materials wherever possible. In particular, importing prefab housing is slower, more expensive, and less satisfactory for the inhabitants than houses built according to local practice.