

# SEVENTH REPORT

July - December 1967

## FOREIGN



## EMERGENCY

## RELIEF



AGENCY FOR INTERNATIONAL DEVELOPMENT

SEVENTH SEMIANNUAL DISASTER REPORT  
FOREIGN DISASTER EMERGENCY RELIEF

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Cover Photos:

1. Earthquake in Turkey (CARE photo)
2. This P. L. 480 wheat truly represents a gift from the people of the United States for foreign disaster victims. It was grown by U. S. farmers, financed and shipped by the U. S. Government, distributed by U. S. voluntary agencies.
3. Earthquake victims in a Latin American country receiving P. L. 480 food. (CWS photo)

SEVENTH SEMIANNUAL DISASTER REPORT - CASE STUDIES OF FOREIGN DISASTERS  
JULY TO DECEMBER 1967; STATISTICAL TABLES FOR BOTH FIRST AND LAST HALF  
OF 1967

QUICK FACTS AND COMPARISONS

During the last half of 1967, U. S. assistance was provided for 20 countries in 22 disasters. Quick comparisons on other disaster statistics, by calendar years, follows:

	CALENDAR YEARS				
	1964	1965	1966	1967	4-Year Total
No. Reportable Disasters	59	47	58	51	215
No. Countries	36	37	46	39	78
Deaths	9,918	43,920	15,378	6,029	75,245
Total Victims	7,403,335	5,742,185	5,686,217	12,989,991	31,821,728
<hr/>					
COSTS (in thousands of dollars)	\$	\$	\$	\$	\$
<u>AID FAA Contingency Fund</u>					
Under Ambassador's Authority	211	490	431	278	1,410
AID/W Approval	4,123	1,964	1,685	4,471	12,243
TOTAL - Contingency Fund	4,334	2,454	2,116	4,749	13,653
<u>AID Project/Other Gov't Funds</u>					
USAID Funds	1,094	15,960	308	--	17,362
P.L. 480 Generated Local Currency	--	3,436	2,740	1,618	7,794
Proags - USAIDs	276	--	1,000	--	1,276
Non-reimbursed US Military	159	--	403	20	582
Non-reimbursed Other US Agencies	--	--	--	8	8
FAA 216 Funds Thru PRR/VAD	--	--	3	193	196
TOTAL - AID/Project/Other	1,529	19,396	4,454	1,839	27,218
<u>P.L. 480 Food Commodities</u>					
Title II - Gov't to Gov't or to Internat'l. Organiz.	12,764	33,589	10,690	37,128	94,171
Title III & Later II to Volags	2,409	4,372	1,924	37,162	45,867
	15,173	37,961	12,614	74,290	140,038
TOTAL USG ASSISTANCE	21,036	59,811	19,184	80,878	180,909
Voluntary Agency and Other Private US Assistance	2,657	3,173	5,303	8,177	19,310
TOTAL - ALL US ASSISTANCE	23,693	62,984	24,487	89,055	200,219

Specific information by disaster, country and region as well as contributions by "other nations" and self-help can be found in enclosed tables.

TABLE I - Lists disasters for the second half of 1967 for which case studies are also included in this report. The last page of this table shows line totals of expenditures for Calendar Years 1964, 1965, 1966, 1967 and four-year totals.

TABLE II - Lists disasters for first half of 1967. This is a revised table carried in the Sixth Report as Table I, and reflects added information or corrections for that period. The last page of this table shows line totals of expenditures for Fiscal Years 1965, 1966 and 1967 and three-year totals.

#### WHAT AND WHERE

During the last six months of 1967 there were 3 disasters in Africa, 2 in Europe, 9 in Latin America, 5 in Near East South Asia and 3 in East Asia and Vietnam. These disasters consisted of 8 floods, 2 civil strife, 4 earthquakes, 3 hurricane/cyclones, 3 epidemics, 2 drought famine. There were other major and minor foreign disasters throughout the world not recorded here because U. S. Government or U. S. voluntary agency assistance was not involved.

#### ANALYSIS COVERAGE

The following comments and review relate to the case studies for the last six months of 1967. For case studies on disasters during the first half of 1967, and their analysis, please refer to the Sixth Report.

#### AFRICA

There were fewer disasters and therefore less input of U. S. aid to Africa for this 6 months than for any previous six months' report on disasters since 1964. Records are not available for years prior to 1964.

#### EUROPE

Because of the developed economies of most European countries, there is less need for U. S. assistance for disasters in this part of the world. When major disasters occur, the U. S. may be called upon because of our ability to make immediate response with the items or services urgently required but not readily available. In the case of the Debar earthquake in Yugoslavia, P.L. 480 food was provided through CARE, and a cash donation of US-owned dinars was made, equivalent to \$25,000. This donation was to the Yugoslav Red Cross who advised the American Embassy it would be placed in a special sub-fund for aid to disaster victims whose homes were destroyed. The Yugoslav Red Cross said the U. S. contribution was the perfect gift, describing its two parts as the "best combination"—the food furnished through CARE

supplying immediate relief of hunger and anxiety and the USG money gift providing a flexible means to help rebuild the homes and buildings of Debar. Sometimes inquiries are made of the DRC office as to whether there is ever any identification of U. S. contributions for foreign disasters. While this is not always possible, the AID symbol is often affixed and recognized. President Osman Shehu of the Yugoslav Red Cross indicated his awareness and meaning of the "clasped hands" symbol on the CARE food packages.

### LATIN AMERICA

The Latin American region again had the most disasters this period—nine. On a four-year basis, the LA region had 66 reportable disasters compared with 50 for NESAs, 49 for Africa, 43 for East Asia and Vietnam and seven for Europe. This is further evidence of the importance of the AID disaster reserve supply now being maintained at Panama. The reserve supplies did not arrive in Panama until December of 1967, and therefore were not available for disasters which occurred in LA for the period covered in this report. However, these stocks were used for three disasters early in 1968, permitting responses in less than 24 hours and resulting in savings to the USG. These actions will be covered in the next report.

Although the non-fat dry milk and feed grain provided for the Uruguay drought/flood disaster had the greatest dollar value in LA disaster relief during this period, the most serious disasters in the region were Hurricane Beulah and floods in Mexico and the Venezuela earthquake. Of note in the Mexican flood disaster was the good will established between Mexican and U. S. officials in opening of the border and the on-the-scene disaster relief coordination among the Office of Emergency Planning, the U. S. Military, U. S. Immigration and Naturalization Service, AID/DRC and the Mexican authorities. The Venezuela earthquake resulted in a special analysis and study that may have far-reaching effects on building codes and quake-resistant high-rise structures.

### NESA

There were four serious earthquakes in this region involving over 80,000 victims. One was in India and the other three, covered in one case study, in Turkey. The U. S. and "Other Nations" gave assistance but it was encouraging that the major portion of the relief and rehabilitation operations were handled by the governments concerned and their relief organizations from their own resources. Turkey, for example, was better prepared and utilized 908 Arctic tents which had been among the 2,000 tents donated by the USG for the 1966 Varto earthquake. Following the 1966 earthquake, Turkey undertook a massive reconstruction program resulting in the GOT being able to save more than 1,000 of the Arctic tents for future disasters. Thus, these same tents were available for redistribution by the GOT to the 1967 earthquake victims. When tents are supplied by the USG, U. S. embassies are asked by AID/DRC to encourage recipient governments to recover whatever tents are reusable and to store them for future emergencies. Also, the

governments are asked to consider making these tents available to neighboring countries should they become victims of disasters.

A comment in one of the voluntary agency reports brings up the importance of the customs of the country in relation to disaster relief aid when clothing is donated. Following the Koyna earthquake, CORAGS (an Indian relief agency to which U. S. and international voluntary agencies contribute funds and supplies) set up a garment processing center to convert western-style clothing sent to aid the victims into blouses, children's clothes, cloth and blankets more suitable to Indian usage.

#### NESA - AFTERMATH OF INDIA FAMINE

The case study on the 1965-67 Indian famine is included in the Sixth Report. Because of the number of famine victims (8 million) and large amounts of U. S. aid, valued at almost \$55 million, as well as assistance from other nations valued at over \$127 million and in-country contributions of over \$2 billion, it is important to comment briefly on the aftermath of this disaster and the effect of the relief programs.

The Indian Prime Minister and Minister of Food and Agriculture publicly acknowledged the great contributions of the voluntary agencies. In stressing the need for a continuing program, the Prime Minister noted that the efforts of the voluntary agencies in the Bihar program had resulted in a new appreciation by the GOI of the special contributions of voluntary agencies and their willingness to undertake challenging tasks.

The extent and duration of the Indian famine caused the voluntary agencies to focus on how they could best use and pool their resources. This brought about recognition of their significance in the development sphere in India. Efforts of U. S. Voluntary Agencies (CARE, CRS, CWS/LWR, MCC) plus UNICEF, OXFAM, Catholic Charities, AFPRO, CORAGS, etc., are now being directed to improving irrigation and/or agriculture in the drought areas. This is one of the most exciting outcomes of the drought.

The GOI has requested commercial banks through the Reserve Bank of India to buy debentures in land mortgage banks to provide funds for irrigation programs. Also, it has been proposed that the Indian Government establish a single coordinating agency to act as liaison with voluntary relief organizations and assist them in implementing their functions. This is a very important development and this proposed office could become a principal counterpart for all foreign voluntary agencies.

A new Indian organization, Bihar Association of Voluntary Agencies (BAVA), is concentrating on minor irrigation projects as a long-range measure to prevent famine. It proposes to continue this activity for the next two years, with a goal to irrigate 250,000 acres, that could result in 500,000 tons of additional produce.

In the State of Uttar Pradesh its Drought Relief Committee has developed a "food for work" program in 11 districts. It will also concentrate on minor irrigation and soil conservation projects in order to raise food production to prevent famine.

Church World Services/Lutheran World Relief continue with projects in Bihar, having added 15,000 persons to the number of people receiving Title II food commodities through CWS as part of the rehabilitation program.

Catholic Relief Services has expanded its recovery activities.

CARE has increased its child feeding program in Bihar in a plan to reach 3 million children this year.

The World Food Program, in conjunction with the GOI, is sponsoring a project to organize voluntary labor and hire unskilled workers to restore farm irrigation facilities, for which the USG share is 8,710 metric tons of wheat.

- As described in the Sixth Report, all concerned with the drought/famine in India produced the high protein enriched food named "Bal Ahar." It is now believed that its production (including commercialization) will continue beyond the drought relief period and be a major factor in improved nutrition in India.

#### EAST ASIA AND VIETNAM

In connection with the war connected civilian disasters in Vietnam, AID/DRC has assisted with information on disaster relief and rehabilitation for homeless people. Relief operations, however, are generally handled by the Vietnam Bureau. The extent of U. S. and other disaster relief is not presently available for this report.

The Korea drought was the major disaster reported in this region this period. On practically all disasters that have occurred in this country in the past two or three years, there is some comment on Korea's preparedness program. Usually this comes from the U. S. Mission. But U. S. voluntary agencies are also aware of this. From a Church World Service representative in Korea came this comment: "It must always be kept in mind that the Korean Government is well organized and has done careful planning for disasters such as this." While the U. S. grain input was large, being valued at over \$15 million including ocean transportation, the Korean Government was ready with a planned work and relief program and itself assumed expenses in the form of deferred receipts and direct expenditures in the affected areas estimated at \$50.7 million. AID/DRC took part in recommending disaster preparedness plans for Korea based on the record of disasters for this country.

#### OTHER GOVERNMENT AGENCIES

As in past reports, the Departments of Defense; Health, Education and Welfare; Agriculture; Commerce and Interior participated whenever called upon by providing food, supplies, transportation, medical and scientific teams, medicines and technological equipment, technical advice and information. For the first time since these reports were issued, the Department of Justice became involved in AID/DRC disaster relief operations through the relaxing of border controls by the Immigration and Naturalization Service. This Service was involved twice during the last six months, both

times for Mexico. Both times floods disrupted surface communications. After the floods that occurred during the Christmas holidays closed Mexican highways, INS personnel at U. S. Customs Stations worked around the clock, missing Christmas dinner with their families, in order to arrange onward passage of Mexican buses and trucks carrying people and perishable cargo via U. S. highways.

#### U. S. VOLUNTARY AGENCIES

U. S. voluntary agencies aided in 18 of the 22 disasters during this period. Their aid was in the form of cash, disaster supplies and/or personal services. On-the-spot action by U. S. voluntary agencies depends primarily upon whether they have local programs and can respond to appeals made by their counterparts in the stricken country. Representatives of U. S. voluntary agencies in foreign countries respond as quickly as they can whenever a disaster is reported, and they give unstintingly of their time and supplies. They distribute food and other items, prepare hot meals, seek shelter for the homeless, and care for the sick and injured. It is part of their tradition to give that "personal touch," so important to our U. S. humanitarian assistance.

The American Red Cross participated in seven of the disasters; Church World Service/Lutheran World Relief in nine; Catholic Relief Services in 11; and Seventh-Day Adventist Welfare Service in two.

#### DISASTER PREPAREDNESS

Major forward steps in disaster preparedness cannot be reported but there is some progress. Some countries which have in the past sought large amounts of U. S. and other outside aid for disaster victims seem better able to cope with disasters within their own resources, asking the U. S. only for selected items or services, such as air transport and helicopters. Several reports have been received from countries that now have their own disaster plans; that have improved warning services; and that have programs to minimize effects of disasters. A few specifics reported during the last six months are:

##### Yugoslavia - Debar Earthquake

The U. S. Mission commented on the effectiveness of the Macedonia disaster relief organization. Macedonia is located atop an earthquake zone. Its people have had experience in earthquake relief operations, which are handled well with good coordination between local and republic officials. After this earthquake, a new organization called "The Fund for the Relief of Victims in West Macedonia" was established and it will remain in existence until Debar is completely rebuilt. "The Fund" came out in favor of a light wooden pre-fab as the best form of temporary shelter and voiced the hope that the Macedonian Government would utilize some of the incoming relief funds to build a supply of pre-fab units which would be held in readiness for future emergencies.

## Argentina - Floods

An outgrowth of the disaster was an announced determination on the part of the Argentine Government to embark on a massive shantytown eradication program, which would serve to improve living conditions for the poorer classes and eliminate the large tracts of temporary shacks crowded into the flood plain. In this connection, the Secretariat of Housing called on industrial and commercial firms to sell, loan, rent or donate construction materials to be used for providing adequate interim shelters but which could also be salvaged later and used in the construction of permanent housing.

## • Mexico and the Caribbean - Hurricane Beulah, Subsequent Floods

Reports received that in Mexico the low loss of life, considering the magnitude of the disaster, was attributed to timely warnings by news media, plus the fact that the population tended to follow official instructions on precautionary measures against wind and flood. There were also Spanish language television and radio broadcasts from Texas.

There were also reports from American Embassies in Haiti and the Dominican Republic that both these countries took necessary precautions based upon hurricane warnings broadcast from the U. S. Weather Bureau Hurricane Center at Miami. Although the hurricane did not seriously affect either country, large numbers of people were evacuated to safer areas in the Dominican Republic. Also, the Dominican Republic asked for and received assistance from the U. S. in preparing a disaster plan of operations. AID/DRC arranged for Capt. V. G. Holzappel, USN Retired, formerly the Department of Defense Foreign Disaster Relief Coordinator, to go to the Dominican Republic and assist Government and Civil Defense officials with their disaster plan.

In connection with Hurricane Beulah the importance of radio communications was brought out. Catholic Relief Services reported that an American missionary priest was credited with saving hundreds of lives and thousands of dollars worth of property with his ham radio work when the hurricane hit the Yucatan Peninsula. The American Embassy in Mexico City sent Mr. David C. Packard to assist the consulate in Matamoros. He brought radio equipment which was installed at the Consulate. With the help of a U. S. Army enlisted radioman, Mr. Packard provided invaluable services, particularly in relaying critical messages at times when telephone facilities were unavailable. A similar situation was reported following the Venezuela earthquake. Amateur radio operators, including Mrs. Bernbaum, wife of the U. S. Ambassador, aided in reducing the load on normal communication facilities.

## Earthquake-Proof Housing

Venezuela Earthquake - Because of the severity of damage to what was considered earthquake resistant high-rise buildings in Venezuela, two outstanding earthquake engineers from the U. S., Mr. Karl Steinbrugge and Mr. William K. Cloud, went to Caracas to provide professional help to the Government of Venezuela and the American Embassy in evaluation and cause

of damage. Their recommendation was that an inter-disciplinary study of this earthquake should be made—that it was not only important to Venezuela but to other earthquake prone nations such as the U. S., Japan, Turkey, Greece. Such a study, it was stated, could result in an explanation of how to avoid this type of damage in high-rise sections of earthquake-prone cities of the world. The opinion was expressed that USG domestic agencies might have the most at stake in making such a study, especially OEP, HUD, ESSA, USGS and the National Academy of Science Earthquake Engineering Committee. Decision on whether U. S. scientists and engineers will participate in this study is still pending. Mr. Steinbrugge and other private scientists are continuing to aid and advise Venezuela on the study and are providing a valuable exchange of scientific data.

Turkey Earthquakes - Following the July 1967 earthquakes, Prime Minister Demirel assured the people that the destroyed buildings would be rebuilt better than before and the GOT appropriated over \$7 million for this purpose. As a matter of follow-up concerning the 1966 Varto earthquake in Turkey, the Government undertook a massive construction program to build A frame shelters that would not be death traps for the occupants in future earthquakes. It was reported that the following construction in that area has been accomplished so far: 10,098 barracks and 1,893 pre-fab houses constructed in 1966 and 7,128 barracks, houses and stores in 1967.

India Earthquake - A rehabilitation program has been planned which will include almost total reconstruction of Koynanagar township to house displaced employees of the Koyna Hydroelectric Project and to construct 50,000 houses in the villages. The plans call for quake-proof design.

United Nations Reports on Earthquake-Proof Housing Progress (taken from UNDP Bulletin) - For many years it has been recognized that poorly constructed buildings are the major cause of the long casualty lists resulting from earthquakes and this has again been borne out by recent engineering surveys of stricken areas in Colombia, Turkey, Venezuela and Yugoslavia. In 1960, Japan, which suffers many earth tremors each year, set up a training center at the University of Tokyo to familiarize engineers and architects with earthquake-proofing principles. Two years later, the Government of Japan obtained United Nations Development Program aid in establishing an International Institute of Seismology and Earthquake Engineering with the training center as its nucleus. To date, the Institute has trained 130 scientists and engineers from 21 countries in anti-seismic construction, earthquake measuring and reporting. Earthquake danger is being considered in housing and urban planning projects now being undertaken by the Governments of Afghanistan, Republic of China, Peru, Singapore and Venezuela, and appropriate building codes are being stressed in UNDP-aided projects. The UNDP call attention to the increasing importance of earthquake research and prediction in the years to come, since between now and the year 2000, the population in the main seismic zones will show a dramatic increase.

Disaster Preparedness in Europe - In a recent bulletin issued by Catholic Relief Services, they reported on the setting up of emergency centers in Germany and Italy to provide immediate first aid in disasters. The six new

centers are at Konstanz, Freiburg, Muenster, Munich and Passau in Germany and at Prato, Italy. Each center is equipped with 400 tents that can accommodate eight persons each, 8,500 blankets and a supply of clothing.

#### For Special Attention of US Missions in Earthquake-Prone Countries

There were 240 persons killed when multi-storied apartments collapsed during the July 29 earthquake in Venezuela. The U. S. Mission there reported that the special demolition equipment which the Ministry of Public Works purchased from Union Carbide in the U. S., with the cooperation of the U. S. Embassy, proved to be very helpful in clearing debris at the Mansion Charaima. Ministry of Public Works engineers expressed the opinion that if the equipment had been on hand in Venezuela previous to the quake, additional lives might well have been saved. There were only 37 persons rescued alive from the ruins, one of them after 54 hours of entombment.

After almost every serious earthquake, reports are received of the number of people who died as a result of being buried in the ruins. Each time there is speculation on how many of these might have been saved had the rescue squads been able to remove the debris in time. U. S. Mission disaster relief officers are urged to bring to the attention of appropriate country officials in earthquake-prone countries the importance of purchasing in advance suitable demolition and debris clearing equipment, which can be readily available in the earthquake and landslide zones of the country. Many lives might well be saved by taking this precaution.

#### DISASTER COORDINATION

USG Foreign Disaster Relief Coordinators are:

State Department	A. A. Rabida
Department of Defense	Capt. Ralph H. Carnahan, USN
Department of Health, Education & Welfare	Alma E. Hughes
U. S. Public Health Service, HEW	Virginia Worsley
Agency for International Development *	Stephen R. Tripp

\* The Agency for International Development Disaster Relief Coordinator is responsible for the combined USG response to foreign disasters.

In Fiscal Year 1968 the Participating Agency Service Agreement between the U. S. Public Health Service and the Agency for International Development provided for \$15,000 to meet expenses in the Office of International Health for a Disaster Officer to assist DRC in responding to requests for drugs, medical personnel and epidemiologists in connection with health disasters, communicable diseases, and epidemics.

AID/DRC coordinates directly with US registered voluntary agencies participating in disaster relief. For this period they were: American National Red Cross, CARE, Catholic Relief Services, Church World Service, Lutheran World Relief, Mennonite Central Committee and Seventh Day Adventist Welfare Service.

The AID/DRC office is grateful to the NESAs region and the Latin American region for detailing personnel to assist in the work of this office. For over a year and a half, NESAs permitted the DRC office to have the services of John M. Ryan. Mr. Ryan left this office in May of 1967 for a tour of duty with CENTO and is stationed in Tehran. During the time he was with DRC he handled the disaster planning and logistics for several disasters, worked on a CAP program for disaster relief and improved funding procedures for disaster operations. Israel J. Bekman is currently on loan to this office from the Latin American region. He has been with AID/DRC since June of 1967. He has provided valuable help to this office in administrative and supply procedures, obtaining excess property stocks and in setting up the Panama disaster reserve.

#### What is Disaster Relief Coordination?

Aside from basic preparedness, emergency disaster relief, in a nutshell, can be described as: keeping track of news reports around the world; receiving immediate cables from US Missions and messages from voluntary agencies overseas; checking official sources and sensors such as seismologists, meteorologists, and communicable disease centers; verifying occurrences and facts; recommending US response; obtaining foreign policy concurrences; clearing official messages of sympathy; initiating emergency plans; starting the action to obtain the essential urgently needed items; contacting all concerned in the U. S. Government, voluntary agencies or private industry to supply the items and to get the air shipments flying; bringing to bear the capabilities of the U. S. Government or blending them with that of the voluntary agencies and private resources; telling the news media what happened and what's being done; obtaining advice and information from public and private specialists; offering alternatives; estimating and keeping track of costs; keeping at every detail until the emergency help gets to the disaster victims--and doing these things in hours instead of days or weeks. After it's over, to summarize, write it up, find out what was done, what was learned, what improvements and cost savings can be made; and being ready to do it again when disaster strikes in other places.

#### What Can We Give -- or Do?

When disaster strikes overseas, each nation is responsible for providing help for its own people. What the U. S. can provide is that which the country cannot. It is that unit of measure--sort of indescribable input--that helps a person or a nation. It may be:

Food - The kind supplied under P.L. 480--bulk quantities for mass use or high protein foods prepared through USG or U. S. voluntary agencies for individual family feeding--or emergency "C" or "in flight" rations from U. S. military sources.

Shelter - The small family tent from private industry stocks in the U. S., which is rapidly becoming known throughout the world as the "American tent;" or it may be a large U. S. military tent such as the famous "arctic" tent that

was developed for U. S. use in arctic areas and has been supplied for disaster victims in the high mountain or cold climate countries; or it may be a large squad tent capable of taking care of 40 or 50 people for shelter or mass feeding.

Bedding - A blanket, either wool or cotton, or plastic cover that could be used for warmth or privacy.

Clothing - New or used, or cloth with safety pins or perhaps a sewing kit.

Medicine and vaccines - Including needles and perhaps jet injectors.

Doctors or paramedics

Epidemiologists - Professionals to track down the causes of the communicable diseases or epidemics to stop their spread and to train local personnel in their control.

Transportation - The sending of U. S. military helicopters to rescue persons and take food and disaster supplies to isolated places and people. Helicopters and other airlift may be the only thing needed. The country itself may have the food and supplies but not the ability to deliver them. It may be a combination of U. S. Government and voluntary actions where private donors have given needed items and the U. S. Government delivers them, or cooperating with other nations on similar arrangements of taking donated items to the disaster scene.

Saving livestock - Providing coarse grains, through P.L. 480, and assisting a nation in getting the food to starving cattle.

Sanitation and Disease Control - Aerial spray to control and reduce disease bearing vectors or elimination of infestations. Providing water purification chemicals to treat contaminated individual or community water supplies.

Scientists - Arranging for scientists and engineers to advise other governments on the emergency earthquake, landslide or volcanic situations, on flood conditions and possibilities for control, or to predict and warn of hurricanes and storms. These scientists, giving the latest and best available knowledge, help prevent or reduce consequences of disasters.

Emergency Political Adjustments - Opening the border between Mexico and the United States to permit free movement of disaster victims and supplies. Working with the American National Red Cross, particularly through its relationships with the International Committee of the Red Cross and the League of Red Cross Societies, in handling international emergency assistance to countries where complicated political conditions make difficult or virtually impossible the extension of humanitarian help to disaster victims.

## What About Future Disasters?

Continuing growth and concentration of populations in disaster-prone areas, increased international complexities, effects of natural and man-made disasters upon people and things, are bound to worsen the problems and difficulties of foreign emergency disaster relief.

Some solutions and recommendations were made by the International Cooperation Year Committee on Disaster Relief in December 1965. Consideration of these has been underway since then and reasonable progress can be reported. The changing events since then have also caused other problems. Economic and social costs of disasters are continuing to rise. Input of science has improved detection, warning, and communication systems. Emergency medical response and capabilities to handle health and communicable diseases have been further developed.

The case studies that are included here and those that were contained in previous reports are a source of valuable information on disaster relief operations. Analyzing them may lead to development of methods and equipment to save lives, reduce damage, improve disaster relief operations and reveal difficulties that should be avoided in future disasters. Many contain examples that would be useful for disaster preparedness on the part of disaster-prone countries. They are referred to here in the interest of public and private awareness of world-wide emergency disaster relief programs.

  
Stephen R. Tripp  
Disaster Relief Coordinator

State/AID  
Office of Private Resources  
Voluntary Agencies Division  
Report Issued March 1968

JULY 1-DECEMBER 31, 1967 REPORTED FOREIGN DISASTER STATISTICS AND EMERGENCY RELIEF EXPENDITURES  
AND LINE TOTALS FOR CAL. YEARS 1964, 1965, 1966, 1967, PLUS 4-YEAR TOTALS

COUNTRY AND DISASTER	NUMBER KILLED	TOTAL NO. REPORTED VICTIMS	FUNDS EXPENDED OR VALUE OF ASSISTANCE PROVIDED IN THOUSANDS OF DOLLARS (\$1 million will appear as 1,000)									
			CONTINGENCY FUND		AID PROJECT or other US GOVT. FUNDS	P. L. 480 FOOD FOR FREEDOM		VOLAGS	OTHER U.S. ASSIST-ANCE	TOTAL U. S. ASSIST-ANCE	REPORTED ASSIST-ANCE OTHER NATIONS	REPORTED ASSIST-ANCE HOST COUNTRY
			BY AMB.	AID/W		GOVT. & INT.ORG	VOLAGS					
<b>AFRICA</b>			\$	\$	\$	\$	\$		\$	\$	\$	\$
Algeria - Floods Fall, 1967	20	30,020							5	5	28	*
Congo - Civil Strife - 1967	*	160,000	10				192		*	202	9	3,000
Nigeria - Civil Strife - 1967	*	60,000					18		121	139	270	140
<b>AFRICA TOTAL</b>	<b>20</b>	<b>250,020</b>	<b>10</b>				<b>210</b>		<b>126</b>	<b>346</b>	<b>307</b>	<b>3,140</b>
<b>EUROPE</b>												
Portugal - Floods 11/26/67	462	1,462					3		*	3	128	2,068*
Yugoslavia - Earthquake 11/30	7	16,407	25				73		10	108	313	8,100
<b>EUROPE TOTAL</b>	<b>469</b>	<b>17,869</b>	<b>25</b>				<b>76</b>		<b>10</b>	<b>111</b>	<b>441</b>	<b>10,168</b>
<b>LATIN AMERICA</b>												
Argentina - Floods Oct. 10-12, 1967	56	142,056	10							10	58	557
Brazil - Flood Sept. 20-26, 1967		15,000					13			13	-	*
Ecuador - Polio Summer 1967	36	528							11	11	6	40

TABLE I - page 1

JULY-DECEMBER, 1967 CUMULATIVE DISASTER STATISTICS (Cont'd)

COUNTRY AND DISASTER	NUMBER KILLED	TOTAL NUMBER REPORTED VICTIMS	FUNDS EXPENDED OR VALUE OF ASSISTANCE PROVIDED IN THOUSANDS OF DOLLARS (\$1 million will appear as 1,000)										
			CONTINGENCY FUND		AID PROJECT or other GOVT. FUNDS	P. L. 480 FOOD FOR FREEDOM			VOLAGS, OTHER U. S. ASSIST- ANCE	TOTAL U. S. ASSIST- ANCE	REPORTED ASSIST- ANCE OTHER NATIONS	REPORTED ASSIST- ANCE HOST COUNTRY	
			BY AMB	AID/W		GOVT & INT.ORG.	VOLAG	DOD					
Mexico - Hurricane & Floods -Oct. 67	77	271,077		239					X	5	244		*
Mexico - Floods Dec. 20-26, 1967	-	8,345	6						X		6	-	*
Nicaragua - Polio Apr.-Aug., 1967	53	444		42					X	11	53	21	26
Uruguay - Floods 1967	-	3,000	11			520				*	531	4	*
Venezuela - Earth- quake 7/29/67	240	80,240	25						X	673	698	67	24,700
Venezuela - Floods Aug. 1967	-	23,000								1	1		*
<b>LA TOTAL</b>	<b>462</b>	<b>543,690</b>	<b>52</b>	<b>281</b>		<b>520</b>	<b>13</b>			<b>701</b>	<b>1,567</b>	<b>156</b>	<b>25,323</b>
<b>NESA</b>													
Ceylon - Flood Oct/Nov. 1967	24	470,024					22			*	22	*	1,260
India - Earthquake 12/11/67	177	50,177	13				139			14	166	48	9,361
Nepal - Bubonic Plague - 9/24-11/5	17	24	11		8						19	-	3
Turkey - Earthquake 7/22-26-30/67	183	33,183		65			5	X		15	85	331	8,349
West Pakistan - Flood - 7/24/67	32	150,032			54		7			20	81	45	374
<b>NESA TOTAL</b>	<b>433</b>	<b>703,440</b>	<b>24</b>	<b>65</b>	<b>62</b>		<b>173</b>			<b>49</b>	<b>373</b>	<b>424</b>	<b>19,347</b>

JULY-DECEMBER, 1967 CUMULATIVE DISASTER STATISTICS (Cont'd)

COUNTRY AND DISASTER	NUMBER KILLED	TOTAL NUMBER REPORTED VICTIMS	FUNDS EXPENDED OR VALUE OF ASSISTANCE PROVIDED IN THOUSANDS OF DOLLARS (\$1 million will appear as 1,000)										
			CONTINGENCY FUND		AID PROJECT or other GOVT. FUNDS	P. L. 480 FOOD FOR FREEDOM GOVT. & INT. ORG.		VOLAG DOD	VOLAGS, OTHER U. S. ASSIST- ANCE	TOTAL U. S. ASSIST- ANCE	REPORTED ASSIST- ANCE OTHER NATIONS	REPORTED ASSIST- ANCE HOST COUNTRY	
			BY AMB.	AID/W		GOVT. & INT. ORG.	VOLAG						
EAST ASIA & VIETNAM													
Burma - Cyclone Oct. 23, 1967	178	27,497	25						4	29	11	*	
Korea - Drought 1967		1,905,944				15,533			24	15,557	*	50,700	
Philippines - Typhoon - 11/3/67	107	137,107					60		*	60	*	*	
<sup>42</sup> EA & VN TOTAL	285	2,070,548	25			15,533	60		28	15,646	11	50,700	

(See next page for grand totals)

JULY-DECEMBER 1967 CUMULATIVE TOTALS (cont'd)

		FUNDS EXPENDED OR VALUE OF ASSISTANCE PROVIDED IN THOUSANDS OF DOLLARS (\$1 million will appear as 1,000)									
	KILLED	TOTAL NUMBER REPORTED VICTIMS	CONTINGENCY FUND		AID PROJECT or other GOVT. FUNDS	P. L. 480 FOOD FOR FREEDOM GOVT. & INT.ORG.		VOLAGS OTHER U. S. ASSIST- ANCE	TOTAL U. S. ASSIST- ANCE	REPORTED ASSIST- ANCE OTHER NATIONS	REPORTED ASSIST- ANCE HOST COUNTRY
			BY AMB.	AID/W		GOVT.	VOLAGS				
			\$	\$	\$	\$	\$	\$	\$	\$	\$
TOTAL ALL REGIONS LAST 6 MOS. 1967	1,669	3,585,567	136	346	62	16,053	532	914	18,043	1,339	108,678
REV. TOTALS 1ST 6 MOS. 1967	4,360	9,404,424	142	4,125	1,777	21,075	36,630	7,263	71,012	163,109	2,135,600 (in billions)
TOTALS FOR CAL. YR. 67	6,029	12,989,991	278	4,471	1,839	37,128	37,162	8,177	89,055	164,448	2,244,278
TOTALS FOR CAL. YR. 66	15,378	5,686,217	431	1,685	4,454	10,690	1,924	5,303	24,487	18,304	845,342
TOTALS FOR CAL. YR. 65	43,920	5,742,185	490	1,964	19,396	33,589	4,372	3,173	62,984	3,984	*
TOTALS FOR CAL. YR. 64	9,918	7,403,335	211	4,123	1,529	12,764	2,409	2,657	23,693	1,702	*
4-YEAR TOTAL	75,245	31,821,728	1,410	12,243	27,218	94,171	45,867	19,310	200,219	188,438	*

\* denotes incomplete or not reported  
 \*\* US military costs not reimbursed  
 by A.I.D.  
 X under DOD means disaster in which  
 US military assisted.

REGION	NUMBER OF DISASTERS BY REGIONS				
	LAST 6 MOS. 1967	CAL. YR. 1967	CAL. YR. 1966	CAL. YR. 1965	CAL. YR. 1964
Africa	3	9	13	16	11
Europe	2	3	1	1	2
Latin America	9	18	16	16	16
NESA	5	11	12	7	20
EA & VN	3	10	16	7	10
Totals	22	51	58	47	59

4-YR TOTAL - 215

% TOTAL US ASSISTANCE			
CAL. YR. 1967	CAL. YR. 1966	CAL. YR. 1965	CAL. YR. 1964
***	40%	24%	5%
***	5%	1%	2%
***	9%	43%	21%
79%	29%	18%	34%
18%	17%	14%	38%
97%	100%	100%	100%

\*\*\* 3% total other 3 regions

REVISED JANUARY TO JUNE 30, 1967 REPORTED FOREIGN DISASTER STATISTICS AND EMERGENCY RELIEF EXPENDITURES  
AND LINE TOTALS FOR FISCAL YEARS 1965, 1966, 1967, PLUS 3-YEAR TOTALS

COUNTRY AND DISASTER	NUMBER KILLED	TOTAL NO. REPORTED VICTIMS	FUNDS EXPENDED OR VALUE OF ASSISTANCE PROVIDED IN THOUSANDS OF DOLLARS (\$1 million will appear as 1,000)									
			CONTINGENCY FUND		AID PROJECT or other GOVT. FUNDS	P. L. 480 FOOD FOR FREEDOM		VOLAGS, OTHER U. S. ASSIST- ANCE	TOTAL U. S. ASSIST- ANCE	REPORTED ASSIST- ANCE OTHER NATIONS	REPORTED ASSIST- ANCE HOST COUNTRY	
			BY AMB	AID/W		GOVT & INT. ORG.	VOLAG					DOD
<b>AFRICA</b>			\$	\$	\$	\$	\$		\$	\$	\$	\$
Malawi - Floods Mar. 67	-	1,200	3						3	1	5	
Morocco-Mening- itis, Dec. 66	200	2,942	5		** 20			X	25		*	
Mozambique - Floods, Feb/Mar 67	-	50,000					-3		+3	3	*	*
<sup>2/2/67</sup> Niger - Drought/ Famine, 1967	-	*				465			465	-	*	
Tanzania -Drought/ Famine - 1967	-	53,483					6		6	-	46	
Uganda - Drought/ Famine, 1967	-	25,000				101			101	-	*	
<b>AFRICA TOTAL</b>	<b>200</b>	<b>132,625</b>	<b>8</b>		<b>20</b>	<b>566</b>	<b>6</b>		<b>3</b>	<b>603</b>	<b>1</b>	<b>51</b>
<b>EUROPE</b>												
United Kingdom - "Torrey Canyon"3/67	1	1		55				X	55	*	3,000	
<b>LATIN AMERICA</b>												
Brazil - Flood Jan-Mar. 67	785	21,621	5 -1				17		61	83 -1	8	10,400
Brazil - Flood Mar-May 67	-	87,000					100		100	*	740	

JAN-JUNE, 1967 CUMULATIVE TOTALS (Cont'd)

COUNTRY AND DISASTER	NUMBER KILLED	TOTAL NO. REPORTED VICTIMS	FUNDS EXPENDED OR VALUE OF ASSISTANCE PROVIDED IN THOUSANDS OF DOLLARS (\$1 million will appear as 1,000)									
			CONTINGENCY FUND		AID PROJECT or other GOVT. FUNDS	P. L. 480 FOOD FOR FREEDOM		VOLAGS, OTHER U. S. ASSIST- ANCE	TOTAL U. S. ASSIST- ANCE	REPORTED ASSIST- ANCE OTHER NATIONS	REPORTED ASSIST- ANCE HOST COUNTRY	
			BY AMB.	AID/W		GOVT & INT.ORG.	VOLAG					DOD
Bolivia - Floods & Storms '66&'67	14	614					2	X		2	*	3
Chile - Earth- quake, 12/28/66	4	3,004					2		1	3	*	*
Columbia - Earth- quake, 2/19/67	61	40,061					40		6	46	25	255
Ecuador - Floods 2/8/67	-	20,000					8		15	23	*	57
Nicaragua - Fire 5/2/67	-	130					2	X		2	-	*
Nicaragua - Famine 1967	-	*							3	3	-	*
Peru - Floods Jan-Apr. 67	25	40,025	16				8		21	45	*	*
LA - TOTAL	889	212,455	20				179		107	306	33	11,455
NESA												
Greece - Earth- quake, 5/1/67	9	16,535	10						133	143	15	*
India - Drought/ Famine, '65, '66, '67	*	8,000,000	25		1,564	15,539	36,416		1,328	54,872	127,334 + 69	(in billions) 2,116,014
India - Smallpox Jan-May, 1967	3,029	13,576		200					8	208	*	*
Iraq - Floods May 11-30, 1967	*	60,000	10	102					+ 5	+ 5	+ 32	1,000*
Middle East Conflict Jun 5, '67		471,000		(2,425 1,213	*** 193	2,785 +2,185			5,610 +50	12,363 +2,098	33,397 +1,893	*

\*\*\* Represents \$2 million to UNRWA; \$300,000 to ARC; \$125,000 to UNHCR for assistance to displaced persons

JAN-JUNE, 1967 CUMULATIVE TOTALS (cont'd)

COUNTRY AND DISASTER	NUMBER KILLED	TOTAL NO. REPORTED VICTIMS	FUNDS EXPENDED OR VALUE OF ASSISTANCE PROVIDED IN THOUSANDS OF DOLLARS (\$1 million will appear as 1,000)									
			CONTINGENCY FUND		AID PROJECT or other GOVT. FUNDS	P. L. 480 FOOD FOR FREEDOM		VOLAGS, OTHER U. S. ASSIST- ANCE	TOTAL U. S. ASSIST- ANCE	REPORTED ASSIST- ANCE OTHER NATIONS	REPORTED ASSIST- ANCE HOST COUNTRY	
			BY AMB	AID/W		GOVT & INT.ORG.	VOLAG					DOD
Syria Floods May 1967	-	40,000							1	1	28 +55	*
NESA - TOTAL	3,038	8,601,111	45	3,940	1,757	20,509	36,416		7,135	69,802	162,823	(In Billions) 2,117,014
<b>EAST ASIA &amp; VIETNAM</b>												
Australia - Fire Feb. 7, 1967	61	3,061	2							2	98	3,650
Burma - Cyclone May 16, 1967	100	130,100	25	130						155	+ 36	*
Indonesia - Floods Jan-June 1967		102,000	1					1		2	*	*
Malaysia - Floods Jan. 1967	50	125,050	10					6		16	+ 2	230
Malaysia - Fire June 8, 1967	-	3,000	1							1	*	200
Philippines - Typhoon, 12/28/66	18	90,018	5				26			31	-	*
Vietnam - Fire Mar. 6-7, 1967	3	5,003	25					X	14	39	-	*
EA & VN - TOTAL	232	458,232	69	130			26		21	246	252	4,080

TABLE II - page 3

JAN-JUNE, 1967 CUMULATIVE TOTALS (cont'd)

	NUMBER KILLED	TOTAL NUMBER REPORTED VICTIMS	FUNDS EXPENDED OR VALUE OF ASSISTANCE PROVIDED IN THOUSANDS OF DOLLARS (\$1 million will appear as 1,000)								
			CONTINGENCY FUND		AID PROJECT or other GOVT FUNDS	P. L. 480 FOOD FOR FREEDOM		VOLAGS OTHER U. S. ASSIST- ANCE	TOTAL U. S. ASSIST- ANCE	REPORTED ASSIST- ANCE OTHER NATIONS	REPORTED ASSIST- ANCE HOST COUNTRY
			BY AMB.	AID/W		GOVT. & INT.ORG.	VOLAG				
			\$	\$	\$	\$	\$	\$	\$	\$	
TOTAL ALL REGIONS 1ST 6 MOS 1967	4,360	9,404,424	142	4,125	1,777	21,075	36,627	7,266	71,012	163,109	(in billions) 2,135,600
REV. TOTALS LAST 6 MOS 1966	13,187	4,818,668	278	1,622	4,366	10,155	1,189	4,969	22,579	10,124	829,147
TOTALS FOR FY 1967	17,547	14,223,092	420	5,747	6,143	31,230	37,816	12,235	93,591	173,233	2,964,747
TOTALS FOR FY 1966	7,086	4,139,646	410	242	1,039	21,459	2,271	1,572	26,993	9,566	*
TOTALS FOR FY 1965	47,089	5,504,173	371	2,062	18,728	21,137	4,077	3,751	50,126	3,576	*
3-YEAR TOTAL	71,722	23,866,911	1,201	8,051	25,910	73,826	44,164	17,558	170,710	186,375	*

\* denotes incomplete or not reported

\*\* US military costs not reimbursed  
by A.I.D.

X under DOD means disaster in which  
US military assisted

REGION	NUMBER OF DISASTERS BY REGIONS			
	1st 6 Mos 67	FY 1967	FY 1966	FY 1965
Africa	6	11	15	15
Europe	1	2	-	2
Latin America	9	19	16	14
NESA	6	15	5	12
EA & VN	7	15	12	7
	29	62	48	50

3-YR Total - 160

PERCENT OF TOTAL US ASSISTANCE

FY 1967	FY 1966	FY 1965
***	48%	5%
***	-	2%
***	10%	49%
98%	4%	32%
***	38%	12%
	100%	100%

\*\*\* 2% total other 4 regions

## ALGERIA

### Characteristics of the Disaster

Event: Floods, Wind and Snow Storms

Date-Time: October, November, December, 1967

Location: Most of Country

<u>Damage:</u>	<u>Number Killed</u>	<u>Number Homeless</u>
	20	30,000

### Description of the Disaster

Torrential rains occurred during the latter part of October and continued into November causing serious flooding in the Departments of Constantine and Aures in eastern Algeria, leaving 20,000 homeless, and in the Department of Saoura in western Algeria, leaving 10,000 homeless. Dozens of villages were cut off from the rest of the country, houses collapsed and some actually disappeared in the raging waters. Some of the flooding occurred in a region which had suffered from three consecutive years of drought and which had already been declared a "disaster zone." Thousands of families lost all their possessions and were in a tragic situation, made worse by the bitter cold. Agricultural lands were devastated, harvests and livestock were lost. In December, storms lashed the coastal area and a three day storm brought almost unheard of snowfalls to many areas of the highlands south of Algiers and Oran. Roads and communications were disrupted.

### Action Taken by Government of Algeria and Local Organizations

Information on action by the GOA was not available but the Algerian Red Crescent played a large role in bringing relief to the disaster victims. Its supplies soon became exhausted, however, and an appeal was made to the League of Red Cross Societies (LICROSS) for assistance. The League made an appeal to all National Societies to support the efforts of the Algerian Red Crescent, pointing out the need for blankets, clothing, shoes, utensils, food and funds.

### Assistance Provided by the U.S. Government

There was no request for help from the USG.

Assistance Provided by U.S. Voluntary Agencies

American National Red Cross

In response to the LICROSS appeal, sent the League a donation of \$ 5,000

Catholic Relief Services

CRS supplies in Algeria had been exhausted due to help provided to drought victims previously, and they were unable to send any from the U.S. Local representatives of CRS cooperated with Algerian Red Crescent and other non-government welfare agencies in a program to relieve suffering of the disaster victims by obtaining a donation of tents and powdered milk from Swiss CARITAS and a cash grant from Austria CARITAS. They used the Austria donation to purchase 2,000 blankets.

Assistance Provided by Other Nations

LICROSS - 2,700 blankets and 100 tents from Marseilles warehouse, value estimated by DRC at	\$18,000
Canadian Red Cross - cash donation	5,000
Tunisia Red Crescent - 30 tons of relief supplies	*
Swiss CARITAS - see above under CRS	*
Austria CARITAS - see above under CRS, estimated cost 2,000 blankets	5,000

Other Red Cross or Red Crescent Societies which sent cash or supplies but quantities and value not yet available are: Germany Democratic Republic, Kuwait, Netherlands, Norway and Sweden.

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\$28,000

\*Value not reported.

## CONGO

### Characteristics of the Disaster

Event: Civil Strife

Date-Time: July to December, 1967

Location: Bukavu

<u>Damages:</u>	<u>No. Killed</u>	<u>No. Injured</u>	<u>No. Evacuated</u>
	Uncertain	Uncertain	160,000

Estimated dollar property damage - \$25 million

### Description of the Disaster

The city of Bukavu is located on the lake of Kivu in the province of Kivu (alt. 4,920 ft.). It is a commercial, touristic and industrial center of the Eastern Congo. The following companies have their headquarters in Bukavu: Cobelmin, Symetain, Imoki and Pharmakina. There is a textile factory (Texkivu) and a furniture factory (Kivumeuble). As a provincial capital, it boasts a population of approximately 200,000 inhabitants. Most of the population is Bashi. Agricultural production in the surrounding area: fruits, vegetables, wheat, pyrethrum, quinine, coffee and tea. Mineral production in the surrounding area: gold, cassiterite, wolfram, tungsten and methane.

On July 5, 1967, a mutiny of Katangese elements of the Congolese National Army led by European mercenaries broke out in Bukavu. The poorly-garrisoned city was quickly taken, but was then suddenly abandoned by the rebels who moved into the province's interior, leaving chaos and racial hatred in their wake. Efforts were made to put the city back onto its feet, but on August 6 the mercenary-led force returned once again to the city, recaptured it, and then held out against seige for three months.

When the mercenaries re-took Bukavu, the inhabitants fled. Approximately 45,000 took refuge in Cyanguu, Rwanda while 150,000 fled into the bush or camped in satellite settlements. On November 5, 1967 the National Congolese Army liberated Bukavu. The town and surrounding area were declared disaster areas. Even though only some 12 major buildings and residential homes were destroyed, the major disaster was found behind walls and inside buildings where looting and destruction reached near total proportions. Plantations in the area were stripped clean: tea, coffee and pyrethrum plants ravaged. Many tons of stocked coffee were trucked off and sold. Communications, roads and bridges were not badly damaged. But sanitary conditions were very bad with bodies unburied, sewers blocked, water at first not available, and as of December 6, still untreated. Electrical service was interrupted but put back in operation in some areas.

Action Taken by the Government of the Congo and National, Local Organizations

A Ministerial delegation visited Bukavu late in November. Following this, the Minister of National Economy was appointed as relief coordinator. The Minister of Post and Telecommunications arranged for reestablishment of telephone and telegraph communications between Bukavu and the rest of the country. However, full restoration had not been made at the time this report was written. The Director of OTRACO, a government-owned transport company, was able to get lake steamers running again on regular schedules between Goma and Bukavu. Minimal electricity services were restored with work continuing on substation transformers and line breakages. The Minister of Health was instrumental in re-establishing water and sewerage service and purchased chemicals for water treatment. He also arranged for three Congolese doctors, on a three-week rotational schedule, to cover critical medical needs. Assessment was made on what was needed to reconstruct the city hospital. Some medical supplies were provided from Government stocks; others were supplied by Israeli and West German grants. The Federation of Congolese Enterprises arranged for relief to private enterprises in the Bukavu area by the Congolese Government, which took the form of duty-free entry of equipment needed to replace items destroyed or damaged, credit to assist in the purchases, free movement of goods across the neighboring country borders and a moratorium on tax payments. The Transport Minister recommended long-range improvement of two principle roads serving the city and the construction of a propeller craft airfield west of Bukavu.

Cost of GDRC contributions to date to civil strife victims and recovery of Bukavu was placed at \$3,000,000.

Assistance Provided by U. S. Government

Purchase and transport of aluminum sulphate for water purification, medical supplies, and medical equipment for the Bukavu hospital. Cost to AID contingency fund under the Ambassador's disaster relief authority .....\$ 10,000

P.L. 480 Food for Freedom from Catholic Relief Services stocks: .

76 tons flour; 1 ton bulgur; 1/2 ton cornmeal and 1-1/2 ton rolled oats.

From Church World Service stocks:

65 tons sorghum, 75 tons corn, 368 tons cornmeal, 275 tons bulgur,

50 tons flour, 300 tons CSM, 85 tons oil, 195 tons rolled wheat and

200 tons beans.

Total value CRS and CWS P.L. 480 food .....\$192,013  
\$202,013

Assistance Provided by U. S. Voluntary Agencies

Above P.L. 480 food provided by CRS and CWS.

Voluntary agencies personnel are attempting to re-establish relief activities in Bukavu but are experiencing difficulty in setting up a base of operations in Bukavu, due to travel restrictions to neighboring countries of Rwanda and Burundi, through which Title II food supplies arrive but for which there is lack of local means of transport.

Assistance Provided by Other Countries

Israel - medicines for relief work .....	\$1,000
West Germany - medicines .....	7,500
United Nations - agreed to provide experts in public health, sanitation and public works but due to security situation, only one doctor had been able to make a brief visit as of December 1967.	
	<u>\$8,500</u>

International Committee of the Red Cross

ICRC bulletin dated December 6, 1967 indicated that on November 5, European mercenaries evacuated Bukavu and withdrew to Rwanda territory, taking with them Katanganese gendarmes and their families, numbering about 2400. They all laid down their arms. They were accepted by the authorities of Rwanda and given shelter in a large vacant factory, the outlying portions of which were guarded by troops of that country. The wounded were given treatment on the spot by a doctor-delegate of the ICRC, or in neighboring hospitals.

ICRC attempted to find countries of asylum for the Katanganese gendarmes and their families. A neighboring country which had previously indicated it would receive them reconsidered and stated it was no longer in a position to do so unless expressly requested by the Congolese Government.

Through OAU, arrangements were made for the Katanga gendarmes to return to the Congo under guarantee of an amnesty accorded by the President of the Congo. ICRC indicated it would continue its humanitarian aid to the mercenaries and Katanganese nationals who took refuge in Rwanda (especially food and medical care) but stated that the sole responsibility for their return to the Congo was that of the OAU and that the ICRC could not serve as an intermediary.

## NIGERIA

### Characteristics of the Disaster

Event: Civil Strife

Date-Time: During 1967

Location: Entire Country Affected

<u>Damage:</u>	<u>Number Killed</u>	<u>Number Displaced Persons as of December Needing Assistance</u>
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Several thousand

60,000

### Description of the Disaster

Nigeria, with about 50 million people is the most populous of the African countries. In January of 1960, it was granted its independence and initiated a major parliamentary government in Africa. Its capital, Lagos, is an island city in the Lagos lagoon near the western coast.

There are in Nigeria some 250 tribal groups with differences in language, culture and religion, among which are three major groups concentrated on regional lines. These are the Hausas of the North, Ibos of the East and Yorubas of the West. The Hausas are mostly Moslem while the Christian religions have influenced the other two regions. In September of 1966, tensions between the Northern and Eastern Regions exploded in widespread massacres. Several thousand Ibos living in the North were slain. Ibos who had settled in Northern Nigeria and, to a lesser extent, other regions, then began to return to their Eastern homeland, although many remained in Lagos. By October, 1966, an estimated 400,000 Ibos migrated back and a similar movement of Northerners from the East to the North occurred. (The East claimed that some 2 million people returned.) In the next six months, the Eastern Region mobilized an army.

When the Federal Government revised the constitution to establish twelve states—three within the Eastern Region—the latter announced its independence on May 30, 1967, as the "Republic of Biafra."

The Federal Military Government indicated it would squash this rebellion and reunite Nigeria. An almost total blockade and communications blackout for the Eastern Region was immediately established. Civil warfare started in July and although some areas have been "liberated" by the FMG, the fighting was still going on through the end of 1967.

All this resulted not only in thousands of deaths but also in many thousands of displaced, homeless people. While the Nigerian Red Cross asked for U.S. assistance in feeding 36,370 pregnant and nursing women, children and adults in serious health condition, it indicated the number of displaced persons was likely to change from week to week, depending on military operations, and in its plan of operations anticipated caring for 60,000 persons for several months.

#### Action Taken by the Federal Government, National and Local Organizations

The Federal Government designated the Nigerian Red Cross to handle relief operations and provided an initial contribution of \$140,000 for use in "liberated" areas of the Eastern States. Both sides assured the International Committee of the Red Cross they would abide by Geneva conventions on treatment of prisoners, which gave the Red Cross legal and practical basis to continue and to expand its activities. Among the displaced persons were 2,270 people who were being held in protective camps and also received assistance from the Nigerian Red Cross. The Nigerian Red Cross made both a national and an international appeal for funds and disaster supplies. An Ad Hoc National Relief Committee was formed to coordinate activities of participating organizations such as OXFAM, Catholic Relief Services, Christian Council, Presbyterian and Methodist Missions. The Nigerian Red Cross estimated it would cost 200,000 pounds each month (approximately \$480,000) to provide necessary assistance to the disaster victims.

The Nigerian Red Cross prepared a plan of operations which included the following: Division of the "liberated" areas into four sectors--Mid-western, East Central, Rivers, and Southeastern. In each sector, the plan was to place a Nordic Relief Team to be in charge of the assistance program. These teams are supplied by the League of Nordic Red Cross Societies which comprises the Red Cross Societies of Finland, Iceland, Sweden and Norway. Assisting the Nordic Relief Teams would be Nigerian Voluntary Aid Detachments (VAD's). They would work in cooperation with the local Red Cross and it was planned to make full use of local voluntary workers as well as missionaries and local churches. In each locality, it was planned that a permanent resident of the area would be designated to handle and supervise distribution of food and other commodities. Vehicles were provided to these sectors and the Nigerian Army supplied petrol and emergency repairs. Each State was allotted a headquarters store and use of government facilities. Local storage was to be provided at the distribution points. Local Red Cross Societies or other local representatives were to receive cash grants from the Red Cross and other relief organizations with which to purchase food grains. Catholic Relief Services was requested to obtain high protein foods from the U.S. Government.

In the unliberated portion of the Eastern Region, the International Committee of the Red Cross provided a medical team at Achi. ICRC also arranged for a medical team to be stationed on Federal territory at Agbor situated on the road leading from Benin-City to Onitcha.

Assistance Provided by U.S. Government

The following U.S. P.L. 480 food was provided through Catholic Relief Services. Other food assistance is under consideration.

P.L. 480, Title II

10,200 lbs. of NFD milk (Nov.)  
9,300 lbs. of NFD milk (Dec. 11)  
1,000 lbs. of NFD milk (Dec. 5)

20,500 lbs. — estimated market value	\$ 4,407.50
26,800 lbs. of CSM mix, estimated market value	2,516.50
146,500 lbs. of beans	<u>10,665.00</u>
	\$17,589.00

Also, AID agreed to pay under Section 216 of the Foreign Assistance Act airlift cost for an American Red Cross shipment of antibiotics and other medicaments to the ICRC for delivery to Nigerian Civil strife victims. The shipment weighed 736 pounds and airlift costs were

385.00  
\$17,974.00

Assistance Provided by U.S. Voluntary Agencies

Catholic Relief Services

US AID asked Catholic Relief Services to serve as distributing agency for Food for Freedom commodities allocated to the emergency relief program of the Nigerian Red Cross. As distributing agency CRS was asked to assure proper handling of the commodities as well as the USG desire that they be used only in the Nigerian Red Cross program, or in programs approved by the NRC. All programs are to be jointly agreed upon by the NRC, CRS and US AID.

CRS also made 577 bales of clothing (about 57,700 lbs.) available for distribution to civilians in Ogoja province and to the Eastern Nigeria Rehabilitation Commission for distribution to displaced persons in Enugu.

Estimated Value \$57,700

Church World Service

CWS made a cash donation of \$5,000 and a special cash grant of another \$5,000 was made by the Church of Brethren, Elgin, Illinois, for a total of \$10,000

Also, in January, 1968, CWS sent 2,300 lbs. of antibiotics and multi-vitamins through the World Council of Churches to the ICRC for air delivery to the "Biafra" region, valued at	\$53,000
Total CWS assistance	<u>\$63,000</u>
Total U.S. voluntary agencies assistance	\$120,700

Assistance Provided by Other Nations

International Committee of the Red Cross

ICRC sent delegates to Nigeria who were permitted to visit prisoners captured on both sides. Assurances were given to ICRC that provisions of the Geneva Convention would be applied. The ICRC installed medical teams, including relief replacements as necessary, provided by the Nordic Red Cross Societies, in both the Eastern and Federal regions, one at Achi and the other at Agbor. Originally two shipments of medicines and surgical instruments, valued at 30,000 Swiss Francs, were sent to the Nigerian Red Cross at Lagos and the Society's branch at Enugu. Also the medical teams brought with them medical equipment and first aid supplies. On November 11 another shipment consisting of seven tons of medicines and emergency equipment and a medical relief team left from Geneva, via Lagos, and finally delivered the supplies to the hospital at Achi on November 17. An ICRC bulletin dated November 23 reported on the great number of wounded pouring into the hospital at Achi; that medicines were lacking; that the assistance of the ICRC in personnel and medical relief remained an urgent necessity due to the isolation of the region.

As indicated under CWS above, the ICRC planned to send a fourth air shipment of medical supplies in January of 1968. At the time this report is being written, it is not known what the total load will be over and above the CWS contribution.

World Council of Churches

Issued an appeal to its members to contribute to the ICRC program for Nigeria. Appeal goal in cash or supplies. . .	\$250,000
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Great Britain

OXFAM and British Red Cross, cash donation, equivalent	12,000
Government - vehicles for Red Cross relief work valued 3,000 lbs.	7,200

British voluntary organizations were reported to have made substantial contributions to the Nigerian Red Cross appeal.

<u>League of Nordic Red Cross Societies (Finland, Iceland, Sweden and Norway - sent medical and relief teams</u>	*
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<u>Austria - cash grant</u>	<u>1,000</u>
	\$270,200

\* Value not reported

## PORTUGAL

### Characteristics of the Disaster

Event: Floods

Date-Time: November 26, 27, 1967

Location: Lisbon, Estremadura and Tibatejo, Odivelas

<u>Damage:</u>	<u>Number Killed</u>	<u>Number Injured</u>	<u>Number Homeless</u>
	462	Hundreds	Over 1,000

Great damage resulted to telephone, rail, electrical and water services. Roads were blocked and required extensive repairs. Some of specific losses were: destruction or heavy damage to paper factory, nitrate plant, antibiotic laboratory, major coffee mill, soft drink factory, heavy road transport equipment, many small retail shops, private dwellings and personal possessions, particularly automobiles and house furnishings. Property damage was estimated to be in the millions of dollars.

### Description of the Disaster

A record, torrential rainfall fell during the nights of November 26 and 27 that resulted in severe flash flooding in small areas including Lisbon, Estremadura and Ribatejo. It was speculated that inadequate drainage contributed to the disastrous effects. The Portuguese Weather Service issued a statement that the meteorological reason for the rain being so heavy was not from a cloudburst, but the result of the sudden meeting of a low pressure movement which continued on up the Ribatejo Valley into Spain, and a frontal system of a polar air mass coming in from the seacoast. The receding floodwaters left behind several feet of mire under which were buried many of the victims. The number of people left homeless was small compared to the lives lost and the material damage.

There were relatively few of the better built buildings destroyed with most of the destruction occurring to the flimsy buildings of low income families. Because of the damaged water system it was necessary to warn the population to boil all drinking water. In the small town of Odivelas, a dike broke sending water gushing through the town, crumpling houses and sweeping up people, pets, livestock and automobiles. Many of the people drowned; some were crushed by collapsing walls. A few were electrocuted by broken power lines and while the rain was the heaviest, there were many

automobile accidents. As water rose 8 to 10 feet in some areas, hundreds of cars were abandoned on the streets and country roads. Many took refuge on top of their cars or in nearby buildings. A small arsenal exploded when rising water caused a short circuit. There were few injuries but the immediate area had to be evacuated.

While no Americans lost their lives, several members of the U.S. Embassy staff, both Americans and locals, sustained losses in personal property.

#### Action Taken by the Government of Portugal and National and Local Organizations

There was immediate action on the part of the Government of Portugal to bring assistance to the disaster victims. The Military and Portuguese Red Cross assisted. Ambulance services of the Portuguese Red Cross were quickly at the scene of the disaster and the Society established a camp near Ulmeira, one of the regions worst hit. The Public Health Department initiated a program of vaccination and inoculation to prevent epidemics and was assisted in this by the Red Cross. It is not known what the GOP expended in its relief operations but other in-country contributions were reported as follows: "Diario de Noticias" initiated a subscription campaign for the flood victims through the Portuguese Red Cross and as of December 6 has received donations amounting to \$317,790. The Gulbenkian Foundation of Portugal donated 50,000 contos (\$1,750,000) for housing construction in the affected areas. Because of the limited number of people requiring emergency assistance and the generosity of the Portuguese people, as well as spontaneous gifts from abroad, the Portuguese Red Cross did not issue an international appeal to the League of Red Cross Societies for assistance from sister Societies. While some spontaneous gifts from other countries were accepted, in general offers of assistance, which were received from many nations, were acknowledged with gratitude and without request for such aid. The Portuguese Government preferred to cope with this serious but limited disaster with its own resources.

#### Assistance Provided by the U.S. Government

President Johnson, Secretary of State Rusk, and U.S. Ambassador Bennett sent messages of sympathy and offered help from the United States. Except for the following Food for Freedom commodities which were accepted through Catholic Relief Services for distribution by Portugal CARITAS, there was no request for U.S. assistance. U.S. messages of sympathy and P.L. 480 food donations were acknowledged in the Portuguese news media and the following letter was received from GOP Foreign Minister, Alberto Franco Nogueira:

"My dear Ambassador:

I was very pleased to receive your letters dated 27th and 29th of November and I was deeply touched by your sentiments, sent on your own behalf and on

behalf of your colleagues in your Embassy, on the occasion of the recent floods which threw my country into mourning. This was one more testimony, together with the messages received from President Johnson and Secretary of State Dean Rusk, to President Americo Thomaz and to myself respectively, of the affection and support of the Government and the People of the United States, on an occasion when such demonstrations are strongly significant of human solidarity.

"In my name and in that of the Portuguese Government I wish to convey my sincere gratitude and ask you, my dear Ambassador, to extend it to all those in the United States who stand with us and give us their contribution to lessen the sufferings caused by the catastrophe that cost so many lives and brought about so much material loss.

"Please accept, my dear Ambassador, my best wishes."

P.L. 480, Title II Commodities, through CRS

71,500 lbs. of flour  
5,500 lbs. of CSM  
5,200 lbs. of cornmeal

84,200 lbs., estimated market value \$ 3,479.00

The food was distributed by CARITAS through its regular channels and helped feed 5,945 individuals in the affected areas.

The U.S. Embassy initiated a drive to collect clothing, blankets and money on a voluntary basis from Embassy personnel. Information on what this amounted to was not available.

Assistance Provided by U.S. Voluntary Agencies

Catholic Relief Services made above P.L. 480 food available.

Assistance Provided by Other Nations

Messages of sympathy and offers of assistance were made by the following countries: Italy, Germany, Great Britain, Belgium, France, Spain, Holland, Greece, Iran, Brazil, Malawi, Chile, Ecuador, Austria, Turkey, South Africa, Switzerland, Rhodesia, Japan, Denmark, Norway, Luxemburg, Argentina, Philippines, Uruguay, Guatemala, Sweden, Canada and Pope Paul.

Spontaneous contributions were:

Pope Paul - personal donation of 290 contos, equivalent	\$10,126
France - 50,000 francs from French Government, equivalent of	10,000
30,000 francs from General De Gaulle, equivalent of	6,000

Monaco - cash donation of 20,000 francs, equivalent of	\$ 4,000
Great Britain - (offer of 1,000 pounds reported as accepted but nor confirmed), equivalent of	2,400
Also Caritas Internationalis sent a cash donation of and reported the following contributions from its members:	10,000
French Secours Caritas - two lorries with 10 tons of clothing and blankets, value not reported, but estimated at \$1 per lb.	20,000
German Caritas - 5 military planes with 3,000 blankets, 3,000 sheets and 3-1/2 tons of clothing, plus an additional 5 tons of clothing sent in another shipment, estimated value	29,000
Switzerland Caritas - lorry and trailer loaded with 10 tons of clothing, blankets and shoes, estimated value	20,000
Belgium Caritas - cash donation of \$2,000, 1,000 blankets and 2-1/2 tons of clothing, estimated value	10,000
Luxemburg Caritas - cash donation	1,000
German Protestant Welfare Agency (Diakonisches Hilfswerk) shipped 1,000 blankets, 1,000 sheets and 1,000 towels, estimated market value, estimated value	5,000
	<hr/>
	\$127,526

## YUGOSLAVIA

### Characteristics of the Disaster

Event: Earthquake

Date-Time: Thursday, November 30, 1967 (8:24 a.m. local time)

Location: Macedonia Districts of Debar, Gostiva, Ohrid and Struga

<u>Damages:</u>	<u>No. Killed</u>	<u>No. Injured</u>	<u>No. Affected</u>
	7 *	70 *	Homeless - 5,400 Evacuated - 11,000 Mass Feeding - 16,400

\* There were 11 killed and 134 injured in this same earthquake on the Albania side of the border.

70% of living quarters in stricken area left unsafe for habitation. Of 2,500 durable buildings in Debar, 37 were completely destroyed, 938 beyond repair, 918 damaged but repairable, and 523 slightly damaged. Only 34 were not damaged. Many other light constructed buildings were wholly destroyed. One bridge was destroyed, electric power facilities badly damaged, 16 of 20 schools wrecked, villagers food supplies were lost, farm buildings destroyed and damaged, sheep and other animals killed.

### Description of the Disaster

This earthquake had a magnitude of 6.4 on the Richter scale, considered a moderately strong earthquake but not a great one. Observation of destruction resulted in a rating of IX on the XII point Mercalli intensity scale. The epicenter of the quake was 41.5N and 20.7E, along the border of Yugoslavia and Albania, in the region of the Crni Drim River, and in the vicinity of Debar in Yugoslavia and Shupenze in Albania. It was felt strongly on the Greek island of Corfu and in northwestern Greece around Igoumenitsa, but there was no report of casualties in Greece. Initial ground tremors alerted the people, allowing them to escape before the main shock. This accounted for the relatively small number of casualties.

There was extensive damage to dwellings in Debar (population 7,400) and to forty villages in Western Macedonia, each possessing an average of 50 to 60 houses. The destructive force followed a seemingly random pattern. The worst hit community was that of Dolnja Zupa, near Debar, while the most inhabited area that suffered destruction was Debar itself. In the town of Banjista, about 4 miles from Debar,

there was no damage at all, yet other communities 20 miles away from the epicenter were hard hit. Most of the stricken villages were in scattered locations in the rugged mountainous area of Western Macedonia, not always accessible by motor vehicle. The earthquake crumpled the mud and straw brick private houses with their intermittent wooden beams, but was also strong enough to inflict severe structural damage to two and three story masonry buildings which make up the official center of Debar. The key Ohrid-Debar road, one of two motor routes into town, was blocked by landslides. Other roads remained passable but there were problems with snow and ice. The bridge to Dolnja Zupa was the only one destroyed and Army engineers built a temporary replacement within 48 hours. Debar's electric power transmission station was badly damaged. The Spilje Hydroelectric dam and power station project, located about a mile from Debar and scheduled for completion in 1970 (financed in part by loan of U. S.-owned dinars), suffered expensive, severe damage. The power station was flooded, installed machinery was ruined, the tunnel for carrying water from reservoir to turbine was cracked and the base of the dam reservoir fractured. Debar's one factory, which manufactures oriental rugs, was damaged in the quake but was back in production a week later while repairs were simultaneously being carried on. The local Army garrison detailed troops to the streets to clear wreckage, aid the injured and calm the populace. Electric power was restored three days after the quake, public drinking water in two days and grocery stores reopened in twelve days.

There was a shortage of food in the villages because the cellars and bins where it was kept were crushed by falling houses or laid open to winter storms. Because 16 of the 20 schools in the disaster area were wrecked, over 4,000 students were unable to attend classes.

Emergency measures were taken to hold surviving structures together until repairs could be made in the spring. The Town Hall interior had large fissures through its walls, most of the windows broken and the roof cornice destroyed. Temporary repairs to it consisted of heavy bracing with interlocking timbers.

The best preserved building was the recently built gymnasium. This was used to hold relief supplies. The stricken area contains about 18,500 people, the majority of whom were evacuated or moved themselves to safer areas. Shortly after the quake struck, residents of small villages made their way to Debar seeking food and help. Rescue teams were organized in Debar to visit each outlying community. Many inhabitants of Debar were trucked to Ohrid where resort hotel directors provided free lodging. A large number of families were moved to Gostivar. Others went to live with relatives as far away as Skopje. In the first days after the earthquake some 4,000 persons moved from town but later returned to live in slightly damaged or undamaged buildings, in the construction barracks of the neighboring Spilje dam project or in large tents. Some incoming supply shipments came to Debar by truck. There is a railroad line which reaches Gostivar from Skopje but continuing heavy snowfalls periodically blocked rail traffic. During several days in December, fog and precipitation were so bad that the Yugoslav Army helicopters could not reach Debar. The winter cold, rain and snow made the suffering worse for the disaster victims. The tents became too uncomfortably cold and were forsaken by the occupants who preferred to risk shelter in damaged houses.

A series of lesser earthquakes followed the November 30 shock. There were 80 tremors on December 1. On December 19 a Mercalli seven-degree tremor struck followed by a 4-degree one on January 3. These and other ground movements combined with weight of ice and snow collapsed a number of previously damaged buildings.

The U. S. Embassy reported the following human interest story. Mr. Suic Kobeci, an electrician, despite the great risk involved, cut off the power in the Debar transmission station. In doing so, he received fatal injuries. His heroic action averted widespread damage from fire.

#### Action Taken by the Government of Yugoslavia and Local Organizations

In every municipality in Macedonia there is a permanent committee for disaster relief. There is also a Red Cross Committee. When the tremor hit Debar, the first group took immediate measures according to prepared guidelines. The shutting off of electric power, and liaison with the local Army units, were credited with preventing greater damage. The local Red Cross mobilized food and clothing supplies. Its office was the place to which the people instinctively turned for relief in the wake of the disaster.

The Macedonian Red Cross headquarters in Skopje was the coordinating agency for all the disaster areas of Macedonia in the first 48 hours after the earthquake, until the Republic of Macedonia set up a special organization called "The Fund for the Relief of Victims in West Macedonia." This became the central supervisory and coordinating body. The Vice President of the Macedonian Executive Council was assigned to serve as "The Fund's" director, and in the district of Debar the Vice President of the communal government was the director of "The Fund's" local branch. Corresponding heads of government, Red Cross and Socialist Alliance of Working People of Yugoslavia served on these republic and district boards. Technicians and specialists were assigned as consultants. "The Fund" dispatched experts in engineering, sanitation and communications to Debar to give necessary guidance.

Materials for emergency relief from within Yugoslavia and from abroad were channeled through the Red Cross, while "The Fund" handled the receipt and distribution of all financial assistance as well as material for rebuilding. Believing that each individual knew best what he needed in the immediate post-earthquake period, "The Fund" gave money grants varying from an equivalent of \$120 to \$320 to families who lost their homes.

It was expected that "The Fund" would stay in existence for from four to five years, not dissolving until Debar could be completely rebuilt.

- Mass feeding programs, using U. S. and Yugoslav supplies, were set up. The Republic Transport Secretariat was made responsible for keeping roads clear. All trucking companies in Macedonia were mobilized to ensure proper supply flow to Debar and other areas.

Medical care was well handled. The Macedonian Public Health Service was one of the first groups at the scene giving tetanus and typhoid injections. Doctors were mobilized throughout Macedonia for western area relief. The Debar hospital was not damaged and at no time over-crowded. The seriously injured were taken to Skopje.

Steps were taken to maintain the morale of the people. For example, the water supply was heavily chlorinated when it was restored. Tank trucks with pure but tasteless drinking water were stationed in the streets to provide water for those who found this too unpalatable.

The Macedonian Orthodox Church Bishop Dositej visited Debar in the first days after the earthquake bringing financial assistance from church funds.

On December 20, the Macedonian parliament passed legislation providing financial support to stricken communities, and increasing the Republic and commune turnover taxes throughout Macedonia to pay for the cost of aid. On December 30, the Federal parliament passed a law removing customs duties on imports officially approved for relief and reconstruction in the area.

As of January 1, 1968, Yugoslav Red Cross and "The Fund" officials estimated the value of assistance from within Yugoslavia exceeded the dinar equivalent of \$8.1 million. This amount was to be augmented after January 1 by the new special turnover taxes levied in Macedonia by its Republic government.

Macedonia has had experience in effective disaster relief organization since it sits atop an earthquake zone. Its relief efforts for this earthquake were handled well with good coordination between local and republic officials. Timely and appropriate assistance was given, with very little waste. Assistance was well documented. Morale was kept high with a steady flow of supplies to the local population to meet their needs.

#### Comments by "The Fund" Officials on Relief Items

"The Fund" officials listed food, blankets, and clothing in that order as the most useful relief items. In their view the best form of temporary shelter was a light wooden pre-fab. They voiced the hope that the Macedonian government would utilize some of the incoming relief funds to build a supply of pre-fab units which would be held in readiness for future emergencies.

#### Assistance Provided by the U. S. Government

On December 1, the U. S. Embassy conferred with the Yugoslav Red Cross to express the USG's desire to be of assistance. On December 2, the Red Cross accepted the USG offer of \$25,000 in dinar equivalent and a check in the amount of 312,500 dinars was presented by Charge d'Affaires Tobin to Red Cross President Duro Mesterovic on December 4. President Mesterovic expressed his gratitude and promised to inform the Embassy on how this contribution was used. After careful study, the Red Cross decided to use U. S. assistance in a special sub-fund for "the reconstruction of destroyed buildings." The Embassy was so informed of this decision on January 12. This U. S. contribution came from the AID contingency fund under the worldwide disaster relief account .....\$ 25,000

The U. S. Embassy's economic officer, Harry Cahill, visited Red Cross headquarters in Skopje, toured the stricken area around Debar and Gostivar, conferred with "The Fund" and Red Cross leaders in Debar and inspected relief supplies and distribution points.

P.L. 480 Food for Freedom, Title II, was provided from CARE stocks in the following amounts:

191,330 lbs. of wheat flour, estimated market value	\$ 6,830	
447,lbs. of soybean oil, estimated market value	<u>66,570</u>	
		\$73,400
		<u>\$98,400</u>

Government, Red Cross and worker's organization officials in Debar told a U. S. Embassy representative that the U. S. assistance was the "perfect gift." They described its two parts as the "best combination," the food furnished through CARE supplying immediate relief of hunger and anxiety and the USG money gift providing a flexible means to help rebuild Debar. Local officials also expressed appreciation that the Embassy officer had come to see and hear them in western Macedonia despite continuing blizzard weather.

The following story came from Debar Red Cross President Osman Shehu. He said that shortly after the earthquake subsided, streams of people from Debar and outlying villages came to the Red Cross office door. The food on hand consisted of CARE supplies, identified by the "clasped hands" symbol on the containers and the CARE package poster which President Shehu had placed on the door. Shehu believed that the gratitude felt by these people most of whom had lost their possessions, was akin to that which he felt as a four-year prisoner of war when Red Cross supplies from America arrived in his World War II prison compound. He exclaimed repeatedly to the U. S. Embassy officer that what really counted in the wake of disaster was the proof that the clasped hands truly meant friendship.

The U. S. Government donation of \$25,000 in local currency to the Yugoslav Red Cross was reported in three publications—"Borba," "Nova Makedonia" and "Politika;" President Johnson's message of condolences to President Tito in "Politika," Mr. Cahill's visit to Debar in "Tanjug;" American Red Cross donation in "Borba;" and CARE contribution in "Politika" and "Nova Makedonia."

Assistance Provided by U. S. Voluntary Agencies

CARE

On the morning of December 1, James Kehm, Acting CARE mission chief in Belgrade, called Red Cross, Belgrade, and offered immediate release of all CARE food stocks in Macedonia for use in the disaster area. He then sought and received the U. S. Embassy's approval to shift USG P.L. 480 food stocks in Rijeka to the stricken region; he also obtained CARE New York approval by phone. By afternoon, Red Cross workers had begun to move the food from the CARE warehouse southward. To ensure even flow of supplies to Debar, CARE foodstuffs were assembled at the Red Cross warehouse in Skopje and at the sub-station in Gostivar where it was shipped in periodic installments by truck to Debar. Mr. Kehm visited Skopje and western Macedonia on December 6-7 and his assistant Thomas Kurth visited the area December 6-12. Mr. Kurth also accompanied Mr. Cahill on December 19-21.

American National Red Cross

Cash donation .....\$ 5,000

The Yugoslav Red Cross indicated this money would be used for reconstruction of destroyed buildings.

Church World Service

Cash donation .....\$ 5,000  
\$ 10,000

Assistance Provided by Other Nations and International Organizations

Australia Red Cross - cash grant .....\$ 1,100  
Austria - Government - sleeping bags, clothing, shoes, delivered  
by plane on December 3, valued at ..... 6,000  
Austria - Red Cross - gave 1,500 kit bags for children and 280  
sweaters (delivered by train Dec. 5) and cash  
donation of \$4,000 ..... 16,900  
Bulgaria Red Cross - food, blankets and clothes, shoes delivered  
December 15 ..... 10,000  
Canada Red Cross & Government - cash donation ..... 8,800  
- clothing, layettes, bedding, soap ..... 5,700  
Denmark Red Cross - cash donation ..... 1,340  
Ecuador Red Cross - cash donation ..... 100  
Ethiopia - Government - cash donation presented on Jan. 10 ..... 4,000  
Finland Red Cross - cash donation ..... 2,300  
France - Government - cash donation ..... 15,000  
France - Red Cross - clothing ..... 460  
Holland - Government - cash and goods amounting to ..... 5,900  
Hungary - various social organizations and schools collected  
food and money ..... \*  
East Germany Red Cross - blankets and clothing delivered  
December 10 ..... 12,500  
East Germany trade unions - cash donation ..... 7,000  
Italy Red Cross - clothing and medicine ..... \*  
Federal Republic of Germany - Government - check to German  
Red Cross for purchase of 10,000 blankets, 5,000  
pairs of shoes, 150 stoves ..... 12,500  
Also set up special voluntary contribution fund  
for Yugoslav disaster victims and presented  
Yugoslav Red Cross check for ..... 2,500  
German Caritas - sent 2,000 blankets, est. value ..... 6,000  
Irish Red Cross - blankets ..... 600  
Japan - Government - cash donation on December 13 ..... 2,000  
Japan Red Cross - cash donation ..... 1,000  
Lebanese Red Cross - cash donation ..... 50  
Liechtenstein Red Cross - cash donation ..... 2,300  
Monaco - Princess Grace contributed check for ..... 400  
Netherlands Red Cross - cash and baby food ..... 7,660  
Norway Red Cross - cash donation ..... 2,800  
Norway - Government - cash donation ..... 5,600  
New Zealand - Government - blankets ..... \*  
New Zealand Red Cross - cash donation ..... 1,140  
South Africa Red Cross - cash donation ..... 280  
Swedish Red Cross - cash, clothing, blankets, soap ..... 74,650  
Swedish Government - stoves ..... 9,680  
Switzerland Red Cross - cash donation ..... 2,310

Switzerland Government - blankets and gasoline stoves delivered prior to December 15 .....	\$ 14,000
United Kingdom - "War on Want" - (25 large tents, blankets and clothes delivered by plane on Dec. 4); UK Red Cross and OXFAM - (800 oil stoves; 520 blankets, 15 bales of clothing); UK "Assistance to Aged" - (blankets and clothing)	
Total valued at .....	30,000
UK Gov't. paid for transportation of goods.	
Vatican - Caritas sent 10,000 blankets valued at .....	10,000
World Council of Churches - gave check on Dec. 4 for purchase of winterized tents .....	30,000
International Club of Belgrade - cash donation .....	500
	<u>\$313,070</u>

Albania

The earthquake also struck Albania. Information on extent of damage was not available, but since 11 persons were killed and 134 injured, it was probably as extensive as in Yugoslavia. The Government of Yugoslavia promptly offered assistance but this was rejected. Later, when the Albanian Government announced an offer of aid to Yugoslavia, the latter declined to accept. Friendly official messages of condolence were, however, exchanged between the Red Cross Presidents of each country.

## ARGENTINA

### Characteristics of the Disaster

Event: Floods

Date-Time: October 10-12, 1967

Location: Suburbs of Buenos Aires

<u>Damages:</u>	<u>Number Killed</u>	<u>Number Evacuated</u>	<u>Number Homeless</u>
	56	142,000	Thousands of families

Official statistics on extent of damages were not available. Unofficially, damage was reported to be in the millions of dollars.

### Description of the Disaster:

During the second week of October, torrential rains caused the Reconquista, Matanza, Riachuelo and La Plata rivers to overflow. Nineteen districts in Greater Buenos Aires were inundated. They were declared emergency areas. At least eleven major highways and countless secondary roads were rendered unusable. Rail and bus services were interrupted. Telephone and electric power services were cut off temporarily.

### Action Taken by Argentine Government or Organizations

As soon as the floods became a definite menace, the Argentine Government designated a special command to coordinate evacuation and relief activities. The President of Argentina made inspection flights over the stricken zone to help direct emergency work. Federal, provincial and municipal entities and private organizations cooperated under the overall supervision of the Ministry of Social Welfare to distribute food, clothing, medicine and to evacuate people. The homeless were sheltered in railroad stations, schools and other centers and received vaccinations against the spread of typhoid. The Argentine Red Cross set up three emergency first-aid posts, one at its headquarters and two in mobile units. It opened 30 aid centers throughout the city and surrounding area, staffed by doctors and nurses, and took part in mass vaccination campaigns against possible typhus and other epidemics. A corps of 120 Red Cross swimming lifeguards was credited with saving many lives during the flood.

It was reported that 195 million pesos (\$557,000) were received from private donors and government agencies by the Social Welfare Ministry for its emergency fund for the flood victims.

### Beneficial Aftermath of the Flood

An outgrowth of the disaster was an announced determination on the part of the Argentine Government to embark on a massive shantytown eradication program. This would serve both to improve living conditions for the poorer classes and eliminate

the large tracts of crowded temporary shacks which were devastated by the floods. In this connection the Secretariat of Housing called on industrial and commercial firms to sell, loan, rent or donate construction materials to be used for providing adequate interim shelters which could be salvaged later and used in the construction of permanent housing.

Assistance Provided by the U. S. Government

The Charge d'Affaires authorized a contribution from the AID contingency fund under the worldwide disaster relief account of \$10,000



DCM Leonard Saccio presents check to  
Social Welfare Minister Alvarez

Assistance Provided by U. S. Voluntary Agencies and Other U. S. Help

U. S. Embassy and other U. S. Government personnel donated food and clothing to be delivered to the reception centers.

No voluntary agency assistance was reported.

Assistance Provided by Other Nations and International Organizations

Pan American Health Organization

Sent 140,000 doses of typhoid and para typhoid vaccine and also loaned ten jet injectors .....\$ 6,770

The Vatican - cash donation of 3,500,000 pesos ..... 14,280

Uruguay - 2,000 blankets (value estimated by DRC \$3 each) ..... 6,000

Ecuador - Use of an Ecuadorian Air Force DC-4; blankets, medicine, food and money from the Ecuadorian

Red Cross ..... \*

- Israel - 88 boxes of medicine and clothing ..... \*

Chile - 150,000 doses of typhoid vaccine ..... 7,200

Brazil - 500,000 doses of typhoid vaccine ..... 24,000

\$58,250

\* Value not reported.

BRAZIL

Characteristics of the Disaster

Event: Flood

Date-Time: Sept. 20 to 26, 1967

Location: Porto Alegre

Damages: Number of People Evacuated  
15,000

Description of the Disaster

Unusual, heavy rains in the Rio Grande Do Sul created swollen rivers north of and in the vicinity of the city of Porto Alegre. Southeast winds backed up the Guaiba Estuary bottling up floodwaters. By September 25, low-lying parts of Porto Alegre and adjacent cities were under two to three feet of water. Water was over the sidewalks in most of downtown Porto Alegre. Power and telephone service was knocked out in some areas of the city. The American Consulate was among buildings without electric power. Long distance telephone communications became sporadic and unreliable. By September 26, the U. S. Mission reported the water receding, flood victims starting to return to their homes and the situation was reported under control.

Action Taken by Government of Brazil and Local Organizations

The only information available was that victims were being helped through use of COBAL/SUNAB food stocks; that the Central Commission aided the flood victims effectively and with good planning. SUNAB is the Federal Food Supply Agency. COBAL is Brazilian Food Co. with state and private capital which handles storage facilities and warehousing for SUNAB.

Assistance Provided by U. S. Government

There was no final summary report, from the U. S. Mission. Cables received at the time of the flood indicated 75 metric tons of Food for Freedom commodities were provided from stocks of Catholic Relief Service, Church World Service and Lutheran World Relief. Information was not provided on specific commodities and amounts. Assuming that the 75 tons consisted of wheat, sorghum, and CSM with perhaps some dry milk, market value was estimated at about seven cents per pound for a total of .....\$12,600

Assistance Provided by U. S. Voluntary Agencies and Other U. S. Help

Provision of and help in distribution of above P.L. 480 food by Lutheran World Relief, Church World Service and Catholic Relief Services.

Assistance Provided by Other Nations

None reported.

## ECUADOR

### Characteristics of the Disaster

Event: Polio Epidemic

Date-Time: Summer, 1967

Location: Guayaquil, Coastal and Sierra Regions

<u>Damages:</u>	<u>Number of Deaths</u>	<u>Number of Cases</u>
	36	528

### Description of the Disaster

Polio had been prevalent for two or three months. The number of cases began to increase and reached epidemic proportions in August. Urgent action on the part of the Government of Ecuador was necessary to halt the spread of the disease. The GOE Ministry of Health initiated emergency action to study, type the disease and to carry out an inoculation program. It was determined that this was Type I bulbar polio, common in epidemics, which causes paralysis of the respiratory center and is the most contagious. The epidemic started to abate about September 1.

### Action Taken by the Government of Ecuador

The GOE estimated it would need 1 million doses of vaccine. There was none in the country. The GOE requested the assistance of the Pan American Health Organization and other outside sources to obtain the necessary vaccine. After the vaccine was delivered, the immunization was carried out in two stages. The first was begun in late August for the purpose of giving the first dose to all children from three months to six years of age. Following this, in six to eight weeks, the GOE scheduled a second campaign to give the second dose to the same children. Total amount of vaccine obtained for this purpose was 1,395,595 doses. Of this, 1,003,000 doses were provided by the Pan American Health Organization through its emergency revolving fund, and for which there was later reimbursement to PAHO by the GOE of \$39,540. The World Health Organization donated 192,545 doses and Catholic Relief Services donated 200,000.

Most of the victims had paralytic polio. When the first children were stricken there were no iron lungs in the country to help them. They had to be cared for by the Contagious Diseases Hospital. Respirators and iron lungs were shipped by air from the U. S. Some of the children were then transferred to the Rehabilitation Center in Guayaquil where four volunteer doctors, two physical therapists, one occupation therapist and one bracemaker cared for them. PAHO sent a doctor and two nurses to work at the Contagious Diseases Hospital. It is not known what the cost of care for these polio patients was to the GOE.

Assistance Provided by the U. S. Government

Assistance requested from the USG was for help in arranging for PAHO to obtain the loan of three respirators from the National Foundation, including US Customs clearance. AID/DRC provided this service and PAHO then arranged for air delivery to Ecuador.

Assistance Provided by U. S. Voluntary Agencies & Other U. S. Contributions

Catholic Relief Services

On August 11, CRS air freighted three respirators to Quito and the following week airlifted 200,000 doses of vaccine. Total estimated value \$10,000

National Foundations

Loaned three respirators.

USAID Employees in Ecuador - cash donation equivalent of 215

Consulate General Staff and American Community in Guayaquil -  
cash donation equivalent of 583  
\$10,798

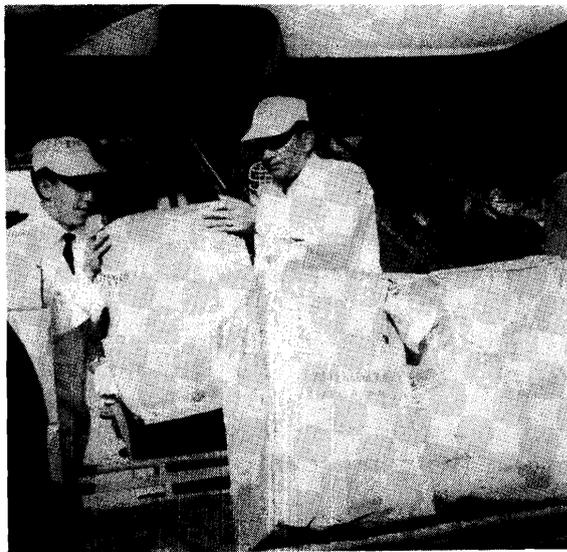
Assistance Provided by Other Nations or International Organizations

Pan American Health Organization

Obtained 1,003,000 doses of vaccine for the GOE.  
Sent one doctor and two nurses to work in the Contagious Diseases Hospital in Guayaquil.

World Health Organization

Donated 192,545 doses of polio vaccine, estimated value \$ 5,800



Air delivery CRS vaccine to Ecuador  
(CRS photo)

MEXICO AND THE CARIBBEAN

(This case study also includes two other close-in-time hurricanes besides Beulah and the widespread flooding throughout Mexico. In order to have the full scope of Beulah's devastation, it covers its effects in Texas also, but the relief operations in the U. S. are barely mentioned as the purpose of this report is to record U. S. disaster assistance in foreign countries.)

Characteristics of the Disasters:

Events: Hurricanes Beulah, Katrina and Fern, Torrential Rains, Floods

Date-Time: August 29 to Sept. 2, 1967 - Hurricane Katrina  
 Month of September 1967 - Torrential Rains  
 September 8 to 19, 1967 - Hurricane Beulah  
 October 2 to 4, 1967 - Hurricane Fern

Locations: Hurricane Katrina - Baja California and possibly the States of Sinaloa and Nayarit.

Torrential Rains and Floods - States of Guerrero, Sinaloa, Nayarit, Mexico, Jalisco, Hidalgo, Morelos, San Luis Potosi, Coahuila, Durango, Chihuahua, Michoacan, Guanajuato, Chiapas, Tabasco.

Hurricane Beulah - Islands of Martinique, St. Vincent and St. Lucia in the Caribbean; limited damage to Barahona Peninsula of the Dominican Republic; great damage in Mexico to States of Yucatan, Tamaulipas, Nuevo Leon, Vera Cruz and Islands of Cozumel and Mujeres, and to the State of Texas, U.S.A.

Hurricane Fern - Limited damage Tampico, State of Tamaulipas.

Damages: No. Killed, Beulah    No. Killed, Floods    No. Killed, Katrina & Fern

Mexico

Baja Calif.			1	
Tampico				3
Yucatan	5			
Border with U.S.	19			
Guerrero		32		
	24	32	1	3

Mexico Total - 60 killed

Martinique	15
St. Vincent	2
	<hr/> 17

USA - Texas	12
Beulah Total .....	<hr/> 53

<u>Damages (Cont'd)</u>	<u>No. Evacuated or Temporarily Homeless - Beulah &amp; Floods</u>
Mexico	270,000
Martinique	<u>1,000</u>
	271,000
Texas	200,000

Mexico Property Damages: An estimated 300,000 acres were flooded in the Matamoros Consular District and following estimates of damage were provided:

Matamoros Consular District.....	\$180,000,000
State of Machoacan .....	1,600,000
State of Baja California .....	2,400,000
State of Guerrero, extensive damage but dollar figure was not available .....	*
	<u>\$184,000,000</u>

Despite the damage to cotton and corn and to a lesser degree to fruits, vegetables and sorghum, domestic and export requirements were not seriously affected.

Martinique Property Damages: 10% crop damage to sugar cane and 20% to bananas. Est. dollar damage .....\$ 3,000,000

Texas Property Damages: Over 500 homes destroyed and approximately 25,000 others suffered damage. There was extensive damage to roads, dams, bridges, electric power lines, communications and sanitation facilities, about 3000 head of cattle were killed. Many farm buildings, boats, trailer homes were destroyed and some 520 small businesses suffered major losses. Estimated dollar damage .....\$200,000,000  
\$387,000,000

#### Description of the Disasters:

##### Hurricane Katrina

Very little information is available on this hurricane. It struck the small fishing village of San Felipe on the Gulf of California, 125 miles south of Mexicali on September 2-3. Severe damage occurred. The town, with 5,000 permanent residents, was flooded by the Gulf water during the height of the storms. About 100 buildings were destroyed, many more damaged, over twenty of the forty-two shrimp boats in the harbor sank, the harbor itself was filled with sand and silt and the town was cut off from outside communication because of four major breaks in the Mexicali-San Felipe Highway. There was one death. On October 5, it was reported that food, water supply, utilities, schools and transportation were restored.

Flooding was reported in the States of Sinaloa and Nayarit. It may have been the result of rains in the wake of Hurricane Katrina or of unrelated rains.

### Torrential Rains

Many areas of Mexico suffered from heavy rain storms during September 1967. After Hurricane Beulah struck the Mexican/Texas border region, disastrous floods were also reported throughout almost all of Mexico. It is not known how much of this flooding was due to Hurricane Katrina, how much to Hurricane Beulah or how much to rain storms unrelated to either of the hurricanes.

In the State of Guerrero, the raging Balsas River dumped 20,000 cubic meters of water per second into El Ifiernillo Dam and almost as much into the uncompleted La Villita. A number of villages below La Villita were evacuated as a precaution against its possible collapse. Parts of Acapulco were flooded. There was heavy damage to the main highway and bridges between Acapulco and Mexico City. The death toll from the floods in Guerrero was placed at 32. Parts of Atizapan near Mexico City were flooded. Mexico City suffered periods of blackout for many days as result of damage to El Ifiernillo Dam electric power station, which was under 60 feet of water at one time. Lake Chapala flooded the towns of Chapala and Ocotlan in Jalisco. Low areas from Brisenas in the State of Michoacan to Ajijic in Jalisco were inundated. The Tula River flooded the town of Tula in Hidalgo State. A new river erupted in the middle of a tennis court in Cuernavaca, State of Morelos. Engineers had to knock down a wall to let the stream flow out of the courts. In Vera Cruz, the Jampapa Papaloapan and Nautla Rivers flooded. Under "Location" above other areas which suffered from the month-long rains and floods are listed.

### Hurricane Beulah

Beulah was not the biggest or the most violent storm ever to blow in off tropic seas, but in terms of flood aftermath and destruction she was one of the greatest. In sheer size, only two others that hit the United States surpassed her--the great New England hurricane of 1938 which killed 600 persons and Hurricane Carla in 1961, which killed 34 and devastated both Texas and Louisiana. With respect to actual wind power, Beulah with top winds of 175 mph was surpassed by several other hurricanes. The one that hit the Florida Keys on Labor Day 1935 was small in area but had winds estimated at from 200 to 250 mph. In 1955, Hurricane Janet had 200 mph winds and the 1938 New England hurricane winds exceeded 186 mph.

Beulah spawned 47 tornadoes which hit the ground. This was the greatest number of tornadoes resulting from any hurricane, the previous record being 26. Four deaths resulted from the tornadoes. Beulah caused the worst flood on the Rio Grande River, along the border between Mexico and Texas, in 34 years, brought the flood stage in the Nueces River in Texas at one point to 49.5 feet, which surpassed the record flood of 44 feet set after the 1919 hurricane, and was responsible for streams and rivers flooding in a vast arc reaching from above Corpus Christi on the coast to San Antonio inland to Laredo on the Mexican Border. In the U. S. the State of Texas, and in Mexico the State of Tamaulipas, were the hapless victims of the Rio Grande flooding.

## Caribbean

Hurricane Beulah came to life as a tropical depression in the Lesser Antilles with winds of 35 mph on September 7. On this date, while in her embryonic stage, Beulah hit Martinique late in the evening. Local meteorologists stated it would be more correct to say the hurricane formed practically "on top of Martinique" and the effect to Martinique was a bad tropical storm with torrential rains amounting to from 20 to 24 inches in a matter of hours, but not extremely strong winds. Almost all damage was caused by floods from the rains. There were 15 persons killed, many injured and several hundred left homeless due to swollen streams which collapsed or washed away 100 or more houses and flooded lowland areas. Telephone and electrical systems were rendered inoperative throughout the island for periods ranging from several hours to days. Extensive damage was done to the water supply system. Three weeks after the storm some areas were still without water. Highways and roads washed out.

Beulah also killed two children on the Island of St. Vincent and caused considerable damage there as well as on the Island of St. Lucia.

By September 9 Beulah had become a very intense hurricane packing winds of up to 125 mph. On September 11 she threatened the Dominican Republic and Haiti. An estimated 200,000 persons were evacuated to emergency shelters from the exposed Barahona Peninsula and southern shores of the Dominican Republic, but Beulah merely brushed the area causing limited wind damage. The hurricane then moved past Haiti without striking any part of Haitian territory, remaining about 30 miles off the coast as it moved along the southern peninsula. Beulah spared the Island of Jamaica. By September 12 her winds had weakened to barely hurricane force of 70 to 75 mph. But on September 13 she began again to build high winds.

## Mexico

Hurricane Beulah struck the Yucatan Peninsula and two offshore islands of Mexico on September 17 at winds approximately 115 mph. Five persons were killed in the town of Tizimin when a clocktower toppled. Communications were blacked out between the two resort islands and the mainland, except for amateur radio operators. There was considerable property damage on the Island of Cozumel. Then Beulah blew herself back into the Gulf of Mexico where she headed for the mouth of the Rio Grande on the border of Mexico and the United States. Her winds increased to 175 miles per hour at the center and she became one of the most severe hurricanes in the Gulf of Mexico in this century. Before dawn on September 20, she crashed into the Texas/Tamaulipas, Mexico border region with winds up to 160 miles per hour at the center and winds of 74 mph or more extending out 80 miles from the center. Beulah moved inland to about 60 miles west of Corpus Christi with winds of 65 mph by the morning of September 21. On September 22 she erratically turned northwest, battering herself to death on Mexico's mountains in the vicinity of Monterrey. The entire Matamoros Consular District (Matamoros, San Fernando, Reynosa, San Miguel de Camargo and Ciudad Carmargo) was hard hit. For a time there was almost total paralyzation of communications, transportation and other public services. In Matamoros, some 80,000 persons took refuge in Matamoros schools and churches

on the night of September 19. They were sheltered at public expense and fed but most of them voluntarily returned to their homes as the danger lessened. Later, even greater danger and damage occurred from the flooding of Rio Bravo (Rio Grande), which was triggered by the torrential rains accompanying Beulah and which continued for days after. At one time the Rio Grande between Matamoros and Reynosa, Mexico, was 20 feet above flood stage and more than a mile wide. Matamoros is across from Brownsville, Texas, at the mouth of the Rio Grande. Reynosa is across from McAllen, Texas, about 50 miles upstream from Brownsville. The flooding Rio San Juan and Rio Grande both converged on Camargo on September 23-24.

Texas offered refuge to whole cities south of the border and an estimated 9,000 persons from Camargo fled across the border for shelter in Rio Grande City, Texas. Some of them were plucked from rooftops by U. S. helicopters. Others lined up on a stretch of highway where they were picked up in groups of 40 for an 8-mile helicopter ride to Rio Grande City. In all, about 25,000 Mexicans crossed over into Texas seeking safety. On September 25, it was reported that 90 blocks of the city of Reynosa were flooded. The Mexican floodway system held. In other parts of Mexico, dykes and roads were cut to lower the river's height. As a result of this, there was no severe flooding in Brownsville, Texas, or Matamoros, Mexico.

Officials in Mexico said Hurricane Beulah and the subsequent flooding had left some 100,000 persons homeless in the flood region from Camargo to Matamoros, Mexico. The relatively low loss of life was attributed to timely warnings by news media plus the fact that the population tended to follow official instructions on precautionary measures against wind and flood. There were also Spanish language television and radio broadcasts from Texas.

The disaster was not without long range beneficial effects. In the border region of Mexico, it was expected that heavy silt deposits from flooding would guarantee bumper crops in future years, especially cotton. Also, the hurricane caused several breaches in dunes of Laguna Madre so that sea water reentered the region and may rehabilitate it as a valuable fisheries asset.

Although waters began receding soon after the rains stopped, it was a slow process. As late as October 6, floodwaters remained over thousands of acres of farmland in the State of Tamaulipas. By this date, however, the Mexican population, both rural and urban, was engaged in cleanup and rehabilitation activities and those who had sought safety and assistance in Texas had returned to Mexico. Rail and main highway connections with Matamoros were still severed but traffic, both human and material, were rerouted from Monterrey and south via Reynosa--Hidalgo International Bridge and over U. S. highway to Brownsville--Matamoros. It was not until the latter part of October that the railroad and principal highways could be repaired.

#### Texas

Preparations were taken before the storm hit. Some 114,000 persons moved to emergency shelters. Beulah came ashore at Port Isabel with winds of 160 mph. Brownsville was also affected. Port Isabel caught the full fury of the hurricane, suffering 85 percent damage to buildings. All schools were too damaged to use. For a time there was no water, telephone, or sewer service. The evacuated

residents were not permitted to return until debris was cleared and utilities restored. In South Padre Island tides of 10 feet rolled over the island. Facilities were 80 percent destroyed. Of 116 house trailers, only four were saved. All motels had extensive wind and water damage. Laguna Heights, a coastal community between Corpus Christi and Brownsville, suffered 75 percent home damage with 40% a total loss. On September 20, a tornado spawned by Beulah, struck Burnet, Texas. Damages amounted to an estimated half million dollars. In Rio Hondo, 50% of the town's buildings were damaged. But, it was the 20 to 30 inches of rain that Beulah brought with her and the subsequent flooding throughout vast areas of Texas that caused the most widespread damage. Many rivers flooded, some at record levels. On September 25, ESSA Weather Bureau reported as follows on some of the rivers: The Rio Grande, crested at 12 feet over flood stage at Rio Grande City on September 22, holding at 10 feet over flood level for three days at that point and later at 20 feet above flood stage. It was the worst flood of the Rio Grande in 34 years. Lavaca River peaked at 36.6 at Edna on September 23. This was 15.6 feet above flood stage and a record. Navidad River exceeded flood level by at least 11 feet at Ganado; San Antonio River flooded from north of Falls City to the Gulf, cresting at a record stage of 57 feet at Goliad--flood stage 35 feet; Guadalupe River was from 10 to 12 feet above flood level, having crested at 31 feet at Victoria; Nueces River crest occurred at Three Rivers at 49.5 feet, which was 24.5 feet above flood stage, and broke the previous record of 46 feet in 1919, also the result of a hurricane. The flood plain of the rivers reached treetop and hilltop level in many areas.

In Harlingen, a 200 foot long steel and concrete diversionary weir failed on September 24, allowing the bulk of flood waters from the Rio Grande to enter the south floodway, named Arroyo Colorado. Severe flooding of the city resulted, 5,000 people were evacuated, and Harlingen, with its population of about 42,000, was divided in two because the main canal was utilized as a levy to keep waters from moving from the south to the north side of town. Homes in Harlingen's most exclusive section were flooded to the roof line. The Arroyo Colorado peaked at 44.3 feet at Harlingen.

Two of the hardest hit cities in Texas were Three Rivers (where the Nueces, Atacosa and Frio Rivers meet) and Falfurrias. Three Rivers was inundated. It was evacuated on September 23. In Falfurrias, 40% of the residents were evacuated. Other cities and towns suffering serious flooding were: Edinburgh (80 percent flooded at one stage), Raymondville, Robstown, Calallen, Annaville, Victoria, Cuero. In Pettus, water was reported seven feet deep in parts of the town. At one time the entire community of Beeville was under water. Laredo was the farthest west city in Texas to feel the effects of Beulah. About five inches of rain fell accompanied by winds of 40 mph. Some lowland flooding took place. Water was waist deep in some areas of San Antonio. Kennedy was affected. Sinton was under six feet of water. In San Patricio County, hurricane and flood losses were expected to run as high as \$5 million. Upwards of 5,000 evacuees were taken care of in the county

By September 26, most of the south Texas rivers had receded. While many communities remained underwater, by September 29 the worst of the flooding was over. The Rio Grande River continued at flood stage from Rio Grande City eastward for almost 200 miles until the first week in October.

At one time, the flooded southern corner of Texas looked like an extension of the Gulf of Mexico as the wind whipped up white-capped waves on fields where cattle normally grazed. Nearly one-third of the State was affected by the storm and the flood conditions. About 1 million people were isolated in a 40,000 square mile area and at least 12 died. The American Red Cross reported caring for more than 225,000 in South Texas, including 23,000 Mexican Nationals.

In some parts of the Rio Grande Valley, many cattle were standing in water. One man reported using two motorboats, a plane and horses to drive cattle out of low ground, stating it was the first time he had herded cattle in a life jacket. Deer came out of flooded pastures, seeking high ground. Wild turkeys fled lowlands. Many poisonous snakes appeared. The high tides and heavy rains combined with ship channel pollution to kill tons of fish mostly mullet. Estimated dollar damage in Texas alone was \$200 million.

On September 28, President Johnson in response to a request from Governor Connally declared 24 South Texas counties disaster areas and authorized \$2.5 million to conduct emergency operations, rebuild roads and repair public facilities. On November 14, an additional \$7.5 million was allocated to Texas disaster areas.

Following the hurricane/flood damage, there was a tremendous influx in the number of mosquitos, resulting in great concern that these disease carrying vectors would cause epidemics. Spraying operations to control this increase in mosquitos were first initiated on the U. S. side of the border and, at the request of the Government of Mexico, extended to the Mexican side of the border.

#### Hurricane Fern - Mexico

Following Hurricane Beulah, Fern moved inward on the Mexican coast at Punta Juarez near Tampico on October 4. This was a small hurricane with wind speeds of about 75 miles per hour when it first struck land. The hurricane blew itself out on October 5 after crossing the coast some 40 miles above Tampico. The Panuco River, already high from Beulah flooding was at a higher level and three persons were reported drowned in the high waters. About 7,000 persons sought shelter in public buildings but this was a precautionary measure. There was very little damage either from wind or new floods as a result of Hurricane Fern.

#### Action Taken by the Government of Mexico

Immediately after Beulah struck, informal US/Mexican negotiations opened the border to allow free crossings of disaster victims on either side. On September 22, Governor Balboa of the State of Tamaulipas and General Gomez-Cueva of the 8th Army of Mexico indicated they would need U. S. assistance to provide helicopter logistic support for their relief operations and also to perform rescue operations. The GOM requested similar assistance from the U. S. a few days later following severe flooding which occurred in the State of Guerrero and elsewhere in Mexico.

Mexican authorities provided rapid emergency assistance which consisted of shelter and feeding operations, medical aid for victims, rescue and evacuation. They undertook full scale relief operations not only in the northern border region but also in the many areas of the country suffering from floods. Almost every Mexican Government agency, acting under Presidential orders, was engaged in aiding the stricken population and in reporting damages. Especially active were the Communications and Transportation and Public Works Ministries, which worked on the country's badly damaged highway, telephone and telegraph systems at a rapid rate, but at great cost to the Government of Mexico since extra workers were brought in from distant cities. The Ministry of Health coordinated medical requirements.

While U. S. voluntary agencies and the American Red Cross provided assistance to Mexicans who came into Texas and offered additional aid after they returned to Mexico, the Government of Mexico indicated its capability of providing personal type assistance, and preferred not to accept further outside help by U. S. voluntary organizations.

After the flood danger subsided, Mexican authorities met with their people in Rio Grande City, Texas, and worked out all of the arrangements for the return of Mexican citizens to Mexico in a manner to maintain the good will engendered along both sides of the border during the disaster.

The cost of GOM relief operations is not known.

In connection with the severe damage to San Felipe, Baja California, as a result of Hurricane Katrina, the Mexican Government--federal, state and local--unified their forces in Mexicali under its mayor, and within 48 hours had relief units in San Felipe with food, water and temporary shelters. Over one hundred buildings were built and highways were repaired. The U. S. Mission said: "The Mexican people, on their own, are rebuilding San Felipe to a point where the community, the fishing fleet, and the tourist industry will undoubtedly be better off because of the natural calamity which it suffered."

#### Assistance Provided by the U. S. Government

The tremendous forces of Hurricane Beulah, which seriously affected both sides of the border, called for the mutual cooperation of both countries.

Mr. George Hastings, Regional Director, Office of Emergency Planning, Denton, Texas, was named U. S. Coordinator by AID/DRC. Major General Richard Stilwell, Commander of Task Force Bravo, provided the capability to respond. They worked with General Manuel Gomez-Cueva, Commander, Eighth Military Zone, Tampico, Mexico, who was the disaster relief coordinator for Mexico, and with Governor Balboa of the State of Tamaulipas.

In Washington, Stephen R. Tripp, AID Disaster Relief Coordinator, worked with Mr. Herman L. Myers, Acting Country Director for Mexico under the direction of Deputy Assistant Secretary of State Robert M. Sayre. Based upon the thoughtful and understanding decisions of Mr. Sayre, immediate action was taken to work out with the Immigration and Naturalization Service the opening of the border along the Rio Grande River for disaster victims, relief workers and vehicles. This action was well received and helped many disaster victims and relief personnel on both sides of the border.

On September 22, it became evident that U. S. helicopter rescue and logistic support could assist relief operations in Mexico. U. S. Army Task Force Bravo was already on duty providing assistance to Texas disaster victims with headquarters at Harlingen, Texas. Task Force Bravo was authorized by State/AID officials and AID/DRC to assist local Mexican authorities. Six U. S. Army helicopters were assigned to operate from the temporary headquarters of General Manuel Gomez-Cueva at Reynosa, Mexico. Two "Larc" amphibious craft were placed in readiness at Brownsville, Texas National Guard Armory near Matamoros. On September 26, two "Chinook" helicopter freighters were assigned to work out of Matamoros. In addition to rescues, distribution of emergency food, medicine, and medical personnel was the primary task assigned to the helicopters by Mexican authorities. All food commodities and medicines were provided by Mexico. Mexican doctors accompanied the rescue missions. Many isolated villages were serviced by helicopter and others were evacuated.

Mr. Robert Phillips, Office of Emergency Planning, Washington, D.C., was assigned as a staff adviser to the Flood Control Sub-Committee of the House of Representatives Public Works Committee. Because of the effects of the flooding in Mexico, Mr. Phillips arranged for AID Disaster Relief Coordinator Tripp to accompany the Sub-Committee to Texas. Ambassador Raymond Telles, Chairman for the United States of the US-Mexico Joint Development and Friendship Commission, and Mr. Melbourne Spector, Executive Director of the Commission, were also invited by the Sub-Committee to participate in the hearings. To learn about the effects of the disaster in Mexico, Ambassador Telles and Messrs. Spector and Tripp went to Reynosa, Mexico, to meet with Governor Balboa of the State of Tamaulipas and General Gomez-Cueva, where mutual assistance efforts were reviewed in detail. Major General Richard Stilwell discussed the U. S. Army helicopter mission and Mr. George Hastings went over relief operations, particularly those at Rio Grande City, which were under the auspices of OEP, the State of Texas, the U. S. Army, the American Red Cross and the people of Rio Grande City. The meetings were characterized by the mutual concern and desire to help those who had suffered so much from the hurricane and floods.

On September 27, General Stilwell and Mr. Tripp went to Matamoros where they were joined by American Consul Charles C. Carson for meetings with the Mayor of Matamoros and the local general of the Mexican Army. The purpose was to work out plans for helicopter delivery of emergency food and supplies to isolated communities south of Matamoros, particularly San Fernando. Consul Carson accompanied one of the flights. He reported that food packages of milk, coffee, flour, sugar, oil, cookies and candies were made up by Mexico and delivered to each family. Each package had enough food for four or five days.

The American Embassy in Mexico City sent Mr. David C. Packard to assist the consulate in Matamoros. He brought radio equipment which was installed on the premises. With the help of a U. S. Army enlisted radioman, Mr. Packard provided invaluable services, particularly in relaying critical messages at times when telephone facilities were unavailable. After returning to Mexico City, he coordinated with AID/DRC in Washington on continued U. S. assistance.

Mr. Tripp, on his return to Washington, said: "Inasmuch as I was able to be in the disaster area and to become acquainted with the U. S. and Mexican disaster relief officials, it is a pleasure to be able to compliment them and to pay them my highest tribute for the excellent work they accomplished for the disaster victims."

In addition to helicopter support, AID also agreed to provide funds for urgent repair of the causeway between Camargo, Mexico, and Rio Grande City, Texas, the sole overland connection between the two communities. Local Mexican authorities reported they were unable to repair this causeway in time to serve the people returning from Texas. Surface transportation was necessary also to diminish the need for helicopters to deliver food, medicine, and other commodities pending opening of this and other roads in the area. AID authorized the U. S. Corps of Engineers to make the repairs or contract for them.

Total cost to AID for these repairs was .....\$ 15,000

By mutual agreement between U. S. Major General Richard G. Stilwell, Mr. George Hastings and Mexican Lt. General Gomez-Cueva, U. S. support to disaster relief operations in Mexico terminated on October 5. The final report of U. S. military operations on the Mexican side of the border in which six helicopters were used gave the following breakdown of assistance provided:

167 missions flown - 829 sorties - 278.05 hours of flying time  
5,330 people transported  
659,335 pounds of cargo carried  
385,463 pounds JP-4 fuel consumed

Total cost to AID of above Operation Bravo on the Mexican side .....\$ 50,000

Although helicopter rescue and support assistance terminated on October 5, it was evident that further mutual action was needed to prevent diseases which could be carried by the tremendous number of mosquitoes in the area as a result of the floods.

Mr. Hastings, Consul Carson and General Gomez-Cueva met on October 9. The plans for using an aerosol process developed by the Communicable Disease Center, U. S. Public Health Service, were reviewed. General Gomez-Cueva, acting for the Mexican Government, requested that U. S. AID conduct the spraying program in Mexico, with Mexico agreeing to hold the USA harmless for any human or animal consequences of the spraying and to be responsible for all public notices. Based upon these mutual understandings and benefits, the spray operations in Mexico were initiated on October 16. These mutual efforts to reduce disease-bearing vectors caused by the floods were recognized as significant areas of cooperation by the US-Mexico Joint Development Commission. Ambassador Telles for the USA, and Mr. Vivanco for Mexico, endorsed the practical reality of both countries working together on this and other mutually beneficial projects.

Funding for the spraying was approved on October 12. The American Embassy at Mexico City was authorized to contract with Marian Air Service for aerial spraying of 172,000 acres on the Mexican side of the border at a cost of 18 cents per acre. The 4,300 gallons of Malathion insecticide was obtained from the American Cyanimid Company of New Jersey at \$6.86 per gallon. The U. S. Public Health Service agreed to provide technical guidance for the spraying operation and to work with Mexican health authorities in determining areas to be sprayed. Spraying operations in Mexico were completed on October 19.

Cost to AID for this operation (Mexican side only) consisted of \$29,635 for the Malathion and \$30,715 for the aerial spraying, total .....\$ 60,450

U. S. Assistance State of Guerrero

When extent of flooding in this and other states became known, President Johnson offered assistance from the USG. President Ordaz asked for helicopters to assist in relief operations for the flood victims. AID/DRC worked with the U. S. military to deliver six UH-1B helicopters to Acapulco. They were flown by Air Force freighters from Fort Campbell, Kentucky, departing at 6 PM on September 28 and arriving in Acapulco the morning of September 29. Two other aircraft were also supplied to bring equipment and fuel. There were 98 U. S. military personnel used in this operation, called "Bonny Date." Originally, the U. S. military estimated costs would be about \$40,000, but the number of days of use of U. S. helicopters was extended, other equipment was used and the following breakdown of final costs was submitted by the U. S. military:

Ten C-130's and two C-141's which carried six helicopters, 98 military personnel and equipment to Mexico, involving 197.2 flying hours and use of one C-123 in in-country operations .....	\$ 64,287
One K-135 fuel tanker .....	8,000
Two C-141's, one C-133 to bring helicopters, equipment and personnel back .....	23,395
Per diem, incidental travel costs and helicopter fuel and operation .....	<u>17,545</u>

Total requested reimbursement cost of "Bonny Date" operations to AID .....	\$ <u>113,227</u>
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Grand Total - US assistance to Mexico Hurricane Beulah and floods - \$238,677

The following message was sent to President Johnson: "The President of the Republic of Mexico is grateful to President of the United States Lyndon B. Johnson, to the civil and military authorities, and to the entire North American towns for the magnificent and spontaneous help given to the Mexican citizens who were affected by the flood that we have just experienced."

A meeting of the U. S. representatives on the Joint United States-Mexican Border Development and Friendship Commission was held on October 9, and Stephen R. Tripp, AID/DRC, was invited to participate. Ambassador Telles was

designated by President Johnson to be responsible for joint rehabilitation programs along the Rio Grande River disaster area. President Diaz Ordaz of Mexico named Mr. Vivanco as the Mexican counterpart for this assignment.

#### Noteworthy Developments as a Result of Hurricane Beulah:

1. The rapport and good will that was established between the Mexican and U. S. officials in opening of the border and in the border relief operations.
2. The report that excellent warning measures taken had saved many lives both in Mexico and Texas.
3. The report from the Dominican Republic on preventive measures and evacuation of people from danger areas that took place following hurricane warnings. The appreciation expressed by the U. S. Mission for the work done by Capt. V. G. Holzapfel, who went to Santo Domingo prior to Hurricane Beulah for the purpose of assisting the Civil Defense of the Dominican Republic establish a preparedness plan. While it was too soon after his visit to implement much of his recommendations, because of his work with them, Civil Defense was very aware of its role in protecting the people and performed its role admirably. Fortunately, the Dominican Republic was spared this time, except for limited damage in the Barahona Peninsula.
4. Report from the U. S. Mission in Haiti that although the hurricane passed safely by the country, in contrast to activities before and during Hurricane Inez of last year, precautionary measures were taken, progress of Beulah followed and the public was informed by radio.

#### Assistance Provided by U. S. Voluntary Agencies

Several relief agencies participated in providing assistance in Texas, but except for the American Red Cross specific information is not available. The American Red Cross has a Congressionally chartered responsibility for disaster relief in the United States and was deeply involved in the assistance program in southwest Texas. As Hurricane Beulah neared the coast, the Red Cross activated its Hurricane Action plan; local chapters opened shelters and completed preparations for emergency assistance to Hurricane victims and evacuees, the national organization moved in staff and mobile equipment to augment the capability of the local chapters. During the immediate emergency, as the hurricane and then the floods which followed caused widespread damage and drove many people from their homes, the ARC fed 225,000 persons, sheltered 175,000 and provided clothing, medical aid, and other help. Subsequently, as people could begin returning to their homes or assessing their disaster-caused needs, the Red Cross, operating from 30 disaster relief headquarters in Texas, provided individualized recovery assistance to approximately 21,000 families. Total Red Cross expenditures for Hurricane Beulah relief were approximately \$5,000,000.

Since this is primarily a report of U. S. assistance to victims of a foreign country, information was obtained from the Red Cross that an estimated ten

percent (about 23,000) of the persons receiving emergency assistance from the Red Cross were Mexican Nationals who had crossed the border into Texas to escape the flood waters, and were fed, sheltered, and given medical care at Red Cross facilities.

At the time Mexicans began returning to their homes from Texas, U. S. helicopters transported to Camargo considerable quantities of detergents, soap disinfectants, brooms, etc., as well as other commodities to help in the clean-up job and make the lot of the Mexican flood victims easier for the next few days. This was a gift from the people of Rio Grande City and Texas in combination with U. S. relief agencies.

The Volunteer Border Relief, a U. S. registered agency led by Mr. Frank Ferree, helped two missions, one at Reynosa and the other at Matamoros, Mexico. Mr. Ferree and his group obtained donations of food which were delivered by helicopters. Mr. Ferree was on board the helicopter when the deliveries were made. The donated food consisted of 912 large loaves of bread, 500 pounds of meat and 7,000 pounds of Red Cross food. Clothing, blankets and medicine were also distributed. Value was not reported but was estimated at.....\$5,000

Catholic Relief Services reports that an American missionary priest was credited with saving hundreds of lives and thousands of dollars worth of property with his ham radio work when Hurricane Beulah hit Peto, Mexico. Father John P. Lomasney, a Maryknoller, was on the air for nearly 24 hours before and during the storm, as a member of the Inter-continental Hurricane Net. When the storm struck the eastern half of the Yucatan Peninsula, with winds up to 125 miles per hour, Father Lomasney helped relay information to police and safety officials who directed the peninsula's evacuation operations.

#### Assistance Provided by Other Nations

Cuba offered assistance and the Government of Mexico sent a message of thanks but did not indicate acceptance.

Also, the Dominican Red Cross offered to help if needed.



swiftly on the request of the Sonora State Government, permitting the first passenger bus crossing within two hours after receiving the request late Friday, December 22. At that time, more than 1,000 southbound travellers were stranded in Caborca. From December 22 to December 26 an estimated 400 vehicles, mostly buses, with nearly 8,000 passengers, were enabled to continue travel by use of U. S. highways. Also, the U. S. Customs Chief at Nogales arranged onward passage of Mexican trucks carrying perishable cargo. This extraordinarily effective action on the part of the INS was a second praiseworthy example of international cooperation between the U. S. and Mexico in a matter of months. Similar relaxation of border controls was permitted during and immediately after Hurricane Beulah in October of 1967. Due to limited personnel available during the Holiday Season, a number of INS employees missed Christmas dinner with their families and worked virtually around the clock.

The American Consul at Hermosillo reported highly favorable press and public reaction to U. S. assistance. He reported that the excellent performance of USAF participating personnel was deeply appreciated by the people and the State of Sonora.

Assistance Provided by U. S. Voluntary Agencies

None reported.

Assistance Provided by Other Nations and International Organizations

None reported.

## NICARAGUA

### Characteristics of the Disaster

Event: Polio Epidemic

Date-Time: April through August, 1967

Locations: Managua, Leon, Chinandega and Granada and in lesser degrees in nine other departments.

<u>Damages:</u>	<u>Number of Deaths</u>	<u>Number of Cases</u>
	53	444

### Description of the Disaster:

Polio is endemic in Nicaragua but reaches epidemic proportions every two to three years. The first recorded epidemic was in 1938. Recent epidemics were in 1958, 1960, 1963 and 1965.

Nicaragua has a population of about 1.7 million with a large percentage of the inhabitants being under 15 years of age. The first case of paralytic polio in 1967 occurred during the week of February 12. There were six more between February 19 and April 2. Then the number of cases jumped sharply from 5 cases with onset during the week of April 2 to 55 cases with onset during the week of June 18. Continued increases occurred throughout June and the number of new cases did not start to drop until the week of July 9. By August 18, 444 cases had been reported with 53 deaths. The deaths were all patients with bulbar polio.

The attack rates by Departments were directly proportional to the percent of urban population in the given departments. The over-all attack rate was 20.6 per 100,000. Although cases occurred in 13 departments, by far the most were in the Managua Department. The next largest number, although considerably less than Managua, was in the Department of Leon followed by Chinandega and Granada. Except for 27 cases in which the age was unknown, polio occurred in children 10 years of age and under in the following percentages: Age 1 year - 27-1/2% of the total cases; age 1-4 - 58.5%; age 5 to 9 - 5.5%; age 10 - .9%.

Although a National Vaccination Program had been established in 1965-66, and 400,000 doses of vaccine were distributed, records show only about 220,000 children received inoculations. From May 1 to July 1, 1967, about 525,000 doses were distributed but records are not specific on what age groups received the vaccine or how much. It is probable that from 1965 to June 28, 1967, school age children received most of the vaccine, but from June 28 to July 9 it was distributed mostly to

pre-school children. On July 9, a campaign was started to immunize 845,000 children. Initially, it had been suggested that children from three months to six years be immunized since the attack rate was highest in this age group but the age was extended to 15. Specific records were to be kept of the children's ages and if they had previously received vaccine. A second round of vaccinations took place on August 20 and the hope was expressed that an ongoing campaign would be established to immunize newborns.

According to available records, following is a recap of polio vaccine used or available in Nicaragua since 1965:

1965-1966	400,000 doses
May 1 - July 7, 1967	525,000 doses
July 9, 1967	600,000 doses
August 20, 1967	<u>434,000</u>

1,959,000

#### Action Taken by the Government of Nicaragua and Local Organizations

Although polio cases began to occur in February, no action was deemed necessary by the Government of Nicaragua until May when the rapidly increasing number created a sense of urgency. On May 23, the Government requested two iron lungs from the U.S. Embassy and arrangements were made for loan of two from the U.S. Military in Panama. They arrived at 11:30 PM on the same day of the request. The GON had only two iron lungs and this now made four. This was followed by an urgent request through the U.S. Embassy to see what could be done about expediting previous orders for vaccine made through the Pan American Health Organization. At the time the orders were placed, this urgency was not known. Also, the GON requested that PAHO provide the assistance of an epidemiological team to assist the GON. Vaccine orders were expedited, additional orders placed, and one PAHO zone physician, and two doctors from the U.S. Communicable Disease Center in Atlanta, Georgia, went immediately to Managua.

Mrs. Hope Somoza, wife of the President of Nicaragua, and the Minister of Health, Dr. Francisco Urcuyo, were in charge of the polio immunization and rehabilitation programs. Mrs. Somoza is also the President of the National Social Assistance Board. Other government officials too were active in promoting assistance for polio victims and in planning a concentrated immunization program.

The Nicaragua Red Cross also took part in providing help for the polio victims and in the vaccination campaign. The Nicaragua Red Cross initiated a request to the American Red Cross for 3 more iron lungs, and the ARC obtained these from the National Foundation on a loan basis. They arrived in Managua on June 30. The GON provided air transport by LANICA from Miami.

The Government of Nicaragua then purchased two portable respirators from the J.J. Monaghan Company in the U.S. at a cost of \$1,800 each, and a

third respirator was obtained from this company by the American Society in Nicaragua. These three respirators arrived on July 5. Other polio equipment was provided by Catholic Relief Services, a U.S. Baptist group and the Brother's Brother Foundation.

During the early phase of the epidemic, patient care was provided in four hospitals—three in Managua and one in Leon. Patients who were released with minor paralysis after 3-4 days of observation were to be followed by mobile units which did not exist at the time. By July 5, the GON was reported to have 2 doctors, 22 technicians, 4 nurses experienced in rehabilitation and 2 technicians in respirator rehabilitation working on the epidemic. They were assisted and guided by U.S. Public Health Service and private U.S. doctors. Around-the-clock supervision of the respirator patients was provided by three anesthesiologists from the U.S., who came to Nicaragua at the request of the Brothers Brother Foundation. They stayed until about July 17. The intensive care program was assumed entirely by the Nicaraguan medical staff. Pediatric care was provided by the regular hospital staff. By July 28, it was reported that the polio ward at the General Hospital in Managua was working efficiently; that the nursing personnel was adequate and that physician staffing appeared to be sufficient. At that time the polio ward was equipped with 7 tank respirators, 4 Bennetts, 3 Birds, 4 Monaghans and 3 Oxygen-Mist Tents.

On July 1, 1967, a plan for mass immunization was presented to the Ministry of Public Health by Dr. Norman Kliwadenko of Chile, who was the zone representative sent to Nicaragua by PAHO to assist the GON. National Vaccination Day was announced for July 9, at which time children from 3 months to 15 years were to be vaccinated. Voting stations in the country, numbering about 1,572, were designated as vaccination stations. Each department had a central headquarters where a reserve stock of vaccine was held. Each station in the department received 200 doses and could request more as needed. The GON used river boats to transport vaccine in the vast jungle area of the eastern half of the country. Refrigeration problems were overcome. Each child vaccinated was to give his age and indicate whether he had previously received vaccine and a tabulation sheet was kept. Before administering the vaccine, duplicate cards were made out with name, date of first dose and date for second dose. One card was left with the nurse who gave the vaccine and the other was retained by the child. Because of a multitude of ancillary personnel, among them teachers, boy scouts, etc., it was possible to prevent slow-up in the lines. The campaign was publicized by radio, television, press and sound tracks. Also, leaflets were dropped from planes. Prior to the campaign from May 1 to July 7, 525,000 doses of vaccine had been distributed. For the July 9 vaccination day, an additional 600,000 doses were available at the Ministry of Health headquarters. Later, an additional 420,000 doses were donated by OXFAM through Catholic Relief Services and 14,000 by the British Government. This 434,000 doses were used for the second round of immunization which took place the week of August 20.

Of the 1,559,000 doses of vaccine which can be accounted for in 1967, records indicate that 919,000 were donated from various sources. Records specifically show that 550,000 were purchased by the Government of Nicaragua and it is assumed that the remaining 90,000 were also at the expense of the GON. The cost for trivalent one-two-three type polio vaccine at Connaught Laboratories in Canada, where most if not all the GON vaccine was obtained, is 3-1/2 cents per dose. Therefore, GON expenditure for vaccine amounted to about \$22,400. Information is not available on other costs of the polio program except for the purchase of respirators covered above.

#### Assistance Provided by the U.S. Government

The U.S. Embassy recognized the seriousness of the polio outbreak a few weeks before it became of national concern and urged the GON Ministry of Health to undertake extensive immunization measures.

On May 23, the GON asked the U.S. Embassy to obtain two iron lungs. The Embassy made arrangements with the U.S. Military in Panama to loan two of them. CINCSO also provided two technicians to repair two iron lungs that were in use in Nicaragua. The two iron lungs were airlifted and arrived at 11:30 PM, the same day of the request. The U.S. Military provided the lungs and services without reimbursement from A.I.D. The prompt delivery of the iron lungs by the USG received wide and favorable treatment from all sections of the local press and radio. Special note was made of the rapidity and efficiency of the USG response.

The Government of Nicaragua had already requested the Pan American Health Organization (PAHO) in Washington to purchase 150,000 doses of trivalent, oral polio vaccine, and PAHO placed the order with Connaught Laboratories of Toronto, Canada. However, the GON original request did not indicate the need was urgent. With the rapid spread of the disease the GON became increasingly concerned, and on June 26 asked the U.S. Embassy to see what could be done to expedite delivery of the vaccine, and also to determine source and availability of portable chest respirators for patients to be transferred from large iron lungs. These respirators were described as positive pressure respirators looking something like turtle shells, which could be used in either a sitting or reclining position. These requests were passed on to AID/W by the Embassy. AID/DRC worked with PAHO to expedite delivery of the vaccine and Connaught agreed to make immediate airlift. The vaccine arrived on June 28.

After numerous contacts, DRC located the type of respirator described by the GON at the J. J. Monaghan Company of Denver, Colorado, and advised the U.S. Embassy they were available and could be airlifted immediately; that the GON should make direct arrangements for purchase with Monaghan or through PAHO. Also, in case needed, DRC determined availability of the large type iron lungs through the Defense Supply Agency and passed

this information on to the U.S. Mission including specifications, location and cost. The Government of Nicaragua followed with an order of two respirators from the J. J. Monaghan Company and a third was ordered by the American Society in Nicaragua. All three were airlifted free of charge by Pan Am and arrived on June 30. The U.S. Embassy sent a telegram to the Monaghan Company expressing gratitude for expediting delivery of the respirators.

The Government of Nicaragua then asked PAHO to send a team of epidemiologists to assist the GON in combating the disease and to advise on care of the patients. PAHO zone representative, Dr. Norman Kliwadenko, and two U.S. Public Health Service doctors from the Communicable Disease Center, Atlanta, Georgia, Dr. Howard Garber and Dr. Fred Barrett, left by air for Managua on June 29. Expenses of the two U.S. PHS physicians were chargeable to PAHO under a PASA it has with CDC, Atlanta, and such costs appear under "Assistance by Other Nations and International Organizations."

AID/DRC also assisted the American Red Cross in obtaining the loan of three iron lungs from the National Foundation to meet a request from the Nicaragua Red Cross. AID agreed to fund for trucking charges of the iron lungs from Atlanta to Miami. From there, the GON had authorized LANICA to pick them up and airlift to Managua. Trucking charges were estimated at \$800.00. AID also agreed to pay return transportation costs. It is not known yet how these will be brought back but it is estimated that transportation will be about \$1,500.

The rapid increase in new cases made it imperative that there be no delay in starting the massive immunization campaign planned for July 9 and great concern was expressed because there was not sufficient vaccine in the country for this purpose. Again the GON requested the assistance of the USG and voluntary agencies. There was not time for the GON alone to provide the 700,000 doses which it indicated must arrive in Managua by July 5 or 6. The 225,000 doses previously purchased by the GON and the First Baptist Church of Cleveland and delivered to Nicaragua, plus another 10,000 donated by the Pan American Development Foundation, had already been used. PAHO had placed a second GON order for 200,000 with Connaught which was due to arrive on July 4 or 5 and was attempting to place an order for another 200,000 for the GON as well as 100,000 to be paid for by the First Baptist Church of Cleveland. A holiday in Canada, plus the recent heavy demands on its vaccine supply, made it impossible for Connaught to give assurance that this 300,000 doses could arrive from Canada by July 6. Therefore, the two U.S. PHS doctors in Managua recommended to the Deputy Chief of Mission James R. Engle that the USG make an emergency shipment of vaccine. This was concurred in by Dr. Delmar Ruthig of PHS in Washington, Dr. David Sencer, CDC, Atlanta, and Dr. John Cutler and Dr. Musa of PAHO. The only immediate source of vaccine was the U.S. Defense Supply Agency. Vaccine in U.S. military stocks had been obtained at 21.3 cents per dose from a U.S. pharmaceutical company, and if the USG donation was approved it meant AID would be

required to pay this same rate, plus air transportation. AID/DRC and the Nicaragua desk officer, James Johnston, telephoned to Mr. Engle at Managua and discussed this with him. He confirmed the urgent need for the vaccine and, although reluctantly because of the high cost per dose, requested AID/W approval for additional funding to cover cost of 200,000 doses from the U.S. Military. The previous funding level of \$25,000 under the Ambassador's Disaster Relief Authority was increased to meet the additional charge of \$42,000 for vaccine plus airlift for a new funding level from the contingency fund of \$75,000. Final request from DOD for reimbursement, however, was \$39,200 for the vaccine and \$628.74 for airlift. Together with the estimated transportation charges on the three iron lungs from the National Foundation in Atlanta, Georgia, of \$2,300, total expenditures to date against this \$75,000 obligation are ..... \$42,128.74.

Some confusion developed in the coordination of disaster relief from the U.S. for several reasons. The deep concern of the Nicaragua Ambassador to the U.S. in Washington resulted in his making direct contact with the White House on the urgent need for U.S. assistance in the polio epidemic. The U.S. Embassy, AID desk officer and AID/DRC had already responded to requests for assistance, as had PAHO, CDC, the U.S. Military, American Red Cross and U.S. voluntary groups. Numerous explanatory contacts had to be made and finally all concerned were satisfied that the U.S. had given immediate and sufficient response to requests of the GON.

In Nicaragua there developed a difference of opinion between the private Brother's Brother Foundation and the official PAHO Health Team on the amount of vaccine that should be provided from the U.S. in order to carry out an effective immunization campaign. This was reflected in a request from the GON Minister of Health after the July 9 Vaccination Day for 500,000 more doses of vaccine as a USG donation. Since the second round of vaccinations was not to start until the week of August 20 and 434,000 doses donated by OXFAM and the British Government were on hand in the Ministry of Health, it was explained that the GON would have ample time to order and obtain more vaccine if needed. An understanding was reached with the GON that if further U.S. assistance were really needed, it would be forthcoming. There was no further request.

On September 27, 1967, Minister of Public Health Urcuyo presided at a well attended meeting at his Ministry to give full recognition to persons, institutions and governments which aided in the polio epidemic. Mrs. Somoza, Vice President Callejas and several cabinet ministers were in attendance and the meeting was carried live over national radio. There was also press coverage. Highlight of the ceremony was the reading of the text of an award conveyed by the GON to President Johnson for his personal interest in the epidemic and his decision to provide assistance. Other awards in the form of certificates were conferred on donor governments, Nicaraguan and foreign institutions and persons. U.S. recipients were: American Red Cross, Catholic Relief Services, American Society of Anesthesiologists, Brother's Brother

Foundation and individual U.S. doctors who came to Nicaragua to work in emergency wards during the crisis.

The American Embassy in Nicaragua served as the catalyst for U.S. assistance, private and official, and did all in its power to encourage and reinforce the GON polio control program.

Among those who did so much to contribute to the success of this operation and this included night and weekend work, were: Charge de Affaires James Engle in Managua; Doctors Sencer, Witte, Garber and Barrett of the Communicable Disease Center, Atlanta, Georgia; Doctor Ruthig and Virginia Worsley of U.S. Public Health Service, Washington; Doctors Cutler, Williams and Bica of the Pan American Health Organization; and AID Desk Officer James Johnston. There were many complications in this operation which required frequent contact and coordination.

Assistance Provided by U.S. Voluntary Agencies and Other U.S. Assistance

American Red Cross

Made arrangements with National Foundation for loan of 3 iron lungs.

Catholic Relief Services

With the cash donation from OXFAM (Great Britain) CRS purchased 420,000 doses of polio vaccine from Connaught in Canada. Since the funds for this contribution came from OXFAM, the amount of this donation appears under "Assistance Provided by Other Nations and International Organizations".

CRS obtained one respirator and 1 iron lung (used and valued at \$1,000) and purchased 4 respirators costing \$2,245 plus airlift \$513 and donated these to Nicaragua. Total contribution ..... \$2,758.

First Baptist Church of Cleveland

Although associated with vaccination programs in Nicaragua with Dr. Hingston and his Brother's Brother Foundation in 1966, Dr. Parajon and the church group decided on their own separate program for 1967. Dr. Parajon returned to Nicaragua in January of 1967 and made arrangements with the Ministry of Health to bring additional people from the U.S. during the summer of 1967 to immunize in three departments. The group, sponsored by the First Baptist Church of Cleveland, included five U.S. volunteer physicians, four nurses and college students. They arrived on July 5. Although this group gave whatever assistance they could during the polio epidemic, including donation of 175,000 doses of vaccine, their immunization program had been planned even before the polio outbreak and included inoculations against other communicable diseases. This group was well received officially and unofficially and assisted the Ministry of Health only as needed and requested. Value of contribution of 175,000 doses vaccine ..... \$5,925.

Brother's Brother Foundation

Dr. Robert A. Hingston of this Foundation was concerned over the polio epidemic and its possible spread to other countries. He gave of his own time to help in the epidemic and acted as a consultant to the GON. He was responsible for bringing in some of the necessary equipment and for three physicians from the U. S. Anesthesiology Society coming to Managua to supervise and work in the intensive care ward. The U. S. Embassy and the Government of Nicaragua expressed appreciation to Dr. Hingston for his help.

Church World Service

Offered to donate \$3,000 for use in purchasing respirators or other equipment, even though they do not have a program in Nicaragua, but there was no need for any more of this equipment.

Pan American Airways

Gave free airlift for three respirators from the Monaghan Company in Denver, Colorado. Estimated value of airlift.....\$ 200

American Society of Nicaragua

Purchased one respirator from the Monaghan Company and donated it to GON....\$ 1,800

Total Contributions U. S. Volags and Other U. S. Assistance.....\$10,683

Assistance Provided by Other Nations and International Organizations

Pan American Health Organization

Arranged for purchase and delivery of 525,000 doses of vaccine for the Government of Nicaragua and the First Baptist Church of Cleveland.

At the request of the GON, PAHO asked that a U. S. team of two epidemiologists go to Nicaragua and under its PASA with Communicable Disease Center in Atlanta agreed to pay transportation and per diem at \$30 per day. The two doctors were on per diem from June 28 to July 15, when they returned to the US, so estimated cost to PAHO was.....\$ 1,500  
PAHO also sent a zone physician from Chile.

OXFAM - Great Britain

Donated 5,000 lbs through Catholic Relief Service to purchase 420,000 doses of polio vaccine. OXFAM received official thanks from the Nicaraguan Government. Dollar equivalent of the donation.....\$14,000

Mexico - donated 100,000 doses of vaccine, estimated value..... 3,500

Pan American Development Foundation

Donated 10,000 doses of vaccine obtained from Wyeth Laboratores in US..... 2,300  
\$21,300

## URUGUAY

### Characteristics of the Disaster

Event: Drought, Freeze, Floods

Date-Time: 1967

Location: Throughout country, especially central and west side

<u>Damages:</u>	<u>Number Killed</u>	<u>Number Homeless</u>	<u>Number Farmers Needing Feed Grain</u>
	*	Hundreds *	3,000

\* The actual number of casualties and persons requiring mass feeding was not reported.

### Description of the Disaster

During the first six months of 1967 there was a succession of drought, freeze and floods, in that order, culminating in disaster conditions during the latter half of 1967, which will continue to be felt into the spring of 1968.

In the central part of the country and on the west side along the rivers and streams there were two serious separate flooding conditions, the first in June, the second in July-August. People living in the low areas along these bodies of water had to evacuate their homes. Because of this the cities of Burazne and Rochs were faced with the many problems of providing shelter and food for the hundreds of additional people, and later the restoration of the homes they had had to abandon.

There was not only this tragic, human suffering, but also substantial losses to agriculture and the economy of the country. As much as 80% of the 1967 production of citrus fruit was lost; 300,000 hectares in the Department of Rochs were covered when water overflowed from Merin Lake, the Cebollati River and the San Luis River. Approximately 50% of lambs that were born died from the cold weather, rains and floods. Several thousand head of cattle and calves also died. Milk and cheese production fell far below winter normal. Many acres of newly planted crops, such as wheat and barley, were washed or drowned out and needed to be replanted. Continued rain and wet fields delayed planting of winter grains beyond the best planting time.

Conditions were reported worsening on August 24. Vast areas remained flooded. More dead cattle, horses and sheep were reported in all regions. The excessive rainfall continued, fields were saturated, pasturage poor. Dairy herds were particularly hard hit and milk supply to Montevideo was drastically cut. Butter was rationed and cheese production eliminated. People had to wait in long lines for bottled milk at distribution centers where supplies frequently ran out. U. S.-donated powdered milk was used in the interior of the country. Surviving cattle that did not get enough to eat during the cold, wet weather gave much less milk. Many cows were too thin to produce calves. It was estimated that it would take many months and possibly several years for recovery of the dairy herds even after pastures improved and enough grain was available for daily feeding.

Action Taken by the Government of Uruguay

It was reported that local agencies in the flooded areas provided assistance to the people who had to be evacuated from their homes.

The GOU requested assistance from the USG in providing dry milk for distribution to flood victims and for a grant of P.L. 480 feed grains for livestock, both of which were provided. The GOU proposed that the feed grains provided by the USG be ground into feed concentrate for distribution to foundation breeding and producing dairy animals owned by flood victims. The mixed feed would be sold to eligible dairy farmers who would pay only the costs of the supplements and processing. Funds collected would be deposited in a special account to be audited by U. S. personnel. The GOU agreed to be responsible for administration and supervision of the program and to pay all internal costs in connection with the grain including the costs of unloading, port charges, transportation and distribution.

The GOU also took necessary action to control all feed grain stocks in the country to fix sale price in order to avoid speculation. Also, the GOU imported hay and feed grains exempting them from duties and taxes, granted loans for purchasing feed, and made loans to farmers for replacing flood-destroyed installations, consolidating debts with private and official banks and for planting annual winter and summer crops.

Assistance Provided by U. S. Government

The U. S. Ambassador designated a Disaster Relief Officer to spearhead the American Embassy effort to study, watch, determine and recommend in what way U. S. assistance should be offered to the GOU or other Government and private agencies.

As the conditions in the interior of the country worsened, the American Ambassador, under his disaster relief authority, offered the Government of Uruguay, through President Gestido, \$10,000 worth of powdered milk. There were no powdered milk stocks on hand and this was the item most urgently needed. The Government of Uruguay gratefully accepted the U. S. offer.

The USAID Mission in Uruguay arranged for the purchase of dry milk from USAID Brazil. Eighteen tons of dry milk were shipped by sea, arriving at Montevideo August 23, 1967. Total cost of milk and freight amounted to \$10,855 plus accessorial expenses. Funds for this transaction were obligated from the AID contingency fund under the worldwide disaster relief account in the amount of .....\$11,070

On August 24, Agriculture Minister Flores Mora officially stated in a letter to the Ambassador the need for livestock feed grain. In order to help meet emergency feeding requirements for dairy cattle, the USG approved a grant of 5,000 metric tons of food grains (corn) under Title II of P.L. 480 for a 90-day period. Estimated market value of this 5,000 tons of corn \$320,000 plus ocean freight of \$200,000 for a total contribution valued at ..... 520,000  
Total USG contribution .....\$531,070

Assistance Provided by U. S. Voluntary Agencies

Catholic Relief Services - indicated in its Quarterly Bulletin that 20,000 pounds of food and clothing were dispatched to flood victims in Treinta y Tres and 15,000 pounds of food and clothing to Durazno. There was no breakdown as to how much was food and how much clothing; therefore it was not possible to estimate value. CRS also reported a cash donation from OXFAM for Uruguay flood victims (see below under Other Nations).

Assistance Provided by Other Nations

OXFAM (British Relief Organization) - made a cash donation to CRS  
of \$4,000 to be used for blankets, bedding, cooking utensils, other  
supplies .....\$4,000

## VENEZUELA

### Characteristics of the Disaster

Event: Earthquake

Location: Altamira and Los Palos Grandes sections of the city of Caracas and the Macuto coast resort area.

Date-Time: July 29, 1967 - 8:02 P.M.

<u>Damages:</u>	<u>Number killed</u>	<u>Number Injured</u>	<u>Number Homeless</u>
	240	1,536	80,000 (estimate)

Four multi-story buildings completely destroyed. It was estimated that ten others would have to be demolished. Of 269 high-rise buildings suffering earthquake damage, 97 were found habitable, 56 partially habitable, 15 required minor repairs, 31 major repairs and 70 needed additional study. Estimated dollar damage - \$50 million.

### Description of the Disaster:

Mt. Avila, which dominates Caracas, is part of the Andes volcanic chain. Light tremors shake Caracas on the average of 12 times a month. The city has had four major earthquakes in its 400 year history--the most serious being in 1812 when over 10,000 people died.

This July 29 earthquake, however, was the worse of the 20th Century, not because of its strength but because its greatest force of destruction occurred in two high-rise areas with an estimated concentration of 110,000 people. There was only minor damage elsewhere in the country. Its magnitude was from 6.5 to 6.75 on the Richter scale; its depth was shallow at 15 to 25 feet; its epicenter was 10.5 north and 67.3 west, meaning it was located about 25 miles west of the city of Caracas, plus or minus 12 miles. Why it should have caused such intensified local damage in the Altamira-Los Palos Grandes sections of Caracas and the Macuto coast resort, which were both well away from the epicenter zone, puzzled Venezuelan and U.S. scientists. Specific comments on their preliminary investigations appear later in this narrative. There were two other tremors on this day and eleven so-called settling tremors had occurred by July 31.

The earthquake shook the high-rise buildings in these major pockets of damage unmercifully for 35 seconds. Four 10 to 12 story apartments, all within a 12-block area, built between 1962 and 1966, collapsed on top of their occupants, leaving unrecognizable heaps of smoking rubble and twisted steel. In the coastal resort of Macuto, which is Caracas' weekend playground, the top four stories of a large apartment building



Mijagual Bldg. los Palos Grandes, Caracas



Mansion Charaima, Caraballeda, Litoral

fell in on the floors below. Close by, large chunks of the luxurious Macuto Sheraton Hotel crashed to the ground. Of the 262 persons killed, 12 were U.S. citizens. Three of the U.S. victims were in one of the collapsed apartment buildings. Incredibly 37 persons were rescued still alive from the ruins, one of them after 54 hours of entombment.

The temblor occurred during the city's 400th birthday celebration and, coming as it did at 8:02 P.M., at a time when people were preparing for their evening meal and Saturday night entertainment. They fled terror stricken into the streets and hundreds of families camped out for the night in public parks or slept in cars, too fearful to return to their homes. The U.S. Embassy is located in one of the areas of damage as is some of the housing for American personnel. Fifty-three dislodged Embassy employees and their families had to find temporary housing.

Caracas' seismograph broke after the earth's first convulsions. It was also reported that burglar alarms were set off by the earthquake--their ringing in the night adding to the confusion.

Following the earthquake, two outstanding earthquake engineers, Mr. Karl Steinbrugge and Mr. William K. Cloud from the United States went to Caracas to provide professional help to the Government of Venezuela and the American Embassy in evaluation and cause of damage. They arrived on August 3. Mr. Steinbrugge, returned to the U.S. on August 14. In addition to scientific data already mentioned above concerning magnitude, epicenter and depth, he gave the following information:

"There was little damage to low buildings in Caracas; there was no evidence of surface faulting; there were no major landslides; all utilities remained in operation; there was only a slight increase in tidal action--not enough to be noticed by people on the beaches. In fact, he said, there were none of the usual evidences of a great earthquake--all signs, except the severity of damage in two localized areas, pointed to a medium earthquake. Why the shock of the quake seemed to pass through the bulk of Caracas leaving little damage, yet when it hit the Altamira-Los Palos Grandes section of the city caused such intense destruction, was not explainable. It was not clear either, why the tall buildings having earthquake bracing were damaged while one-story "collapse hazard" structures with hollow tile bearing walls withstood the force. Also, there was no discernible reason why certain tall buildings within the areas affected suffered so much damage and others in the same area little or none. Poor building design and construction did not appear to be the answer because the same contractors, same architects, same engineers, same construction materials, same building code requirements, same design practices and same occupancies were reasonably uniform throughout the city. Surficial geology and soils were considered suspect, but there were no outward signs that these were responsible.

"The Macuto beach resort pocket of destruction was also a localized thing. Here, the apparently well designed and constructed Macuto-Sheraton Hotel and two other major structures were severely damaged, one nearby multi-story building partially caved in and smaller structures collapsed or were left almost in ruins. Yet, many tall buildings to the east and to the west of the Macuto area survived excellently. Since the destruction area was partially at least in a region of reclaimed land this was considered a strong possibility for the accentuated damage in the beach area."

Mr. Steinbrugge recommended that a broadly based study of this earthquake be undertaken by U.S. scientists, in cooperation with a high level earthquake investigation commission established by the Venezuelan Government under the leadership of the Ministry of Public Works. Further comments on the importance of such a study appear under the "USG Assistance" section of this case study.

Action Taken by the Government of Venezuela and Local Organizations:

Rescue workers using cranes and bulldozers worked through the night and the following week, sifting the rubble of the collapsed high rise buildings to rescue those still alive and recover bodies of the victims. National Guard troops, police, firemen, Boy Scouts and volunteers patrolled damaged areas, permitting only residents in to take out their belongings. They were successful in preventing looting. Except for the panic and rumor-filled night of the earthquake, the people of Caracas bore up well under the following week of emotion and physical strain--though there was a great deal of bewilderment and shock. It was stated that responsible reporting by the nation's news media and the Government's unrattled approach to the problems of rescue and assistance eased taut nerves.

President Raul Leoni set three days of national mourning and appeared on National Television Sunday night, July 30. He praised the Venezuelans for their courage and said that victims would receive immediate aid. Following this, the equivalent of \$7 million was made available for disaster relief. The Venezuelan Red Cross directed a special relief committee, establishing 35 reception and distribution centers. The hospital and nursing school of the Venezuelan Red Cross were half destroyed by the earthquake and the Government indicated it would help the Red Cross in rehabilitation. The YMCA provided emergency shelter for 900 people. The business organization "Pro-Venezuela" played an important role in coordinating relief assistance from the business community. Chrysler donated five fully equipped ambulances to the Red Cross. Companies such as Vengas, Digas, Avelca and Otis Elevator offered special benefits to their clients and to the public in general. There was no price gouging reported. On the contrary, some stores voluntarily offered quake victims substantial discounts on essential effects, while Volkswagen took full page ads in all major dailies offering victims who

owned its vehicles free replacements for destroyed cars, free repairs to those damaged and cancellation or moratoriums on car debts in other cases.

The U.S. Mission reported that rescue and relief operations by the Government of Venezuela were outstandingly good. There was serious inadequacy though in hospital and morgue facilities. The large number of dead and wounded placed such a serious strain on them, that conditions were quite bad for days following the earthquake.

Soon after the earthquake, the Venezuela Government established a high level earthquake investigation commission directly responsible to the Ministry of Public Works. The Commission invited U.S. experts to help them with their studies to determine the cause of the great damage in localized areas. A voluntary commission of architects, engineers and other professionals in the construction industry were organized with surprising rapidity and performed very effectively in inspecting and certifying buildings. The effort was coordinated by the Ministry of Public Works and Municipal Council engineers.

By August 8, it was reported that emergency rescue and clearing operations were substantially complete and attention began to focus on funds for reconstruction since very few buildings were insured against earthquakes. The President appointed a Government-Business Reconstruction Commission and created by decree an earthquake reconstruction fund. The decree authorized the Government to accept donations from the private sector and two representatives from the private sector were appointed to the five-man Board named by the Government.

On August 31, the Government issued regulations defining terms and conditions for loans from the fund. Loans were authorized for up to \$2,700 equivalent with repayment over a 20-year period. Basic interest rates were from 4% to 8% depending on family income and value of property. Reductions up to 2-1/2% from this base rate were authorized in proportion to mortgage debt already amortized. Interest rate for loans for commercial property was set at a flat 8%. Loans were also authorized for repairs and replacement of household effects ranging from 3 to 7% interest. On September 8, 50 million bolivares (about \$11.1 million) were appropriated by the Congress for this public reconstruction fund.

FEDECAMARAS (National Association of Chambers of Commerce) undertook to raise 30 million bolivares (equivalent of \$6.6 million) from the private sector for its part in the joint government-private reconstruction program. Dr. Alfredo Lafée is President of FEDECAMARAS. They asked oil companies and American business firms to participate in the campaign. This was the largest private fund drive ever undertaken and as of September 20, they had collected the equivalent of \$4.4 million or two-thirds of their goal, and fully expected to raise the other \$2.2 million. This private fund was originally set up only for earthquake relief but as now constituted it may become a permanent charitable foundation. There was indication that FEDECAMARAS would work out arrangement with the GOV to avoid duplication of effort in their respective reconstruction programs.

FEDECAMARAS engaged a private research group, Instituto para el Desarrollo Economico y Social (IDES) to survey the assistance needs of low income groups. Plans were to offer both grant and credit assistance. Two of the known large contributions to this private sector fund were \$334,000 from Electricidad de Caracas and Luz Electrica de Venezuela, and \$445,000 from the Eugenio Mendoz companies. Oil companies were expected to be large contributors.

Assistance Provided by the U.S. Government:

President Johnson sent an immediate message of sympathy to President Leoni and the people of Venezuela.

On July 31, the American Ambassador in Caracas arranged with the U.S. Military Southern Command in Panama (USCINCSO) for them to send one C-130 to Caracas with six general purpose tents, 150 cots, 160 pillows, 160 blankets and an assortment of drugs and medicines including morphine, demoral, dextrose, sodium chloride for intravenous administration. The shipment arrived at 3:05 P.M. on July 31 and was turned over to the President of Venezuela's Red Cross. Total weight was 11,000 pounds. Later CINCSO provided chemicals to aid in treatment of bodies of persons killed in the quake. Total U.S. military costs were \$17,000.

The USG also responded to a request by the Government of Venezuela by sending a technician from ESSA, Coast and Geodetic Survey, to repair the seismograph equipment damaged during the earthquake.

Under arrangements worked out by AID/DRC, U.S. Coast and Geodetic Survey also made available two outstanding earthquake engineers, Mr. Karl V. Steinbrugge and Mr. William K. Cloud, who arrived in Caracas on August 3, for the purpose of surveying damages and causes.

All of the above were funded under the Ambassador's disaster relief authority with AID reimbursing the Military and ESSA for their contributions. Total costs were estimated at about ..... \$25,000

In connection with the survey by Mr. Steinbrugge and Mr. Cloud, Mr. Steinbrugge returned to Washington on August 14 and reported on their findings at a meeting which was attended by representatives of USGS, Office of Emergency Planning, International Scientific and Technical Affairs Office, ARA/Venezuela desk personnel, ESSA, and the AID Disaster Relief Office. Much of the information he presented at the meeting has been covered above under "Description of the Disaster." His specific recommendations follow. Because of the severity of damage to earthquake resistant high-rise buildings, Mr. Steinbrugge stressed the importance of an inter-disciplinary study of this earthquake--not only to Venezuela but to other earthquake prone nations such as the U.S., Japan, Turkey, Greece, etc. He said that earthquakes as large as this particular shock are not rare; for example, the California-Nevada region of the U.S. has had about 35 earthquakes between 1903 and 1956 which were as large or larger than the Venezuelan shock. Such a study may result in an explanation of how to avoid this type of damage in high rise sections of earthquake-prone cities

of the world. Therefore, the opinion was expressed that USG domestic agencies might have the most at stake in making such a study, especially OEP, HUD, ESSA, USGS and the National Academy of Science Earthquake Engineering Committee. Mr. Steinbrugge recommended (1) that a broadly based study be undertaken by U. S. Government Agencies in support of the work to be done by the Venezuelan Commission; (2) that US input be coordinated by ESSA; (3) that interdisciplinary fields include soils engineering, structural engineering, city planning, architecture; geology and seismology; (4) that the best talents in the US in these various fields, whether from government, universities or private sectors be utilized; (5) that the final results be published by the Venezuelans in a bilingual (Spanish-English) publication. The study, he said, would take three years and he recommended an allocation of \$100,000 for this purpose. U. S. agencies have expressed an interest in the study but no solution has been reached yet on how it can be funded.

The U. S. Embassy forwarded a request to AID/DRC made by the GOV for manuals and regulations used in the U. S. for federal relief and loans made in a national disaster area. OEP publications and Small Business Manual and loan forms were sent. The Government of Venezuela indicated it had found this material most helpful and valuable in setting up its earthquake reconstruction fund.

Under the auspices of the National Academy of Science Earthquake Engineering Committee, Dr. Mete A Sozen also went to Caracas to survey damage to structures and conduct scientific observations. Dr. Sozen is a professor of civil engineering at the University of Illinois and his expenses were paid by the National Academy. His studies were coordinated by Dr. J. Wallace Joyce, Deputy Director, International Scientific and Technological Affairs, Department of State.

U. S. Peace Corps volunteers joined in rescue and clearing operations. Amateur radio operators, including Mrs. Bernbaum, wife of the U. S. Ambassador, aided in reducing the load on normal communication facilities.

The U. S. Mission reported that the special demolition equipment which the Ministry of Public Works purchased from Union Carbide in the U. S., with the cooperation of the U. S. Embassy, proved to be very helpful in clearing debris at the Mansion Charaima. MOP engineers expressed the opinion that if the equipment had been on hand in Venezuela previous to the quake, additional lives might well have been saved. There was also special appreciation expressed for the spray supplied by USCINCSO to control odors.

President Johnson's message of condolence was carried widely by all news media in Venezuela, along with news of arrival of relief aid from Panama, dispatch of earthquake experts and shipment of special rubble cutting equipment, and was well received by the people of Venezuela

Assistance Provided by U. S. Voluntary Agencies and Other U. S. Assistance

American Red Cross - cash donation .....	\$ 1,023
Church World Service - cash donation for earthquake reconstruction in Caracas .....	2,000
Catholic Relief Services - Ronald R. Zediak, Catholic Relief Services program assistant in Caracas was one of the 12 Americans killed in the earthquake.	
U. S. private corporations in Venezuela contributed supplies and personal services valued at 3 million bolivares, equivalent of .....	670,000
	<u>\$673,023</u>

Other Nations

The Venezuelan Red Cross reported receiving the following donations from other Red Cross organizations:

Australia - cash grant .....	\$ 1,170
Chile - three boxes of medicine, vaccine .....	820
Dominican Republic - cash grant .....	5,000
- also food, blood plasma, personnel .....	*
Ecuador - cash grant .....	1,500
Colombia - 15 crates of clothing and blankets .....	*
France - 6 boxes of medicine .....	710
Monaco - cash grant .....	200
Netherlands - blood plasma sets, blankets, bedding, stretchers and JRC disaster kits .....	19,890
Israel - 300 units of plasma and necessary equipment .....	*
Curacao - plasma, blankets, clothing and emergency equipment .....	*

From Foreign Governments:

Trinidad - 84 boxes of medicine .....	*
Italy - cash grant .....	16,000
Japan - cash grant .....	10,000
Yugoslavia - offered medical equipment.	
Pope Paul - personal donation .....	5,000

Miscellaneous outside donations totaled 17,775 bolivares, 100 kilograms of clothing, several units of blood, 30 blankets and 20 bottles of medicinal alcohol. Value not reported but estimated at .....

	4,000
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Caritas International - cash donation .....	3,000
	<u>\$ 67,290</u>

\*Value not reported or estimated.

VENEZUELA

Characteristics of the Disaster

Event: Floods

Date - Time: Early August, 1967

Location: Apure, Delta Amacuro, Monagas, Yaracuy and Portuguesa

Damages: Number Homeless

23,000

100,000 head of cattle valued at \$3.1 million

Loss to small farms in Yaracuy - \$357,000

900 miles of road damage in Yaracuy with  
estimated repair costs of - 669,000

\$4,126,000

Description of the Disaster:

Following in the wake of the July 29 earthquake which caused loss of life and property damage in Caracas and Macuto beach resort, heavy rains created floods in the Llanos region. Although flooding here during the rainy season is an annual occurrence, damage in some areas was reported the worst in 20 years. Apure, Delta Amacuro, Monagas, Yaracuy and Portuguesa were all affected but the State of Apure was hit hardest due to flooding of the Aranca, Apure and Orinoco Rivers. Some 9,000 people were forced to leave their homes and 100,000 head of cattle were lost. In Delta Amacuro 7,500 people were displaced, 2,000 in Monagas, 2,000 in Portuguesa and 1,500 in Yaracuy. Minor flooding of urban centers occurred in low areas of Ciudad Bolivar, Puerto Ordaz and San Felix. The Orinoco River caused serious flooding in Barrancas, Monagas State, leaving a good part of the town under water. Although small farmers in low lying areas suffered from the floods, there was only limited crop damage.

Action Taken by Government of Venezuela:

Venezuelan Government agencies and the Venezuelan Red Cross responded quickly and furnished food, emergency housing and medical supplies to the affected areas. Precautionary measures against epidemics were undertaken. A special credit program was established in the Ministry of Agriculture to help Apure cattlemen.

Assistance Provided by U.S. Government:

USG aid was not requested.

Assistance Provided by U.S. Voluntary Agencies:

Church World Service - Cash donation to Apure Province \$1,000

Assistance Provided by Other Nations:

None requested.

## CEYLON

### Characteristics of the Disasters

Event and Date-Time: October 1967 - High Winds and Floods  
November 1967 - Cyclone and Floods

Locations: October Floods  
Matara, Ratnapura, Kalutara, Hanwella, Yatiyantota,  
Dehiowita, Colombo, Kegale, Chilaw, Negombo,  
Mulleriyawa, Nathanda, Winnappuwa, Wellampitiya,  
and Calle.

November Cyclone  
Mannar, Batticaloa, Puttalam, Jaffna, Chilaw, Vavuniya,  
Polonnaruwa, Kurunegala.

<u>Damages:</u>	<u>Number Killed</u>	<u>Number Temporarily Homeless</u>
	24	October Floods - 95,000
		November Cyclone- 375,000
		<u>470,000</u>

(See description below for some of the specific damages by area)

### Description of the Disasters

#### Floods and High Winds - October

During the fore part of October, high winds and heavier than usual rains fell on the western coast and up-country regions of Ceylon. Irrigation tanks and rivers were near their capacity. Then on October 18, 19 and 20, a deluge came down in the Colombo area. Rainfall for those three days was 11.85 inches, which was approximately 10% of the annual average rainfall. The worst flooding in Colombo since 1941 resulted.

People fled their homes to escape the flood. In some areas, especially Chilaw, it was not only the floods that caused damage but extremely high winds toppled thousands of trees and destroyed many dwellings. The district hospital was abandoned during the height of the storm. The town and surrounding areas were cut off from the rest of the island for almost four days.

Economic losses were serious. An estimated 30,000 coconut trees were destroyed, 97 irrigation tanks were breached, 55,000 acres of rice paddy were damaged. Several ships, including the Greek freighter "Perulos" ran aground. The Colombo harbor was closed for three days.

As in the case of most floods, epidemics threatened and preventive measures were necessary.

## Cyclone and Floods - November

On November 21, a cyclone struck the northwest coast causing heavy damage in the North, North Central and Eastern Provinces. Torrential rains and floods followed in the North Western Province. Throughout the island, hundreds of villages were marooned with thousands of people left temporarily homeless. In some areas, a large number of houses were destroyed but rapid reconstruction was expected. Food prices went up due to the food shortage created by the destruction of crops, rice paddy losses and death of several thousand head of cattle. Fishing equipment was damaged and fishermen could not go out to sea, thus increasing the price of fish. The following death and destruction was reported by area:

Mannar: Over 100 marooned villages; 4,000 head of cattle dead; 3,000 houses washed away; 50,000 persons homeless; over 5,000 acres of paddy destroyed.

Batticaloa: 3 dead; 25,000 families homeless; 150 families marooned; 5,000 acres of paddy destroyed; streets filled with dead cattle.

Puttalam: Nearly 5,000 houses destroyed; 50,000 persons homeless; over 100,000 coconut trees chopped off by the wind; continuous menace from poisonous snakes.

Jaffna: 14 persons killed; 25,000 families affected with 5,000 of them evacuated to refugee camps; 2,000 head of cattle washed away.

Chilaw: For the first time in recent years, the North Western Province was completely ravaged by floods and cyclonic winds, leaving seven dead and forcing 80,000 persons out of their homes into relief camps.



CARE Photo - October Floods

Action Taken by Government of Ceylon and Local Organizations

The Government of Ceylon channelled most of its assistance through the Social Services Department, which provided food, clothing and temporary shelter to the flood victims. When CARE offered assistance, the Ministry of Social Services accepted and indicated milkpowder would be most useful. Repackaging of some of USG/CARE donated milk from bulk into one pound waterproofed and marked bags was done by volunteers (Saukyadana people, Government Agents, schoolgirls). The Ministry of Social Services provided transport both to the repackaging areas and to the distribution points. Although floods occur annually, the GOC does not have a standing flood relief procedure, but it was discovered that distribution made through the Government agents and village headmen worked quite well. These individuals know their areas and were best able to tell which people were the most seriously affected and deserving of assistance. Some of the supplies had to be airdropped in Chilaw, Nathandya and Winnappuwa including 1,500 pounds of the CARE milk. The three branches of the Ceylon military provided transportation to get food commodities to the more badly affected areas. The Royal Ceylon Air Force conducted aerial reconnaissance and made food drops.

In Colombo, the Colombo Charity Commissioner's Department set up 23 relief camps which provided accommodations and distributed cooked meals to flood victims. Many of the local service organizations and clubs gave assistance. The Red Cross distributed food parcels (rice) and served meals at the temporary relief camps to an estimated 23,000 people. The Salvation Army contributed 87 bales of clothing and other service organizations, such as the Rotary Club, prepared and served meals.

It was estimated that relief efforts for both disasters would cost the GOC approximately 6 million rupees (about \$1,260,000).

Assistance Provided by the U. S. Government

The Director of CARE-Ceylon discussed the flood conditions and CARE-Ceylon intended assistance with the AID Affairs Officer and the American Ambassador. The Ambassador authorized a gift of 25,000 pounds of P.L. 480, Title II, milk by CARE for the October floods and 75,000 pounds for the November cyclone and floods. The milk was made up into individual one-pound packets, of which 1500 lbs were airdropped. Inside each packet of milk was placed an instruction sheet on how to prepare the milk, which also stated that the milkpowder was a gift of CARE and the American people. Estimated market value of 100,000 pounds of milk .....\$21,500

Assistance by U. S. Voluntary Organizations

CARE-Ceylon contacted the Department of Social Services to determine what assistance was needed and was advised that milkpowder would be of great use. Approval was obtained from the U. S. Embassy to provide the above 100,000 pounds of milk. CARE-Ceylon contacted a volunteer group in Colombo (Saukyadana people), who agreed to package 6,000 pounds of the milk in one-pound polyethylene packets. These packets were made from rolls of polyethylene sealed with a candle, sewing machine or a hot iron. The Social Service Department purchased the polyethylene. A similar repacking arrangement for another 6,000 pounds was made by CARE in Ratnapura. Here the volunteers came from the Government Agent's office and a

local girls' school. While the milkpowder was generally distributed through respective Government Agents and village headmen, in many areas CARE representatives participated in the distribution.

CARE was pleased with its success in working with volunteer groups, who they reported were more than willing to help when given directions and guidance.

Assistance Provided by Other Nations and International Organizations

India provided some clothing and West Germany reportedly gave some help. Also, OXFAM made a contribution. There was no report on quantity and value of this aid.

## INDIA

### Characteristics of the Disaster

Event: Earthquake

Date-Time: December 11, 1967, 4:21 a.m. (local time)

Location: State of Maharashtra - Especially the town of Koynanagar and 991 nearby villages.

<u>Damages</u> :	<u>Number Killed</u>	<u>Number Injured</u>	<u>Number Homeless</u>
	177	2,272 (500 were hospitalized)	9,561 families (about 50,000 persons)

Estimated dollar damage was 3 million rupees (\$400,000).

### Description of the Disaster

This was a moderately strong earthquake, registering 6.75 in magnitude on the Richter scale. The epicenter was 17.7 degrees north and 73.9 degrees east in the vicinity of Koynanagar, 160 miles southeast of Bombay. The main shock was preceded by more than 50 minor tremors starting just before midnight, and the main shock occurred at 4:21 a.m. Seismic shocks were felt throughout the States of Maharashtra, Goa and parts of Andhra Pradesh, Madhya Pradesh, Mysore and Gujurat states but damage was confined to the region between Bombay and Kohlapur, south of Koyna. Some houses collapsed and two persons were killed in Bombay. For Goa this was the first earthquake tremor felt in 50 years. The area affected is outside the normal earthquake belt which runs through northern India along the Himalaya Mountain chain. There were several landslides and fissures. In the area of Arla (30 miles from Koynanagar in the heart of the mountains), a 70-mile long crack, 6 inches wide, split the Western Ghats from north to south. This was the third serious earthquake in India in 17 years. An earthquake killed 1,526 persons in the State of Assam in 1950 and the one in the Kashmir Valley in 1963 took 100 lives.

The earthquake left Koynanagar (population before the quake 6,500) in ruins. All of the houses were damaged and 25 percent of them were completely destroyed. In addition to Koynanagar there were 991 nearby villages seriously affected (713 in Satara district, 233 in Ratnagiri district, 25 in Kolhapur district and 20 in Sangli district). Total population in the disaster area numbered about 264,000. Because of the inaccessibility of the area, it took four days for information to come in from some of the villages. Rescue workers had difficulty in reaching these isolated areas and in evacuating the injured. One report told of the efforts of an American Marathi Mission social worker and a team of volunteers in reaching an interior village. They waded across the Koyna River, climbed the steep mountain, were impeded by landslides and finally upon reaching the top found all houses destroyed and families squatting in the rain. First-aid was given to the injured where possible and the team managed to evacuate eight of them to the roadside by carrying them down the mountainside. The rescue team had no stretchers so had to carry the injured on top of their heads with help of baskets. From the roadside they were evacuated to Karad Cottage Hospital by ambulance.

Although the Koyna Hydroelectric Project did not suffer any major damage, eight generating units were knocked out temporarily. Since Koyna supplies about 45 percent of the power to the Bombay area, it was necessary for the Maharashtra State Government to restrict power consumption, and the greater part of industry in Bombay was shut down with daily production loss estimated at 20 million rupees (approximately \$2.7 million). Two of the eight generating units were back in operation the day after the earthquake and full power restored a few days later. Koynanagar is downstream from a big dam on the Koyna River. Had the dam collapsed during the quake and subsequent tremors, the town would have suffered an even worse fate. The quake destroyed the bridge and damaged all approach units to Koynanagar. The Maharashtra State Government sent out an immediate appeal for Army and police assistance to build a road into the devastated town. Police and rescue squads worked through the day and night pulling victims from the debris. News reports indicated that many of the victims were aroused by the earlier tremors, went out into the streets, then returned to their beds to be trapped by the main shock at 4:21 a.m.

#### Action Taken by the Government of India and Local Organizations

Home Minister Y. B. Chavan visited the scene. Prime Minister Mrs. Indira Gandhi was informed immediately and authorized 200,000 rupees for initial relief work. Immediate relief was provided by the GOI which included medical attention, free supply of food grains, utensils and clothing and erection of temporary dwellings. Aid to some of the villages, however, was delayed because of lack of communications and transport hazards caused by the landslides and fissures.

On the initiative of the Chief Minister of Maharashtra, a new organization, "The Koyna Earthquake Rehabilitation Fund Committee" was formed. The Chief Minister was made president of the committee but most of the other 130 members consisted of prominent businessmen and industrialists. The committee was authorized to collect funds and material, but the relief and rehabilitation program was to be carried out largely by the existing village and district level Government officers and staff. Private voluntary agencies were discouraged from collecting public donations but if such collections were made, they were asked to turn them over to the committee.

The rehabilitation program will include the almost total reconstruction of Koynanagar township to house the displaced employees of the Koyna Hydroelectric Project, and the building of over 50,000 houses in the villages. Plans for the new houses are now being studied and quake-proof design will be included. According to official estimates, 70 million rupees (about \$9.3 million) will be needed. No information is available at this time on the amount raised through public donations.

The National Christian Council Committee (CORAGS) was deeply involved in the relief effort and made an initial contribution of 100,000 rupees (\$13,158) for the relief work. The Council established three field kitchens within 5 miles of Koynanagar to feed 5,000 people. They distributed clothing and blankets worth 160,000 rupees (\$21,320), supplied tents, tarpaulins, and cooking utensils. They set up 75 temporary houses. The Council staffed village first-aid centers

with medical students under the supervision of a doctor from the American Marathi Mission. There were many volunteers who helped in the work of the National Christian Council. CORAGS also set up a garment processing center to convert western style clothing sent to aid the victims into blouses, children's clothes and blankets more suitable to Indian customs.

Aftershocks and landslides in the Koyna Valley made the villagers anxious to move elsewhere but since land was not available, CORAGS planned to investigate a proposal to build in 10 villages 200 houses of quake-resistant materials such as in Assam. The proposal called for the houses to be built by the villagers themselves, under supervision, in a food-for-work scheme, which would entitle every family to receive five to 100 lbs. of staples and 5 lbs. of oil per month. It was also proposed to use the food-for-work scheme for another 5,000 persons in community development projects such as road construction, repairing bunds, reconstruction of wells and rebuilding village schools.

Two schools were active in relief work. Principals of St. Peters School, Panchgari, and Cathedral School, Bombay, sent out a call to senior boys of their schools to form rescue and relief parties to go into interior villages of Satara, Ratnagiri and Sangli districts to help villagers reconstruct homes, form work parties, give first-aid, evacuate casualties and repair damaged wells and roads.

Assistance Provided by U. S. Government

The U. S. Ambassador authorized donation of 100,000 rupees from the AID contingency fund, under his disaster relief authority, equivalent .....\$ 13,158

Consul General Braddock made the check presentation on behalf of Ambassador Bowles and it received wide press coverage.

Approval was given by the U. S. Mission for distribution by U. S. voluntary agencies of following P.L. 480 Title II food.

Church World Service

500 MT of Bal Ahar (high protein mix), estimated market value .....	94,000
28,000 lbs. other P.L. 480 commodities. Specific commodities and amounts not provided, so average of 10 cents per pound used to obtain estimated market value of .....	2,800

Catholic Relief Services

443,752 lbs. of Title II commodities. Specific commodities and amounts not provided, but assumption was that most of this was high protein mix. Estimated market value .....	42,000
Total P.L. 480 food	
	<u>\$138,800</u>

Assistance Provided by U. S. Voluntary Agencies

Church World Service and Catholic Relief Services made above P. L. 480 food available for distribution by CORAGS.

Church World Service

3,600 pounds of blankets and children's clothing, est. value .....	\$ 3,600
Two cash donations--one for \$5,000 and one for \$3,000 .....	8,000

Seventh-Day Adventist Welfare Service

Cash donation ..... \$ 2,000  
\$13,600

Assistance Provided by Other Nations and International Organizations

World Council of Churches

Germany \$5,000  
Holland 3,000  
Denmark 3,000  
England 7,200

\$18,200

CWS in the U. S. also gave \$3,000 through the WCC but this is recorded under U. S. volag assistance.

OXFAM (British Relief Organization) 200,000 rupees, equivalent of..... 26,310  
Federal Republic of Germany - 25,000 rupees, equivalent of ..... 3,300  
\$47,840

## NEPAL

### Characteristics of the Disaster

Event: Bubonic Plague Outbreak  
Date-Time: September 24 to November 5, 1967  
Location: Village of Naura

<u>Damages:</u>	<u>Number Deaths</u>	<u>Number Cases</u>
	17	24

### Description of the Disaster

The epidemic occurred in the village of Naura in a group of homes located approximately 6,100 feet above sea level and 3/4 up the face of the mountain. Naura, in northwest Nepal, is a village of approximately 1,500 people, situated 6,500 feet above sea level. It is a three-days walk over 8,000 to 9,000 feet high mountain ridges from Doti where the nearest air strip is located. It is 20 minutes by air from Doti to Naura.

The organism that caused the epidemic was probably introduced into the community by Saaku Bahadur, a 24-year old male, who went to Surkemala, a small settlement about 3 miles from Naura. On September 24, ten to twelve days after his arrival there, he became ill and was brought back to his home on or about September 26. His illness was described as consisting of high fever and cough with black and bloody sputum. No swellings were reported. Two other people from the village who came back with him from Surkemala did not contract the disease but it was after Bahadur's return that the epidemic began, and his entire family died. Over the next five weeks, October 2 to November 5, there were a total of 24 illnesses with 17 deaths with evidence of both bubonic and pneumonic disease. Among the 17 deaths, 13 had primarily respiratory symptoms. All of the seven survivors had cutaneous lesions. The epidemic was confined to four houses and eight families. After the second death in the home of Bahadur, a strict quarantine was established by village custom and affected families were virtually isolated from their neighbors. There was, however, free transit between two families in the Bahadur house and another house, throughout the epidemic. In these two homes there were a total of 20 family members, 18 of them got the disease and 15 died.

Naura is an exceptionally poor area which had suffered some eighteen months ago from an earthquake and also recently from hail storms which caused considerable crop damage. The houses in the village are generally grouped in clusters with much intermingling of peoples within the clusters. The homes are of stone and plaster construction, and are apartment-like, multi-family dwelling units. They are windowless and small. The animals, cattle, buffalo or goats are housed beneath the living quarters by most families. Each home has terraced areas which are cultivated.

The Government of Nepal Ministry of Health received a telegram from Doti on October 30 reporting the outbreak of illness in Naura and that an unknown number of people had died. Many animal deaths were also reported. Because of the difficulty and time involved in land travel, GON officials requested the U. S. Mission to provide air transport. On the following day, the Mission plane flew to Naura with a Nepali doctor and sanitarian. A second trip followed with WHO and AID medical personnel.

On November 1, they reported that none of the persons who contracted the disease during the past three to four weeks had recovered. They treated those still ill with penicillin and indicated the possibility of new cases occurring. Their combined work in treating the patients was credited with saving some lives. They also reported there had been a high incidence of death in animals over the past six months, but there was no veterinarian in the party to investigate cause of the animal deaths. These initial reports of the epidemic were fragmentary. Coupled with a preliminary lab test showing a bacillus resembling anthrax, the possibility that the disease might be anthrax was considered.

Arrangements were made for the Minister of Health, members of his staff and Veterinary Department officials to visit Naura which they did on November 4. On November 5, USAID sent a representative to Naura and also provided the services of an American veterinarian, who was a tourist in Nepal and had agreed to help determine the reason for the animal deaths. The veterinarians discovered multiple cases of rinderpest in animals and reported that lab tests indicated a lack of spore formation common to anthrax. The rinderpest was unrelated to the illness of the people.

By November 5, surrounding villages instituted quarantine on Naura villagers. An area was staked out beyond which Naura residents could not pass under threat of punishment by the gods. The villagers no longer smoked from common pipes. The inaccessibility of the village both complicated and eased the problem of ending the sickness and death. Its partial isolation from other villages offered a natural barrier against wider spreading of the disease but it also prevented early word of the outbreak getting to proper authorities.

On November 6, it was reported that rinderpest vaccination for animals was underway. Also on November 6, further samples from people who were ill were taken for lab testing.

On November 8, with the approval of the U. S. Embassy and the Government of Nepal, a US PHS/CDC team arrived in Kathmandu, Nepal from Atlanta, Georgia. The team consisted of two epidemiologists, a veterinarian and a sanitary engineer. They had come because of the initial report that the outbreak might be caused by anthrax and were particularly interested in studying that disease. They were briefed on the situation, were told that lab tests had not confirmed anthrax as the cause of the illnesses and deaths. They visited the laboratory, reviewed cultures in detail, made subcultures and did tests. Two members of the team then went to Naura on November 10 and the other two

arrived there on November 12. Meanwhile on November 12, the laboratory started investigation of other organisms on plates from cultures obtained on October 31 and November 1, going back to the original suspicion that the disease might be bubonic plague. On November 14, they observed some reactions typical of plague. On the same day, the CDC team returned from Naura with cultures and specimens and the probable diagnosis of plague based on epidemiological and clinical studies.

On November 16, the CDC team, WHO resident personnel and USAID representatives met with the Nepal Department of Health. They reviewed the entire situation and came to the tentative conclusion that it was bubonic plague. It was not established whether the disease was due to rats or was sylvatic in character.

Action Taken by the Government of Nepal

Action by GON health authorities is covered in part above. The GON accepted help from U. S. and WHO health personnel and gave every cooperation to the USPHS/CDC team in its study of the disease, but the major credit for halting the spread of the plague and arresting rinderpest in animals was due to the GON medical and veterinary personnel. The GON was not able to obtain air transport to the area and requested airplane and helicopter services from the U. S. Mission so that medical personnel could reach the affected area with necessary speed. Estimated costs to the GON for expenses of its health personnel were .....\$3,000.

The U. S. Mission praised the GON, indicating it had only one recommendation for future disease outbreaks. This was that an attempt be made to establish a better reporting system so that when highly infectious diseases occurred, they could be reported promptly and early efforts taken to stem the outbreak.

Assistance Provided by the U. S. Government

The primary contribution by the U. S. was air transportation. Because the GON does not have STOL aircraft and its helicopter was out of service, USAID craft was utilized to provide the bulk of the transportation services. Funds to cover these costs were authorized by the Deputy Chief of Mission from the AID contingency fund under the worldwide disaster relief authority. Total costs for transportation amounted to .....\$11,168

(Inasmuch as USAID's contract with Arizona Helicopter Inc. calls for payment in dollars, no money was converted to local currency. The Mission reported that the pilots of Arizona Helicopter Inc. were deserving of commendation. They not only worked long hours, but willingly accepted the necessity of improvised accommodations when unexpected but essential changes of schedule had to be made. One pilot was a "camper" for four nights in a row, instead of the one night he had expected to remain out when he originally departed Kathmandu.)

USAID/Nepal served as the coordinating post for the collection of information from the disaster area and relayed the information quickly to the several agencies involved.

A four-man team of medical personnel was provided from the USPHS National Communicable Disease Center in Atlanta, Georgia. It arrived close to the end of the epidemic and was not called upon to render much in the way of medical services. It gathered full clinical data to be incorporated into a report to be issued jointly by the GON, WHO and USPHS. It is expected that this report will contribute to worldwide knowledge on the outbreak and handling of plague.

The team brought with them medical supplies which they donated to local institutions. These supplies were valued at .....\$ 1,000

Since USPHS/CDC were especially interested in making a study of this disease outbreak and initiated the proposal that they send a team to Nepal, they agreed to pay expenses of the team without requesting reimbursement from AID. These costs amounted to ..... 6,550  
\$ 7,550

Total U. S. Government Assistance .....\$18,718

An American tourist visiting Nepal (Dr. Charles York, a veterinarian) offered his services during the epidemic and spent two days in Naura. He was helpful in diagnosing the animal epidemic as rinderpest rather than anthrax, which was later confirmed by the USPHS team during its more intensive survey.

The GON promptly and sincerely expressed in writing its appreciation of USAID's services in providing essential air transport. The U. S. Mission stated: "The personal appearance of helpful, competent Americans in an area of Nepal where there had been no previous exposure to Americans doubtless had a salutary affect on local U. S. Nepali relations. Personal comments made by villagers and local officials confirm this judgment."

Assistance Provided by Other Nations and International Organizations

The World Health Organization sent representatives to help and the United Nations STOL plane was utilized to make one trip to the affected area.

## TURKEY

### Characteristics of the Disaster

Event: Earthquakes

Date-Time & Location: July 22, 1967 at 6:48 p.m. (local time) - Western Turkey (Provinces of Sakarya, Kocaeli and Bolu, especially districts and towns of Adapazari, Geyve, Karasu, Sapanca, Akyazi, Izmit & Bolu City.)

July 30, 1967 at 3:30 a.m. (local time) - Same area of W. Turkey

July 26, 1967 at 8:55 p.m. - Eastern Turkey (Provinces of Tunceli, Bingol and Erzincan, especially districts of Pulumur, Kigi and Tercan)

<u>Damages:</u>	<u>Number Killed</u>	<u>Number Injured</u>	<u>Number Homeless</u>	<u>Number Affected</u>
W. Turkey (2 quakes)	86	240	27,000	225,213
E. Turkey	97	120	6,000	13,500
	<u>183</u>	<u>360</u>	<u>33,000</u>	<u>238,713</u>

In Western Turkey, there were 5,235 homes and buildings destroyed or badly damaged, while in Eastern Turkey there were 1,112, for a total of 6,347.

Estimated dollar damage reported for Western Turkey - \$3 million.

### Description of the Disasters

There were several earthquakes and hundreds of aftershocks from July 22 through July 31. Description follows the three destructive tremors.

#### Western Turkey - July 22

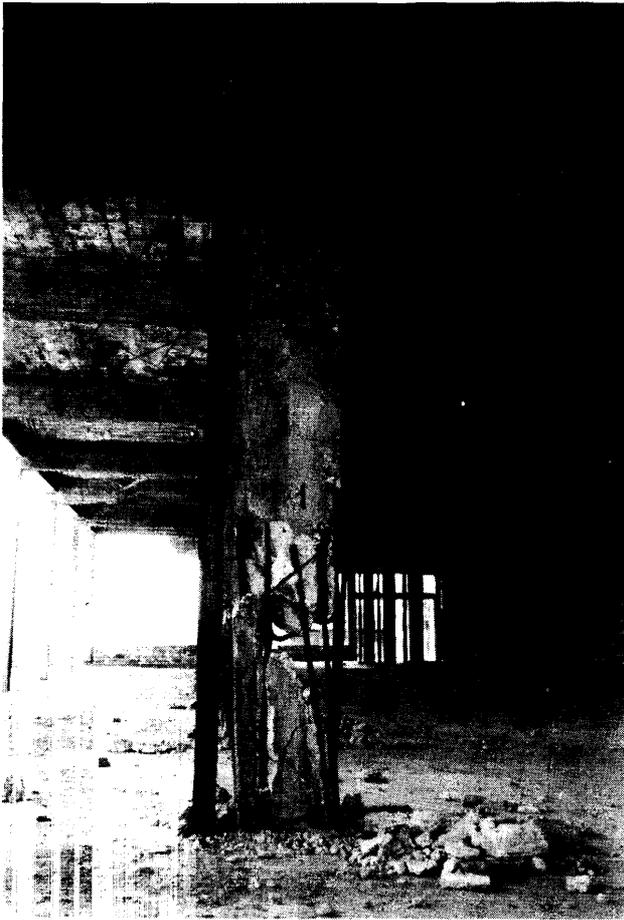
A strong earthquake registering 7 1/4 on the Richter scale of magnitude and XII on the Modified Mercalli Intensity Scale struck on a Saturday afternoon. It was felt in 22 of Turkey's 67 provinces as far as Ismir in the south and Ankara in the east. It originated on the extension of the Bolu-Abant fault in the Mudurnu Valley, which is an active part of the North Anatolian fault zone. This is the same Anatolian fault system which caused the Varto earthquake in Eastern Turkey in August 1966 in which 2,529 persons lost their lives. The Anatolian fault extends about 420 miles from Turkey's western shore to just south of the eastern end of the Black Sea. The epicenter was located 40.7 degrees north, 30.8 degrees east and the quake had a focal depth of about 2 1/2 miles. Ground movements within the fault zone were very severe lasting about 13 seconds. The first movement of the ground was horizontal and strong enough to throw down and injure people standing. This movement was followed by one or two very intense vertical shocks, in many places sufficiently strong to lift boulders out of the ground "without disturbing the rims of their former seats." There was evidence

that during the earthquake there was some turbidity in the Sapanca Lake which seemed to have tilted to the south. Fissures were reported. One in the Istanbul-Easkisehir road measured approximately one and one-half feet wide and about one mile long. Slides occurred on steep slopes.



Fault zone near Zenikoy (USCGS photo)

Many buildings collapsed in Sakarya, Kocaeli and Bolu provinces, trapping victims in the rubble. Most of the dead were women and children. In the town of Adapazari (population 85,000) half of the buildings were damaged. Among those destroyed were the agricultural tools and machinery factory (being Saturday, no one was working in the building), the post office and 13 minarets. Wood frame construction houses having light roofs suffered little damage, but there were varying degrees of damage in adobe and brick structures. Most of the destroyed buildings in Adapazari were multi-story cement slab structures. Heavy damage occurred a considerable distance from the fault zone. Severe damage was reported to improperly designed or constructed reinforced concrete structures as far as Izmit, which is about 40 miles from the fault zone.



Damage to reinforced concrete columns at Izmit.



Interior town hall - Adapazari

(USCGS photos)

The electricity relay station in Adapazari was among the buildings damaged and the city was left in darkness immediately following the earthquake. All train lines between Istanbul and Ankara pass through Adapazari. The quake tore up the tracks, breaking rail connections between Turkey's two major cities. In Istanbul, 15 buildings fell, causing one death. Most of the residents of Adapazari and many in Istanbul spent the night outdoors for fear of being trapped in buildings in subsequent tremors.

#### Eastern Turkey - July 26

Five days following the Adapazari earthquake in Western Turkey, a moderately strong quake hit Eastern Turkey. The epicenter was 39 1/2 degrees north, 40 1/2 degrees east, near the town of Balpayan about 30 miles south of Erzincan. The provinces of Tunceli, Erzincan and Bingol suffered severe damage. Although the July 22 earthquake in Western Turkey was considerably stronger, there were more people killed in this one. Ordinarily an earthquake of 5 3/4 to 6 in magnitude would not damage major structures and well built houses. But in this area the houses were mud huts which collapsed and buried their occupants beneath them. Many victims were in their homes when the quake struck at nine in the evening. Many were already sleeping since few villages in this rugged mountain

region have electricity. The hardest hit district was Pulumur in Tunceli Province where 95 of the 97 residents died. There are 70 villages in this district with a total population of 21,000. Communications were disrupted. The mountainous region and remoteness of some of the villages made it difficult to bring in relief supplies. It was in Erzincan Province that the disastrous earthquake of December 27, 1939, killed 23,000 persons.

#### Western Turkey - July 30

This third earthquake in Turkey within 10 days occurred in approximately the same area of Western Turkey as the July 22 earthquake reported herein. Its epicenter was 40.7 north, 30.4 east, and it had a magnitude of 5.6 on the Richter scale. The main shock of July 22 occurred near the east end of the surface trace while this major aftershock was near the middle of the trace and was associated with additional faulting. Several commercial buildings and many houses damaged in the July 22 quake were totally destroyed. One person was killed when a previously weakened wall collapsed on her. Water and electric facilities were interrupted again. This tremor was also felt in Istanbul and Bursa.

#### Action Taken by the Government of Turkey

President Sunay and Prime Minister Demirel toured the area. The Turkish Army was placed in charge of relief operations and was assisted by the Turkish Red Crescent and local authorities. GOT military and civilian relief teams searched for the victims, treated the injured and dug out the ruins. A nationwide emergency call was issued for blood. Temporary shelter was provided by the GOT, Turkish Red Crescent and other countries. The GOT redistributed 908 of the 2,000 arctic tents which had been contributed by the USG for the 1966 earthquake victims in Eastern Turkey. The Ministry of Reconstruction purchased and distributed 2,217 tents. The Turkish Red Crescent provided a mobile hospital and 6 generators, 4,477 tents, 1,000 mattresses, blankets, flour, bread and other commodities. Cost of initial emergency distribution to the GOT was \$545,000 and to the Turkish Red Crescent \$280,000. In addition to this there was a total of \$403,250 donated by Turkish citizens.

The GOT was in a better position to handle relief operations during this series of earthquakes than following the 1966 Varto earthquake. In fact, after the July 22 Adapazari earthquake, it indicated it did not anticipate need for outside assistance. However, the second major earthquake in five days exhausted their resources and the Turkish Red Crescent issued an international appeal for 2,000 tents and 10,000 blankets through the League of Red Cross Societies.

Prime Minister Demirel assured the people that the destroyed buildings would be rebuilt better than before. The following plans to rebuild the damaged areas were made by the Ministry of Reconstruction: (1) to construct 1,617 barracks as replacement of the 1,112 buildings heavily damaged or demolished in Pulumur, Tercan, Kigi and Erzincan at a cost of \$898,333; (2) to construct 5,569 houses, community installation such as stores and 364 new schools in Sakarya, Bolu and Izmit Provinces at an estimated cost of \$6,222,222. The Council of Ministers decided to postpone debts and tax installments of earthquake victims.

As a matter of information and follow-up concerning housing for the 1966 earthquake victims in Eastern Turkey (Mus, Varto, Hınıs and Karlıova), the GOT planned and completed construction or erection of 10,098 barracks and 1,893 prefab houses in calendar year 1966. This was followed in calendar year 1967 by the construction of 7,128 barracks and or dexions, houses and stores.

Assistance Provided by the U. S. Government

The USG sent messages of sympathy to the GOT and offered assistance after both the July 22 and July 26 earthquakes. Following the July 22 earthquake, the U. S. Military in Turkey dispatched 4 ambulances, doctors, medicines, some blankets and litters to the disaster area in Adapazari from the air base at Karamursel. The mayor of Adapazari gratefully accepted the medical supplies but indicated the medical team was not needed. On July 27, the U. S. Embassy received an official request from the Turkey Red Crescent for tents. AID/DRC was able to obtain 1100 tents at a cost of \$31,215. Through the efforts of the Resources Transportation Division of AID/W Office of Procurement, a chartered aircraft was obtained from Seaboard World Airlines at a cost of \$32,826. In addition to the tents the airshipment included donate voluntary agency supplies by American Red Cross, Seventh-Day Adventist Welfare Service and Catholic Relief Services. The USG tents and other supplies arrived in Ankara on August 1 and were immediately loaded on four Turkish Red Crescent trucks for rapid delivery. Total cost of above charged to AID contingency fund under the worldwide disaster relief account .....\$ 64,041

TUSLOG medical supplies also chargeable to AID contingency fund ..... 479  
\$ 64,520

(Note. The USG donated 2,000 arctic tents to the GOT for Varto earthquake victims in August of 1966. 908 of these tents, which were no longer in use and stored in warehouses in Bingol, Mus, Varto and Hınıs, were redistributed to the new 1967 earthquake victims by the GOT. Value of these 908 tents is approximately \$428,000. However, this cost was already covered in the 1966 report and is not included here.)

U. S. Geological Survey geologists in Ankara made a brief survey of the earthquake area.

P.L. 480 Title II Food Provided by Care

73,750 lbs. of flour; 16,750 lbs. bulgur; 11,965 lbs. salad oil, market value ..... 5,427

Total USG contribution .....\$ 69,947

Assistance Provided by U. S. Voluntary Agencies

Seventh-Day Adventist Welfare Service

49 tents .....\$2,450  
 480 blankets ..... 2,000 \$ 4,450

American National Red Cross

2,500 blankets ..... 10,000

Catholic Relief Services

75 tents .....\$ 1,030

CARE - provided above P.L. 480 commodities

\$15,480

Assistance Provided by Other Nations and International Organizations

Libya - cash .....	\$ 63,000
Afghanistan - cash .....	6,000
Australia - cash .....	550
Austria - cash .....	2,900
Canada - cash \$9,300; 120 tents, est. value \$9,000 .....	18,300
Korean Red Cross - cash .....	200
Pope Paul VI .....	9,000
West Germany - cash \$16,800; 2,000 sheets, 2,000 blankets, 30 tons of clothing, value estimated \$70,000; from West Germany Ground Forces 82 tents, 1,797 blankets, 5000 portable kitchen stoves, 1,500 synthetic fuel blocks, estimated value \$20,000; total .....	106,800
West Germany - 20-bed mobile hospital .....	*
German Siemens Factory - cash donation .....	1,250
British Forces in Cyprus - 40 tents (est. value \$3,000); British Government 2,002 blankets (est. value \$6,000) .....	9,000
British Red Cross - 320 tents (est. value) .....	24,000
Denmark - 60 tents .....	3,370
Greek Ministry of Social Assistance - 5,000 blankets, 3,000 bandages, 500 kgs of absorbent cotton, 10,000 prepared dressings (est. made on value of blankets at \$3 each) .....	15,000
Greek Red Cross - 150 tents (est. value) .....	11,200
French Voluntary Assistance Association - Antibiotics, milk powder, used clothing .....	*
Israel David's Red Star - plasma and distilled water, 2,000 bottles each .....	*
Italy - 2,000 blankets (est. value) .....	6,000
Netherlands - 2,000 blankets (est. value) .....	6,000
Norway - 1,000 blankets (est. value) .....	3,000
Swedish Red Cross - 80 tents (est. value) .....	6,000
Swiss Red Cross - 1,000 blankets (est. value) .....	3,000
Pakistan - 1 plane load of tents and parcels .....	*
Finland - blankets .....	1,300
United Nations - 300 tents .....	20,000
Caritas International - cash .....	5,000
German Caritas - two medical vans \$5,200; 1,000 blankets and clothing (est. value \$5,000) - total .....	10,200
	<u>\$331,070</u>

\* Value not reported and could not estimate.

## WEST PAKISTAN

### Characteristics of the Disaster

Event: Floods

Date-Time: July 24 to first week of August 1967

Location: Karachi

<u>Damages:</u>	<u>Number Killed</u>	<u>Number Homeless</u>	<u>Number for Mass Feeding</u>
	32	150,000	75,000

Approximately 50,000 homes were destroyed. Roads were badly damaged. Estimated dollar property damage was placed at \$2.8 million

### Description of the Disaster

Normal July rainfall in the Karachi area is about 7 inches. Beginning on the morning of July 24 and continuing uninterrupted until July 27, there was a torrential downpour of 19.5 inches of rain. Subsequently heavy rains through the first week of August brought this total to 29 inches. The last time such torrential rains occurred in the Karachi area was in 1894. Therefore, the people did not heed the Weather Bureau's warning. Streams that were normally only trickles became swollen and poured over into the streets of Karachi. Children and grown-ups who left for school and work as usual on Monday morning, July 24, found themselves wading back home through waist-deep flooded streets and pouring rain. The most seriously affected by the flooding were the 1.25 million people living in squatter settlements in low-lying areas of the city. Many of them had come as refugees from India at the time of partition 20 years ago. With nowhere else to go, they settled down in huts along the sides of two streams that bound Karachi. People who built too near the trickle's edge found themselves fleeing for their lives when the water began rising rapidly. Upon reaching higher ground, they saw their huts being washed away in the destructive torrents. There were 32 persons who died in the flood. It was said that had the downpour started at night, instead of at 9 in the morning, many more would have perished.

Flooding was widespread throughout the city. Even strongly built houses were severely damaged by the swift water current and many old buildings were destroyed. Over 150,000 persons were left homeless and some 50,000 of them were evacuated to relief camps. Subsequently on August 22, as a result of the flood, a 14-inch pipeline supplying gas to Karachi broke under the bed of the Malir River at Memon Goth about 20 miles from the city. Gas service was interrupted in the whole of Karachi and industrial losses were estimated at \$3.1 million per day. Temporary measures were taken to restore as much as half the gas supply by August 28 until complete repair could be made, expected to take several weeks.

Action Taken by the Government of Pakistan and Local Organizations

The Pakistan Army and Navy and police services were called upon to help. Small Navy boats were used to perform rescue and relief operations. Karachi was declared a disaster area by the Provincial Government on July 26. Local relief operations were handled through the Commissioner of the Municipality of Karachi along with several government agencies, principally the Department of Social Welfare. The Commissioner formed a coordinating committee of 40 social welfare organizations (public welfare privately sponsored) in Karachi area to assist in the relief efforts. These groups assisted in directing and moving victims to temporary relief camps and initiated feeding programs. Since this was the first disaster of this type to hit Karachi in 100 years, there was no organized disaster relief commission established. As a result, the hastily formed relief committee had difficulty in coordinating and there was a delay in getting aid to the disaster victims.

The Pakistan Red Cross cooperated with other organizations, supplementing the Government's efforts. It supplied two mobile medical units, distributed large quantities of bedding, new and used clothing and disaster kits. Numerous local agencies, service clubs and individual benefactors made donations in cash or supplies.

Karachi officials delayed requests for outside assistance until the extent of the damage could be assessed and priority of needs determined.

The GOP provided 1.2 million rupees (\$252,100) for the relief operations; Pakistan Red Cross distributed relief articles worth 70,750 rupees (\$14,863); and private donation sources contributed 511,000 rupees (\$107,353).

Assistance Provided by the U. S. Government

USAID made available from U. S.-owned local currency 255,000 rupees (\$54,000) to the CARE representative in Karachi for processing into liquid form available stocks of P.L. 480 non-fat dry milk, adding nutrition supplements, and distributing to children, pregnant and nursing mothers and ill persons .....\$54,000

The following P.L. 480 Title II food commodities were provided:  
From CARE - 34,000 pounds non-fat dry milk, market value ...\$7,140  
From CWS - 1,000 lbs. non-fat dry milk, 95 lbs. oil,  
market value ..... 228 7,368  
Total value U. S. assistance .....\$61,368

AID/DRC assisted Church World Service in obtaining free airlift of blankets to Karachi by certifying that a "calamitous visitation" had occurred.

USAID Recommendations

That a Disaster Relief Commission be permanently established for West Pakistan similar to what is presently operating in East Pakistan. Such a body could adequately assess damages, render aid and assistance and request aid, if needed, from whatever sources known to them to be willing and able to respond immediately.

USAID suggested that there be a U. S. stockpile of disaster supplies in Pakistan, such as blankets, medicines and Title II food.

Assistance Provided by U. S. Voluntary Agencies

Church World Service

CWS Country Director was on the scene two days after the initial flooding started and began distributing relief supplies. CWS used 8 milk feeding stations and an estimated 2,000 children were given reconstituted milk for a period of seven days. Also provided by CWS: 1,000 regular blankets and 1,000 Sportsman aluminum quilted type from the U. S., valued at....\$5,500

• Cash donation through the World Council of Churches ..... 3,000 \$8,500

CARE

Set up a milk feeding program for 50,000 children and pregnant women. Also provided by CARE: Jet spray inoculators which later proved not needed. Vitamin tablets and medicines valued at .....\$7,500

Lufthansa Air Lines

Free airlift for 3,000 lbs. CWS blankets, est. value of airlift.... 3,500 11,000  
\$19,500

Assistance Provided by Other Nations and International Organizations

United Nations - World Food Program - 500 tons wheat, est. value .....\$36,000

United Nations - UNICEF loaned vehicles.

World Council of Churches (British Council \$7,000 and local churches \$1,570) for total of ..... 8,570  
CWS contribution to WCC reported under U. S. assistance.

Soviet-Pakistan Friendship League - clothing, books and school supplies ..... \*  
\$44,570

            
\* Value not reported.



Burma in making emergency imports of disaster-type items not available from local sources, in the amount of .....\$25,000

Assistance Provided by U. S. Voluntary Agencies

The American Red Cross responded with an airlift of 2,880 bottles of one-a-day vitamin tablets. The vitamins were valued at \$3,285, plus airlift costs of \$996 for a total of .....\$ 4,281

Assistance Provided by Other Nations and International Organizations

Canadian Red Cross - cash donation .....	\$ 2,000
- 330 cartons condensed milk and children's clothing .....	5,500
Australian Red Cross - 1,200 blankets, valued at .....	1,350
British Red Cross - funds for purchase of medicaments .....	*
Yugoslav Red Cross - 4,500 meters bleached cloth, valued at .....	1,765
	<u>\$10,615</u>

\* Value not reported.

## KOREA

### Characteristics of the Disaster

Event: Drought

Date-Time: 1967

Location: Four Southern Provinces of Cholla Pukdo, Cholla Namdo, Kyongsang Pukdo and Kyongsang Namdo, as well as Cheju Do Province and Pusan City.

Damages: Number of Drought Victims Needing Food Assistance

1,905,944

There were 456,834 hectares (over 1 million acres) of crops damaged or destroyed. Expected decrease in fall crops compared to 1966 production - 914,753 metric tons.

### Description of the Disaster:

Insufficient rainfall over a long period of time caused a crippling drought in the four southern provinces of Korea and also in Cheju Do Province and Pusan City. The drought was considered the worst the area had suffered in 60 or 70 years. Cholla Namdo Province was the most severely affected. In the fall of 1967, the situation was reported to be critical. Thousands of acres of rice paddy were destroyed or severely damaged. Farmers in the stricken areas were unable to get in their winter barley. The ground was too hard and dry to plow. Some people were reported to have had to walk as much as ten miles to obtain drinking water. Many families left the farms to move to urban areas, thereby adding to unemployment rolls. Children were unable to attend school because parents could not afford the school fees. The Korean Government was able to meet the immediate needs of the disaster victims but the real difficulty in providing food was expected to come early in the spring of 1968.

### Action Taken by the Government of Korea

In a report on this drought disaster from a Church World Service representative in Korea, the following comment was made: "It must always be kept in mind that the Korean Government is well organized and has done careful planning for disasters such as this."

The ROKG responded quickly to take care of the immediate needs of the drought victims by moving in sufficient grains from ROKG stocks. The Government cancelled past loans made to farmers for fertilizer and seeds in the stricken areas and made loans of rice on a long term, no interest basis. Assistance was provided in connection with school fees for the children. Besides the immediate needs, the ROKG determined the long range effect of the drought; that the real difficulty in providing food would come during the winter and early in the spring of 1968; and that an extended program of assistance to the drought victims was needed either in direct food relief or food-for-work projects. The total number of persons seriously affected and in need of aid

was placed at 1.9 million. The ROKG concluded it could not provide the food requirements for so great a number of people without outside assistance. It indicated its ability to provide food grains to feed 702,242 persons and requested that the USG make food grants of P. L. 480, Title II; flour and wheat to meet the needs of the remaining 1.2 million people. The ROKG and the U. S. Mission agreed that starting in January and running through June of 1968 half of the needy drought victims would work on work relief projects for their daily food requirements while the other half could receive direct aid. Some of the work projects were reservoir and irrigation expansions designed to minimize the possibility of a recurrence of this type of a disaster, and the ROKG allocated 400 million won (\$1.5 million) for material and technical support of the work programs. The relief program was placed under the administration of the Ministry of Health and Social Affairs, which has had wide experience and has been responsible for previous disaster programs. ROKG expenses as a result of this drought, in the form of deferred receipts from and Government expenditures in the affected areas, were estimated at 13.7 billion won (\$50.7 million), about eight percent of the total national budget for CY 67.

Assistance Provided by the U. S. Government

USAID verified that outside assistance in providing food was needed and obtained from the Food for Freedom Division of the Office of War on Hunger, AID/W, approval to make the following P. L. 480, Title II, food grants to meet emergency needs during January to June of 1968, until summer grains could be harvested:

60,750 metric tons of flour and 83,835 metric tons of wheat,	
estimated market value.....	\$10,558,140
Ocean freight, estimated charges.....	4,975,000
	<u>\$15,533,140</u>

The following letter was received by the U. S. Mission in Seoul from the Deputy Prime Minister on December 29, 1967:

"I would like to thank you and your staff for the quick action that your government has taken on the Drought Relief Program for Korea. This reflects the deep friendship and willingness to help those who are in need.

"I would be most appreciative if you would convey the sincere gratitude of my government to your staff who had been instrumental for such quick and efficient action by your government. It has been my personal pleasure to have had such a pleasant working relationship with the members of your mission."

In response to a report by Church World Service that there was a critical need for water containers on remote islands off the south coast of Korea so that families could carry water being delivered to them by boat, AID/DRC determined

through DOD that several thousand were available in U. S. Eighth Army stocks in Korea. The U. S. Mission was advised of this and requested to verify need. Their cable reply indicated that upon investigation it was learned the ROKG Army had been able to supply the water cans and further assistance in obtaining water cans was not required.

Assistance Provided by the U. S. Voluntary Agencies

460,000 pounds of CROP wheat and 130,000 pounds of beans were provided for use in a food-for-work type project. Est. market value \$24,000

Assistance Provided by Other Nations

None reported.

## PHILIPPINES

### Characteristics of the Disaster

Event: Typhoons

Date-Time: November 3, 1967

Location: Central Philippines

Damages:      Number Killed      Number Homeless

                         107                           137,000

                         162,520 houses partially or totally destroyed. Estimated dollar property damage - \$26.5 million.

### Description of the Disaster

Typhoon Emma (also called Welming), packing 125-mph winds smashed through the Central Philippines bringing death and extensive destruction. The typhoon hit Samar Island, moved across Northern Visayas, Bicol, Southern Tagalog and Central Luzon and then out into the China Sea on November 5. Twenty-six thousand families consisting of 137,000 persons were left homeless. Sangley Point was especially hard hit. There were 46 provinces and cities affected.

### Action Taken by the Government of the Philippines

Information was not available except that President Marcos declared a disaster. Since there was no international appeal for assistance, it is assumed the GOP was able to handle the disaster within its own resources except for some USG food aid.

### Assistance Provided by the U. S. Government

P. L. 480, Title II Commodities provided through U. S. voluntary agencies. There were 518 metric tons of food contributed but specific quantities by commodity were not reported. Market value was estimated at.....\$60,000

### Assistance Provided by U. S. Voluntary Agencies

Made above P. L. 480 food available. No other information was reported.

### Assistance Provided by Other Nations

None reported.

