

OFDA Annual Report FY 1988



Office of US
Foreign Disaster
Assistance

Agency for
International
Development

Washington, DC
20523

OFDA Annual Report FY 1988

The FY 1988 Annual Report of the Office of U.S. Foreign Disaster Assistance was researched, written, and produced by Cynthia Davis, Franca Brilliant, Mario Camilien, Mark W. Hall, Faye Henderson, Waverly Jackson, Dennis J. King, Wesley Mossburg, Joseph O'Connor, Kimberly S.C. Vasconez, and Beverly Youmans of Labat Anderson Incorporated, Arlington, Virginia, under contract number PDC-0000-C-8153-00. Significant assistance was provided by John Gelb of A.I.D.'s Desert Locust Task Force on the report covering the locust infestation.

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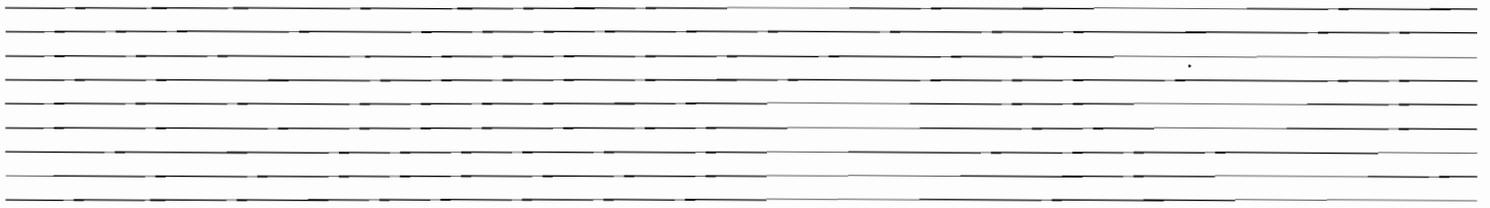


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Acronyms Used in This Report

U.S. Private Voluntary Organizations (PVOs) and Private Groups

ADRA	Adventist Development and Relief Agency
ARC	American Red Cross
CARE	Cooperation for American Relief Everywhere
CRS	Catholic Relief Services
CWS	Church World Service
FHI	Food for the Hungry International
HKI	Helen Keller International
LWR	Lutheran World Relief (U.S.)
MAP	Medical Assistance Programs, International
PVO	Private voluntary agency
SCF/US	Save the Children Federation/U.S.
WVRD	World Vision Relief & Development
YMCA	Young Men's Christian Association

International Non-Governmental Organizations

CAFOD	Catholic Agencies for Overseas Development (U.K.)
SCF/UK	Save the Children Fund/U.K.
MSF	Medecins sans frontieres (Doctors Without Borders)
NGO	Non-governmental organization

International Organizations

EC	European Communities
ESCAP	U.N. Economic & Social Commission for Asia and the Pacific
FAO	U.N. Food and Agriculture Organization
ICRC	International Committee of the Red Cross
LRCS	League of Red Cross and Red Crescent Societies
LWF	Lutheran World Federation
PAHO	Pan American Health Organization
UNDP	U.N. Development Program
UNDRO	U.N. Office of the Disaster Relief Coordinator
UNHCR	U.N. High Commissioner for Refugees
UNICEF	U.N. Children's Fund
WCC	World Council of Churches
WFP	World Food Program
WHO	World Health Organization

U.S. Organizations

AELGA	African Emergency Locust/Grasshopper Assistance Project
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AFB	Air Force Base
AFR/OEO	Africa Bureau's Office of Emergency Operations (A.I.D.)
A.I.D.	Agency for International Development
CDC	Centers for Disease Control, Department of Health & Human Services
CINCPAC	Commander-in-Chief Pacific (DOD)
DLTF	Desert Locust Task Force
DOD	Department of Defense
FFP	Food for Peace Office (A.I.D.)
FFW	Food-for-work, aid program
FEWS	A.I.D.-sponsored Famine Early Warning System
OFDA	Office of U.S. Foreign Disaster Assistance (A.I.D.)
OICD	Office of International Cooperation and Development/U.S. Department of Agriculture
REDSO	Regional Economic Development & Services Office, USAID regional offices in Abidjan and Nairobi
Southcom	U.S. Southern Command (DOD) in Panama
USDA	U.S. Department of Agriculture
USG	United States Government
USFS	U.S. Forest Service, USDA
USGS	U.S. Geological Survey, U.S. Department of the Interior
WASH	Water and Sanitation for Health (A.I.D.)

Food Acronyms

CSM	corn-soya milk
DSM	dry skim milk
ICSM	instant corn-soya milk
NFDM	non-fat dry milk
SFCM	soy-fortified corn meal
SFRO	soy-fortified rolled oats
SFSG	soy-fortified sorghum grits
vegoil	vegetable oil
WSB	wheat-soya blend

Other

ORS	oral rehydration salts (a sugar-salt combination for diarrheal diseases)
TDY	temporary duty (assignment)
SADCC	Southern Africa Development Coordination Committee

Message From The Director

OFDA directed an unprecedented number of disaster relief operations during FY 1988. In all, OFDA responded to 60 disasters during the fiscal year, ranging from drought to flooding, an ammunition dump accident to a toxic waste incident, epidemics to civil strife, earthquakes to volcanic eruptions, landslides to insect infestations. Disaster operations ranged in complexity from a dispersion of relief funds to major relief efforts where teams were deployed, large quantities of relief goods were mustered, and transportation was secured. Several of OFDA's responses were very intricate, requiring a lot of financial input and staff time--Bangladesh flooding, Hurricane Gilbert's devastation, the tragic civil strife which continues to threaten the lives of millions of Sudanese. These all received considerable media attention. However, other less-publicized catastrophes, such as the civil conflicts in Mozambique and Somalia, also required considerable USG aid and support. In addition, the toxic waste incident in Nigeria points to a growing risk in the international community of hazardous materials disposal, a problem that will only grow over the coming years.

OFDA strives to assist host countries become self-sufficient in managing their own disasters by building relevant institutions, transferring appropriate and applicable technology, and undertaking mitigation techniques to temper the effects of future catastrophes. OFDA dedicates about \$6 million each year for non-relief projects. Many of these activities have been described in past annual reports. The most successful program that we have instituted to improve our field response is the disaster preparedness and response advisor offices. The concept has been expanded this year. OFDA has finalized agreements with USAID/Lima and USAID/Suva to place Rene Carrillo in Peru to complement the San Jose team's operations and Joseph Chung in Fiji to coordinate A.I.D.'s disaster preparedness and relief programs in the South Pacific. An African regional disaster management office will be realized in FY 1989, with the placement of an OFDA representative at USAID/Addis Ababa. The OFDA regional advisors not only have helped strengthen indigenous disaster management institutions but have greatly enhanced OFDA's own assessments and operations in the field.

As this goes to print, I am bidding farewell to the OFDA staff and others with whom I have worked closely over the past three years as director of OFDA. I will be going with my husband to Brussels where he has assumed the post of U.S. Ambassador to NATO.

It is my sincere desire to continue promoting the humanitarian work of the USG, particularly OFDA, and to encourage strengthened, concerted cooperation among the United States and other Western nations in responding to the needs of disaster victims throughout the world.

The battle against desert locust infestations throughout Sahelian and North Africa and the Near East represents one such example of what can be achieved when donor nations band together. The most recent locust plague arose from the great drought of 1984-1986 which caused millions of human deaths in Africa. Locust plagues are cyclical and result from the drought-breaking rains which give life to dormant eggs. OFDA, in conjunction with national and international donors, has been fighting the spread of the voracious insects for several years. The severity and longevity of the disaster caused the USG to form a Desert Locust Task Force (DLTF) during FY 1988. Robert Huesmann headed the 15-person team, while OFDA administered the work of the DLTF, thus giving life to A.I.D.'s recognition that the infestations threatened not only crops and agricultural development but the livelihood and well-being of millions of people. The success of the locust campaign through the efforts of the DLTF and the international donor community has actually made the DLTF obsolete and the DLTF was disbanded shortly before I left OFDA in June 1989.

It is gratifying to see the end of a slow-onset disaster. We hope that such an end comes soon to the suffering of all of the populations which have endured natural and man-made disasters for several years in Africa. However, until host governments no longer need outside assistance, OFDA stands ready to represent the humanitarian spirit of the U.S. people toward those in need throughout the world. We are pleased to share this annual report, a record of the American people's generosity, with you.

Julia V. Taft
Director
Office of U.S. Foreign Disaster Assistance

U.S. Foreign Disaster Assistance Summary By Fiscal Year

FISCAL YEAR	NO. OF NEW DIS-ASTERS	NO. OF COUN-TRIES	NO. KILLED	NO. AFFECTED	CONTINGENCY IDA FUNDS	OTHER USG ASSISTANCE
FY 64	29	23	3,112	3,992,241	\$2,928,499	\$3,305,661
FY 65	46	32	46,943	14,504,499	\$2,438,872	\$18,722,703
FY 66	46	35	7,044	4,672,245	\$652,458	\$1,038,740
FY 67	57	40	17,441	106,415,973	\$3,743,051	\$8,567,586
FY 68	48	36	3,844	5,521,382	\$1,355,888	\$9,509,891
FY 69	36	32	1,018,534	31,311,680	\$4,446,757	\$24,822,542
FY 70	50	36	72,915	8,518,309	\$6,263,804	\$11,859,373
FY 71	51	40	522,183	74,289,081	\$15,822,511	\$21,930,000
FY 72	29	27	115,381	13,435,589	\$1,452,783	\$210,289,507
FY 73	30	27	111,619	217,776,063	\$14,062,254	\$158,631,843*
FY 74	20	19	101,608	12,819,240	\$2,542,979	\$31,827,590*
FY 75	25	23	61,233	46,310,336	\$7,006,385	\$121,265,640*
FY 76	25	23	78,262	38,375,279	\$12,056,098	\$123,410,000*
TQ	6	5	6,589	708,700	\$5,479,245	\$277,108
FY 77	25	22	8,568	7,932,836	\$21,445,529	\$13,394,451
FY 78	33	27	28,269	52,134,391	\$24,452,367	\$1,720,101
FY 79	41	33	34,514	11,049,072	\$24,548,448	\$24,559,600
FY 80	32	27	1,635	7,760,985	\$12,898,071	\$68,312,206*
FY 81	22	19	11,527	4,607,227	\$6,613,724	\$51,752,000*
FY 82	35	29	43,352	40,463,621	\$10,742,757	\$51,040,086
FY 83	45	36	4,775	43,980,670	\$8,016,403	\$83,219,912*
FY 84	47	39	3,463	34,233,123	\$15,097,749	\$51,378,416*
FY 85	47	39	427,388	30,474,549	\$19,863,848	\$105,002,195*
FY 86	47	38	26,311	8,313,429	\$9,105,392	\$79,218,769*
FY 87	56	45	94,171	48,585,076	\$23,664,855	\$132,666,233*
FY 88	66	46	379,538	137,355,138	\$19,898,388	\$76,738,377*
TOTAL	994		3,230,219	1,005,540,734	\$276,599,115	\$1,484,460,530

* Includes funds from other A.I.D. accounts and/or supplemental appropriations administered by OFDA

PL 480	TOTAL USG ASSISTANCE	US VOLAGS	INTL COMM	SELF HELP
\$5,410,940	\$11,645,100	\$805,317	\$533,790	-
\$25,213,459	\$46,375,034	\$3,627,301	\$3,518,733	-
\$23,729,904	\$25,421,102	\$1,567,990	\$9,476,353	\$16,157,100
\$69,045,881	\$81,356,518	\$12,220,053	\$172,860,511	\$2,964,667,000
\$21,634,945	\$32,500,724	\$7,719,299	\$15,943,626	\$606,865,000
\$73,349,178	\$102,618,477	\$12,971,207	\$95,496,828	\$130,974,000
\$30,608,673	\$48,731,850	\$12,191,711	\$59,515,671	\$96,595,000
\$119,839,732	\$157,592,243	\$16,676,273	\$266,635,252	\$744,839,000
\$147,802,110	\$359,544,400	\$13,178,379	\$610,660,963	\$107,320,000
\$114,230,970	\$286,925,067	\$29,251,411	\$200,892,728	\$631,705,000
\$134,477,940	\$168,848,509	\$3,216,263	\$90,252,901	\$36,173,000
\$86,808,619	\$215,080,644	\$16,079,881	\$263,430,083	\$39,043,100
\$39,215,454	\$174,681,552	\$49,093,875	\$338,820,728	\$970,510,327
\$602,876	\$6,359,229	\$1,139,554	\$1,689,431	\$198,900,000
\$11,909,226	\$46,749,206	\$14,390,669	\$59,541,298	\$6,040,094
\$42,021,193	\$68,193,661	\$6,224,223	\$186,136,632	\$276,946,722
\$15,318,512	\$64,426,560	\$39,420,510	\$661,374,390	\$477,844,108
\$57,814,655	\$139,024,932	\$1,553,448	\$35,810,102	\$11,847,900
\$12,100,000	\$70,465,724	\$23,890,844	\$211,844,949	\$6,022,007,896
\$29,000,100	\$90,782,943	\$27,258,957	\$237,092,847	\$141,901,880
\$87,333,943	\$178,570,258	\$2,452,734	\$203,946,587	\$119,800,332
\$102,891,700	\$169,367,865	\$5,999,463	\$238,707,189	\$198,095,040
\$678,622,015	\$803,488,058	\$80,634,275	\$961,557,220	\$87,906,439
\$209,052,740	\$297,376,901	\$6,541,512	\$80,703,029	\$105,376,068
\$108,804,370	\$265,135,458	\$14,179,095	\$526,447,730	\$80,589,960
\$204,446,908	\$301,083,673	\$18,725,223	\$443,033,500	\$73,821,584
\$2,451,286,043	\$4,212,345,688	\$420,989,467	\$5,975,923,111	\$14,145,926,550

OFDA Emergency Response

While responding to 60 new declared disasters in FY 1988, OFDA also contributed a total of \$21,920,500 to continue assistance to several countries in which disasters had been declared in previous years or to fund disaster-related activities when no official declaration had been made. By far the largest amount of this sum (\$17,204,471) went for food distribution and rehabilitation programs in Ethiopia, where a drought disaster had been declared late in the 1987 fiscal year (see *OFDA Annual Report FY 1987*). The continuing locust/grasshopper infestations in Africa required OFDA assistance in FY 1988 to complete initiatives begun the previous year. Insect infestation disasters were declared in several countries for the third successive year in FY 1988. The earlier insect infestation disasters are described in the OFDA annual reports for FY 1986 and FY 1987; the new disasters are discussed in this volume under "FY 1988 Disasters." All prior-year and non-declared disasters receiving OFDA funding in FY 1988 are summarized below.

**Africa Regional - Insect Infestation
(Non-Declared FY 1987)**

To complete insect control activities begun in FY 1987 that benefited more than one African country, OFDA funded the travel costs of entomologists to participate in FAO strategy and evaluation meetings (\$15,215) and paid overtime costs of experts from the USFS (\$11,557).

TOTAL \$26,772

**Africa Regional - Insect Infestation
(Non-Declared FY 1988)**

OFDA twice amended an agreement with USDA/USFS for technical assistance with control activities in the Africa region (a total of \$425,594 was used for interregional activities); contracted a chemical company for a shipment of pesticides (\$350,550); amended an agreement with the USGS for a feasibility study and technical

assistance in greenness mapping to monitor vegetative conditions favorable to locust hatching in Mauritania, Mali, Niger, Chad, Sudan, Morocco, Tunisia, and Algeria (\$148,348); purchased locust manuals and handbooks (\$4,177); and funded the services of a contractor for technical support of the DLTF (\$2,900) and of an entomologist to work with the DLTF (\$21,845).

The African Bureau also provided assistance that was not country specific. From a total of \$4,625,000 in Africa Bureau funds in FY 1988, the following activities were supported: the inter-agency agreement with the USDA/USFS for technical assistance (\$550,000); the AELGA pesticide bank (\$1,059,000); regional offices and operating expenses of FAO (\$2,100,000); research (\$894,000); and a crop-loss assessment (\$22,000).

Total OFDA \$953,414
Total Other USG \$4,625,000

TOTAL \$5,578,414

**Africa Regional - Displaced Persons
(Non-Declared FY 1988)**

From the SADCC supplemental account, OFDA provided a grant to WVRD to handle the shipment, internal transport, and distribution of donated clothing to needy people in Malawi, Zimbabwe, and Mozambique.

TOTAL \$243,500

Bermuda - Hurricane (FY 1987)

In FY 1988, OFDA replaced 150 rolls of plastic sheeting taken from the New Windsor stockpile for the Bermuda emergency.

TOTAL \$46,450

Botswana - Drought (Non-Declared FY 1988)

Seven successive years of drought depleted Botswana's groundwater reservoir, resulting in a critical shortage of water for human and animal consumption and for agriculture. OFDA obligated funds from the SADCC supplemental to send a WASH team to Botswana to identify areas most seriously affected and to recommend measures for drilling and water resource management to the Botswanan government (\$159,500). With well-drilling equipment in serious need of rehabilitation, OFDA also provided funds to purchase spare parts to repair a drilling rig (\$385,000).

TOTAL \$544,500

Burkina Faso - Insect Infestation (FY 1987)

OFDA extended the contract of the control campaign manager (Charles Kelly) to complete FY 1987 initiatives.

TOTAL \$5,703

Cayman Islands - Hurricane (Non-Declared FY 1988)

The Cayman Islands were in the direct path of Hurricane Gilbert as it swept through the Caribbean in September. OFDA tasked the U.S. Coast Guard with transporting an assessment team and communications equipment to the islands to conduct a damage survey. The team determined that damage was less extensive than had been feared.

TOTAL \$20,000

Chad - Rat Infestation (FY 1987)

OFDA fielded an expert from USDA/AVIS to continue to implement a control program.

TOTAL \$9,195

China, People's Rep. - Fire (FY 1987)

OFDA replaced 16 chain-saw kits taken from the Guam stockpile for the China fire disaster. The cost includes ocean freight.

TOTAL \$7,680

Ecuador - Earthquake (FY 1987)

As part of the USG response to the earthquake disaster in Ecuador in March 1987, OFDA agreed to fund the purchase and transport of bridges to help the Ecuadorean government restore access to isolated Napo Province. Funds were provided in FY 1988 to complete the internal transport of bridge parts to the construction sites.

TOTAL \$17,175

Ethiopia Drought (Non-Declared FY 1985)

OFDA amended a contract for a truck repair program to assure continued transport of relief supplies.

TOTAL \$3,036

Ethiopia - Drought (FY 1987)

The twin scourges of drought and civil fighting caused extensive food shortages in large areas of Ethiopia throughout much of FY 1988. An estimated 7 million people were threatened, especially in the regions of Eritrea, Tigray, Wello, and Harerge. The Meher rains of June and July 1987 had come too late to prevent major crop loss. Assessments done in November 1987 indicated a need for 1.2 million to 1.3 million MT of emergency food.

In early March, heavy fighting between forces of the government of the People's Democratic Republic of Ethiopia (GPDRE) and rebel forces in Eritrea and Tigray almost halted relief operations for the north. Many towns which had served as distribution points were temporarily taken by the armed opposition until the GPDRE troops could reoccupy the territory. On April 6, the GPDRE

instructed private relief groups operating in Tigray and Eritrea to recall foreign personnel from those areas and hand over their operations to the GPDRE's coordinating response agency, the Relief and Rehabilitation Commission (RRC). In early June, the ICRC ceased all relief operations in Ethiopia at the demand of the GPDRE. The ICRC subsequently turned over its program to the Ethiopian Red Cross Society (ERCS), supported by LRCS.

Inaccessibility to rebel-controlled areas and inadequate transport to distribution centers hampered relief operations to the north. With road access to the north restricted, airlift operations were required to ferry relief supplies to distribution points in Mekele. The United Nations received permission to return some of its relief expatriate staff to the north in May, and the two USG-donated Twin Otter aircraft, grounded in April, were able to resume operations in June to northern Shoa and southern Gonder.

Heavy Meher rains fell in June and July 1988, further complicating food delivery but ensuring a bountiful harvest and completion of emergency feeding operations by late fall of that year.

In response to the crisis, OFDA provided grants to more than a dozen U.S. PVOs and international organizations to carry out food distribution and rehabilitation programs. The aim of the recovery programs, which included the provision of seeds and agricultural tools, was to help small farmers regain self sufficiency.

Obligations for Ethiopia in FY 1988 included the following:

Hire of aircraft for assessment team \$3,000

Grants to SCF for a program to distribute food from the port of Assab to Shoa Province \$359,470

Grant to FHI for a food distribution system in Shoa, Gonder, and Wello provinces . . . \$936,725

Grant to AirServ International to purchase 2 Twin Otter planes to establish an air shuttle to transport food supplies to isolated areas of Gonder, Tigray, and northern Shoa \$1,681,610

Grant to CARE to support an emergency food distribution program in Harerge Province \$1,104,287

Travel expenses of expert from FAA to inspect the Twin Otters \$2,500

Grant to CRS for a food distribution program in Eritrea, Tigray, and Harerge provinces . \$710,980

Grant to WFP to fund the purchase of 28 trailers to establish a shuttle system between the port of Assab and the staging area for the U.N. truck fleet \$1,063,200

Grant to WFP as the USG contribution to enhance the capacity of the U.N. truck fleet in Ethiopia \$2,500,000

Grant to UNICEF in response to the emergency appeal for medicine and medical supplies \$2,500,000

Grant to WVRD for a food distribution program in Sidamo, Shoa, Wello, and Goma Gafa provinces \$666,413

Travel expenses of experts to participate in an assessment of the WFP Transport Operation in Ethiopia (WTOE) \$16,500

Funding for 7 contractors to support the disaster relief program carried out by USAID/Addis Ababa (Mission allotment) \$325,000

Reimbursement to UNDRO for airlift of relief supplies from Leghorn stockpile \$187,743

Replacement of 750 rolls of plastic sheeting from Leghorn \$217,350

Replacement of 8,540 blankets from Leghorn \$33,733

Purchase and shipping costs of A.I.D. emblems
for use on USG-donated trucks \$1,025

Mission-executed grant to Ethiopia Council of
Churches for rehabilitation program (seeds,
small agricultural tools) \$150,000

REDSO/ESA executed 8 grants using OFDA funds
for rehabilitation programs (seed, agricultural tools):

Grant to AJDC	\$478,255
Grant to CARE	\$361,870
Grant to SCF/US	\$392,320
Grant to FHI	\$393,808
Grant to WVRD	\$498,000
Grant to CRS	\$850,700
Grant to LWR	\$225,000
Grant to LRCS	\$1,055,208

Grants from an A.I.D. Congress-designated earmark
for children orphaned by the drought or civil strife
to:

SCF (initial tranche of 3-year program)	\$75,000
SCF for a family reunification program	\$312,230
Grant to AJDC for an orphan shelter program in Gonder	\$52,544
Grant to the Jerusalem Memorial Children's Home Organization for the Blue Nile Children's Farm Project (USAID/Addis Ababa-executed)	\$50,000

Food for Peace contributed 252,702 MT of food
commodities for emergency distribution and 23,368
MT from the regular program. The total value of
the food, including ocean freight and internal
transport costs, was \$100,803,400.

<i>Total OFDA</i>	<i>\$17,204,471</i>
<i>Total FFP</i>	<i>\$100,803,400</i>

TOTAL \$118,007,871



**Ethiopian orphan receives a doll at the RRC
children's shelter in Gondar**
Photo by USAID/Addis Ababa

Mali - Insect Infestation (FY 1987)

To complete the FY 1987 control campaign, OFDA
funded the transport of pesticide from Dakar,
Senegal, to Banjul.

TOTAL \$5,541

Mozambique - Civil Strife (FY 1987)

In response to the needs of victims of the continuing civil strife disaster in Mozambique, OFDA amended a grant to UNICEF for the balance of funding for emergency medical equipment and supplies that had been committed in FY 1987 (\$1,400,000); provided a grant to ICRC for the purchase and transport of medical supplies into inaccessible areas (\$1,200,000); and paid the expenses of an emergency operations officer (\$110,000). The latter two expenses were paid from SADCC supplemental funds. This disaster was redeclared in FY 1988 and is discussed in this volume under "FY 1988 Disasters."

TOTAL \$2,710,000

The AID/ANE Bureau contributed additional funding to a three-year reconstruction program. In FY 1988, this assistance included \$10,000,000 in Development Assistance funds, \$10,000,000 in P.L. 480 Title I commodities, and \$15,000,000 in Housing Guaranties.

(Note: The total below does not include the \$15,000,000 in Housing Guaranties. While A.I.D. guarantees a commercial loan, it does not provide the loan funds.)

Total OFDA \$26,826
Total FFP \$10,000,000
Total Other USG \$10,000,000

TOTAL \$20,026,826

Niger - Insect Infestation (FY 1987)

OFDA provided funds for phase II helicopter support for the FY 1987 control program.

TOTAL \$8,500

Truk - Cyclone (Non-Declared FY 1988)

OFDA permitted the Federal Emergency Management Agency (FEMA) to use plastic sheeting from the Guam stockpile for emergency shelter needs in Truk after a disastrous cyclone hit the island. The cost of replacing the plastic (\$133,370) was later reimbursed by FEMA.

TOTAL \$0.0

South Africa - Floods (FY 1987)

OFDA paid the expenses of INTERTECT's Fred Cuny to assess damage to housing after disastrous floods hit Natal and to develop an emergency shelter program (\$2,787). Funding was also provided to the USAID/Pretoria for the local purchase and transport of plastic sheeting and for the printing of building instructions (\$40,000).

TOTAL \$42,787

Zambia - Drought (Non-Declared FY 1988)

OFDA committed funds from the SADCC account for a drought and famine relief monitor in Zambia.

TOTAL \$45,000

Sri Lanka - Displaced Persons (FY 1987)

Continuing the assistance to Sri Lanka begun in FY 1987 in the wake of ethnic violence, OFDA contracted with INTERTECT to provide advisory services to the Ministry of Rehabilitation to design assistance strategies, particularly in the shelter sector. The contract was jointly funded by OFDA and USAID/Colombo. OFDA's share of the cost was \$26,826.

Latin America and the Caribbean

DISASTERS

- Argentina Floods
- Brazil Floods/Mudslide
- Costa Rica Floods
- Dominican Republic Floods
- Haiti Hurricane
- Jamaica Hurricane
- Panama Emergency
- Paraguay Floods



Date

March - April 1988

Location

Buenos Aires province, including the Buenos Aires metropolitan area

No. Dead

25

No. Affected

4,600,000; 63,403 evacuated and cared for through a mass feeding program

Damage

Approximately 50,000 buildings suffered severe structural damage or destruction; thousands of homes temporarily lost electricity and telephone service; 3,800,000 ha. of farm land was damaged by water; crop losses totaled \$440,000,000. Other property losses amounted to \$50,000,000.

The Disaster

Heavy rains, which had begun in early March, peaked between March 23 and 27 when 245 mm. (10 in.) fell during that five-day period. On Saturday, March 26, 101.6 mm. (4 in.) pelted the area, marking the sixth heaviest one-day rainfall recorded in Argentina during this century.

Buenos Aires Province, including the nation's capital, suffered extensive damage. Twenty-five people perished either by drowning or electrocution; most of the fatalities occurred in the low-lying areas around metropolitan Buenos Aires where the poor have established shantytowns in recent decades. The inundations disrupted telephone service to 100,000 homes and cut electricity to 50,000 residences for an extended period. Many provincial and city roads were washed out, and about 50,000 buildings were either destroyed or sustained structural damage.

In the rural areas, 13,000 farmers and 3,846,154 ha. were affected with at least 303,644 ha. inundated. Heavy rains and flooding devastated sunflower, corn, and soybean crops. However, Argentine officials reported that most grain crops, Argentina's principal exports, were not seriously harmed. Unofficial estimates place crop losses at \$440 million and other property damage at \$50 million.

Action Taken by the Government of Argentina (GOA) and Non-Governmental Organizations

Although the rains ceased on March 27, the immediate situation remained bleak for tens of thousands of Argentines driven from their homes by subsequent flooding. Provincial authorities declared 35 districts in Buenos Aires Province disaster areas through the week of March 20. During this period, the governor of the affected province appealed for 50 million australes (\$7.5 million) in federal assistance and donations of clothing, food, and volunteer assistance from the Argentine people.

President Raul Alfonsin surveyed the stricken areas by helicopter on March 28. As the waters began to recede, the federal and corresponding provincial ministries of Health and Social Action, the Civil Defense, the Army, and private organizations as well as city, provincial, and national relief authorities mobilized relief and distribution efforts.

Officials evacuated 63,403 victims to higher ground and immediately distributed 250 MT of food, 2,000 doses of medicine, and 40,000 mattresses to those in need. Throughout the relief period, public and private Argentine agencies provided a total of 700 MT of food and \$100,000 worth of supplies, including clothing and household goods to refurbish damaged homes, to evacuees.

Assistance Provided by the U.S. Government

As the flooding worsened, Ambassador Theodore E. Gildred declared that a disaster existed in Buenos Aires Province and exercised his disaster assistance authority on March 29. A check for \$5,000 was presented by Deputy Chief of Mission Robert E. Service to Caritas/Argentina. Caritas used the donation to locally purchase 400 blankets (\$1,830), 7,680 disposable diapers (\$670), and 5,585 kg. of dried food comprising pasta, milk, sugar, rice, and tea (\$2,500).

TOTAL \$5,000

Assistance Provided by U.S. Voluntary Agencies

None reported

Assistance Provided by the International Community

Caritas/Germany, Fed. Rep. - pledged an undisclosed amount of assistance for a 2-year project to create jobs for workers and farmers affected by the flood.

France - provided \$34,000 to the GOA Health Minister.

TOTAL \$34,000

Date

February 1988

Location

Rio de Janeiro State, including metropolitan Rio de Janeiro and the communities of Petropolis, Caxias, Nova Iguacu, Nilopolis, Teresopolis, Cachoeiro de Macacu, Austin, and Sao Joao de Meriti, and Acre State, including the community of Rio Branco

No. Dead

289

No. Affected

58,560, including 734 injured and 18,560 homeless in Rio de Janeiro State and city; 40,000 homeless in Acre State

Damage

Building and infrastructural damage totalled nearly \$1,000,000,000.

The Disaster

Torrential rains spawned tremendous flooding and mudslides throughout the state of Rio de Janeiro in southeastern Brazil between Feb. 2 to 5 and Feb. 19 to 21. The interior state of Acre was also affected. In total, this disaster killed 289 people, injured 734, affected 58,560, and left nearly \$1 billion in damage.

The first incident of devastating downpours occurred from Feb. 2 to Feb. 5 in the state of Rio de Janeiro. An unusual Antarctic cold front brought in the moisture, displacing a month long heat wave. Weathermen reported that rain accumulation throughout the week reached 279 mm. (11 in.), twice the normal rate for February. This was more than the area had experienced for 40 years. The mountain resort town and Portuguese colonial center of Petropolis and the suburbs of Sao Joao do Meriti, Nova Iguacu, Caxias, Nilopolis, Teresopolis, Cachoeiro de Macacu, and Austin north of Rio de Janeiro were especially affected.

Flooding in these areas turned streets of low-lying communities into raging rivers and buildings into islands. Telephone and electrical services were temporarily cut off. In Petropolis, cresting waters reached waist level and drained three times in one day as the rivers of Quitandrinha and Bingen overflowed and receded. Those living in shantytowns on the surrounding hills suffered enormous losses from at least six different landslides. The rains transformed earthen banks into cascading walls of mud that crushed the fragile, wooden shacks and their occupants. Bodies lay buried under heaps of collapsed structures and fallen dirt. At least 156 people perished and more than 3,500 had to seek shelter in Petropolis alone. Rocks and mud from the landslides temporarily blocked all roads leading to the historic community. The city of Rio de Janeiro received the second blow of the calamity. Between Feb. 19-21, heavy rains battered this megalopolis of almost six million people, disrupting the normal flow of life, but causing relatively few deaths.

Flooding and landslides temporarily shut off

telephone and electric supplies, blocked arteries, and damaged structures. Drivers tied their cars to posts and trees to prevent their vehicles from floating away. The Rio-Santos highway was closed when several barriers collapsed. Deaths occurred mostly in isolated incidents. Falling mud and boulders destroyed several hillside shantytowns, including the so-called "Formiga Favela" where at least six victims perished. Eleven elderly patients were killed when the wing of a nursing home collapsed in the Santa Teresa neighborhood. Mudslides pushed a three-story building face forward in the working-class quarter of Abolicao, leaving 16 dead and 12 survivors trapped in the rubble. Filthy, stagnant floodwaters in the low-income areas of the city brought increased rates of infectious disease. Hundreds of people caught leptospirosis, a malady transmitted from the abundant amounts of rat urine in the waters.

Inundations were also reported in Rio Branco, capital of Acre State. River levels that normally reach less than 13 meters surpassed 17 meters. Over 40,000 inhabitants of the riverbanks lost their homes. Bridges collapsed and routes to the city were cut off. The Acre State government estimated that 60% of agricultural crops were lost and reported an upsurge in cases of epidemic diseases, such as typhoid, yellow fever, and malaria.

Action Taken by the Government of Brazil (GOB) and Non-Governmental Organizations

As flooding and mudslides began taking their toll in early February, civil authorities at various levels of the GOB mobilized resources to meet the needs. Declaring the situation in his jurisdiction beyond the normal capacity to respond, Mayor Paulo Rattes of hard-hit Petropolis issued an appeal for outside help. On Feb. 6, Rio Governor Moreira Franco assessed the flooded zones by helicopter and on Feb. 8, Acting President Ulysses Guimaraes toured the stricken city with Governor Franco. State officials took representatives of various consulates on a helicopter tour of Petropolis and appealed for clothing, sheets, and blankets from the donor community.

The state civil defense authority coordinated relief activities and Rio de Janeiro State was put on a state of alert. In response to an appeal from local officials, the GOB federal authorities committed several million dollars in immediate disaster relief and credit to the area. Red Cross, military, and volunteer workers combined forces in the rescue operation. The Navy deployed motor launches on water-clogged streets to evacuate residents and Air Force helicopters snatched victims shivering with cold from their rooftops. Street cleaners and engineers cleared debris and mud from the roadways. In Petropolis, civil defense authorities housed the homeless in more than 50 officially recognized shelters, mostly churches and schools. Health authorities mounted a large-scale vaccination campaign against typhus and warned residents of the possibility of water contamination.

The focus of relief efforts shifted to the city of Rio de Janeiro with the devastating rains, flooding, and landslides between Feb. 19 to 21. The Mayor of Rio, Saturnino Braga, declared a state of public disaster on Feb. 21. On Feb. 23, President Jose Sarney with Cabinet ministers and state of Rio officials flew by helicopter to survey the shantytowns wrecked by mudslides. The President also visited Petropolis, which was still recovering from the month's earlier rains.

State civil defense authorities again coordinated assistance. The Red Cross summoned 1,000 volunteers in a nationwide televised appeal. Rescue workers evacuated victims in the northern areas of the city with Navy watercraft and combed through the rubble of collapsed structures in search of survivors and the dead. Many of the homeless were housed in the city's Maracana sports stadium. City sanitation workers hauled a daily average of two tons of dirt and debris off the streets. State health officials vaccinated Rio residents against tetanus and leptospirosis. Across the country, various organizations reported an outpouring of donations. A Sao Paulo-based television network organized a massive donation campaign. The Brazilian airlines of Varig and Vasp flew donated items of clothing, food, sleeping gear, and toys into Rio at no charge.

As contributions flowed in and the cleanup continued, GOB officials turned their attention to long-term recuperation. In the summer of 1988, state and city officials received a \$293.6 million loan from the World Bank and GOB counterpart funds for use in resettlement of families from "high risk" areas, purchase of civil defense equipment, and drainage of several river basins.

Assistance Provided by the U.S. Government

As the seriousness of the catastrophe became evident, U.S. consulate officials toured the stricken zones, met with concerned officials, and verified the well-being of American citizens. On Feb. 11, 1988, U.S. Ambassador Harry W. Schlaudeman issued a disaster declaration in response to the emergency. Two days later, Consul General Louis Schwartz of Rio de Janeiro met with Rio governor Moreira Franco at Laranjeiras Palace to present a USG donation of \$25,000. Civil defense authorities of the state government used the assistance to purchase rain gear, boots, tools, ropes, and other items for use in Petropolis.

As the need for assistance continued, OFDA provided \$100,000 to the state of Rio de Janeiro through Partners of the Americas. The initial grant of \$50,000, designated for relief in Petropolis, was presented to the governor on Feb. 13 by U.S. consular officials. With the heavy flooding in the city of Rio, OFDA furnished an additional \$50,000 on Feb. 22. Partners verified the needs of those most affected and used the assistance to purchase syringes and disposable needles for Petropolis, cleaning and disinfectant materials for Petropolis and the Baixada area, and syringes, needles, and medications for the city of Rio de Janeiro. Official entities directly involved in the disaster response accepted the items. Recipients of assistance for the first \$50,000 included the mayor's office of Petropolis and the state agency, Community Education Nucleus, for each of the four districts comprising the Baixada Fluminense lowlands. The Department of Supply for Basic Needs of the State, an arm of the State Secretariat of Health, accepted the emergency health supplies provided for under the second grant. Partners acquired the cleaning materials

and medical items from local suppliers on Feb. 25 and handed them over on Feb. 29. The syringes and needles for Petropolis and Rio de Janeiro were purchased on March 7 with delivery on March 9.

OFDA also dispatched Robert Fleming from the USGS to provide technical assistance for two weeks. Working with the Brazilian federal agency, Companhia de Pesquisa de Recursos Minerais, and geologists of the Rio State Secretariat for Urban Development, W. Fleming identified those geological hazards continuing to menace Petropolis and Rio city and recommended measures to reduce such threats in the future. He also trained Brazilian counterparts in the methodology of hazards geology. OFDA funding in this regard amounted to \$4,595.

TOTAL \$129,595

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

CWS - donated \$5,000 from the Executive Director's Emergency Fund.

Johnson and Johnson - provided medical and personal care items.

Partners of the Americas - implemented a relief program (see above).

TOTAL \$5,000

Assistance Provided by the International Community

International Organizations

PAHO - sent a specialist to assess the public health risks of the Rio city floods and an assessment team to Acre State.

World Bank - provided a long-term loan to the state and city of Rio de Janeiro for flood assistance.

Governments

Argentina - supplied medical items.

Canada - provided medical supplies through PAHO, covered air freight costs of the Mexican contribution, and gave \$19,230 through PAHO.

Germany, Fed. Rep. - donated needles and syringes.

Japan - gave \$150,000 as well as medical supplies valued at \$187,000.

Mexico - furnished medical items, worth \$100,000.

Norway - donated relief supplies.

Spain - contributed floodlights for use in night operations, 25 tents, 200 beds, first-aid kits, and anti-tetanus vaccine.

United Kingdom - supplied needles, syringes, and blankets.

Non-Governmental Organizations

Caritas/Germany, Fed. Rep. - furnished \$62,500 to Caritas/Brazil.

TOTAL \$518,730

Date

Late January -
February 1988

Location

Atlantic zone,
particularly Limon
Province

No. Dead

7

No. Affected

10,000; 4,700 people
evacuated and 2,500
homeless

Damage

Flooding produced
the following
damage: bridges,
roads and riverwork
(\$3,000,000), housing
(\$2,250,000), and
agriculture
(\$3,750,000).

The Disaster

High winds and torrential rains deluged the Caribbean lowlands of Limon Province from late January through early February 1988. Particularly hard hit were Bribri, Sixaola, Paraiso, Sepeque-Shiroles, Puerto Limon, and the Talamanca Valley. Heavy rains in the mountains and the alluvial plains of the southeastern coast swelled all the major rivers and many of the numerous tributaries which snake the lowlands toward the Caribbean Sea. By January 28, one to two meters of water covered Sixaola and surrounding locales, and government officials reported that three people had died, more than 90 were missing, and hundreds of victims had been evacuated, leaving 2,500 still stranded in dangerous areas. Despite the destruction, the Costa Rican National Emergency Commission (Spanish acronym, CNE) had identified potable water as the only immediate requirement.

However, conditions deteriorated over the next week. By Feb. 4, continuing rains had cut off several villages and roads. Bridges also had become seriously weakened. The number of evacuees from Sixaola, Bribri, and the lower Talamanca Valley rose to 4,700. A U.S. assessment determined that helicopters were needed to form a lifeline to isolated communities which required food, fuel, and evacuation missions. By Feb. 9, heavy rains continued in the affected province, but most roads had been reopened and food supplies had been delivered to affected communities.

Assistance Provided by the Government of Costa Rica (GOCR) and Non-Governmental Organizations

President Oscar Arias Sanchez signed a declaration of national emergency on Jan. 29, 1988, initiating official relief activities. Immediately following the presidential disaster declaration, the CNE convoked a meeting in San Jose of several government representatives to study the situation and establish a Central Operations Command. The following institutions were represented: the ministries of public security, interior and health, the National Production Council, the Costa Rican Red Cross

(Spanish acronym, CRCR), the Costa Rican National Petroleum Refinery (Spanish acronym, RECOPE), PAHO, AID/OFDA-Costa Rica, and the CNE.

That same evening, the CNE, the GOCR institution mandated with managing disasters and early disaster relief, established a regional committee on-site in Limon to coordinate relief activities with the Central Operations Command and designated the Regional Director of the Health Ministry (MOH) as coordinator, the governor of Limon Province as Assistant Coordinator, and the CRCR regional chief as Chief of Supplies. Local committees established in Siquirres, Bribri, Paraiso, and Sixaola tied into the regional and national coordinating network.

After unexpectedly heavy rain continued in the affected areas, the CNE requested emergency evacuation and relief assistance from the United States in early February. The GOCR, through the CNE, RECOPE, and the Costa Rican national airlines (LACSA), provided substantial support for U.S. relief operations. LACSA agreed to transport U.S.-donated water containers from Torrijos International Airport in Panama. For the U.S. DOD search-and-rescue (SAR) missions, RECOPE refueled DOD helicopters at Limon International Airport and CNE provided ground transportation for U.S. crews.

Local groups such as the CRCR, the Rural Assistance Guard, and the Ministry of Security performed SAR operations throughout the initial weeks. The MOH and JAPDEVA (the Atlantic Port Authority) lent equipment for the rescue of stranded victims.

The CNE and the CRCR began distributing emergency goods such as potable water, blankets, mattresses, and clothing to those displaced from their homes, many of whom were taken to temporary shelter camps. The National Production Council channeled over \$30,000 worth of food through its stores for the victims. They also provided \$45,000 in food and seeds during the reconstruction phase. In Bribri, RECOPE opened some of its facilities for several affected families.

The Housing Mortgage Bank announced the diversion of \$1.5 million from the Instant Lottery Fund to the CNE for housing reconstruction; the Ministry of Housing gave \$824,000 for the same.

Many governmental, autonomous, and private groups held fund raisers to collect relief goods for the victims. By Feb. 6, private Costa Rican citizens had contributed more than \$40,000, 28 MT of food, and 60 MT of clothing and blankets through a national campaign to assist flood victims. The Instituto Nacional de Seguros (INS) organized a separate drive for cash and supplies. Finally, a collection held jointly by the newspaper *La Nacion* and the CRCR raised \$60,000 in two weeks.

Several private companies and Costa Rican citizens gave such things as broilers (\$7,500), cement products (\$4,000), new clothing, 6,106 pairs of shoes, 100 quintals of rice and beans, housing materials, blankets, clothing, and cash. Small communities gave what they could: the parish of Don Bosco Church supplied \$939 and the town of Naranjo donated food worth \$674 and clothing.

The nation quickly began planning for reconstruction. At a Feb. 1 meeting, CNE announced that it was reserving \$600,000 of its own funds for long-term rehabilitation of the inundated areas. By Feb. 8, JAPDEVA approved a donation of \$900,00 for recovery of the Atlantic zone.

Assistance Provided by the U.S. Government

By Jan. 30, 1988, U.S. Ambassador Dean Hinton had determined that flooding in the southeastern Caribbean coastal lowlands had caused much dislocation and suffering. A U.S. assessment performed by OFDA regional advisor Alejandro James (who is based in San Jose) and other U.S. Embassy personnel recommended that DOD provide search-and-rescue (SAR) assistance. The SAR mission began on Jan. 31 and ended Feb. 5. DOD SOUTHCOM lent two U.S. Black Hawk helicopters and the services of 17 personnel.

One of the helicopters was equipped with Medivac capability.

OFDA also sent six 3,000-gallon water tanks and 415 five-gallon water containers from its Panama stockpile. (The replacement cost of the commodities was included in the \$105,000 obligation for DOD operations.) LACSA transported part of the donated goods from Omar Torrijos International Airport on Feb. 4, and carried the remaining commodities aboard its Feb. 6 flight.

The previous year, Costa Rica had experienced a water supply problem and OFDA donated nylon water storage tanks. Two of these tanks were delivered by the GOCCR on Feb. 2 to Sixaola to deal with its potable water problem.

TOTAL \$105,000

Assistance Provided by U.S. Private Voluntary Agencies

None reported

Assistance Provided by the International Community

China, Rep. (Taiwan) - furnished \$10,000 and a large amount of clothing.

Germany, Fed. Rep. - channeled \$33,000 in humanitarian assistance through local representatives of German religious organizations.

Japan - donated \$749 for reconstruction.

LRCS - gave kitchen utensils and other household goods.

Switzerland - provided \$52,400 through the CRCR for a housing project.

TOTAL \$96,149

Dominican Republic

Date

Late August - mid-September 1988

Location

Northern and southeastern provinces, particularly the Cibao area, and the capital, Santo Domingo

No. Dead

None reported

No. Affected

At least 230 families in the Cibao area from flooding and 1,190,000 or 70% of the capital's residents from water shortage

Damage

Flooding caused mud and debris to clog four of the five river systems which provide water to metropolitan Santo Domingo. This seriously damaged equipment crucial to the provision of water.

The Disaster

Tropical storm Chris swept across the Dominican Republic from Aug. 24 to 27, 1988, causing severe flooding in the northern and southeastern provinces. The inundations critically damaged 230 homes in the Cibao area, especially in the towns of Sabana Rey and Villa Topia. However, the most life-threatening impact of the storm was the acute reduction of water to Santo Domingo residents. The water infrastructure, which channels water from the central rivers to the Caribbean coast, became clogged with mud and debris carried along by the deluge.

Prior to the flood event, the national water system was in a deteriorated and fragile state. The Dominican government, facing a grave financial crisis, could not import critical spare parts and maintenance equipment for the precarious network of piping and pumping stations. The heavy rains provided the final stress, virtually stopping the supply from four of five intake systems which feed the 12 km. water pumping station located on Duarte Highway, north of Santo Domingo. This station provides water to residents of the capital.

Initial assessments indicated that rapidly moving waters of the Isa and Duey rivers swept away 518 meters of pipeline and intake systems, reducing potable water to metropolitan residents to 40% of normal levels. The Guanitos I pump station on the Duey River was destroyed and the Guanitos II station suffered breakage in pipelines, filters, and chlorination equipment. Later assessments revealed extensive damage to stations on the Isabela and Huina-Manoguayaba rivers. Only one river system, Sista del Este, sustained no damage, although electricity shortages affected the electric pumping station.

Action Taken by the Government of the Dominican Republic and Non-Governmental Organizations

By Sept. 1, the Santo Domingo Water and Sewage Authority (Spanish acronym CAASD) and the Dominican Civil Defense had performed preliminary assessments of damage. The administration of President Joaquin Balaguer

mobilized all water trucks in the city, instituted a voluntary program of water sharing from privately owned wells, placed a price ceiling on the delivery of water, and oversaw the round-the-clock repairs to the supply system. Other organizations involved in the restoration of service were the Technical Secretariat of the Presidency, the National Institute of Hydraulic Resources (Spanish acronym INDRHI), and the State Secretariat of Public Works and Communications.

The CAASD instituted a nominally effective emergency water distribution program, mobilizing its six 3,000-gallon water trucks and borrowing three to seven additional trucks, based upon availability. The Armed Forces performed the actual distribution, providing water to homes and selected sites. Another 42 private water trucks also sold water to city inhabitants at a cost of \$11 to \$24 per truckload. USAID extrapolated that in the best case scenario, public and private water trucks, combined, only resolved 3.09% of the 80.1 million gallons per day (gpd) deficit.

Due to the serious nature of the water shortage and the futility of distribution efforts, the Technical Secretariat of the Presidency requested USG assistance in the form of specialized equipment to repair the system and restore water to thousands. The requested items included: two sets of oxyacetylene gas welding equipment; two sets of portable electric welding equipment; three 500-gallons/minute sump pumps; two light sets with lines for field work; two 500-gallon potable water tanks (small and portable); two field tents for 50-person crews; two field stoves (50-person capacity); and two portable kW generators with lines and accessories.

Ing. Jose Carlos Batista Elias, CAASD Deputy Director for Engineering, flew to Miami with a USAID engineer on Sept. 2 to secure the needed equipment. He returned to Santo Domingo two days later with the U.S.-donated equipment.

By Sept. 9, the CAASD work was proceeding faster than predicted; however, the band-aid approach to repairs caused officials to worry about the consequences of the next flood. The

Dominicans did not wait long for the next stress to the system. On Sept. 11, Hurricane Gilbert gave the Dominicans only a taste of what it would later do to neighboring Haiti and Jamaica. Warnings from the local weather bureau about an impending hurricane enabled the CAASD to anticipate further destruction, allowing them to temporarily shut down the Isa-Mann water intake valve. However, since Gilbert dropped little water in the Dominican Republic further damage was averted.

Assistance Provided by the U.S.

Government

Upon receipt of the GODR request for assistance, Ambassador Paul D. Taylor exercised his disaster assistance authority on Sept. 1, 1988, declaring that a crisis situation existed in Santo Domingo.



Debris/damage to the Guanitos I pumping station

Photo courtesy of USAID/Santo Domingo

USAID/Santo Domingo had been aware of the potential emergency and had been consulting with the CAASD frequently since Aug. 31. An assessment, performed on Sept. 2 by USAID engineer Rafael Genao, concurred with the GODR's designated top priority--obtaining equipment to aid CAASD's round-the-clock repair effort.

USAID personnel immediately surveyed local suppliers for the requested items and determined that most of the commodities could be purchased only in the United States. Therefore, USAID engineer William Smith and CAASD Ing. Jose Batista traveled to Miami on Sept. 2 to procure and transport the critically needed equipment. To expedite the process, OFDA utilized its grant with the Dade County Fire and Rescue Department to gather the commodities, worth \$17,000, prior to the arrival of Smith and Batista. *(The money will be remanded to the grant from relief funds later.)* OFDA paid Smith's travel, valued at \$809. The engineers inspected the commodities and secured them for transport aboard an Eastern Airlines flight on Sept. 5. As a goodwill gesture, Eastern transported the equipment gratis to the De Las Americas International Airport in Santo Domingo.

TOTAL \$17,809

Assistance Provided by U.S. Voluntary Agencies

CARE - provided 10-day food rations to 230 families in the Cibao area, packaging and distributing the food.

Eastern Airlines - transported the U.S.-donated repair supplies, weighing 1.5 MT, free of charge to Santo Domingo, valued at \$1,237.

TOTAL \$1,237

Assistance Provided by the International Community

None reported

Date

Sept. 11-12, 1988

Location

The departments of West, Southeast, South, and Grand Anse on the southern peninsula

No. Dead

54

No. Affected

870,000

Damage

Haitian government estimates placed agricultural losses at \$89,013,600, road reconstruction costs at \$317,000, and damage to schools and health facilities at \$356,000. About 2,000 homes were destroyed with another 6,000 partially damaged. Reconstruction costs were estimated at \$1,600,000.

The Disaster

Although Hurricane Gilbert did not visit the same devastation on Haiti as it did on Jamaica, the country's southern peninsula was severely stricken. Of the four departments (West, Southeast, South, and Grand Anse) that were damaged, South was the most affected. Heavy gales and flooding the nights of Sept. 11 and 12 effected power outages in Las Cayes and other major towns, damage to the port of Jacmel, and losses in agricultural production throughout the region. Strong waves destroyed fishing boats, equipment, and wharves and caused extensive beach erosion. Heavy rainfall from Gilbert induced river flooding, ruining crops and damaging irrigation systems. The death toll from the storm reached 54, and approximately 870,000 persons were affected. From 80% to 100% of plaintain, corn, coffee, and bread tree crops were ruined, with 1,000 head of cattle and poultry lost. In one isolated zone between Port-Salut and Tiburon, over 90% of the banana, bean, and fruit tree yields suffered total destruction.

Gilbert took its toll on infrastructure and buildings, damaging or destroying over 8,000 homes, two schools, a hospital, a clinic, and telephone, electrical, and water lines. Haitian authorities estimated agricultural losses to be \$89 million, housing reconstruction costs to be \$1.6 million, road repair costs to be \$317,000, and damage to schools and health facilities to be \$356,000.

Action Taken by the Government of Haiti (GOH) and Non-Governmental Organizations

The GOH's emergency unit, the Organisation Pre-Desastre et de Secours (Pre-Disaster and Emergency Organization, or OPDES) coordinated the official response. Soon after Gilbert struck, members of the Haitian military conducted a helicopter assessment of the stricken southern peninsula. OPDES declared a state of disaster existed in the area and distributed relief supplies. A formal GOH request for international assistance was issued through UNDR0. To forestall potential outbreaks of malaria and typhoid, the Ministry of Public Health and Population distributed emergency supplies of medicines, larvicides, and disinfectants.

The Haitian Red Cross sent assesement teams to the area, carried out relief activities, and launched an appeal for international assistance.

Assistance Provided by the U.S. Government

Ambassador Brunson McKinley declared on Sept. 16 that the devastation wrought by Hurricane Gilbert constituted a disaster. Of the \$25,000 he donated in emergency funds to the Haitian Red Cross, \$18,000 was used to purchase blankets and kitchen utensils, \$5,000 to purchase agricultural tools and fishing equipment, and \$2,000 to fund logistical support. Upon the request of USAID/Port-au-Prince, FFP provided 5,000 MT of bulgur and 500 MT of vegoil, at a cost of \$1,394,000. ADRA, in conjunction with CRS and the Haitian Red Cross, distributed this food. According to official estimates, about 200,000 victims benefited from USG P.L. 480 Title II food and WFP feeding programs.

USG rehabilitation assistance totaled \$1,374,600 to Haiti and addressed the areas of road repair, malaria control, repair of irrigation systems, seed supply, procurement of agricultural tools and equipment, fisheries, tree nurseries, and poultry production. Funding for these activities came from P.L. 480 Title III counterpart money (which are co-owned by the USG and Haitian government) and, as such, are not included in the USG total below.

Total OFDA	\$25,000
Total FFP	\$1,394,000

TOTAL \$1,419,000

Assistance Provided by the U.S. Voluntary Agencies and Other Private Groups

ADRA - assisted in the distribution of P.L. 480 Title II food commodities.

AmeriCares - provided seeds, valued at \$300,000.

Anheuser-Bush - contributed 4 trailers of canned water and their transport to the Haitian Red Cross, valued at \$28,000.

ARC - donated \$10,000 to the Haitian Red Cross.

CARE - helped in the repair of damaged potable water systems.

CRS - gave \$461,500 worth of food rations; \$25,000 for the purchase of agricultural inputs; \$20,000 for small-scale emergency projects; \$75,000 worth of medicines; \$74,800 worth of roofing materials; and 37 cases of baby clothes and 55 bales of quilts, valued at \$80,700; and \$18,000 in various small projects. CRS also assisted in the distribution of P.L. 480 Title II food commodities.

El Progreso - donated a trailer of soup and its transport to the Haiti Red Cross, valued at \$10,000.

TOTAL \$1,103,000

Governments

Canada - provided \$61,810 for seed procurement and \$93,300 in reconstruction assistance.

France - gave \$50,000 in relief and 7 MT of food to the Haitian Red Cross.

Korea, Rep. - donated household equipment and agricultural tools, worth \$90,000.

Switzerland - funded road rehabilitation, valued at \$3,000, and dispatched emergency items, totaling \$6,000.

Non-Governmental Organizations

Canada Red Cross - contributed a mobile van for testing.

TOTAL \$799,110

Assistance Provided by the International Community

International Organizations

Caritas Internationalis - donated \$15,000 to 3 dioceses in the affected zone.

EC - contributed food worth \$250,000.

LRCS - provided medical supplies, a cash grant for clothing, and 9,000 cases of bottled water.

UNDP - coordinated donor assistance and relations with the GOH. UNDP also granted \$50,000 to the GOH Ministry of Public Works to clear roads in isolated areas and gave \$80,000 for malaria control, \$50,000 for seeds, and \$25,000 for logistical support.

UNDRO - donated \$25,000 for road rehabilitation.

WFP - conducted emergency feeding programs.

Date

Sept. 12-13, 1988

Location

Nationwide, especially the eastern and coastal western parts

No. Dead

49

No. Affected

810,000 homeless

Damage

Damage to infrastructure, crops, and utility services reached an estimated \$1,000,000,000.

The Disaster

Hurricane Gilbert left trails of destruction throughout the Caribbean. Haiti, the Dominican Republic, Mexico, and other countries sustained heavy blows. But, Gilbert particularly devastated Jamaica, killing 49 people, leaving 810,000 homeless, and causing an estimated \$1 billion in damage to infrastructure and economy.

Gilbert first entered the Caribbean as a tropical depression on Friday, Sept. 9. By the time it struck Jamaica after passing over the islands of Puerto Rico and Hispaniola, the storm was packing gusts of up to 224 km. per hour (140 mph). The hurricane's center swept across the island in an east-west direction with four hours of battering winds on Sept. 12 followed by 254 mm. (10 inches) of torrential rains on Sept. 13. As skies cleared on Sept. 14, floodwater from the downpour began to drain and residents preliminarily assessed damage.

Because the eye traveled across the island's midsection, the areas east and west of the hurricane's path felt the brunt of activity. Aerial surveys revealed great devastation in eastern Portland Parish from Long Bay south and St. Thomas Parish from the easternmost tip to Eleven Mile. This area contains 5% to 7% of Jamaica's population. Gilbert flattened banana, coconut, and sugar crops, destroyed most housing, and took off the roof and top floor of the regional hospital. Although roads remained open, the main highway from the area to Kingston was closed.

In the west, substantial destruction stretched from the Black River to Montego Bay. The region's airport was temporarily closed. Assessments showed that the majority of houses, some schools, and tree crops received severe damage from Lucea to Green Island in Western Hanover Parish. The sugar-growing area in Westmoreland Parish from Negril east to Bluefields was also affected. Hotels that cater to Jamaica's significant tourist population in Negril and Montego Bay suffered moderate roof and water damage. Montego Bay was without water or electricity for at least a week.

In comparison to either end of the island, central Jamaica emerged from Gilbert relatively unscathed. In Kingston, the capital city of 750,000 residents, trees, zinc roofs, utility poles, and billboards littered streets that resembled rivers more than roadways. Bits and pieces of aircraft lay strewn about at the temporarily-closed Norman Manley Airport. The shantytowns, public facilities, and warehouses revealed what structural destruction had occurred. Food and water remained in short supply immediately following Gilbert, with



Young victims wait for the water delivery trucks.

Photos by LeVonne Harrell, OFDA

residents in the rural fringes of Kingston more than a mile's walk to the nearest source of water. Fallen trees and limbs had knocked down utility poles, cutting off electricity and most telephone service. The public distribution networks, especially in areas with many trees, suffered more damage than the transmission system. Private generators were able to supply some temporary power until the main power lines could be repaired.

One of the sectors most touched by Gilbert was housing. High winds buffeted or flattened structures and ripped rooftops from dwellings, exposing their interiors to the raging rains. Sports stadiums, churches, government buildings, and movie theaters sheltered the estimated 810,000 homeless. The hurricane destroyed 20% (about 100,000 units) and badly damaged another 40% of Jamaica's housing stock. Of low-income homes, 60% suffered total loss and 20% received partial damage. Over 90% of the rooftops in St. Thomas Parish were partially or entirely torn off by the storm's intense gusts. Residents were forced to use plastic sheeting as temporary shelter until repairs could be made.

Ministry of Education building in Kingston, most academic records for the country's educational system were ruined. Gilbert destroyed 200 churches nationwide and considerably damaged the waterfront of Port Royal serving Kingston.

The storm played great havoc with Jamaica's utility and communication networks. Gilbert almost totally disrupted communication outside Kingston and cut off telephone lines with the mainland. Damage to electrical services was estimated to be \$570 million and to public and private telecommunications, \$60 million to \$80 million. It took emergency teams two to three weeks to restore power in many areas and several



Wind damage and flooding affected a military base.

Public buildings also suffered serious damage from Gilbert's force. Between 85% to 90% of schools experienced damage with approximately 50% losing their roofs. Schools in the parishes of Hanover, Portland, and St. Thomas were the most severely affected. With destruction of the

months in the devastated eastern section. As of Sept. 28, 60% of water service had been restored to the island. Trucks provided water for those in need in the countryside.

The Jamaican Defense Forces (JDF), a major actor in the official relief response, withstood significant harm. Gilbert wrecked two camps used as forward bases in drug eradication. High winds flattened the Coast Guard headquarters and smashed patrol vessels. A major JDF training center also was badly damaged.

In the aftermath of Gilbert, hospitals discharged all patients except the critically ill and remained open only for emergency cases. Out of 26 hospitals nationwide, nine bore considerable damage, 11 suffered moderate damage, and seven were without electricity. Because the hospitals without electricity also lacked back-up generators, surgeons were forced to work by flashlight. The calamity rendered 80% of Jamaica's health centers inoperable, either from damage by flooding or loss of roofs. Four such clinics were completely demolished. No critical shortage of medicine or outbreak of disease followed Gilbert. However, a paucity of health equipment and supplies led the United Kingdom and NGOs to fill the gap with emergency donations (see "*Assistance Provided by the International Community*").

Agriculture suffered enormous losses, especially in the eastern and western parts of Jamaica. Gilbert flattened farms of all sizes ranging from family gardens to huge plantations. Jamaican cash crops of sugar cane, coffee, and citrus products were ravaged. Banana production was not expected to reach full capacity for six to nine months after the storm. The poultry sector, a relatively modern industry and a prime source of the nation's protein supply, suffered almost total destruction.

Loss of poultry coops, broiler stock, and layers and breeders topped \$60 million. Produce grown for local consumption also sustained considerable damage, increasing the need for food imports. Within four days of the hurricane, prices of fresh fruits and vegetables in Jamaican markets had tripled. In addition to crop damage, Gilbert's winds battered about 200,000 ha. of natural forest.

Jamaica's two aluminum producers, Alcoa and Alcan, lost approximately 62,000 MT in combined output or \$10 million in lost foreign exchange to the economy. Lack of electric power and repair

costs contributed to the shortfall. However, the Kaiser bauxite installation in Discovery Bay reported little hindrance to its operations from Gilbert. What flooding that occurred in its mines produced only minor damage.

The effect on Jamaica's modest industrial sector was less overall than on mining or agriculture. Disruptions of utility service temporarily hindered production in manufacturing and garment plants. Refineries belonging to the Jamaican oil company, Petrojam, survived the hurricane unblemished. Some firms, including the local subsidiaries of Johnson & Johnson and Singer, witnessed depletion of their stocks from looting that transpired in Gilbert's wake. The estimated recovery time for most small businesses was three to nine months.

Jamaica's prime foreign exchange earner, tourism, sustained significant losses. Few hotels and beaches were spared the effects of the storm. Nevertheless, the GOJ and bilateral donors succeeded in restoring electricity to even the most remote resort by December in anticipation of the winter tourist season.

Despite the quick repairs, the Jamaica Tourist Board reported that the number of stopover visitors dropped by 37% and the total number of visitors in Jamaica fell by 19% between September and December 1988 compared to the same period in 1987. This translated into an estimated loss of \$114 million in tourist earnings over the previous fiscal year.

According to the Jamaican government, Hurricane Gilbert cost the country \$1 billion in damage. The disaster caused an estimated \$150 million to \$200 million loss in foreign exchange and was expected to reduce Jamaica's annual growth rate for 1988 by 2%. The country's national income sustained an estimated \$150 million to \$200 million loss in export earnings and additional imports through March 3, 1989.

Action Taken by the Government of Jamaica (GOJ) and Non-Governmental Organizations

Immediate tasks facing the GOJ after the calamity included determining the breadth of damage from Gilbert, reestablishing local and international communications, and reopening the island's two principal airports. A state of emergency was declared immediately following Gilbert that lasted until Oct. 13. Prime Minister Edward Seaga met with representatives of foreign donors on Sept. 13 to outline Jamaica's most pressing emergency needs and made a special request to the USG for relief supplies and an assessment team. On Sept. 14, Prime Minister Seaga accompanied by U.S. Ambassador Michael G. Sotirhos made an aerial tour of the island to assess wreckage from the hurricane. Although airport communications remained cut off for several days, the Kingston airport was reopened for relief flights on Sept. 13 and the Montego Bay Airport on Sept. 14. The state airline, Air Jamaica, resumed regular operations on Sept. 15 from both airports. Air Jamaica flew relief commodities, gratis, from many points in the United States. In coordination with hotels and various airways, the Jamaica Tourist Bureau arranged for special flights to evacuate stranded tourists.

Due to the disaster's magnitude, the Office of Prime Minister assumed overall coordination of the GOJ response. The GOJ Office of Disaster Preparedness (ODP) took charge of receiving and allocating assistance. The Jamaica Defense Force (JDF) assisted in providing transport and distribution of food supplies, protection of those supplies at relief points, medical evacuation from remote areas, and overall security and curfew enforcement to discourage looting. Helicopters were used for aerial assessments and food distribution. Various GOJ ministries became involved as the disaster response required; for example, the Ministry of Health (MOH) took precautionary measures to prevent the outbreak of infectious and skin diseases. Jamaican NGOs working in the Gilbert relief effort included United Way of Jamaica, National Development Foundation of Jamaica, and Kingston Restoration Company.

To address the urgent needs for shelter and nourishment in the days immediately following Gilbert, the authorities disbursed plastic sheeting for temporary roofing, organized the distribution of donated construction materials through private businesses, and supplied rations of nutribuns and juice. About 15,000 people in the most severely stricken areas were housed in sports stadiums, churches, public buildings, and movie theaters. The GOJ also conducted family-by-family surveys to determine requirements in the areas of food, home reconstruction, and small-farm rehabilitation.



Sifting through belongings after home blows down

Once the survey was completed and the needs established, the GOJ embarked on a medium-term recovery program consisting of food and building supply entitlements for the most-affected victims. The emergency food stamp initiative, based on a pre-Gilbert program, commenced on Oct. 3 in hard-hit St. Thomas and Eastern Portland parishes. Approximately 480,000 beneficiaries used the stamps to purchase commeal, rice, and skim milk powder. Where such items were unavailable, shopkeepers allowed the purchase of other foodstuffs.

The Ministry of Social Security and Welfare administered the program through its local relief centers located throughout Jamaica. On Oct. 12, Prime Minister Seaga inaugurated a similar program for building supplies in the parishes of St. Thomas, Portland, and St. Mary. Residents used the stamps to purchase zinc sheeting, nails,

and lumber from hardware stores.

In an Oct. 6 radio broadcast, the Prime Minister presented an official update on Jamaica's recovery. After noting the generous amounts of assistance received by the GOJ in the weeks following Gilbert, he reported on the restoration of basic services by the GOJ and donor teams, sector by sector: electricity had been restored by 40% in Kingston, 70% in Montego Bay, 80% in Ocho Rios, 50% in Spanishtown, 70% in May Pen, 85% in Mandeville, 80% in Black River, 60% in Savanna-la-Mar, 60% in Port Antonio, and 50% in Lucea and that, with help from donors, full power would return by Christmas. Restoration of water throughout the island had reached 60%, with complete service expected by the end of October. He also estimated that reconstruction of damaged public buildings and infrastructure would continue well into 1989.

Ironically the Jamaican Tourist Bureau initiated a multi-million dollar advertisement campaign in the United States to attract U.S. tourists. Television spots singing "Come back to Jamaica" followed morning news reports of destruction and relief efforts on the island.

Assistance Provided by the U.S. Government

There were no deaths and few injuries among U.S. visitors and the official community in Jamaica. Most personnel suffered light to severe damage to their homes. At the U.S. Embassy, the staff operated emergency generators in the immediate post-hurricane period to keep power and communications functioning. Teams were dispatched to repair the hardest-hit residences of in-country USG employees.

As soon as news of the hurricane became available, OFDA mobilized its operations into a 24-hour coordination of the USG response. At the same time, the State Department convened a Hurricane Gilbert working group that managed departmental activities concerning the disaster and fielded public inquiries about U.S. citizens in Jamaica.

Ambassador Michael G. Sotirhos issued an official disaster declaration Sept. 13 and donated \$25,000 in emergency funds to the ODP to purchase local supplies. That same day, an OFDA-organized assessment team carrying three satellite communication kits, 600 ft. of rope, and three chain saw kits left aboard a DOD C-130 flight to Jamaica. The 11-member team included disaster experts from OFDA, other bureaus of A.I.D., and the Dade County Fire and Rescue Department. (*Travel expenses of \$12,000 for the Dade County team members were covered by a pre-existing contract and are not figured in the USG total.*) OFDA designated AID/Latin America and Caribbean Bureau member Jim Schill, a former OFDA employee, as leader for the first week of the team's three-week stay. Representatives from PAHO and the American National Red Cross (ARC) accompanied the USG team on the flight. OFDA had prepositioned the aircraft and team at Homestead AFB in Miami in anticipation of the GOJ's need for assistance. Before arriving in Kingston's Manley Airport, the OFDA team flew the island's length for a preliminary assessment. Once on land, the team met with Prime Minister Seaga to determine GOJ needs and submitted a list of specific items to OFDA.

On Sept. 14, the Prime Minister and the U.S. Ambassador were on hand at Manley Airport to receive the first of six airlifts of emergency supplies OFDA dispatched from the Panama stockpile between Sept. 14 and 15. Accompanying this shipment on a C-130 aircraft were OFDA regional advisor Paul Bell and PAHO delegate Hugo Prado, both stationed in San Jose, Costa Rica. Prime Minister Seaga, Ambassador Sotirhos, USAID/Kingston Director William Joslin, OFDA team leader Schill, and others then made a four-hour aerial tour of the island, stopping briefly in Montego Bay to deliver two pallets of relief supplies. The inspection confirmed that the eastern end of Jamaica and significant sections elsewhere sustained heavy damage.

OFDA commodities on the six airlifts included the following: 764,400 sq. ft. (294 rolls) of plastic sheeting, 614 tents, 3,815 water jugs (5-gal. capacity), 18 water tanks (3,000-gal. capacity), 10 chain saw kits, and 9,600 cotton blankets. The

tents were not replaced in the stockpile and were considered an in-kind contribution not charged to a fiscal year account. Four DOD airplanes delivered supplies on Sept. 14 and two airplanes completed the airlift on Sept. 15. Montego Bay received half a planeload of the emergency goods and Kingston, the remainder.

Dade County team members, dispatched through the OFDA-Dade County grant, oversaw logistics as the items arrived and were stored pending ODP distribution to regional branches. The OFDA-sponsored group also worked with donors, especially the UNDP, to identify the needs and coordinate international assistance and helped facilitate emergency communications using the satellite radio systems.

A seventh OFDA airlift of 320 tents from the Panama stockpile left for Jamaica on Sept. 17. OFDA regional advisors Bell, who was making a return trip to Jamaica, and Alejandro James accompanied the shipment. Mr. Bell came back to lead the team for its final two weeks and to work with the Mission in determining spending priorities for additional USG aid.

Mr. James worked with PAHO and the GOJ's MOH in identifying emergency medical needs. These needs were later covered by aid from the United Kingdom and NGOs (see "Assistance Provided by the International Community"). Both Paul Bell and Alejandro James concluded their duties and left Jamaica on Oct. 15.

At the initiative of Congressman Cass Ballenger (R-NC), OFDA financed the transport of a Civil Defense portable hospital and passengers on board a U.S. Coast Guard C-141 aircraft. The assistance was donated by the people of North Carolina and arrived in Kingston from Charlotte on Sept. 17.

Emergency aid was donated from the DOD to the JDF at the request of the GOJ. Members of a COMUSFORCARIB military survey team arrived on Sept. 17 and 18 from Key West, Florida, to conduct an assessment of damage to JDF installations. The DOD airlifted equipment and emergency supplies, including field rations, chain saws, and water purification tablets, to the JDF on Sept.

17 and 19. DOD transported medical supplies, food and other gifts from various groups and individuals in the United States. An average of one flight per week brought in public donations with a total of 21 flights by Dec. 21.

On the morning of Sept. 18, two members of the Congressional Black Caucus, Edolphus Towns (D-NY) and Major Owens (D-NY), and the Rev. Jesse Jackson arrived in Kingston to visit the devastated areas. Later that day, they accompanied Prime Minister Seaga and Ambassador Sotirhos on a helicopter tour of hard-hit St. Thomas Parish. In a news conference, Reps. Towns and Owens explained that they had come to assess the situation and report back to Congress on what further aid was needed. Mr. Jackson stressed the need for a Jamaican bipartisan approach to relief and noted the arrival of USG assistance.

OFDA sponsored the loan of a VHF radio kit and a technician from the USFS/Boise Interagency Fire Command (BIFC) in Boise, Idaho. Communications technician Kim Peterson arrived in Kingston on Sept. 25 with the equipment. He worked with the ODP in surveying the agency's communications capabilities and needs over the following several weeks and in setting up an emergency communications network throughout the island.

To address the need for adequate shelter before the October rains, OFDA provided roofing material purchased from Goldin Industries, Inc., of Gulfport, Mississippi. From Sept. 28 to 29, a DOD C-5A aircraft carried the first load of zinc sheeting, totaling 100 MT, to Kingston. Later shipments of the remaining 500 MT arrived by ship. The ODP made the sheeting available to merchants operating under the GOJ's building voucher program, through which victims obtained the material for their damaged homes using GOJ-issued emergency stamps. The USG-donated zinc was used primarily in rural eastern Jamaica, with the first 100 MT going to St. Thomas Parish.

Representatives of Florida Light and Power Co. and Puerto Rican Electric Power Authority were in Jamaica throughout late September surveying

damage to Jamaica's electrical network. Their assessments indicated that poor maintenance and improper installation of electric poles amplified the physical damage from Hurricane Gilbert. On Oct. 12, a Florida Light and Power team arrived with equipment and began immediate repairs to the main electrical lines on a five-mile stretch linking downtown Kingston to Manley Airport. OFDA paid the initial assessment costs and transport of the team; other expenses were funded by the USG rehabilitation package granted on Sept. 28 (see below).

About \$20 million in USG funds originally destined for Panama were diverted through OFDA to provide medium-term assistance to Jamaica. At a Sept. 28 signing ceremony attended by Ambassador Sotirhos, Director Joslin, and Jamaican Deputy Prime Minister Hugh Shearer in Kingston, AID/AA/LAC representative Dwight Ink officially granted the aid for use in Jamaica. Most of the initiative addressed the lack of essential services in five areas of the post-disaster economy: shelter, power, water, health, and agriculture. Specifically, funds were used to purchase roofing materials, medical supplies, farming tools, and seeds and to restore water and sewage services. The plan funded U.S. power teams, including Northeastern Utilities, Long Island Lighting Co, and the Puerto Rican Electric Power Authority, that worked on restoring electricity in affected areas over the following several months. Assistance that was not used to provide commodities and technical services amounted to approximately \$2 million. These funds went as grants to supplement NGO relief activities for a 90-day period. Recipients included the Jamaican Red Cross, the Jamaican Salvation Army, the Jamaican National Development Foundation, and the Kingston Restoration Company.

OFDA sponsored a group with representatives from AID/Washington and the PVOs VITA and the American Red Cross to visit Jamaica in December. The focus of the visit was on gathering lessons from the USG response to Gilbert, especially regarding the appropriateness of specific relief supplies. During its five-day stay, the team made trips to St. Thomas and Clarendon parishes and met with the ODP and various Jamaican NGOs.

The U.S. Congress earmarked \$35 million in rehabilitation assistance to Jamaica for FY 1989. Similar to the \$20 million in emergency FY 1988 funds, this aid was used to help restore power, communications, and water, repair schools and public buildings, and provide capital for small businesses and agriculture. Newly elected Prime Minister Michael Manley and Ambassador Sotirhos held an official signing ceremony on Feb. 15.

Summary of USG Assistance

FY 1988

Ambassador's authority used to purchase local supplies	\$25,000
Cost of DOD airlift of assessment team and of 6 airlifts of commodities	\$114,000
Replacement costs of 294 rolls of plastic sheeting to Panama stockpile . .	\$85,231
Replacement costs of 9,600 blankets to Panama stockpile	\$37,920
Assessment costs of Florida Power and Light Co	\$620
Cost and transport of radio items and technicians	\$34,000
Cost of DOD airlift of 320 tents and an OFDA regional advisor	\$22,000
Airlift by the USCG of donated, portable hospital and passengers from Charlotte, NC	\$33,000
Purchase and airlift of zinc sheeting . . .	\$708,243
Rehabilitation assistance (reprogrammed from USAID/Panama)	\$20,000,000
Total FY 1988	\$21,060,014

FY 1989

Rehabilitation assistance (Congressional earmark)	\$35,000,000
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Jamaicans carry home USG-donated roofing material.

BIFC communications equipment returned
to OFDA \$1,800

Travel and living expenses
associated with the lessons learned team . . \$4,080

DOD airlift of Florida Power and Light Co.
equipment and team and continued technical
assistance \$110,250

Increase in air freight costs of zinc sheeting \$9,983

Replacement costs of 18 3,000-gallon
water tanks to Panama stockpile
and ocean freight \$43,125

Replacement of support kits used
by assessment team \$1,049

Transport costs to replace plastic
sheeting in stockpile \$4,260

Total OFDA \$174,547
Total Other USG \$35,000,000

Total FY 1989 \$35,174,547

TOTAL \$56,234,561

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

ADRA - sent \$600,000 of relief supplies (blankets, plastic sheeting, tents, medicine, food, generators) to Jamaica.

Alcoa - provided a ship through the Jaycees to transport relief supplies in October.

American Jewish Joint Distribution Committee - contributed cash donations from a public fund-raising campaign and helped repair damage to

the University of the West Indies.

American Red Cross (ARC) - donated \$556,040 in assistance. The ARC also sent 2 people on the flight with the OFDA-assembled assessment team and launched a public appeal.

AmeriCares - sent the following airlifts: \$250,000 worth of medicines and water purification supplies with transport donated by Air Jamaica; \$540,000 worth of food, hospital and building supplies, and medicine with transport at \$10,000; \$85,000 worth of food and medical supplies with transport at \$25,000; \$1,000,000 worth of food and medical supplies with transport at \$35,000; and \$500,000 worth of medicine and hospital supplies at \$37,700.

Brother's Brother Foundation - sent 18.2 MT of canned goods (from Heinz), 4,000 tools for agriculture and rehabilitation, 10,000 seeds, 16.8 MT of insecticide, and paid transport of medical supplies, tools, seeds, and 17 containers of donated food. Total estimated value of all was \$15,000.

CARE - dispatched disaster assessment teams to Jamaica and provided \$30,000 to help small farmers buy seeds and tools.

CRS - sent a representative to Kingston to conduct a needs assessment and gave \$225,000 in relief items (food, seeds, tools, and roofing materials), 37 cases of baby clothes and 55 bales of quilts, valued at \$80,700.

CWS - issued an appeal for \$2,000,000 for the Caribbean. CWS also forwarded \$55,000 and medicine worth \$80,382, water purification tablets, food, clothing, and blankets to the Caribbean Conference of Churches for Jamaica.

Hess's Department Stores - contributed \$1,500,000 worth of clothing and 500 cases of canned goods. These supplies were transported at no cost on Air Jamaica and distributed by the Salvation Army.

Jamaica Relief Fund - donated 4.1 MT of clothing through Sister Cities.

Jamaicans for Jamaica (Miami) - sent 2.3 MT of clothing through Sister Cities.

LWR - gave \$10,000 through CWS.

MAP - donated \$7,000 worth of medical supplies to St. James Parish, Jamaica.

Mennonite Central Committee - airlifted food, clothing, blankets, and roofing material, valued at \$125,000.

Oxfam/US - provided \$15,000 of relief assistance through Oxfam/UK.

Partners of the Americas - contributed \$5,000.

Proctor and Gamble - donated 50,000 board feet of lumber.

Salvation Army - operated feeding programs; sent a team to assess additional needs; and provided a plane load and 5 ship containers of relief supplies.

SCF/US - raised \$5,192 distributed by SCF/Canada.

Star of Hope, International - gave \$100,000 of corrugated roofing.

Southern Baptist Foreign Mission Board - released \$10,000 for aid.

WVRD - dispatched emergency supplies (tents, tarps, cookware, water containers, and bottles for water purification) worth \$14,000.

VITA - sent 2 teams to Jamaica to assess needs in the areas of energy and communications. VITA also furnished technical assistance at a cost of \$50,000.

TOTAL \$5,966,014

Action Taken by the International Community

International Organizations

EC - allocated \$715,000 of emergency aid to

finance an airlift of British Red Cross supplies, \$18,800,000 for a school feeding program, and \$10,000,000 for reconstruction of the University of the West Indies.

FAO - donated at least \$250,000 for the purchase of handtools and seeds.

Inter-American Development Bank - provided \$200,000 for provisional shelter.

LRCS - provided blankets and first-aid kits, valued at \$70,000.

PAHO - sent 6 experts to assess needs.

UNDP - donated \$50,000 for immediate relief in Jamaica and a further \$1,100,000 for rehabilitation.

UNDRO - donated \$25,000.

UNICEF - furnished ORS, emergency supplies, and \$50,000.

WFP - supplied 150 MT of food, including fish, rice, vegoil, and nutribars.

World Bank - sent an assessment team.

Governments

Australia - gave \$162,000 to UNICEF, the Jamaican Red Cross, and the Salvation Army of Jamaica for disaster relief.

Canada - furnished \$1,041,504 in relief assistance (giving \$635,000 to the Canadian Red Cross and \$406,504 to other NGOs) and helped the United States and the United Kingdom with the restoration of Jamaica's electrical grid.

Germany, Dem. Rep. - reprogrammed Jamaica development program funds used in agriculture, health, and construction sectors.

Germany, Fed. Rep. - supplied 25 MT of emergency goods, including medicine, water bags, plastic sheeting, and blankets.

Japan - gave a total of \$414,000, comprising \$200,000, \$117,000 in relief supplies, and an

8-man medical team for local hospitals.

Netherlands - gave \$100,000 for relief supplies.
United Kingdom - donated \$5,850,000 to restore Jamaica's electrical distribution network and to repair hospitals, particularly in Morant Bay. Additional funding included limited balance-of-payments support and in-kind relief supplies, crews, and equipment. Sailors from 2 Royal Navy ships in the area repaired roofs of schools and churches in the Montego Bay area. The United Kingdom also provided \$921,250 worth of relief supplies and an assessment team of engineers and environmental specialists from Belize.

Non-Governmental Organizations

The following contributions were made through national Red Cross societies:

Canada - 2,064 kerosene lamps (\$15,900), 40,161 canned food (\$78,000), 17,444 blankets (\$163,000), 11 generator (\$49,600), transport (\$38,100), and \$203,200

Germany, Dem. Rep. - 400 first-aid kits

Germany, Fed. Rep. - 5,060 blankets, worth \$42,200

Japan - \$195,500

Netherlands - 5,000 blankets and \$18,660

New Zealand - \$1,900

Norway - 2 mobile warehouses, valued at \$26,450

Spain - \$25,400

Sweden - 15,000 blankets

Trinidad and Tobago - clothing, food, and galvanized sheets

United Kingdom - 12,500 blankets (\$116,380), 3 generators (\$7,215), transport (\$119,700), and \$13,300

Oxfam/UK - gave \$100,000.

TOTAL \$40,213,259

Date

March 1988

Location

Countrywide

No. Dead

None

No. Affected

2,000,000

The Disaster

The roots of the food emergency in Panama in March 1988 stem from a political crisis which began the previous year. Since June 1987, Panamanians had held demonstrations and launched general strikes in an attempt to oust the discredited commander of the Panamanian Defense Forces (PDF), General Manuel Antonio Noriega Morena. Political tensions culminated on Feb. 25, 1988, when President Eric Arturo Del Valle tried to dismiss the General, but with no success. General Noriega subsequently used Panama's legislative body, which was dominated by his own supporters, to replace President Del Valle with the General's own appointee.

In an attempt to pressure Noriega out of power, the Reagan administration imposed economic sanctions on Panama, resulting in the Panamanian government's inability to pay salaries to its public sector, the nation's largest employer of the middle class. In mid-March, thousands of teachers, doctors, telecommunications workers, and other public-sector employees joined anti-government protests. The civil unrest temporarily paralyzed economic activity, resulting in a lack of cash to buy food and other basic necessities.

Action Taken by the Government of Panama (GOP) and Non-Governmental Organizations

Deposed Panamanian President Del Valle appealed to the international community to send food to Panama for people who did not have the money to purchase it themselves. The Ecumenical Emergency Coordinator (Spanish acronym CEEP) in Panama, comprising representatives from Panama's Evangelical Methodist Church, the Episcopal Church, the Baptist Church of Arraijan, and the Lutheran Church, organized an emergency feeding project for the poor. CEEP appealed for financial support to the WCC's Commission on Interchurch Aid, Refugees and World Service (CICARWS). Caritas/Panama distributed food to low-income families. The GOP, concurrently, was channeling food aid through the Panamian Red Cross.

Assistance Provided by the U.S. Government

On March 24, Ambassador Arthur H. Davis declared a disaster in Panama as a result of the scarcity of cash. He released \$25,000 of his disaster authority to Caritas/Panama for the purchase of food. OFDA augmented this initial grant to Caritas by obligating an additional \$25,000 under the Ambassador's authority and sending one of OFDA's regional disaster management advisors, Alejandro James, from Costa Rica to work with the Embassy and Caritas in organizing food distribution. Upon receiving requests from Ambassador Davis and Caritas for additional funds to expand and extend the food program, OFDA gave another \$190,000 for the purchase of food, and \$16,968 to support Caritas's operational expenses.

TOTAL	\$256,968
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Assistance Provided by U.S. Voluntary Agencies

CARE - provided technical assistance to Caritas/Panama to improve monitoring and support of the emergency food program.

CWS - appealed for \$150,000 in food aid for Panama.

Assistance Provided by the International Community

WCC - appealed for \$100,000 to support relief activities in Panama.

Paraguay

Date

May - September 1988

Location

Paraguay River from Bahia Negra (near the borders of Brazil, Bolivia, and Paraguay) to Alberdi (south of the capital of Ascuncion)

No. Dead

0

No. Affected

30,000; 15,000 homeless

Damage

Extensive damage occurred to buildings and public utilities; cattle perished.

The Disaster

Above-average precipitation in Brazil and Bolivia resulted in flooding along the Paraguay River in Paraguay. Initial reports in mid-March indicated that the headwaters of the river in Mato Grosso State, Brazil, were above normal seasonal levels. In early May, the Paraguay River reached an all-time high of 6.97 meters in Bahia Negra, a town near where the borders of Paraguay, Brazil, and Bolivia meet. Approximately 15,000 inhabitants along the banks were forced to relocate onto higher ground. In total, about 30,000 people were affected with up to 40% receiving some form of food aid. Many buildings required replacement or repair of walls, doors, etc. Small cattle herders withstood considerable destruction to their livestock due to a lack of forage. Those whose livelihood depended on the river (charcoal makers, roof tile manufacturers, vegetable farmers, and fishermen) suffered a great loss of productivity.

Action Taken by the Government of Paraguay (GOP) and Non-Governmental Organizations

As reports indicated that the Paraguay River would be higher than normal, the GOP established a special commission of the legislative branch to evaluate the situation and recommend measures to protect the affected population. This commission coordinated the relief effort and issued a formal appeal of assistance. The Paraguayan Armed Forces were put on alert and assisted in the emergency.

Volunteers from the Paraguayan Red Cross, specially trained in emergency management, distributed food, blankets, and plastic sheeting in some of the larger communities along the river. About 14,000 people received clothing, blankets, food, and emergency shelter material in 20 locations. The Paraguayan Navy provided transport for the goods and personnel along the river. For those victims who did not flee their homes, Red Cross workers constructed temporary platforms above water level within the dwellings.

Assistance Provided by the U.S. Government

Between May 9 and 17, OFDA regional disaster management advisor Rene Carrillo visited Paraguay to assess the situation. He toured the stricken area in a locally leased airplane, which OFDA funded at a cost of \$1,200. On June 24, 1988, U.S. Ambassador Timothy Towell declared a state of emergency from the flooding and donated \$25,000 to the Paraguayan Red Cross. The assistance was used to purchase blankets and construction material and to cover operating expenses. As temporary shelter material was a major priority, OFDA also provided \$30,000 to cover its shipment of 181 rolls of plastic sheeting, valued at \$52,490. The DOD flight of commodities arrived on June 30 from OFDA's stockpile in Panama. *[Note: Only 134 rolls of plastic sheeting were replaced in the stockpile in FY 1989 at a cost of \$38,847.]*

Both the emergency funds and material were presented to the Paraguayan Red Cross on July 1. Mr. Carrillo accompanied the shipment on a return trip to Paraguay where he monitored distribution of the sheeting. He reported that the material's timely arrival prevented the onset of bronchio-pulmonary infections common to such emergencies. OFDA representatives visited Paraguay again between Sept. 7 and 9 to evaluate the use of USG assistance.

Total FY 1988	\$56,200
Total FY 1989	\$38,847

TOTAL **\$95,047**

Assistance Provided by U.S. Voluntary Agencies

CRS - gave medicine and clothing worth \$190,000.

TOTAL **\$190,000**

Assistance Provided by the International Community

China, Rep. (Taiwan) - sent aid worth \$6,000.

Germany, Fed. Rep. - donated \$11,000 worth of emergency assistance.

Japan - contributed relief assistance, valued at \$20,000.

LRCS - provided \$30,000 for medicine, food, and operating expenses.

Spain Red Cross - supplied \$4,800 for medicine and emergency items.

WFP - furnished powdered milk, wheat flour, canned fish, and dry beans, estimated value at \$54,000.

TOTAL \$125,800

Europe

DISASTER

Turkey Landslides



Date

June 23, 1988

Location

The village of Catak, in Trabzon Province, about 300 km. north-east of Ankara and just south of the Black Sea port of Trabzon

No. Dead

64 (63 verified; 1 missing, presumed dead)

No. Affected

305: 185 homeless (25 families); 130 injured

Damage

Several public buildings, houses, and businesses were damaged or destroyed, including 34 houses, 13 shops, and the local elementary school; many village houses were flooded; the major highway through Catak was cut; and water, electricity, and telephone services were cut.

The Disaster

At 8:00 a.m. on June 23, after several days of rain, half a million tons of rock and mud slid down a mountain into the village of Catak, covering an area 60 meters wide by 80 meters long. The landslide destroyed restaurants, buses, cars, and a school, and cut a section of the highway between Erzurum and Trabzon, a Black Sea port city 29 km. north of Catak. Many houses were damaged, with roofs particularly hard hit. Because it was breakfast time and bus passengers had been stranded in Catak by an earlier, smaller landslide, the cafes were packed, and at first, it was feared that the death toll would climb as high as 300. The continuing rain hampered relief work and caused more small landslides. The Black Sea area is prone to landslides, possibly due to deforestation, but this was Turkey's biggest landslide in years.

Rescue operations were halted at 8:00 p.m. on June 23 and at noon the next day because the excavations were inducing more landslides. The mud was so soft that rescue dogs (sent by West Germany) often had trouble walking. In addition, the extreme depth at which the victims were buried severely limited the ability of the dogs to locate bodies. Rescue work resumed more successfully early in the morning of June 25. Turkish authorities believed that 40 people remained buried; one body had been recovered. An elementary school and several other buildings were still covered by mud. The landslide had also caused several streams to change course, flooding village houses. On July 6, the total number of bodies recovered came to 61, most from the coffeehouse, and authorities did not expect the toll to go much higher. The highway opened several days later. The major landslide area, however, had to be bypassed by a service road until the mountain stabilized, reducing the risks of further landslides.

Twenty-five families (185 people) were rendered homeless by the devastating slide, but authorities estimated that an additional 175 families would have to be relocated to safer areas. Later in July, local authorities set off a controlled explosion, attempting to dislodge any remaining loose rock or

mud. When no slides resulted, Turkish authorities decided not to relocate families whose houses had not been destroyed.

Action Taken by the Government of Turkey (GOT) and Non-Governmental Organizations

The GOT's General Directorate for Disasters of the Ministry of Public Works directed and carried out relief and rescue operations. The Turkish government brought in earth-moving equipment for rescue and excavation, moved families endangered by landslides, established centralized phone numbers to report missing persons, and identified needs (search-and-rescue dogs) to be provided by other donors. The Land Registry and Survey Office helped pinpoint the exact location of buildings buried in the debris in order to excavate bodies, some of which were buried in 30 meters of mud and debris. A GOT disaster relief fund for the Catak landslide was set up and administered by the Ministry of Public Works.

The Turkish Red Crescent Society provided assistance to those displaced by the landslides and sent a 15-person team to the disaster site immediately. The Red Crescent set up mobile kitchens and distributed food, tents, blankets, clothing, and shrouds. The total value of both in-kind and cash assistance provided by the Red Crescent was approximately \$61,153 (86,568,000 Turkish lira). The society also supported mitigation efforts to deal with future landslides.

Assistance Provided by the U.S. Government

The unusual severity of the landslide and the fear of a death toll in the hundreds caused nationwide and international concern (several German tourists were among the victims). The GOT requested technical assistance in rescue and extrication techniques and welcomed donations for Red Crescent relief activities. Therefore, U.S. Charge d'Affaires, ad interim, William F. Rope, on behalf of U.S. Ambassador Strauzs-Hupe, declared the landslide to be a disaster on June 24.

The Ambassador presented a check for \$25,000 to the Turkish Red Crescent Society on July 8 to aid the victims of the landslide. This amount represented almost 41% of the Red Crescent effort.

TOTAL \$25,000

Assistance Provided by U.S. Voluntary Agencies

None reported

Assistance Provided by the International Community

Germany, Fed. Rep. - sent 16 search-and-rescue dogs and handlers for the first week after the disaster and provided a medical team.

Germany, Fed. Rep., Red Cross - donated \$14,476 to the Turkish Red Crescent.

United Kingdom - provided 2 geologists.

TOTAL \$14,476

DISASTERS

Africa Insect Infestation

- Morocco
- Algeria
- Tunisia
- Chad
- Niger
- Mali
- Senegal/Gambia
- Mauritania
- Cape Verde
- Sudan
- Ethiopia

Benin Epidemic

Benin Floods

Burkina Faso Floods

Burundi Displaced Persons

Guinea Bissau Epidemic

Lesotho Floods

Madagascar Drought

Malawi Food Shortage

Mali Epidemic

Mauritania Epidemic

Mozambique Civil Strife

Niger Drought

Niger Floods

**Nigeria Accident
(Toxic Waste Incident)**

Somalia Civil Strife

South Africa Food Shortage

Sudan Civil Strife

Sudan Epidemic

Sudan Floods

Uganda Displaced Persons

Uganda Droughts



Overview of the Desert Locust Plague

The year 1988 marked a turning point in the fight against desert locusts. As inadequately controlled upsurges gave rise to a generalized plague in northwestern Africa, West Africa, portions of East Africa, and the Arabian peninsula, most experts felt that an additional five to seven years of extensive control campaigns might be necessary to stem the plague.

Fortunately, an unprecedented outpouring of human and material resources resulted in a very successful control program. In addition to the timely inputs, weather finally worked in favor of the containment effort. For example, the large-scale movement of locusts into the Atlantic in the fall, the lack of early rains along the Red Sea coast of Sudan, and the absence of winds bringing locusts into the Horn contributed to the success of the campaign.

A major reason for the effectiveness of the control program was the establishment by A.I.D. Administrator Alan Woods of an intra-agency Desert Locust Task Force (DLTF) in June 1988. Chaired by OFDA and staffed with representatives from A.I.D.'s Africa and Asia/Near East bureaus, the DLTF was exclusively dedicated to ending the locust plague. The efforts of the DLTF--operating under OFDA emergency procurement authority to purchase and ship pesticides and radio equipment, rent aircraft, and provide other critical inputs--combined with those of the FAO and other donors who provided equally unprecedented levels of human and material assistance, made the critical difference.

MOROCCO

Desert locusts entered Morocco in late 1987 for the first time in 20 years. At the same time, locusts were hatching in northern Mali, southern Algeria, and Mauritania. By October, massive swarms were moving northwest across the Sahara on a broad front, entering western and southeastern Algeria and then moving into eastern Morocco. Soon after the first sightings, additional swarms began arriving from northern Mauritania and Western Sahara.

On Nov. 4, 1987, the Government of Morocco (GOM) requested USAID/Rabat help with the effort to control the locusts migrating into Morocco. A disaster declaration was issued on the same date. OFDA worked with USAID/ Rabat to obtain immediate technical assistance, airplanes, and the pesticide malathion. The EC, Portuguese, Spanish, Germans, and French also assisted.



Immature locusts (hoppers) killed by insecticides
Photos by Carl Castleton, DLTF

About 200,000 ha. were sprayed during the fall 1987 campaign. USAID-supplied Turbo Thrush aircraft, financed by OFDA, covered 15% of the total area sprayed. A three-person logistical ground-support team and, subsequently, three American entomologists assisted. Ground-to-air communications equipment, radios, strobe lights, motor pumps, and other logistical needs also were provided.

Morocco was hit again by an unexpected locust attack of potential plague proportions in March 1988. The invasion from March through June 1988 was approximately five times more severe than the fall 1987 infestation and affected all Maghrebian countries. USAID/Rabat, working with OFDA, procured 100,000 liters of malathion and 183,200 liters of carbaryl and continued spray operations utilizing the two Turbo Thrush aircraft already in country. The fight against locusts in the fall of 1987 and the spring of 1988 successfully prevented migration north of the Atlas Mountains and into important agricultural regions. During the spring, however, locusts were able to lay eggs in southern Morocco, and a subsequent generation developed and escaped to return to the Sahel and to Sudan in June where the rainy season was beginning.

Locust swarms migrating northward were again sighted in the extreme southern regions of Morocco in late September and early October 1988. The situation became extremely critical between Oct. 31 and Nov. 4. With the resumption of hot, southerly winds and the continued lack of vegetation between Senegal and Morocco, even larger swarms continued into December. The locust situation soon outstripped the GOM's spraying capacity of 30,000 to 40,000 ha. per day, and on Nov. 4 the GOM requested two DC-7 aircraft from USAID. The arrival of the two DC-7s on Nov. 10 boosted daily treatment capacity to 80,000 ha., still short of the desired 100,000 ha. per day rate.

Simultaneous with the arrival of the big planes, locust swarms were moving toward the Souss Massa Valley. This was considered a major threat because the Souss Massa Valley is a principal irrigation zone with abundant vegetation and the main producer of high value agricultural exports. If the swarms had managed to settle in the valley, major crop damage would have occurred. Worse yet, temperatures and humidity were favorable for locust development. Breeding and egg-laying in the area would have created a new generation within 45 days. Intensive control efforts prevented this. On Nov. 15, Morocco treated 81,339 ha., which represented the largest single daily treatment.

Given the international dimensions of the potential disaster, His Majesty King Hassan II hosted an international conference on the locust peril in Fes on Oct. 28 to 29, 1988. OFDA Director Julia Taft, USAID Morocco staff, and representatives from 32 countries, the UNDP, and the EC attended. The participants recommended: 1) increased locust control capacity at the national crop protection level, and 2) the creation of an international task force to reduce massive reproduction in recession areas.

Action Taken by the Government of Morocco (GOM)

The GOM's expenditures for the control campaign totaled \$26.6 million in FY 1988 and about \$50 million in FY 1989.

Summary of USG Assistance

FY 1988

First Disaster Declaration (11/04/87)

Ambassador's authority used for local support \$25,000

Technical assistance (entomologists) \$19,658

Procurement and transport of 40,000 liters of malathion \$301,871

Contract for 2 Turbo Thrush aircraft . . . \$100,157

Second Disaster Declaration (03/15/88)

Technical assistance (entomologists to assist with assessment and pesticide application; experts to inspect planes, analyze pesticides, and conduct a review of program) \$33,916

Procurement and transport of 100,000 liters of malathion \$616,185

Procurement and transport of 183,270 liters of carbaryl (\$504,203 of the original cost was refunded because some of the pesticide was ineffective) \$398,926

Contract for continued use of 2 Turbo Thrush aircraft \$300,000

Pesticide procurement (USAID/Rabat funds) \$1,600,000

Aircraft rental (USAID/Rabat funds) . . . \$1,400,000

Mission contribution toward technical assistance, equipment, and operating expenses (USAID/Rabat funds) \$500,000

Total OFDA \$1,349,027

Total Other USG \$3,500,000

Total FY 1988 \$5,295,713

FY 1989

Disaster Declaration (11/07/88)

Contract for 2 DC-7s for aerial spraying \$300,000

Aerial operations specialist \$13,305

Locust Project Paper amendment (USAID/Rabat funds) \$10,000,000

Total OFDA \$313,305

Total Other USG \$10,000,000

Total FY 1989 \$10,313,305

TOTAL \$15,609,018

Assistance Provided by the International Community

International Organizations

EC - provided aircraft and pesticide.

FAO - supplied pesticide and technical assistance.

Governments

Belgium - supplied 2 Alouette helicopters and 13,400 liters of pesticide.

France - provided 9 aircraft and 4,000 liters of pesticide.

Germany, Fed. Rep. - furnished 2 Bell helicopters, 100,000 liters of fenitrothion, and 200 knapsack sprayers.

Italy - contributed sprayers and technical assistance.

Portugal - supplied 16,000 liters of pesticide and aircraft.

Saudi Arabia - donated 30 Land Rovers and 136,000 liters of pesticides.

Spain - furnished aircraft and 14,800 liters of fenitrothion.

The International Community provided an additional \$20,000,000 worth of assistance in FY 1989 (as of 6/20/89)

TOTAL \$25,019,305

ALGERIA

During the fall of 1987, swarms of desert locusts entered Algeria from Mali, Mauritania, Western Sahara, and Morocco. Accurate estimates of the area infested were lacking, however, because of the rapid dispersal of the locust swarms and the difficulty in surveying the vast areas of remote and inaccessible terrain.

An OFDA assessment team traveled to Algeria in December 1987. The entomologists concluded that Algeria faced a serious threat of invasion in the spring of 1988 from the Sahel where large residual populations persisted in Mali, Niger, and Chad, as well as from Mauritania and Western Sahara where locusts could invade across a broad front from the west. Invading swarms not effectively controlled in Algeria could disintegrate into smaller swarms in the Atlas Piedmont and establish a breeding cycle, creating a serious risk to Algeria's northern agricultural regions.

The U.S. Ambassador declared a disaster on Dec. 29, 1987, and OFDA provided radios and aerial spray equipment for the spring campaign. As expected, waves of locusts began to invade Algeria in the spring of 1988. A second disaster declaration was issued by the U.S. Embassy in Algiers on March 27, 1988. An estimated 200,000 to 300,000 ha. were infested over a three-month period.

Assessments by entomologists predicted that Algeria could experience invasions of the same, if not greater, magnitude in the fall of 1988 due to the large potential breeding sites in remote areas of the Sahel near the southern Algerian border. OFDA continued its assistance to Algeria under this expected emergency (disaster declaration Aug. 16, 1988) by providing a technical assistance team to assess the readiness of the crop protection service and to be on-site when the swarms came and by purchasing and shipping 150,000 liters of malathion, protective clothing, and additional radio equipment to improve the sets provided for the spring campaign.

The Government of Algeria (GOA) had prepositioned over 20 aircraft in strategic points around the country. Moreover, the GOA began negotiations for a five-year loan of \$58 million with the World Bank to assist in preparations for what was perceived to be a plague of at least five years' duration. The purpose of the loan is to minimize, if not avert, economic disruption to some 39.7 million ha. of Algeria's productive lands and to protect the livelihood of some 11.9 million people potentially at risk in the invaded areas.

Summary of USG Assistance

FY 1988

First Disaster Declaration (12/29/87)
 Pre-disaster assessment \$2,724
 Radio equipment \$73,942
 Spraying equipment for aircraft \$64,007

Second Disaster Declaration (03/27/88)
 Cost of 6 fuel tank kits and transport . . . \$39,634

Third Disaster Declaration (08/16/88)
 Procurement and shipment
 of 150,000 liters of malathion \$685,852
 Radio equipment \$109,386
 Protective clothing \$68,904
 Technical assistance from USDA/OICD . \$25,583
Total FY 1988 \$1,070,032

FY 1989

Carry-over for FY 1988 disaster declaration
 Technical assistance \$7,155
 Travel expenses of technical
 assistance team \$10,000
 Air freight of truck spare parts \$803
Total FY 1989 \$17,958

TOTAL \$1,087,990

Assistance Provided by the International Community

International Organizations
 EC - gave 50,000 liters of fenitrothion and 200 backpack sprayers.

World Bank - provided a loan in 1989.

Governments
 France - contributed 10,000 liters of carbaryl and 100 backpack sprayers.

Germany, Fed. Rep. - sent 32,900 liters of fenitrothion.

Italy - provided 60,000 liters of carbaryl and helicopters.

Saudi Arabia - furnished trucks, sprayers, and pesticide.

Soviet Union - supplied 2 Antonov aircraft, vehicles, and pesticide.

Note: No figure for international assistance for Algeria is available.

TUNISIA

Like Morocco and Algeria, Tunisia experienced large invasions of desert locusts in the spring of 1988. On March 15, 1988, the Crop Protection Service reported that desert locusts had crossed the Algerian border near Nefta and moved east on the Gafsa-Sfax axis to Maknassy. The Government of Tunisia (GOT) immediately mobilized a National Locust Control Committee under the leadership of the Prime Minister and appealed for international assistance. The fear was that the change of winds from northeasterly to southeasterly in April could blow the locusts into the rich agricultural lands in the Cap region of the north.

A disaster declaration was issued by the U.S. Ambassador on March 19, 1988. OFDA sent George Cavin, a senior American entomologist, to Tunisia on March 20, 1988, to make an assessment of the situation. Waves of locusts continued to arrive from Algeria during the following weeks, and the GOT increased the number of aircraft in service to 17 and ground units to 58. Between March 2 and 24, over 52,687 ha. were treated. By the end of May the area treated had reached 306,000 ha.

OFDA provided important assistance during the spring 1988 campaign: air shipments of 50,000 liters of malathion ULV; a technical assistance team comprising a logistician, an aerial control expert, a radio communications expert, and entomologists; radio equipment; and strobe lights for night treatment of settled swarms.

By the end of May, the worst was over, and

Tunisia began to make early plans for an expected resurgence from Algeria or Libya in the fall. A control effort of at least 300,000 ha. was anticipated, with a maximum of one million ha. as a contingency. Under a disaster declaration issued on July 23, 1988, USAID/Tunis requested OFDA/DLTF assistance to organize for the invasion. In preparation, greenness maps were provided, a technical assistance team reassessed the readiness capability of the GOT and was on-site to consult in case of locust invasions, 150,000 liters of malathion were shipped by sea, and spare parts for spray planes were shipped in by air. In addition, USAID/Tunis concluded a Commodity Import Program (CIP) arrangement with the GOT for the purchase of three spray planes.

Addendum: Control efforts in Senegal, Mauritania, and Morocco were timely and well executed (see separate reports). As a result, Tunisia received few swarms of any significance in the last campaign.



Breeding area inappropriate for pesticide application due to environmental concerns

Action Taken by the Government of Tunisia (GOT)

Under the CIP arrangement, the GOT spent \$10 million on aircraft for the insect control program.

Summary of USG Assistance

FY 1988

First Disaster Declaration (03/19/88)

Purchase and air shipment of 10,000 liters of malathion \$515,934

Technical assistance (entomologist, experts in spraying operations, communications, logistics) \$33,185

Radio and communications equipment . . . \$44,253

Spare parts for spray aircraft \$36,453

Second Disaster Declaration (07/23/88)
Purchase and air shipment of 150,000 liters of malathion \$685,852

Technical assistance (USDA/OICD) \$17,770

Unspecified purchase (USAID/Tunis funds) \$28,000

Total OFDA \$730,622

Total Other USG \$28,000

Total FY 1988 \$1,361,447

FY 1989

Carry-over for FY 1988 declaration
Technical assistance (entomologists, environmental specialist) \$36,252

Purchase of 3 air tractors \$1,300,000

Total OFDA \$36,252

Total Other USG \$1,300,000

Total FY 1989 \$1,336,252

TOTAL \$2,697,699

Assistance Provided by the International Community

International Organizations
EC - donated pesticide and \$111,000 for fuel.

Governments
Belgium - provided 10,000 liters of fenitrothion, 80 vehicle sprayers, and 4,000 exhaust nozzles.

France - furnished 4 Piper aircraft and 10,000 liters of fenitrothion.

Germany, Fed. Rep. - provided 32,800 liters of fenitrothion and 2 Bell helicopters.

Greece - contributed 15,900 liters of pesticide, 100 sets of protective gear, and 30 backpack sprayers.

Italy - provided 2 Hughes helicopters.

Saudi Arabia - contributed 10,000 liters of fenitrothion, 30 Toyota vehicles, and 10 exhaust sprayers.

Spain - gave 6,000 liters of fenitrothion.

TOTAL \$3,550,000

CHAD

Responding to the assessment of locust experts after the 1987 campaign and as a result of donor committee meetings, USAID/Ndjamena submitted a proposal for an emergency locust control plan to AID/Washington. The proposal was approved on July 7, 1988, when the U.S. Ambassador officially declared a disaster. OFDA paid for pesticide, technical assistance, and greenness maps. Delivery of 30,000 liters of pesticide was made on Aug. 3, 1988. OFDA also provided aircraft and funds for local operations.

OFDA-funded aircraft were requested as locust swarms poured into Chad from North Africa. However, the aircraft were never used effectively because of the difficulty in getting them to Chad and the lack of major targets. Village brigades and traditional control measures may have had more of an impact on reducing the larval bands. Approximately 100,000 ha. were sprayed by ground teams and aircraft. Fortunately, many of the locusts disappeared mysteriously and never appreciably damaged food crops in 1988.

Summary of USG Assistance

Amendment to aerial spraying program contract \$235,957

Local support (fuel, food, equipment) for field bases for aerial spraying program	\$64,392
Local procurement in support of aerial services	\$650,000
Technical assistance for spraying program	\$17,200
Transport of equipment from Morocco . . .	\$1,437
Airlift of 4 tents from OFDA stockpile . . .	\$2,500
Airlift of pumps and hoses	\$1,144
Procurement of pesticide and greenness maps (USAID/Ndjamena funds)	\$332,600
<i>Total OFDA</i>	<i>\$972,630</i>
<i>Total Other USG</i>	<i>\$332,600</i>
TOTAL	\$1,305,230

Assistance Provided by the International Community

International Organizations

African Development Bank - contributed \$39,000 for the Fada field office.

EC - supplied 30,000 liters of fenitrothion.

FAO - assisted with regional air support and operating costs and provided 40,000 liters of fenitrothion, 10,000 liters of ULV, 4 Unimogs, and 63,000 liters of dursban.

OAU - donated \$300,000.

OCALAV - provided 2 pickups, 3 sprayers, and 2 Unimogs.

Governments

France - provided a fixed-wing airplane, a helicopter, 40,000 liters of lindane, 60,000 liters of fenitrothion, 15,000 liters of gammophele, a truck, and 500 backpack sprayers.

Germany, Fed. Rep. - furnished 6,000 liters of fenitrothion and assisted with operating costs.

Japan - gave 20,000 liters of fenitrothion.

Netherlands - contributed \$280,000 for pesticides.

Switzerland - provided \$67,000, 10 nozzle sprayers, and a helicopter.

United Kingdom - furnished operating costs, a base radio, 10 2-way radios, 13 tents, 2 pick-ups, 10,000 liters of fenitrothion, 8 nozzle sprayers, 8 exhaust sprayers, and 100 ULV sprayers.

TOTAL \$1,951,598

NIGER

The first locust swarms sighted in Niger in April 1988 were small, traversing the country from west to east in the Air Mountains. In the valleys of these mountains, a large population of immature, transient adults was able to thrive during the winter of 1987/1988 due to abundant perennial vegetation. The U.S. Ambassador to Niger issued a disaster declaration on July 8 in anticipation of a worsening locust situation leading to food shortages. By August, Niger was experiencing severe locust infestations. Approximately 1.9 million ha. reportedly were infested with locust hoppers in a belt extending east to west across the southern portion of the country.

On Aug. 17, the Government of Niger (GON) convoked the diplomatic community to announce that the locust situation in the country had reached crisis proportions and that additional assistance was required. USAID/Niamey believed that action on improving communications, specifically the acquisition and installation of additional HF radios, was the key to increasing the Niger Crop Protection Service's operational capacity. An HF radio specialist and equipment, therefore, were requested from and supplied by OFDA. OFDA also contributed 60,000 liters of malathion and lent a non-directional beacon (NDB) which worked flawlessly and improved operational efficiency of aircraft and the safety of flights.

Since the beginning of the locust control operation in 1988, the GON estimated that 862,000 ha. have



USAID-financed locust control spray aircraft in northern Niger

been treated by ground and aircraft. As a result of the control program and the excellent rains and harvest, food crops sustained minimal damage in 1988.

Summary of USG Assistance

FY 1988

Ambassador's authority for local support . . . \$25,000
 Radio and electronic equipment \$49,686
 Local support for control operations
 (USAID/Niamey allotment) \$155,000

Purchase and airlift of 60,000 liters
 of malathion \$321,268
 Technical assistance to develop radio
 network \$10,293
 Operations and crop protection service
 (USAID/Niamey funds) \$400,000
 Pesticide and greenness maps
 (AID/Africa Bureau funds) \$238,400
 Total OFDA \$561,247
 Total Other USG \$638,400
Total FY 1988 \$1,199,647

FY 1989

Carry-over for FY 1988 disaster declaration

Rental cost for 2 spray planes \$166,000

Mission buy-in to AELGA (African
Emergency Locust/Grasshopper Assistance
project) (USAID/Niamey funds) \$151,000

Total OFDA \$166,000

Total Other USG \$151,000

Total FY 1989 \$317,000

TOTAL \$1,516,647

**Assistance Provided by the International
Community**

International Organizations

EC - contributed 90,000 liters of pesticide and a
helicopter.

FAO - established a regional operations center
(\$57,000), provided regional technical assistance
(\$250,000) and a survey, and donated pesticide, a
helicopter, and other equipment.

Islamic Development Bank - gave 6 Toyota
pickups.

UNDP - supported the OCALAV base and donated
pesticide (at least 25,000 liters of fenitrothion).

Governments

Algeria - gave 39,000 liters of malathion.

Canada - provided \$224,138 for operations, aircraft,
maintenance, fuel, and technical assistance.

France - provided 20 MT of lindane, 100,000 liters
of gammophele, battery motor sprayers, a
helicopter, spray trucks, and operational costs.

Germany, Fed. Rep. - contributed pesticide (98,400
liters of fenitrothion and 50,000 liters of

lambda-cylothrion) worth \$579,039, as well as
3,000 battery-powered sprayers.

Korea, Rep. - provided 2 spray planes.

Libya - furnished a Cessna aircraft, 27,000 liters of
dursban, 50 units of protective equipment, and
operational costs for the Agadez control program.

Netherlands - gave \$250,000 for the purchase of
fenitrothion, and provided 4 planes, 30,000 liters of
fuel, 2 helicopters, and other operational support.

Nigeria - contributed 30,000 liters of fuel and
pesticide.

Switzerland - donated 10,000 liters of fenitrothion.

TOTAL \$7,200,000

MALI

The infestations which started in April 1988
spurred intensive control activities by the Mali
Crop Protection Service, largely in crop areas. The
infestations were particularly serious in the regions
of the Adrar and Tamesna. USAID/Bamako
estimated that the locust/grasshopper infestation
affected a total of 871,000 ha. Overall crop loss
was about 2%, but localized damage was often
severe. In response to the U.S. Ambassador's
disaster declaration on Aug. 26, 1988, OFDA
procured and shipped 100,000 liters of malathion to
Mali and provided field support. The AID/Africa
Bureau also purchased pesticide and supported
control activities.

Summary of USG Assistance

Purchase and airlift
of 100,000 liters of malathion \$529,110

Mission allotment for in-country
transport and field equipment \$25,000

Mission buy-in for operations support and
flying hours (USAID/Bamako funds) . . \$500,000

Nosema pesticide trials
(AID/Africa Bureau funds) \$135,000

Procurement of 50,000 liters
of malathion (AID/Africa Bureau funds) \$471,000

Greenness maps and FAO entomologist
(AID/Africa Bureau funds) \$115,000

Total OFDA \$554,110
Total Other USG \$1,221,000

TOTAL \$1,775,110

Assistance Provided by the International Community

International Organizations

EC - furnished 32,000 liters of fenitrothion.
Japan - supplied 25,000 liters of fenitrothion.

Morocco - provided 10,000 liters of malathion, 100 hours of fixed-wing aircraft operations, 2 jeeps, and technical assistance.

Netherlands - gave 25,000 liters of fenitrothion and provided operational support.

Norway - furnished 4 helicopters.

Switzerland - contributed 15,600 liters of fenitrothion.

United Kingdom - donated 8,000 liters of fecarn and 10 sprayers.

TOTAL \$3,500,000

massive invasion of egg-laying locusts from southwestern Mauritania. In response to disaster declarations from the Gambia on Oct. 14 and from Senegal on Oct. 24, 1988, the USG initially supported spraying operations of two small aircraft. It became obvious in early November, however, that these operations, and indeed all other attempts to control the locusts, would not be enough.

The use of blanket aerial treatment by a large plane operation, therefore, was recommended.

One C-130 and two DC-7s began flying only five days after the formal request was made to AID/Washington, demonstrating the rapid response capability of OFDA and the two aviation contractors which supplied the aircraft and crews. In support of the big plane operation, commercial and military aircraft flew additional quantities (253,200 liters) of malathion.

In total, the large plane operation applied approximately 460,000 liters of insecticide to 746,000 ha. in Senegal and 41,000 liters to 69,000 ha. in the Gambia. The small plane operation treated approximately 142,000 ha.

Locust control operations in Senegal successfully prevented the formation of an immense swarm of mature locusts that could have destroyed much of Senegal's agriculture and created future havoc in neighboring countries. The successful outcome was marred, however, by the unprovoked missile attack on the two DC-7s over the Western Sahara and the tragic deaths of five Americans working for T&G Aviation on the Senegal desert locust control program.

SENEGAL AND GAMBIA

The first locusts to be reported in Senegal entered from Mauritania on April 5, 1988, and did not cause much damage. The U.S. Ambassador declared a disaster on May 11, 1988, in anticipation of a destructive infestation and released his disaster assistance authority to purchase mobile radios for the Crop Protection Service (CPS).

The next invasion in September, however, did surprise international and local experts. A combination of an unusual movement of the intertropical convergence zone and uncontrolled locust breeding elsewhere led to the sudden,

Action Taken by the Government of Senegal (GOS)

The GOS paid purchase and shipment costs of \$2.5 million for 110,000 liters of malathion in FY 1989.

Summary of USG Assistance

SENEGAL

FY 1988

First Disaster Declaration (05/11/88)

Ambassador's authority used for procurement of mobile radios for the CPS \$25,000

Technical assistance (USDA/OICD) . . . \$120,829

FAO - provided 25,000 liters of fenitrothion, 10 vehicles, technical assistance, and operational support.

UNDP - provided technical assistance.

Governments

Canada - furnished fixed-wing aircraft, a helicopter, and 10,000 liters of fenitrothion and assisted with ground support and operational costs.

France - donated 20,000 liters of lindane and 10,000 liters of gammophele, as well as 5,000 liters of gas and oil and 5,000 liters of avgas. France also supported an unspecified number of flight hours.

Unspecified purchase (USAID/Dakar funds) \$100,000

Total OFDA \$145,000

Total Other USG \$100,000

Total FY 1988 \$245,829

FY 1989

Second Disaster Declaration (10/24/88)

Contract for 2 DC-7 aircraft for spray program \$545,000

Contract for a C-130 aircraft \$589,080

Purchase of fuel oil \$6,840

Airlift of 253,200 liters of malathion . . \$870,915

DOD airlift of crash victims' bodies . . . \$51,020

Contract for 3 air tractors \$190,000

Cost of flying Turbo Thrush aircraft from Morocco (USAID/Dakar funds) . . . \$37,400

Purchase and transport of 67,000 gallons of malathion (USAID/Dakar funds) . . \$1,803,840

Extension of C-130 and operating expenses (USAID/Dakar funds) \$196,160

Total OFDA \$2,252,855

Total Other USG \$2,031,400

Total FY 1989 \$4,284,255

TOTAL \$4,530,084

GAMBIA

FY 1989

First Disaster Declaration (10/14/88)

Ambassador's authority used for purchase of pesticide, fuel, and equipment \$25,000

TOTAL \$25,000

Assistance Provided by the International Community

International Organizations

Common Fund - allocated \$633,000 for insecticide and shovels.

EC - contributed \$1,200,000 for an entomologist, a logistician, and 130,000 liters of fenitrothion.

FAO - furnished \$153,000 for early warning and regional coordination, as well as camping materials, radios, 4 planes, a helicopter, and fuel.

Islamic Development Bank - gave \$250,000 for materials and a vehicle.

OAU - contributed \$97,000.

OCALAV - provided \$787,000 for operations.

UNDP - donated \$47,000 for equipment.

Governments

Canada - dispatched a regional locust coordinator and 2 small planes.

France - provided \$333,000 for a helicopter, a plane, pesticide, radios, and other equipment.

Japan - furnished \$3,700,000 for pesticide and equipment.

Netherlands - gave \$4,000,000 via FAO for the West Africa control program.

Spain - donated \$33,000 for fenitrothion.

United Kingdom - provided \$40,000 for pesticide and an equipment handbook.

TOTAL \$11,273,000

MAURITANIA

Heavy rainfall in the summer and fall of 1987 gave rise to environmental conditions that were favorable for locust breeding and survival.

Although the 1988 season began and ended with locusts in the northern regions, the main impact of the locust plague was felt in southern pastoral and agricultural areas. Rain continued in the northern regions in early March 1988 and control programs continued on an austere level with questionable impact. Reportedly, swarms of adult locusts moved in and around Mauritania in June.

In August, all observed that treatment efforts were inadequate because of the vastness of the infested regions and the rapidly increasing numbers of locusts. The U.S. Ambassador declared a disaster on Aug. 30, 1988, and OFDA airlifted pesticide to Mauritania to support an upscaled campaign. By early September, rainfall in the south and southeast had exceeded the heavy levels of the previous year, and the area was ecologically suited for locust proliferation.

By mid-October, the FAO and Canada had each increased operations to two spray planes, and the French also had mounted a small, two-plane operation.

In response to a new disaster declaration on Oct. 27, 1988, OFDA began providing technical assistance and deployed four Turbo Thrush aircraft. The USG-funded operations were conducted from early November to mid- December with a total of 156,150 ha. treated. The combined control operations treated nearly 900,000 ha. during the 1988 season with the assistance of the Mauritanian military and the involvement of Peace Corps volunteers.

Summary of USG Assistance

FY 1988

First Disaster Declaration (08/30/88)

Purchase and airlift of 100,000 liters of malathion	\$522,877
Leasing of aircraft and transport support	\$35,000
Technical assistance (USDA/OICD)	\$71,087

Aircraft rental and technical assistance
from FAO (AID/Africa Bureau funds) . . \$300,000

Greenness maps (AID/Africa Bureau funds) \$50,000

Technical assistance and ground support
(AID/Africa Bureau funds) \$468,000

Total OFDA \$628,964
Total Other USG \$818,000

Total FY 1988 \$1,446,964



Pesticide ground spreader mounted on a Unimog truck in northern Mauritania

FY 1989

Second Disaster Declaration (10/27/88)

Purchase and air freight of radios \$26,633

Contract for 4 Turbo Thrush aircraft
(Mauritania's share) \$700,000

Technical assistance (radio technicians) . . \$24,623

Total FY 1989 \$751,256

TOTAL \$2,198,220

Assistance Provided by the International Community

International Organizations

EC - furnished 200 hours of helicopter time, vehicles, and 100,000 liters of pesticide.

FAO - provided a Cessna plane, \$246,000 for OCALAV, pesticide, sprayers, vehicles, and radios.

OCALAV - provided a fixed-wing spray plane.

UNDP - gave \$166,000.

Governments

Algeria - supplied 15,000 liters of fenitrothion, 5 vehicles, and 9 technicians.

Canada - contributed 2 fixed-wing spray planes and \$1,800,000 in regional assistance.

China, People's Rep. - donated 1.5 MT of malathion.

France - furnished a helicopter, a spray plane, fuel, 15,000 liters of lindane, and 3,000 liters of liquid pesticide.

Germany, Fed. Rep. - gave 32,000 liters of fenitrothion and \$1,158,078.

Japan - contributed 40 MT of liquid pesticide, 8 vehicles, and 2,000 liters of ULV.

Morocco - sent 20,000 liters of fenitrothion.

Saudi Arabia - donated 15 vehicles and 100 MT of pesticide.

Soviet Union - gave 30 MT of malathion.

Spain - supplied 5,250 liters of fenitrothion.

Sweden - donated 12 vehicles.

Tunisia - furnished 10,000 liters of fenitrothion.

TOTAL \$3,370,078

CAPE VERDE

Four waves of desert locusts infested Cape Verde, with swarms first arriving in March 1988 after early rains. Damage was mainly to fruit and irrigated crops. OFDA and the AID/Africa Bureau

responded by supplying sprayers and vehicle spare parts after the U.S. Ambassador issued a disaster declaration on Oct. 27, 1988.

Portugal - supplied a helicopter.

TOTAL \$950,000

Summary of USG Assistance

FY 1988

Purchase of vehicle spare parts
(AID/Africa Bureau funds) \$75,000

Total Other USG \$75,000

Total FY 1988 \$75,000

FY 1989

Ambassador's authority used to purchase
100 backpack ULV sprayers \$25,000

Total FY 1989 \$25,000

TOTAL \$100,000

Assistance Provided by the International Community

International Organizations

EC - supported rental/purchase of vehicles and furnished a helicopter and insecticide.

FAO - provided 200 sprayers, technical assistance, and operational expenses.

OAU/African Development Bank - furnished a pickup truck and contributed toward operating expenses.

Governments

France - sent an environmentalist and provided 150 MT of poison bait and other pesticide.

Germany, Fed. Rep. - donated sprayers and pesticide, valued at \$164,653.

Netherlands - assisted with operational expenses and donated sprayers, all worth \$64,000.

SUDAN

On May 20, 1988, mature swarms were first reported entering Northern Darfur province from Chad. By the end of July, 350,000 ha. were infested and 2,500 ha. were treated. After a disaster declaration by the U.S. Ambassador on July 29, OFDA provided funds and radios to support an aerial spray operation run by the Sudanese Plant Protection Department. Egg laying, hatching, and hopper maturation occurred in August.

By the end of the month 180,000 ha. were infested with hoppers and control teams had treated nearly 46,000 ha. Over 550,000 ha. were reported infested by September and nearly 170,000 ha. were treated during that month. Despite heavy infestations of locusts during the summer campaign, only minor damage to grain and vegetables occurred, with severe localized damage in some areas. The loss of cereal production to locusts was estimated at 2%.

In November, second-generation hoppers matured and fledged, forming immature swarms by the end of the month. Most of these swarms joined earlier swarms in a general east and northeast migration to the winter breeding areas along the Red Sea coast. Nearly 770,000 ha. were reported infested and 207,000 ha. were treated during November. The treated area included 26,000 ha. along the Red Sea coast.

The U.S. Ambassador issued a new disaster declaration on Dec. 30, 1988, and OFDA responded by sending a DLTF program officer and a logistician to help plan control activities. From May 22 to Dec. 31, 1988, over 3.7 million ha. were infested with desert locusts in the summer breeding areas of Sudan, and over 880,000 ha. were treated by ground and aerial teams.

However, dry vegetative conditions forced many swarms from the winter breeding grounds along

the Red Sea coast. The locusts continued east to the Arabian peninsula. Some breeding, nevertheless, occurred in favorable areas of the Tokar Delta and Wadi Oko/Diib but were controlled without emergency measures.

Action Taken by the Government of Sudan (GOS)

Control activities by the GOS amounted to almost \$1.8 million in FY 1988.

Summary of USG Assistance

FY 1988

First Disaster Declaration (07/29/88)

Charter of helicopter and spray aircraft	\$555,000
Radio equipment and transport	\$21,925
Protective clothing and transport	\$9,108
Technical assistance of radio engineer	\$7,245
Technical assistance (USDA/OICD)	\$39,137
Unspecified Mission purchase (USAID/Khartoum funds)	\$30,000
Total OFDA	\$632,415
Total Other USG	\$30,000
Total FY 1988	\$662,415

FY 1989

Carry-over for FY 1988 disaster declaration

Aircraft for DLTF assessment team	\$25,000
Greenness maps	\$49,531

Second Disaster Declaration (12/30/88)

Procurement of radio equipment	\$6,853
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Technical assistance (logistics/operations expert, locust control coordination officer, assistant to USAID/Khartoum to start up aerial control program) \$50,599

Total FY 1989 \$131,983

TOTAL \$794,398

Assistance Provided by the International Community

Information on specific contributions is unavailable.

TOTAL \$3,428,333

ETHIOPIA

Ethiopia fell victim to pest infestations for the third year in a row. First reports of locust activity in June noted the presence of mature swarms in the Asmara region of northern Eritrea. These locally bred adult locusts were joined by swarms migrating from heavily infested Northern Darfur province in Sudan. Wet soil from unusually heavy July and August rains provided good breeding grounds for the insects along the Red Sea coast, around Asmara, and in the western lowlands. According to the Eritrean Relief Association (ERA), the relief arm of the Eritrean People's Liberation Front (EPLF), 500,000 ha. in the region were affected.

In mid-October, locusts from Saudi Arabia invaded eastern Tigray. The Relief Society of Tigray (REST) of the Tigray People's Liberation Front (TPLF) estimated that 3,000 ha. of Tigrayan cropland sustained damage. By the end of December, low- to medium-density immature swarms were reported in Tigray and in Seraie, Hamassein, and Key Bahir areas of Eritrea. Newly fledged young swarms were prevalent in the winter breeding grounds of the Red Sea coast. However, control operations from both the rebel relief groups and the Ethiopian government helped prevent major crop damage and mass migrations of the insects into neighboring countries.

As the threat became evident in July, the Ministry of Agriculture (MOA), working with the multinational Desert Locust Control Organization for East Africa (DLCO/EA), mobilized its resources for the control campaign. An FAO consultant carried out a computerized inventory of government pesticide stocks and the MOA readied mobilization teams to organize farmers for ground operations. An official appeal for international assistance was issued, and MOA and DLCO/EA base staff arranged for strategic stocking of pesticides in northern Ethiopia. The MOA Crop Protection Service supervised the ground campaign which began in August. With USG and FAO assistance, DLCO/EA undertook aerial operations in early fall using a DLCO/EA spray plane, an FAO-funded helicopter, and two chartered aircraft. Surveys and spraying occurred in Eritrea, Tigray, and parts of Wollo. DLCO/EA also conducted an aerial survey of Harerghe which revealed no presence of locusts. Political and physical inaccessibility of the most affected areas considerably constrained GPDRE and DLCO/EA efforts.

Rebel groups also conducted locust control. In June, the ERA initiated its campaign in EPLF-occupied territory of Eritrea, treating up to 18,000 ha. of infested land by Sept. 25. In TPLF-held land in Tigray, the REST campaign started in October and included a combination of fighter aircraft spraying and farmers using traditional methods.

U.S. Charge James R. Cheek declared the insect infestation to be a disaster on Sept. 2, 1988. In conjunction with the declaration and an earlier DLCO/EA request, OFDA funded three months' worth of operational support for air and ground control teams, aviation and vehicle fuel, and repair of an aircraft engine for the locust campaign in East Africa. A portion of this assistance was used for Ethiopia. OFDA purchased 44 hours of helicopter survey time in October. An FAO-funded entomologist used the survey time to conduct an aerial assessment of Tigray and Harerghe. Additionally, OFDA arranged for the procurement and transport of 40,000 liters of malathion from Cheminova Co. in Denmark. The pesticide was airlifted to Djibouti from Europe where it arrived on Sept. 21 and was stored under DLCO/EA auspices for use in Ethiopia.

Summary of USG Assistance

FY 1988

Purchase of 40,000 liters of malathion . . .	\$140,220
Transport of malathion	\$74,600
Grant to DLCO/EA for locust control program	\$193,000
Total FY 1988	\$407,820

FY 1989

Carry-over for FY 1988 Disaster Declaration

Helicopter survey time	\$15,405
Total FY 1989	\$15,405
TOTAL	\$423,225

Assistance Provided by U.S. Voluntary Agencies

WVRD - donated 500 knapsack sprayers.

Assistance Provided by the International Community

FAO - provided \$90,000 for one month's flying time for one helicopter.

Italy - furnished \$500,000 in technical assistance, air support, and 30 MT of pesticide.

Oxfam/UK - sponsored an assessment of usable pesticide stocks.

United Kingdom - contributed \$370,370 to DLCO/EA for use in Ethiopia.

TOTAL	\$960,370
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Date

December 1987 -
May 1988

Location

Atacora Province,
particularly
Tanguieta, Coby,
and Materi districts

No. Dead

41

No. Affected

Total unknown; at
least 347 cases

The Disaster

The Atacora Province, one of the least developed areas of Benin, experienced outbreaks of types A and C meningitis that began in December 1987 and continued into the next year. About 85% of the cases occurred in the Tanguieta, Coby, and Materi districts. While the total number of infected remained unknown, there were at least 41 deaths and 347 hospitalized. Crowded living conditions, poor hygiene, and reluctance or difficulties in seeking medical attention contributed to the spread of the disease.

Action Taken by the Government of the People's Republic of Benin (GPRB)

On Feb. 26, after determining local resources were insufficient to meet the problem, the Ministry of Health (MOH) officially appealed for assistance from WHO, which communicated the request to UNICEF. Concurrently, an educational campaign was mounted on radio and through health and social centers to persuade local people to seek vaccination. The Minister of Health, accompanied by the provincial governor, made two trips to the area to monitor progress and to further publicize the vaccination campaign.

Assistance Provided by the U.S. Government

Following a UNICEF request for 100,000 doses of vaccine, U.S. Ambassador Walter Stadler made a declaration of disaster on March 21. OFDA provided \$20,000 to UNICEF to purchase the vaccine from the Merieux Institute in Lyon, France. The shipment arrived in Cotonou on March 26. UNICEF funded transport and handled delivery to the MOH. MOH officials began vaccinations in the affected area the week of April 4. By the end of May, health workers had administered 39,750 doses in Atacora while transferring another 20,000 doses to replenish depleted stocks in Bourkou Province.

The USG also responded to a March 12 appeal from the USAID/Cotonou for drugs to the National University Hospital's Pediatric Center. The medical facility, located in the Beninois capital of Cotonou,

was experiencing an emergency shortfall in medicine and supplies. OFDA approved \$26,642 for the local purchase of antibiotics, quinine quinimax, valium, apegic, penicillin, totapen, and gardenal.

TOTAL \$46,642

Assistance Provided by U.S. Voluntary Agencies

None reported

Assistance Provided by the International Community

UNICEF - contributed antibiotics and syringes and paid for transportation and internal distribution costs of U.S.-donated vaccine at a total cost of \$15,000.

WHO - monitored the distribution of U.S.-donated vaccine.

TOTAL \$15,000

Date

September 1988

Location

Karimama and Malanville districts in Borgou Province and Zagnanado, Ouinhi, and Savalou districts in Zou Province

No. Dead

None reported

No. Affected

68,000 people affected, of whom 16,000 were homeless

Damage

Cattle, at least 30,000 ha. of crops, and 25,000 MT of grain were lost while houses and roads were destroyed or sustained damage.

The Disaster

Unusually heavy rain caused flooding of the Niger River on Benin's northern border and the Zou and Oueme rivers in the country's interior. Official estimates indicated that 22,000 people were affected in the northern districts of Malanville and Karimama with another 46,000 victims in the central districts of Ouinhi, Savalou, and Zagnanado. Some flooding also occurred in the city of Parakou and in low-lying areas of Atlantique Province, including parts of the capital of Cotonou.

Although cresting waters isolated some villages and rendered 16,000 homeless, there appeared to be little loss of life. The inundations damaged or destroyed housing, roads, livestock, 25,000 MT of grain stocks, and 30,000 ha. of cropland. The most seriously affected population included fishermen and market gardeners who could not get their goods to market due to impassable secondary roads. It was expected that reduced supplies from crop damage and disruption of transportation would increase corn prices in the areas of Cotonou, Porto Novo, and Abomey.

The flooding produced serious secondary health effects. Health authorities reported increased rates of malaria, dysentery, and respiratory disease in the stricken zones. By Sept. 20, over 900 people had sought medical treatment from the emergency at a temporary field hospital in Zagnanado. However, epidemics did not occur and the number of cases subsided soon thereafter to seasonal norms.

Action Taken by the Government of the People's Republic of Benin (GPRB) and Non-Governmental Organizations

As news of the disaster became known, national and local authorities combined forces with donor groups to obtain more precise information and make long-term assessments. The GPRB declared the rural districts of Malanville, Karimama, Ouinlin, Savalou, and Zagnanado disaster areas on Sept. 7 and charged concerned ministries with taking action. The National Committee for Civil Protection, under the Interior Ministry, coordinated the GPRB response. Army units established emergency headquarters at Bohicon in Zou

Province and at Kandi in Borgou Province to assist in relief efforts. Health workers established treatment centers and labored at getting medical supplies to the flooded zones.

Disaster items furnished by the GPRB included vehicles, tents, mobile kitchens, mattresses, blankets, first-aid supplies, and food from emergency stocks. Zagnanado, Ouinhi, Karimama, and Malanville districts received initial distributions. The country's business community aided with extensive donations of goods and cash. Nevertheless, an insufficiency of supplies led the GPRB to convoke a meeting of foreign missions and relief agency representatives on Sept. 13 and request international assistance. Two days later, government officials arranged a visit for donors to view the damage in Zagnanado District.

Assistance Provided by the U.S. Government

Because of the heavy rain and flooding, U.S. Ambassador Walter E. Stadler issued a disaster declaration for Benin on Sept. 16. USAID/Cotonou used \$25,000 in emergency funds to donate antibiotics and treatment solutions for malaria and respiratory and diarrheal disease. The medicine was purchased from two local manufacturers--Bio-Benin Laboratoire Pharmaceutique and Pharmaquick Industrie Pharmaceutique--and was delivered to the National Committee for Civil Protection on Sept. 27 and Oct. 3. USAID/Cotonou also released 700 MT of corn from the Section 416 feeding program for emergency use at a cost of \$130,000.

Total OFDA \$25,000
Total FFP \$130,000

TOTAL \$155,000

Assistance Provided by U.S. Voluntary Agencies

CRS - contributed 3,000 sacks of CSM and 1,000 containers of vegoil.

Assistance Provided by the International Community

International Organizations

FAO - funded rehabilitation projects for peasant farmers, valued at \$10,000, and provided onion and potato seed to farmers in Karimama District.

UNDP/UNDRO - furnished medicine and logistical support, valued at \$20,000.

UNICEF - gave medicine, tents, and blankets, worth \$26,000.

WFP - donated 450 MT of food.

WHO - contributed 20 emergency health kits.

Governments

France - donated medicine, clothing, and blankets, valued at \$16,666.

Germany, Fed. Rep. - furnished mattresses, blankets, and medicine, worth \$27,777.

Italy - contributed 2,500 MT of corn flour.

Nigeria - provided food, valued at \$238,095.

Togo - gave \$250,000.

Non-Governmental Organizations

Fonds Africain de Garantie Commercial et Economique - donated medicine and food, worth \$6,666.

Fed. Rep. of Germany Red Cross - provided tents and blankets to the Beninois Red Cross.

France Red Cross - provided tents and blankets to the Beninois Red Cross.

Swiss Cooperation - contributed mattresses, blankets, and tents, valued at \$146,666.

TOTAL \$741,870

Date

August - September
1988

Location

14 of 30 provinces

No. Dead

14

No. Affected

About 15,000 people,
of whom 10,000
were homeless

Damage

Floods caused
considerable damage
to houses, roads,
crops, and grain
storage facilities.

The Disaster

Heavier rains than normal in August and September caused flooding in 14 out of 30 provinces, most of which had already been affected by drought. High waters isolated more than 100 villages, drowned cattle, destroyed homes and grain storage facilities, and rendered roads impassable. Fourteen people were killed and more than 15,000 affected, of whom 10,000 were made homeless. The flooding exacerbated already prevalent food shortfalls in the north, especially in Seno, Soum, Oudalan, Bam, and Namentenga provinces. Some crop damage was reported in the southern and eastern parts of Burkina.

Action Taken by the Government of Burkina (GOB)

The GOB appealed for international contributions and established an emergency unit under the National Drought Commission to mobilize and deliver assistance, coordinate the donor response, and collect and analyze flood data. Aircraft from the Burkinabe Army and trucks from the National Drought Commission were made available to assess the situation and dispatch supplies. The GOB released food from government stocks for free distribution and used schools and other public buildings to shelter the homeless.

Assistance Provided by the U.S. Government

U.S. Ambassador Leonardo Neher declared the situation a disaster on Sept. 9, 1988. Emergency funds of \$25,000 were granted to the National Drought Commission and provincial drought commissions for the local purchase of mats, blankets, and management support.

TOTAL **\$25,000**

Assistance Provided by U.S. Voluntary Agencies

SCF/US - donated \$6,500 for medicine.

TOTAL **\$6,500**

Assistance Provided by the International Community**International Organizations**

EC - gave \$160,000 from counterpart funds.

UNDP - donated blankets, mats, and \$3,200 for disaster management assistance.

UNICEF - contributed blankets, soap, and medical kits.

WHO - provided medical kits.

Governments

Algeria - provided a C-130 aircraft.

France - made available a helicopter from the locust campaign and funded survival materials at \$16,000.

Libya - supplied 25 MT of food.

Togo - contributed a helicopter.

TOTAL **\$179,200**

Date

Aug. 14, 1988

Location

Maranga and Ntega, northern provinces of Burundi

No. Dead

5,000

No. Affected

100,000 persons displaced, 50,000 refugees

Damage

About 1,042 houses were destroyed.

The Disaster

Civil strife once again threatened the fragile existence of Burundi in the summer of 1988. On Aug. 28 this landlocked African nation suffered another ethnic clash. The violence took place in the hills of Maranga and Ntega, about 85 km. north of the Burundian capital of Bujumbura. The bloodshed lasted 10 days, killing 5,000 people and leaving 100,000 homeless. In addition, 50,000 fled to neighboring Rwanda for refuge. According to survivors, it was one of the worst calamities that any human being could witness. For 10 consecutive days, the two dominant tribes of Burundi, the Hutus and the Tutsis, attacked each other with immeasurable brutality.

This fratricidal bloodshed is not new to Burundi. The last major clash took place in 1972, when 100,000 people were brutally killed. The violent behavior is the result of resentments which are caused by the notion that one tribe has affluence and power while the other tribe suffers. This inequity has its roots in the traditional dominance of the Tutsis over the Hutus and was exacerbated by a colonial legacy which favored the Tutsis, which are a minority tribe. This situation also obtained in the area covered by present-day Rwanda. The colonial system established by Belgium promoted and encouraged the Tutsis to educate themselves, and at the same time favored a more servile role for the Hutus. The Tutsis were educated to become lawyers, medical doctors, administrators and civil servants while farming was the only occupation to which Hutus could aspire. This inequitable and systematic way of favoring one group over the other is at the forefront of this emotionally and violently contested national problem.

Burundi is no longer a Belgian colony, but the scars of the colonial days are still very much in evidence. The country gained its independence from Belgium in 1962 and for a period of three years was governed by King Mwambutsa. In 1966, he was overthrown by the Tutsi-dominated army. The Tutsis, once at the helm of Burundi, moved quickly and ensured that the rival Hutus were contained. The latter saw their position weakened and a national policy which

systematically gave Tutsis a greater share of national resources. Meanwhile, in independent Rwanda, Hutus gained control over the government.

This recent violence can also be blamed on the current economic and social situation in the country. Burundi has a population of 5 million people, of which 85% are Hutus and 14% are Tutsis. The Tutsis have almost 90% of all the civil service jobs, in a country where the government is the principal employer. The lack of trust and deeply embedded fears keep these two intertwined Burundian brothers at odds with each other. These tensions have been exacerbated by events which have taken place since the country gained its independence from Belgium in 1962. For instance, the coup d'etat attempt initiated by the Hutus in 1969, and the massacre of 100,000 Hutus by the Tutsis in 1972, are undeniable variables in this civil madness.

The exact cause of this latest bloodshed has not yet been determined. According to western analysts, Burundian army activities in the weeks prior to the massacre may have precipitated the event which led to the ethnic violence. Recent clashes in northern Burundi with Hutu exiles from the Rwandan border prompted the all Tutsi-army to round up educated Hutus in the northern hills of Maranga and Ntega. The Hutus, fearing that a new wave of persecution was occurring, this time struck first. With anger and charged aggression, they went on a rampage killing every Tutsi they encountered; even children and pregnant women did not escape their wrath. When news of the violence reached the capital, the Burundian national army, dominated by Tutsis, was sent to put down the rebellion. This move led many to believe that the army took advantage of the situation to kill Hutus.

Action Taken by the Government of the Republic of Burundi (GRB)

The GRB, faced by international pressure and concerns for its survival, moved quickly and established order. The Tutsi-dominated army was ordered to cease its acts of intimidation in the

northern section of the country. To pacify and neutralize tensions, President Pierre Buyoya in a national speech made it known to all Burundians that this recent violent behavior was not in the country's national interest. He invited Tutsis and Hutus to reconcile their differences and work toward national unity. President Buyoya also pressed for reforms and appointed a consultative commission with 12 Hutu and 12 Tutsi members to investigate the bloodshed. His interventions paid off and some of the refugees returned to their abandoned homes. He succeeded in avoiding potential chaos; however, much remains to be done to establish an equitable system which can provide long-term political stability.

Assistance Provided by the U.S. Government

On Sept. 2, 1988, U.S. Ambassador James Daniel Phillips determined that a disaster existed in Burundi and committed his \$25,000 disaster assistance authority to the work of UNICEF. The objective of the grant was to help meet immediate emergency relief needs for the victims of the civil strife. The UNICEF grant was used to purchase emergency medicines, blankets, cooking utensils, and logistical support (transport, fuel, personnel). The State Department's Bureau for Refugee Programs allocated additional funds for UNICEF's work in Rwanda in support of the Burundian refugees who fled to that country.

TOTAL \$25,000

Assistance Provided by U.S. Voluntary Agencies

CWS - donated \$5,000 in support of the relief effort conducted by the churches of Rwanda and appealed for an additional \$85,000 to assist the Burundians in the Rwandan refugee camps.

CRS - contributed \$40,000 in support of the resettlement of the Burundian refugees and \$30,000 for the Burundians in the Rwandan refugee camps.

TOTAL \$75,000

Assistance Provided by the International Community

International Organizations

EC - gave \$390,000.

UNDRO - contributed \$1,000,000.

Governments

Belgium - provided \$262,000.

Canada - furnished \$21,000.

France - contributed \$48,300 for medical care.

Non-Governmental Organizations

Belgo-Burundi Friendship Society and local Lions chapter donated kerosene for lamps, and clothing.

A Swiss NGO - offered \$6,500 in assistance to orphans.

TOTAL \$1,727,80

Date

Sept. 21 - Nov. 19,
1987

Location

The capital of Bissau
and nearby coastal
villages
and islands

No. Dead

68

No. Affected

6,000 cases
reported, of which
1,300 required
hospitalization

The Disaster

On Sept. 25, 1987, the National Radio of Guinea-Bissau announced that cholera had broken out in the capital of Bissau, with three deaths and 57 people requiring hospitalization. By the end of the first week of October, 292 cases with 13 fatalities had been reported in Bissau alone, and over 80 cases in nearby villages and islands, with eight fatalities. Health officials suspected that the cholera had come from oysters and smoked fish and had spread outside the capital through public contact during funerals.

The disease raged throughout October but the situation showed signs of stabilizing by the end of the month when the number of hospital cases had declined to 25-30 per day from a high of 40. Mortality rates, however, were low due to the quick and generally effective health measures undertaken by Guinea-Bissau and international health authorities. By Nov. 19, when the epidemic had run its course, cholera had claimed 168 lives out of a total of approximately 6,000 reported cases, 1,300 of which had required hospitalization.

Altogether in Bissau, 1,388 people--1% of the urban population--were hospitalized with moderate to severe diarrhea between Sept. 25 and Nov. 19; the death rate of hospitalized cases was 1%. Men and women were affected equally, while the age-specific attack rate varied from 4 per 1,000 (0.4%) for people under 20 years old to 20 per 1,000 (2%) for those over 60.

Assistance Provided by the Government of Guinea-Bissau (GOGB) and Non-Governmental Organizations

GOGB health officials quickly recognized the cholera outbreak and immediately took action to contain it. They organized a cholera ward in the national hospital and established temporary infirmaries and treatment centers in affected rural areas. Patients were treated with rehydration therapy (both Ringer's lactate and ORS were used) and oral tetracycline cholera vaccine was not used. Red Cross volunteers helped public health nurses in an extensive effort to treat family contacts with

prophylactic tetracycline. By the second week of the outbreak, basic principles of triage, treatment, sanitation, and laboratory surveillance were established in accordance with WHO guidelines. Public service advisories on health precautions were broadcast repeatedly. In order to arrest the spread of the disease, the GOGB closed several markets and banned funeral services.

In addition, the GOGB Ministry of Health (MOH) made an urgent appeal to the international community for assistance in combatting the epidemic, specifically requesting Ringer's lactate serum administered by IV plus epicranial and size 20 needles and other medical supplies.

Assistance Provided by the U.S. Government

In response to the GOGB appeal, U.S. Ambassador John Dale Blacken declared a disaster on Oct. 8, 1987, and requested that OFDA provide IV solution, supplies of which were being rapidly depleted. OFDA Medical Officer Jack Slusser immediately ordered 128 cartons of Ringer's lactate solution, needles, and syringes from UNICEF's warehouses in Copenhagen. The supplies were flown to Dakar and transshipped overland to Bissau. The medicine and supplies cost \$9,683, the air freight was \$17,066, and overland transport cost \$2,000. When the Centers for Disease Control (CDC) received word of the cholera epidemic, it offered to send a Portuguese-speaking epidemiologist to help the MOH fight the disaster. The GOGB gladly assented and Dr. Nathan Shaffer arrived in Bissau on Oct. 17. He integrated himself with the international medical team and stayed nearly four weeks. Dr. Shaffer worked on the relief effort and organized an urban and rural risk factor/transmission study.

TOTAL **\$28,749**

Assistance Provided by U.S. Voluntary Agencies

None reported

Assistance Provided by the International Community

Belgium - sent a medical team.

Cuba - provided unspecified assistance.

France - supplied 10 MT of medicine and a medical team.

MSF/France - helped plan a national vaccination campaign with WHO.

Portugal - provided a 7-person medical team and 20 MT of medicine.

Sweden - provided unspecified assistance.

WHO - played a major role in the epidemic control campaign, advised the GOGB, and helped plan a national vaccination program.

Date

October 1987

Location

Mokhotlong, Thaba Tseka, Qacha's Nek, and Quthing districts

No. Dead

18

No. Affected

100,000

Damage

Thousands of livestock perished and agricultural production suffered. Flooding destroyed infrastructure and isolated remote villages.

The Disaster

During late September and early October 1987, heavy snow and rain fell on the mountainous areas of Mokhotlong, Thaba Tseka, Qacha's Nek, and Quthing districts. The freak snowstorm, followed by heavy rain, caused avalanches and flooding that destroyed much of the region's infrastructure. Many roads and bridges washed away, thereby cutting off remote mountain villages from the rest of the country. Nine herdsmen were found dead due to exposure to the extreme cold and another nine people drowned trying to cross flood-swollen rivers. Hundreds of people suffered from frostbite and snow-blindness and several cases of typhoid were reported in Thaba Tseka District. The Government of Lesotho reported that as many as 100,000 people were affected and in need of food, shelter, fuel, and clothing.



Man, trucks attempt to cross washed-out bridge

Photos Courtesy of the American Red Cross

Flooding also destroyed most of the region's agricultural production. Approximately 100,000 head of cattle, sheep, and goats died from exposure to the extreme cold, starvation, or drowning. This presented a serious economic hardship to farmers in the area, who rely heavily on the sale of beef, wool, and mohair. In addition, many farmers planted cereal and vegetable seeds before the arrival of the snow and most of these crops were completely lost. Villagers in remote mountain areas went without food for several days. Some farmers ate their seed reserves to stave off

starvation. Officials estimated that it would take several years before Lesotho could return to its normal agricultural productivity.

Action Taken by the Government of Lesotho (GOL) and Non-Governmental Organizations

On Oct. 7, the Government of Lesotho declared Mokhotlong, Thaba-Tseka, Quthing, and Qacha's Nek as disaster areas and appealed to the local business community and international donors to provide assistance. Local businesses, civic organizations, and government offices contributed to the National Disaster Relief Fund. On Oct. 15, the National Disaster Relief Committee was formed with officials from the Lesotho Defense Force and various government ministries. The Republic of South Africa (RSA) provided transport planes, helicopters, bulldozers, and personnel to assist in the GOL relief effort. The helicopters were used to ferry relief supplies to isolated villages and evacuate the injured. Bulldozers removed debris from blocked roads, so trucks could deliver relief supplies. By Oct. 17 the RSA withdrew its assistance and the National Disaster Relief Committee decided to concentrate its relief activities in Thaba Tseka and Qacha's Nek districts.

Meanwhile, the Lesotho Red Cross (LRC) targeted its relief activities in Mokhotlong District, the area hardest hit by the disaster. The LRC and League of Red Cross Societies rented helicopters to gain access to isolated villages. LRC field workers conducted assessments in these affected areas. The LRC distributed food rations, cooking oil, paraffin, blankets, and clothing to approximately 40,000 people in 234 villages. In late November, the LRC discontinued its general relief program and began providing special assistance to vulnerable groups, such as the disabled, the elderly, and widowed families.

As relief efforts phased down, the Government of Lesotho turned its attention to agricultural rehabilitation activities. The GOL's Ministry of Agriculture (MOA) distributed approximately 178

MT of wheat, oat, potato, and vegetable seeds to over 3,200 households in 96 villages. In addition, the MOA provided livestock fodder and concentrated feed for plow oxen. The fodder was brought in by truck and helicopter and distributed to farmers by village chiefs. By the end of 1987, approximately 90% of all arable land in the four affected districts was under cultivation.

CRS - provided 20 bales of clothing.

SCF/US - gave \$3,000 to Save the Children/Lesotho.

TOTAL \$29,470

Assistance Provided by the International Community

International Organizations

EC - donated \$49,261 to the GOL.

LRCS - launched an appeal on behalf of the LRC and sent delegates to assist LRC efforts.

UNDP - contributed \$50,000 for the purchase of 1,000 blankets and 2,000 liters of aviation fuel.

UNDRO - provided \$10,000 to charter aircraft.

Governments

Canada - donated \$24,630 for transport of relief supplies.

China, People's Rep. - contributed \$10,000 to the GOL.

Germany, Fed. Rep. - gave \$10,989 for transportation of relief supplies.

South Africa - provided helicopters, aircraft, bulldozers, and personnel to assist GOL relief activities.

United Kingdom - gave \$1,000 for blankets.

Non-Governmental Organizations

Caritas/Fed. Rep. of Germany - provided \$27,473 through Caritas/Lesotho.

Assistance Provided by the U.S. Government

On Oct. 9, Ambassador Robert M. Smalley responded to the GOL's appeal and donated \$25,000 to the National Disaster Relief Committee. The donation was used to finance the GOL's transportation of relief supplies. Colonel Blyth Ntsohi, chairman of Lesotho's National Disaster Relief Committee, sent a letter of gratitude to Ambassador Smalley, expressing appreciation to the people of the United States for this contribution. Following an appeal from the GOL, Ambassador Smalley requested that OFDA contribute to the Ministry of Agriculture's rehabilitation program. OFDA allocated \$531,010 from its Special Supplemental Appropriation for SADCC countries to the MOA. Funds were used to purchase seeds and livestock fodder for distribution to affected farmers. OFDA also contributed \$100,081 to the Lesotho Red Cross for its emergency feeding program.

Summary of USG Assistance

Grant to the Lesotho government for transport \$25,000

Grant to the Ministry of Agriculture (from SADCC Supplemental) \$531,011

Grant to the LRC feeding program (SADCC Supplemental) \$100,081

TOTAL \$656,091

Assistance Provided by U.S. Voluntary Agencies

ANRC - contributed \$26,470 to the LRC.

The following national Red Cross societies
contributed to the LRCS/LRC appeal:

Canada - \$6,544
Denmark - \$15,808
Finland - \$24,780
Germany - \$3,676
Iceland - \$3,676
Japan - \$68,529
Netherlands - \$13,455
Norway - \$18,014
Sweden - \$67,426

TOTAL \$405,261



Basutos distribute donated grain to flood victims.

Date

April - September
1988

Location

Area west of
Fort Dauphin in the
extreme
south of the country

No. Dead

None reported

No. Affected

23,300 families
(approximately
116,500 people)

The Disaster

The chronically dry region in the extreme south of Madagascar experienced a severe drought in mid-1988 after the complete failure of rains during the normal rainy season (October to April). Farmers planted sweet potatoes after sporadic rains in the Ambovombe-Androka area in April and May, but the hot sun and dry winds of the following weeks negated the effect of the rains and further reduced the prospects for a seasonal harvest. Whatever food was available in the local market was beyond the means of most residents, whose purchasing power had declined during the previous year's drought when they had been forced to sell their possessions, including livestock. A total of 23,300 families was judged to be in need of food assistance.

Action Taken by Malagasy Non-Governmental Organizations

The government of Madagascar did not officially request international assistance, and the only reported relief efforts were carried out by NGOs.

Catholic missions in the south were a continuing source of information on drought conditions. The local NGO Caritas worked closely with CRS/Madagascar to raise funds to help pay the costs of providing rations to residents of the stricken area. As of June 23, CRS and Caritas had raised \$12,000 locally, including funds remaining from the 1986 drought emergency.

The Lutheran Church and the Malagasy Red Cross, as well as Caritas, attended donor meetings. CRS and Caritas coordinated with the Lutheran Church in the distribution of emergency food supplies.

Assistance Provided by the U.S. Government

U.S. Mission staff attended frequent donor meetings in April, May, and June to monitor the situation in the far south. USAID/Antananarivo sent a U.S.-trained contractor to the area in mid-April to investigate conditions.

In view of the worsening effects of the lack of rain in the region, U.S. Ambassador Patricia Gates Lynch determined on June 23 that the disaster was of sufficient magnitude to warrant USG assistance. The Ambassador's disaster assistance authority of \$25,000 was granted to CRS for the purchase of corn and cassava outside the region and the transport of those provisions and P.L. 480 Title II stocks to the affected area. USAID approved the release of some 158 MT of commodities from CRS stocks: 120 MT of rice, 30 MT of NFD, and 8 MT of soyoil. The food was shipped from the CRS warehouse in Tamatave and carried overland by truck. Catholic-Lutheran committees carried out distribution at the village level.

TOTAL **\$25,000**

Assistance Provided by U.S. Voluntary Agencies

CRS - administered a grant from the USG (see above) and donated an additional \$25,000 to purchase and transport food to the south. With USAID's approval, CRS released 158 MT of P.L. 480 Title II stocks from its regular program for emergency feeding. CRS also located sources of surplus corn and cassava and estimated purchase and transport costs for interested donors.

TOTAL **\$25,000**

Assistance Provided by the International Community

Representatives of several international organizations, including UNDP, the EC's European Development Fund (FED), WFP, Swiss Aid, FAO, and UNICEF, attended donor meetings. Information is unavailable on the assistance provided by these organizations.

MSF/France - conducted a nutritional survey of the far south.

Date

1988

Location

Nationwide

No. Dead

Not reported

No. Affected

318,000 Malawians, plus 560,000 Mozambican refugees as of October 1988.

The Disaster

Malawi was faced with a severe food shortage in 1988, due to a combination of problems. Drought significantly reduced the maize, millet, and sorghum harvests in the central and southern regions of the country. At the same time, an infestation of mealybugs decimated the cassava crop, which is the main staple food in the northern region. Superimposed on these environmental conditions was the influx of over half a million Mozambican refugees that strained the food-producing capacity of Malawi. UNHCR estimated that as many as 600,000 Mozambican refugees would require emergency feeding by the end of the year and the Government of Malawi projected that an additional 318,000 Malawians were dependent on free or subsidized food aid. Once a food exporting country, Malawi was forced to appeal for international food assistance.

The Mozambican refugee and the affected Malawian populations were treated as two separate at-risk groups. Malawi has long been a haven for Mozambican refugees, but in May and June of 1988 intense fighting between Mozambican forces and RENAMO guerrillas prompted approximately 140,000 Mozambicans to abandon their farms and villages and cross the border into Malawi. Many of these refugees walked for two or three weeks and arrived in Malawi sick, malnourished, and with little or no clothing. Nsanje district in the far southern tip of the country accommodated over 200,000 Mozambicans, outnumbering the 150,000 Malawian residents. UNHCR-run refugee camps swelled and squatter settlements covered what used to be arable land. Competition for food, water, and firewood intensified in the southern region of the country, and the arrival of sick refugees raised concerns that cholera, malaria, and tuberculosis



Malawi Red Cross distributes USG-donated clothing.
 Photo Courtesy of WVRD

could spread throughout Malawi. The primary causes of death among refugees were malnutrition, diarrheal diseases, and malaria, although death rates went down once the refugees settled in camps.

The Malawian population was also severely affected by food shortages. Cases of kwashiorkor and marasmus were reported in the mealybug-infested areas along the shore of Lake Malawi. Many Malawians in this region subsisted on immature cassava, green maize, and other food substitutes. In the southern region, increased demand for commercial food supplies forced prices to rise dramatically, making many Malawians dependent on subsidized food rations. The nation's health care infrastructure was strained to the limit, as doctors and nurses tried to provide medical attention to Malawians, as well as refugees. In an effort to stave off resentment and unrest, relief agencies divided up food and other assistance between refugees and Malawians living in the same area.

Action Taken by the Government of Malawi (GOM) and Non-Governmental Organizations

The Government of Malawi tried to accommodate the overwhelming number of refugees and there were no reports of expulsions or blockades to prevent Mozambicans from entering the country. International organizations, such as UNHCR, WFP, and LRCS, provided assistance in the refugee camps. The GOM Ministry of Health provided medical assistance to affected Malawians, as well as to Mozambican refugees. The GOM Ministry of Transport coordinated the transportation of food commodities into Malawi. Most of the donor food aid was trucked in from Zimbabwe and Zambia, with a small quantity coming by way of the port at Dar es Salaam, Tanzania. Two Malawian private corporations, the Malawi International Transport Company and the Agricultural Development and Marketing Corporation, were also involved in the transportation and storage of food commodities.

Meanwhile, the GOM Office of the President and the Cabinet (OPC) coordinated the assistance to

the affected Malawian population. The Malawian Red Cross (MRC) distributed maize to Malawians in mealybug areas and assisted in the distribution of food to refugees. Later in the year, the OPC implemented food-for-work projects to reduce reliance on free food distribution. The GOM embarked on a number of experimental programs to introduce natural predators to combat the mealybug infestation. The GOM also tried to introduce alternative food crops, such as rice and maize, as substitutes for cassava.

Assistance Provided by the U.S. Government

By February 1988, the number of Mozambican refugees flooding into Malawi had risen to 420,000. Furthermore, the drought and mealybug infestation were beginning to have an impact on the food supply of the Malawian population. On Feb. 24, U.S. Charge d'Affaires Dennis Jett determined that the food emergency in Malawi warranted USG assistance. There was an immediate need for assistance for the more than 20,000 Mozambican refugees that were arriving each month. OFDA quickly allocated \$100,000 from the SADCC supplemental, which was used to purchase construction materials for a refugee reception center at Kampata in Nsanje district. The reception center was finished in April and included a medical screening unit for new arrivals.

Another immediate need was clothing for the thousands of Mozambican refugees that arrived in Malawi wearing only rags or coverings made out of leaves or bark. OFDA initiated a program to send clothing confiscated by the U.S. Customs Service to several African countries, including Malawi. At a special ceremony in Blantyre, U.S. Ambassador George Trail III consigned over 100,000 pieces of clothing to WVRD. The clothing was distributed in Nsanje, Dedza and Ntcheu districts by WVRD, in collaboration with UNHCR and the Malawian Red Cross. (OFDA's grant of \$243,500 to WVRD to pay for transport of this forfeited clothing to Malawi, Mozambique, and Zimbabwe is listed as an Africa Regional expenditure.)

A third critical need was for medicines to

replenish the dwindling pharmaceutical stocks in Malawi's overburdened hospitals and health centers. WVRD proposed providing \$1,218,932 worth of medicines, vitamins, and medical supplies to benefit both Malawians and Mozambican refugees. OFDA agreed to pay the cost of handling, air freight, and inland transport of these supplies. The pharmaceuticals were packaged and assembled by MAP International and arrived in Malawi in July. The medicines were then distributed among district hospitals and health centers through the GOM Ministry of Health.

A.I.D.'s Office of Food for Peace (FFP) allocated 15,000 MT of Title II emergency food for Mozambican refugees and an additional 12,325 MT of Title II food for the GOM emergency feeding program. Most of this food was shipped to the port at Durban, South Africa, and then transported by road and rail to Malawi.

The U.S. State Department's Bureau of Refugee Programs (RP) contributed \$4.4 million to a



USAID representatives present donated clothing to Malawian officials.

OFDA Operations Officer Lauren Landis visited Malawi in May and toured both the refugee centers in the south and the mealybug-affected areas in the north. In June, OFDA stationed a consultant, Greg Gottlieb, in the USAID Mission in Lilongwe to monitor the situation and coordinate the USG relief program.

UNHCR appeal for assistance to Mozambican refugees in Malawi and \$300,000 in response to the LRCS appeal.

Summary of USG Assistance

FY 1988

Mission allotment for reception center
(SADCC supplemental funds) \$100,000

Contract for relief coordinator
(SADCC funds) \$134,253

Purchase of vehicle for relief coordinator
(SADCC funds) \$18,000

Grant to WVRD for transport of emergency
medicine (SADCC funds) \$67,590

27,325 MT of Title II emergency food
(FFP funds) \$3,415,700

Transport costs of 27,325 MT
(FFP funds) \$3,195,100

Grant to UNHCR for refugee assistance
(State/RP funds) \$4,400,000

Grant to LRCS for refugee assistance
(State/RP funds) \$300,000

FY 1989

Vehicle maintenance \$4,600

Total OFDA \$324,443

Total FFP \$6,610,800

Total RP \$4,700,000

TOTAL \$11,635,243

Assistance Provided by U.S. Voluntary Agencies

Africare - built a spring well in Ntcheu District.

International Rescue Committee - provided medical assistance to refugees in Dedza, Lilongwe, and Mangochi districts.

WVRD - distributed USG-donated clothing in refugee camps in Nsanje, Dedza, and Ntcheu Districts and provided \$1,218,932 worth of

pharmaceuticals and medical supplies to the GOM Ministry of Health.

TOTAL \$1,218,932

Assistance Provided by the International Community

International Organizations

EC - donated 16,400 MT of maize through UNHCR; 3,390 MT of maize through WFP; 5,000 MT of maize to Malawians through MRC; \$160,000 to WFP for food storage facilities.

LRCS - contributed 7,072 MT of maize and launched an appeal on behalf of the MRC.

UNHCR - coordinated the management of the refugee camps in each of the southern districts, providing food, clothing, and medical assistance to new arrivals.

WFP - coordinated food aid to the refugee population.

Governments

Australia - provided 5,000 MT of maize and donated \$14,978 to the LRCS/MRC appeal.

Canada - gave 9,000 MT of maize through WFP and \$119,784 to the LRCS/MRC appeal.

China, People's Rep. - contributed 28,500 MT of maize.

Finland - donated \$75,323 to LRCS/MRC appeal.

Germany, Fed. Rep. - provided 10,000 MT of maize.

Japan - contributed 3,600 MT of maize.

Netherlands - provided 4,000 MT of maize meal and 15,000 MT of maize.

Norway - donated \$78,237 to the LRCS/MRC appeal.

Sweden - contributed \$84,172 to the LRCS/MRC appeal.

United Kingdom - donated \$92,446 to the LRCS/MRC appeal and the High Commission donated \$164,460 to the appeal.

Non-Governmental Organizations

The following national Red Cross societies contributed to the LRCS/MRC appeal:

Canada - \$7,842
Denmark - \$23,093
Finland - \$49,381
Iceland - \$4,316
Japan - \$32,014
Netherlands - \$25,180
Sweden - \$83,525
Switzerland - \$26,618
U.K. - \$89,928

MSF - provided doctors and nurses in the refugee camps.

Oxfam - contributed \$125,108 to the LRCS/MRC appeal.

TOTAL \$1,256,405

DateSeptember - October
1987**Location**Kati and Kita
administrative *cercles***No. Dead**

137

No. Affected

290

The Disaster

An outbreak of yellow fever on the outskirts of Bamako produced 137 deaths out of 290 cases, 80% of whom were under 15 years old. Despite initial concern from the government and donors that the epidemic would spread into the capital, it remained confined to rural areas.

Action Taken by the Government of the Republic of Mali (GRM)

Following an appeal for international donations on Oct. 3, the GRM and UNICEF launched a mass immunization program. Vaccination teams labored in the targeted areas of Kati and Kita *cercles* and Bamako city, reaching 1,233,000 people. By the middle of October, the campaign's second phase--targeting 726,000--had begun within 100 km. of the capital in Bafollabe, Kemieba, Diema, and parts of Kolokami, Koulikoro, Kangaba, and Diola.

Assistance Provided by the U.S. Government

After Chargé John H. Lewis's disaster declaration of Oct. 9, the USG reviewed a request by UNICEF for 50 automated immunization guns of the ped-o-jet brand. For reasons of availability, OFDA bought 10 of these devices plus spare parts from DOD for \$20,212. The purchase was shipped via commercial airliner from a DOD depot in Mechanicsburg, Pa., to Bamako where UNICEF delivered it to Mali's National Immunization Center. OFDA covered freight charges, which amounted to \$1,121. USAID/Bamako also made available five vehicles from the pesticide testing program to the Ministry of Health. Counterpart funds went toward logistical (vehicle operation and maintenance) and field support for vaccination teams.

TOTAL \$21,333

Assistance Provided by U.S. Voluntary Agencies

None reported

Assistance Provided by the International CommunityInternational Organizations

EC - contributed \$180,379 for medical supplies.

UNDP - gave \$18,987 for operational costs.

UNICEF - provided 900,000 doses of vaccine, 10,000 liters of fuel, and 1,000,000 vaccination cards.

WHO - donated technical assistance and 300,000 doses of vaccine.

Governments

Canada - donated \$166,666 in logistics and equipment.

China, People's Rep. - pledged \$15,000.

France - gave 500,000 doses of vaccine.

Germany, Fed. Rep. - furnished 500,000 doses of vaccine and \$26,178 worth of fuel.

Iran - provided \$3,164.

Italy - gave 500,000 doses of vaccine.

Netherlands - supplied 300,000 doses of vaccine and technical assistance.

Switzerland - contributed 300,000 doses of vaccine, operational costs and technical assistance.

TOTAL \$410,374

Date

October
- November 1987

Location

Major towns in 7
regions along the
Senegal
River basin

No. Dead

35

No. Affected

213 cases

The Disaster

Seven regions along the Senegal River in Mauritania faced a serious outbreak of yellow fever during the fall months of 1987. In October, it was estimated that almost two million people required vaccination. Health authorities had reported 213 cases and 35 deaths by Nov. 3. The epidemic originally spread to Mauritania from Mali (see *Mali-Epidemic*) and particularly affected the area north of Rosso.

Action Taken by the Government of the Islamic Republic of Mauritania (GIRM)

On Oct. 29, 1987, the GIRM convoked the donor community to issue an urgent plea for emergency aid. Immediately thereafter, the Ministry of Health (MOH) began a vaccination program in the capital of Nouakchott and in the regions of Guidimaka and Trarza, using 103,000 doses acquired by the GIRM and 250,000 doses from the program was to inoculate 1.38 million inhabitants of Nouakchott and the Senegal River valley, a region in which 80% of Mauritania's population live. Partially as a result of the epidemic, the Mauritanian border with Senegal was temporarily closed.

Assistance Provided by the U.S. Government

Charge d'affaires John Vincent determined that the yellow fever epidemic constituted a disaster and exercised his authority releasing emergency funds on Oct. 29, 1987. OFDA agreed to a USAID/Nouakchott request for vaccine and investigated various sources of supply. Because a UNICEF procurement had depleted available stocks, OFDA was unable to make a purchase at the Pasteur Institutes of Dakar or Paris and Connaught Laboratories in Pennsylvania. OFDA therefore bought 140,000 doses of vaccine from the Oswaldo Cruz Laboratories in Brazil with U.S. consular and USAID/Brasilia country representatives handling the arrangements. An initial 40,000 doses were sent on Nov. 11 from Rio de Janeiro by commercial flight, arriving in Nouakchott via Paris the following day. On Nov. 13, USG authorities in Rio de Janeiro shipped a

second tranche of 100,000 doses by airliner that USAID/Nouakchott officials received Nov. 15. Because only 2,500 doses of the first shipment arrived undamaged, Oswaldo Cruz Laboratories provided 37,500 more doses which arrived in Mauritania on June 12. The vaccines were kept before use in cold storage in an MOH/USAID health project warehouse. Purchase and transport of the 40,000 doses amounted to \$6,900, and the second shipment of 100,000 doses cost \$16,705.

TOTAL

\$23,605

Assistance Provided by U.S. Voluntary Agencies

None reported

Assistance Provided by the International Community

UNICEF - donated vaccine and technical assistance.

WHO - provided vaccine and technical assistance.

Date
1988

Location
Maputo, Gaza, Inhambane, Manica, Sofala, Zambezia, Tete, Nampula, and Niassa provinces

No. Dead
100,000 in 1987-88 (official U.S. State Department estimate)

No. Affected
6,000,000 dependent on food aid, including 3,400,000 at-risk

No. Displaced
1,200,000 displaced in country, plus more than 1,000,000 refugees

The Disaster

In recent years the renegade guerrilla organization RENAMO has intensified its campaign of terror against the civilian population of Mozambique. In the early months of 1988, the U.S. State Department commissioned refugee consultant Robert Gersony to investigate the mounting refugee crisis in southern Africa. Mr. Gersony visited camps in Mozambique and four neighboring countries and interviewed refugees who had fled from the civil strife. Refugees told of being taken prisoner and forced to work for RENAMO. There were several cases of children being abducted and forced to participate in atrocities against Mozambican civilians. Many refugees told of being beaten, raped, or mutilated by RENAMO guerrillas and seeing family members murdered. In his report released in April of 1988, Mr. Gersony estimated that at least 100,000 Mozambicans had been killed by RENAMO over a two-year period. Furthermore, UNICEF extrapolated that over 88,000 children under the age of five died of starvation or disease in 1988.

Approximately 6 million Mozambicans, out of the entire population of 14.7 million, were dependent on donor food aid in 1988. This included almost 1.2 million *deslocados* who abandoned their land and moved into government protected camps. Another 2.2 million Mozambicans in rural areas were unable to grow enough food due to frequent attacks by RENAMO and the lingering effects of drought. In addition, 2.6 million urban dwellers were affected by commercial food shortages. Nationwide the number of orphaned and abandoned children was estimated at 250,000 and 55% of all children suffered from some degree of malnutrition. Approximately 600,000 persons were believed to be inaccessible in RENAMO-held territory and an additional 380,000 were accessible only by air. Many of these villagers subsisted on cassava, roots, and edible plants and suffered from severe malnutrition.

These figures do not even include more than 1 million Mozambicans who left their country and moved into refugee camps in Malawi, Tanzania, Zimbabwe, Zambia, Swaziland, and South Africa. At the height of the exodus, in May and June

1988, approximately 140,000 refugees crossed over into Malawi to escape from the fighting between RENAMO and government forces. Many of these refugees walked for two or three weeks and arrived in Malawi malnourished and with little or no clothing. By the end of the year, small numbers of refugees began trickling back across the borders. For the most part, however, displaced Mozambicans received better assistance and protection in the refugee camps than in the returnee camps inside Mozambique.

Years of civil strife have taken their toll on the economy and infrastructure of Mozambique. Between 1980 and 1988, RENAMO had destroyed thousands of rural health clinics, schools, and agricultural projects. Guerrillas also ambushed and looted truck convoys delivering food to displaced persons camps. During 1988, 37 trucks were destroyed and 20 drivers were killed in RENAMO attacks. In May and June of 1988, joint Mozambican and Zimbabwean military forces launched a major counter-offensive against guerrilla strongholds. By the end of the year, over 3,000 RENAMO guerrillas surrendered to benefit from the government's offer of amnesty. Despite these developments, RENAMO continued to carry out hit-and-run attacks in all 10 provinces.

Action Taken by The Government of the People's Republic of Mozambique (GPRM) and Non-Governmental Organizations

The GPRM's National Executive Commission for the Emergency (CENE) continued to serve as the central government agency responsible for coordinating the relief activities of other government departments, non-governmental organizations and international donors. CENE officials met with international donors on a regular basis to discuss problems and respond to emergency needs. The Department for the Prevention and Combat of Natural Calamities (DPCCN) performed the actual transportation of donated food to the most seriously affected at the district level. Virtually every means of transportation were used to deliver food to these affected areas. Barges and other vessels brought food to delivery points along the coast. Trains were

employed to transport food and other relief supplies into the interior, although tracks were frequently sabotaged by RENAMO. The national airline, LAM, provided some of its planes for donor-funded relief airlifts to otherwise inaccessible areas. However, most of the food was delivered by military escorted truck convoys. During 1988, DPCCN delivered over 115,000 MT of food, although some districts remained inaccessible because they were under RENAMO control.

of food by coastal barge. Two non-governmental organizations were also involved in relief operations. The Mozambican Red Cross Society worked in collaboration with ICRC and LRCS on emergency assistance programs. The Christian Council of Mozambique (CCM) provided clothes, blankets, seeds, and handtools to affected and displaced persons throughout the country.



Mozambican displaced persons camp

Photos by William Garvelink, OFDA

Other government agencies and non-governmental organizations were also involved in the emergency relief effort. The Ministry of Commerce and handled the distribution of food to people affected by commercial food shortages and AGRICOM, an agricultural parastatal, distributed seeds and handtools to farmers. Navique, the GPRM shipping agency, assisted WFP with the delivery

Assistance Provided by the U.S. Government

For the fifth consecutive year the U.S. Government provided humanitarian assistance to Mozambique. On Dec. 31, 1987, U.S. Ambassador Melissa Wells determined that the ongoing food emergency continued to warrant USG assistance.

Earlier in the fiscal year, OFDA provided grants to ICRC and UNICEF (see *OFDA FY87 Annual Report*). In January, Ambassador Wells visited the Lhanguene Orphanage outside of Maputo, a shelter for traumatized children who had escaped from RENAMO. She requested that OFDA send a team of clinical psychologists to evaluate these children and funds to rehabilitate the orphanage. In February, OFDA sent Dr. Jon Shaw and Dr. Jessie Harris to evaluate the orphanage program. Based on their recommendations, OFDA funded a SCF-sponsored therapy program directed by Dr. Neil Boothby, a renowned psychologist specializing in traumatized children. Dr. Boothby, working closely with the Ministries of Health and Education and the Mozambican Women's Organization, treated many of these children who had been forced to commit atrocities by RENAMO. The therapy program was an overwhelming success and led to a family tracing project so that these children could be reunited with their families.



Mozambican children orphaned by the civil war

For the fifth year in a row, OFDA funded the highly successful CARE project, which manages the Logistical Support Unit (LSU) of the DPCCN. Since 1984, CARE has worked within the DPCCN, providing technical expertise in managing the consignment, storage, transportation, distribution, and monitoring of internationally donated food and relief commodities. In May 1988, OFDA contracted the management consulting firm,

Louis Berger International to conduct an evaluation of the CARE/LSU project. In a report submitted to OFDA, the evaluation team concluded that CARE had made a positive and significant contribution to both the direct provision of relief supplies and the institutional development of the DPCCN.

OFDA continued to fund WVRD's food commodity management program and agpak distribution project in Tete and Zambezia provinces. OFDA also renewed its contract with AirServ International, a U.S. PVO that provides airplane passenger service to relief personnel in Mozambique. In addition to these projects, OFDA funded four new U.S. PVO projects in Mozambique. OFDA provided grants to a WVRD primary health care project in Tete, an AFRICARE water and agriculture project in Sofala, a Save the Children relief and rehabilitation program in Gaza, and an ADRA food distribution project in Inhambane province. These U.S. PVO projects were designed to provide integrated relief and rehabilitation assistance to affected populations in targeted districts.

In addition to these PVO projects, OFDA continued to respond to urgent requests for assistance. OFDA provided a \$400,000 grant to the World Food Program (WFP) to rehabilitate 12 privately owned vessels used to deliver food to approximately 360,000 people living in coastal displaced persons camps in Inhambane and Sofala provinces. In response to a special appeal from the GPRM, OFDA allotted \$500,000 to USAID/Maputo to procure high quality, imported seed. The seeds were distributed as part of the emergency program, primarily to displaced farmers. Another urgent need was for clothing for the over 1 million displaced persons in Mozambique. OFDA, in cooperation with the U.S. Customs Service, furnished over 500,000 pieces of clothing to WVRD and ADRA to be distributed to needy Mozambicans. The clothing was furnished by the U.S. Customs Service and OFDA paid the costs of ocean freight, storage, inland transport, and local labor. The two PVOs covered the costs of program management.

The major portion of U.S. government assistance to Mozambique was in the form of emergency food aid. In FY 1988, A.I.D.'s Office of Food for Peace provided 19,560 MT as part of its regular Title II program, 80,290 MT in emergency Title II food commodities, and 121,250 in Section 416 program food commodities. As in previous years, about one-third of this food was distributed by the DPCCN to affected and displaced persons in rural areas. The other two-thirds was sold as part of the Ministry of Commerce's rationing program to affected urban dwellers. This program was designed to prevent urban Mozambicans who were affected by food shortages from becoming dependent on free distribution. The substantial local currency proceeds from these sales were used to finance various government and U.S. PVO relief and rehabilitation activities.

CARE grant for Logistical Support Unit (SADCC supplemental funds)	\$1,900,000
Continued support for CARE grant for Logistical Support Unit	\$96,013
ADRA food transport project	\$920,000
WVRD appak project	\$645,318
Seed procurement	\$122,083
Additional seed procurement (SADCC supplemental funds)	\$337,917
WFP coastal vessel rehabilitation	\$400,000
SCF relief and rehabilitation project (SADCC supplemental funds)	\$385,375
WVRD food distribution program	\$382,405
AirServ monitoring service (SADCC supplemental funds)	\$319,780
WVRD primary health care program (SADCC supplemental funds)	\$282,385
Africare water/agriculture project (SADCC supplemental funds)	\$231,842

ADRA clothing transport	\$103,820
ADRA clothing transport (SADCC supplemental funds)	\$46,767
SCF traumatized children program (Orphan Earmark funds)	\$87,786
Orphanage rehabilitation (Orphan Earmark funds)	\$27,700
Orphan assessment team (SADCC supplemental funds)	\$11,000
19,560 MT Title II regular program (FFP funds)	\$6,911,000
Transport costs of 19,560 MT (FFP funds)	\$1,942,200
80,290 MT Title II emergency program (FFP funds)	\$22,926,000
Transport costs of 80,290 MT (FFP funds)	\$9,877,200
121,250 MT of Section 416 food to GPRM (FFP funds)	\$19,864,000
Transport costs of 121,250 MT (FFP funds)	\$8,163,700
Grant to CARE/Logistical Support Unit (FFP funds)	\$835,000
<i>Total OFDA</i>	<i>\$6,340,191</i>
<i>Total FFP</i>	<i>\$70,519,100</i>
TOTAL	\$76,859,291

Assistance Provided by U.S. Voluntary Agencies

ADRA - initiated a relief and rehabilitation project to distribute food, clothing, seeds and blankets in Mabote district in Inhambane province; value of the contribution was \$224,800. ADRA also served

as consignee and distributor of U.S. Customs forfeited clothing to displaced persons.

Africare - began a relief and rehabilitation project in Sofala Province, designed to distribute agricultural inputs to displaced farmers and build shallow wells to provide drinking water and irrigation to affected families.

AirServ International - provided crew and twin engine aircraft for use by relief personnel to inspect emergency relief programs in remote areas.

AJF - donated \$41,000 to WFP to purchase food silos.

CARE - has managed the Logistical Support Unit of the DPCCN since 1984. This unit handles the receipt, warehousing, transportation, distribution and monitoring of most of the internationally donated relief commodities, including food. The contribution was valued at \$468,210.

CRS - sent clothing and blankets to be distributed at displaced persons camps. The total value, including costs of ocean freight and inland transportation, was \$485,750. CRS also supported Caritas emergency programs.

FHI - contributed \$355,000 in cash, seeds, clothing, and food.

SCF - began a relief and rehabilitation project in Gaza province to distribute blankets, clothing, medical supplies and agricultural inputs to affected persons. SCF also operated the Lhanguene traumatized children therapy and family reunification project.

WVRD - operated a food commodity management program in Zambezia, Tete and Manica provinces and distributed appaks -- packages of seeds, tools, and fertilizer -- to farmers in Tete and Zambezia provinces. The contribution of WVRD to both projects was valued at \$1,626,195. WVRD also began a primary health care project in Tete Province.

TOTAL \$3,200,955



Bridge sabotaged by RENAMO

Assistance Provided by the International Community

On April 26-27, governments and non-governmental organizations pledged more than \$272,000,000 in food and other assistance at the Mozambique Emergency Donors' Conference, held in Maputo. The following account of international assistance is a representative list of fulfilled contributions, based on a CENE Donor Assistance chart, dated Oct. 28, 1988. Pledges and appeals have not been included in the total.

International Organizations

EC - contributed 40,000 MT of corn (\$4,600,000); 16,667 MT of rice (\$4,333,000); 40,000 MT of wheat (\$5,200,000); 4,000 MT of pulses (\$1,800,000); 2,000 MT of vegoil (\$1,600,000); grant to German Agro-Action (\$310,450); grant to ICRC (\$1,210,755); grant to MSF/Belgium (\$155,225); grant to MSF/Netherlands (\$546,392); grant to MSF/France (\$434,630); grant to MSF/Belgium (\$298,032); grant to World Vision International (\$347,704); grant to Bioforce (\$167,643); total contribution of \$21,003,831.

ICRC - resumed relief airlifts from April until July 19, when flights were again suspended due to security concerns. During this period, ICRC was able to deliver food and other assistance to 24,000 civilians in Sofala province, transport vital medicines for the Ministry of Health, and evacuate wounded and seriously ill by plane. ICRC continued its orthopedic prostheses program and security detainee visitations.

UNDP - gave a \$505,600 grant to CENE and jeeps, valued at \$50,000.

UNDRO - provided \$30,000 to an emergency fund, established an emergency stockpile in Maputo, and sent a computer expert to assist CENE.

UNHCR - managed program to resettle Mozambican returnees in Tete, Manica and Gaza provinces.

UNICEF - managed several relief and rehabilitation projects in Mozambique; including health sector rehabilitation projects in Tete, Manica and Sofala; water and well rehabilitation projects in Inhambane, Sofala and Tete; agricultural and rural rehabilitation projects in Tete and Manica; a vital medicines program; a street children project; and a returnee resettlement program in Manica Province; total reported contribution of \$1,377,325.

WFP - under its ongoing food distribution program, delivered 31,514 MT of corn (\$4,071,000); 4,490 MT of wheat (\$584,000); 5,263 MT of pulses (\$2,357,000); 2,743 MT of vegoil (\$2,192,000). WFP also invested in port refurbishment and coastal food transport. The total reported contribution was \$14,209,000.

Governments

Australia - donated 6,000 MT of rice (\$1,560,000); a grant to WFP for coastal vessels (\$400,000); and a grant to UNICEF for airlifts (\$179,856); total contribution of \$2,139,856.

Austria - provided 4,800 MT of corn, valued at \$970,112.

Belgium - donated \$14,448 to the UNICEF appeal.

Canada - contributed 13,500 MT of corn (\$1,936,508); 26,000 MT of wheat (\$6,746,032); spare parts to DPCCN (\$1,111,111); six trucks (\$375,000); seeds (\$390,000); agricultural tools (\$40,000); vital medicines (\$300,000); rental of two coastal vessels (\$873,015); a grant to UNICEF for a water project in Tete (\$3,155,595); a grant to UNICEF for a water project in Inhambane (\$891,500); a grant to UNICEF for a water project in Sofala (\$140,000); a grant to UNICEF for airlifts (\$443,000); grant to UNDRO for aircraft charter (\$405,000); total contribution of \$16,806,761.

Denmark - gave 15,600 MT of corn (\$4,341,085); a grant to the CCM (\$232,558); and grant to LWF (\$310,078); total contribution of \$4,883,721.

Finland - gave grant to WHO (\$235,295); grant to ICRC for blankets (\$212,000); grant to UNDRO for blankets (\$70,000); and a grant to UNICEF (\$50,000); total contribution of \$567,295.

France - donated trucks valued at \$240,000, vital medicines valued at \$500,000, and 7,000 MT of wheat valued at \$910,000.

Germany, Dem. Rep. - donated \$118,000 to UNICEF for health materials.

Germany, Fed. Rep.- donated 11,500 MT of corn (\$5,667,238); 2,000 MT of wheat (\$618,700); trucks for German Agro-Action (\$325,000); trucks for CARE (\$200,000); blankets for CARITAS (\$175,000); a grant to German Agro-Action for airlifts (\$177,800); a grant to CARE (\$84,023); a grant to German Agro-Action for seeds (\$330,000); a grant to German Agro-Action for soap and utensils (\$143,929); a grant to German Agro-Action for agricultural tools (\$30,625); and a grant to UNICEF (\$500,000); total contribution of \$8,252,315.

Italy - contributed 12,000 MT of rice (\$6,000,000); 12,000 MT of corn (\$3,500,000); 10,000 MT of wheat (\$3,000,000); trucks and vehicles (\$12,840,440); fuel and spare parts (\$1,516,560); cost of airlifts (\$2,010,000); cranes and port

equipment (\$1,175,000); two 400 MT barges (\$1,400,000); blankets (\$543,825); seeds and handtools (\$250,000); equipment for CENE (\$40,000); a grant for an agricultural project (\$115,000); grant for a water project in Nampula (\$200,000); and grant for a water project in Niassa (\$80,000); total contribution of \$32,670,825.

Japan - donated 16,000 Mt of rice, valued at \$4,160,000, and 400 MT of canned fish, valued at \$1,080,000.

Luxembourg - gave \$129,870 to UNHCR to assist returnees.

Netherlands - gave 7,520 MT of corn (\$1,316,000); 16 trucks (\$1,455,263); spare parts for the DPCCN (\$531,915); vital medicines (\$526,000); grant to UNDP for CENE(\$388,000); a grant for UNICEF Tete and Manica health projects (\$1,316,000); and a grant to an Eduardo Mondlane Foundation water project (\$367,000); total contribution of \$5,900,178.

Norway - provided 150 MT of corn (\$17,250); 106 MT of fish (\$420,473); seeds (\$190,000); vital medicines (\$1,230,768); grant to UNDP for airlifts (\$413,461); grant to LWF for airlifts (\$307,692); grant to UNDP for fuel and lubricants (\$413,461); grant to WHO (\$75,000); grant to SCF for health clinics (\$20,385); and a grant to OXFAM (\$839,646); total contribution of \$3,928,136.

Portugal - donated \$35,100 to UNHCR to assist returnees.

Soviet Union - donated trucks, valued at \$1,200,000 and helicopters, valued at \$5,197,306.

Spain - contributed 4,000 MT of wheat, valued at \$520,000.

Sweden - provided 2,900 tarpaulins to WFP (\$920,000); trucks, tractors and vehicles (\$4,180,000); fuel, lubricants, and spare parts (\$645,454); seeds (\$476,000); agricultural tools (\$38,908); chemicals for water treatment (\$672,000); clothing (\$19,636); blankets (\$528,000); grant for Sofala displaced persons

project (\$1,600,000); grant to WFP (\$416,000); grant to OXFAM (\$1,200,000); grant for sea transport (\$1,600,000); grant for airlift (\$3,200,000); total contribution of \$15,495,998.

Switzerland - gave a \$195,000 grant to WFP for tugboats.

United Kingdom - donated 20,000 MT of corn (\$1,916,000); fuel and spare parts to CARE (\$1,368,000); agricultural tools (\$319,700); seeds (\$342,000); port equipment (\$30,000); trucks (\$907,000); grant to UNICEF for DPCCN (\$250,000); grant to SCF for health rehabilitation project (\$144,000); grant to UNICEF for health sector project (\$426,000); grant to UNICEF for Inhambane water project (\$90,000); grant to Actio Aid for cooking utensils (\$306,000); total contribution of \$6,098,700.

Non-Governmental Organizations

Action Aid - provided blankets (\$9,120); seeds (\$97,900); tools (\$92,290); health equipment (\$157,800); manages relief and rehabilitation project in Zambezia; total contribution of \$357,110.

Belgium Socialist Solidarity - manages relief and rehabilitation projects in Manica, Nampula, Tete, and Sofala.

Bioforce - managed integrated rural rehabilitation project in Inhambane Province.

CARITAS - distributed seeds, blankets, clothing and babyfood, valued at \$3,500,000.

COCAMO (Australia NGO Consortium) - distributed seeds and handtools in Nampula.

Eduardo Mondlane Foundation - supported the construction of wells, schools and health clinics in eight provinces.

German Agro-Action - distributed clothing, soap, agricultural tools, seeds, and foodpacks in Sofala Province.

LWF - donated 1,000 MT of corn (\$115,000); 100 MT of vegoil (\$90,000); 80 MT of canned fish (\$320,000); 200 MT of milk (\$215,000); seven trucks (\$467,000); spare parts for DPCCN (\$65,000); clothing (\$300,000); blankets (\$24,000); soap (\$1,800); and contributed to relief airlifts; total contribution of \$1,597,800.

Medecins du Monde - supported health projects in Sofala and Maputo.

MSF/Belgium - operated health sector project in Inhambane and returnee program in Tete.

MSF/France - managed district health project in Manica.

MSF/Netherlands - managed medical technical assistance program in Nampula.

Norwegian People's Aid - operated rehabilitation projects in Tete, Manica, and Cabo Delgado.

Operation Handicap International - provided prostheses and physiotherapy to amputees and victims of civil strife in Tete, Nampula, and Inhambane.

Oxfam/U.K. - sponsored airlifts and distributed clothing, blankets, seeds, and handtools in Niassa and Zambezia Provinces.

Redd Barna - engaged in relief and rehabilitation activities in Manica, Niassa, Sofala and Tete, in collaboration with OXFAM, German Agro-Action and Swedish Save the Children.

SCF/U.K. - managed integrated relief project in Zambezia and sponsored relief airlifts.

War on Want - contributed seeds and agricultural tools, valued at \$40,000.

TOTAL \$154,684,897

Date
March - September
1988

Location
Highly localized,
worst incidence in
northern Niamey,
central Tahoua,
eastern Zinder, Diffa.

No. Dead
unknown

No. Affected
Between 1,000,000
and 1,300,000

The Disaster

Overall, crop production in Niger in 1987 was sufficient for the country's needs; however, because the rains were late and sporadic, certain regions experienced shortages. It was estimated that local shortages amounted to a 101,000 ton deficit, threatening 1 million with famine. In many cases the regions with shortages lacked the resources to buy grain. In northern Niamey, central Tahoua, eastern Zinder, and Diffa department the drought hit particularly hard. The situation was exacerbated by the fact that Nigeria banned export of corn and sorghum in January, cutting off a potential supplier for Niger. While Niger had some reserve food stocks, the amount it held was insufficient to supply all the affected areas. In addition, GON had almost no funds for internal transportation and distribution of food supplies.

Action taken by the Government of Niger (GON)

As part of its strategy to manage the drought, GON distributed food through a food for work program eliminated import licenses for grain, and supplied grains for dry season gardening.

GON also produced a list of villages that were 75% short in their food supplies for Niamey and Zinder departments. GON was experiencing financial difficulties during this period and was compelled to close some of the warehouses and lay off personnel from the OPVN, Niger's grain marketing agency.

Assistance Provided by the U.S. Government

Ambassador Richard Bogosian declared a drought disaster on March 30, 1988, and OFDA obligated \$25,000. The original plan to spend the grant on a nutrition survey was abandoned because of complications due to the taking of the national census. Ultimately the mission hired a distribution coordinator for Zinder Department for four months (at a cost of \$15,000), made a \$5000 grant to the League of Red Cross and Red Crescent Societies/ Niger to cover fuel costs for distribution of food

in Zinder, and used the remaining funds to assist the OPVN with food distribution costs. The difficulty of transporting grain within Niger was a major obstacle to the relief efforts. FFP sent 15,000 MT of section 416 sorghum and also made a \$444,100 grant to Niger for internal transportation.

<i>Total OFDA</i>	\$25,000
<i>Total FFP</i>	\$441,000
TOTAL	\$483,100

Assistance Provided by U.S. Voluntary Agencies

None reported

Assistance Provided by the International Community

Obtaining figures for international assistance is complicated by the fact that many countries made commitments on which they were unable to follow through. A total of 30,000 MT of grain was donated to Niger by countries other than the United States.

Niger

Date

August - September 1988

Location

Nationwide, notably the Tera arrondissement of Tillaberi Department and southern Zinder Department

No. Dead

20

No. Affected

80,000 homeless

Damage

Housing, roads, and wells sustained about \$10,200,000 in damage. Thousands of hectares of farmland were flooded and 15,000 cattle perished.

The Disaster

During August and September, Niger experienced unusually heavy rains that induced flooding in many parts of the country, especially Tillaberi and southern Zinder departments. Cresting waters inundated thousands of hectares of farmland, killed 15,000 head of cattle, and caused \$10.2 million in damage to housing and infrastructure. Following on the heels of a major dryspell that required emergency food aid, this disaster killed 20 people and left 80,000 without shelter.

Flooding in Tillaberi Department particularly affected the Tera area. The bursting of a dam from high waters on the Niger River in Burkina and heavy rains starting in early August made the road from the river to Tera impassable. Bridges, culverts, and sections of the roadway washed away



Loading USG grain for delivery to distribution sites
Photos by Charles Kelly

near the communities of Gotheye, Kakassi, and Koulbaga. Emergency food shipments for drought relief to the zone were temporarily cut off. Torrential downpours destroyed mud walls and roofs of many homes and granaries around Tera, forcing many residents to temporarily relocate. Damage also occurred to the paved road from Niamey to Tillaberi and to the unpaved road from Tillaberi to the Malian border, which was blocked

in three places by high water. In Zinder Department, housing was especially affected. During a two-day period between Aug. 23 and 24, over 100 mm. of rain fell in the towns of Magaria, Mirriah, and Zinder. Many earthen dwellings collapsed in the ensuing floodwaters. USAID/Niamey personnel in the region reported 1,800 homeless in Mirriah and 4,940 homeless in Magaria. No estimates of damage from Zinder city were available. Press reports indicated that several communities in the Maradi and Tahoua regions of Niger also sustained limited damage.

Action Taken by the Government of Niger (GON)

Soon after the extent of the flooding became known, the GON appealed for international help through UNDRO and used what emergency resources it had to furnish assistance to the victims, especially in the areas of housing and road repair. The armed forces assumed responsibility for relief operations. On Dec. 7, a GON assessment report was issued that cited housing, infrastructure, and agriculture as having sustained most of the estimated \$10.2 million in flood damage.

Assistance Provided by the U.S. Government

On Sept. 2, U.S. Ambassador Richard W. Bogosian declared an emergency. USAID/Niamey disaster relief staff in Zinder and Tillaberi departments helped the GON collect information and assess needs. An OFDA allocation of \$35,000 was used to support food transport costs, road repair, and the local purchase of plastic sheeting for temporary roofing in the Tera area. USAID/Niamey also provided \$5,000 for a vehicle and staff person to assist the GON flood assessment and \$5,000 to cover fuel costs for distribution of emergency Section 416 commodities for the Tera Department.

Total OFDA \$35,000
Total Other USG \$10,000

TOTAL \$45,000

Assistance Provided by U.S. Voluntary Agencies

None reported

LRCS - contributed \$34,000 in housing, clothing and transport costs to over 3,000 flood victims in Zinder and Tillaberi departments.

Togo - furnished \$2,500,000 in flood aid.

Assistance Provided by the International Community

Central Bank of West Africa - donated 30 MT of millet.

UNICEF - gave blankets, tents, and food for use in the Tera area.

TOTAL \$2,534,000



Reconstruction of flood-damaged housing in Magaria

Date

August 1987 - June 1988

Location

Koko, Bendel State

No. Dead

0

No. Affected

1,000 people evacuated

The Disaster

The dumping of hazardous industrial by-products is becoming a serious environmental problem in many Third World countries. One of the most blatant cases of dumping toxic waste occurred in the tiny port town of Koko, in the Bendel State of Nigeria. There, five shiploads of chemical waste were discovered on the property of Mr. Sunday Nana. Mr. Nana, a poor farmer, was paid \$100 a month by Italian businessman Giafranco Raffaelli to store the highly poisonous waste on his property. Mr. Raffaelli, director of Irukep Construction Company based in Nigeria, contracted with several European companies to dispose of various toxic industrial by-products and then forged clearance papers and bribed Nigerian port officials to gain entry for the ships carrying the waste. Over 9,000 chemical drums were offloaded at the port at Koko and then taken by truck to Mr. Nana's property, one kilometer away. The illegal dumping began in August 1987 and was not discovered until June 1988, when an Italian newspaper uncovered the story and Nigerian students in Italy alerted the authorities. Mr. Raffaelli quickly departed Nigeria, but 15 people, including several Italian nationals, were arrested in Lagos for their involvement in the dumping scheme. The Nigerian government seized an Italian-owned ship not connected to the waste trade in an effort to pressure the Italian government to admit complicity and pay for the cleanup of the dump site.

Nigerian scientists, along with teams from the United States, United Kingdom, Japan, and the International Atomic Energy Agency, performed assessments of the dumpsite to determine chemical composition and toxicity of 3,800 tons of hazardous waste. The site contained a stew of chemical toxins, including polychlorinated biphenyls (PCBs), a highly carcinogenic byproduct, and various poisons, acids, and flammable liquids. Several drums were labeled with the letter R (the international symbol for hazardous waste), leading some Nigerian officials to fear that the site also contained radioactive waste. Although no traces of radioactivity were detected by the various teams, the chemical waste posed a serious health threat to the local population. Many of the drums

leaked and swelled from the heat and there was a very real risk of a spontaneous fire or explosion engulfing the dump and spreading highly poisonous smoke over a wide area. Local residents ate cassava that was grown in the contaminated soil and some residents reportedly emptied drums and took them home to serve as containers for water or a local gin, known as "kai-kai."

Action Taken by the Federal Republic of Nigeria (FRN)

Upon learning about the toxic waste dump, the FRN immediately declared the area around Koko a disaster area. Approximately 1,000 people were evacuated and soldiers cordoned off the area. A task force was established under the leadership of the FRN's Ministry of Works and Housing. The FRN immediately made an urgent request for international assistance. Teams from the United States, United Kingdom, and Japan met with the FRN Minister of Works and Housing before visiting the site and debriefed the Minister following their assessments. Nigerian scientists from the universities of Ibadan and Lagos also visited the site. The teams presented reports to the Minister, outlining the human and environmental risks of the toxic waste and recommendations for removal and disposal of the chemicals.

Following an agreement between the FRN and the Government of Italy (GOI), a work force of 150 men began to repackage and load the industrial waste into containers to be put on board ships back to Italy. The cleanup began on July 6 and took approximately 21 days. Several of the workers reported experiencing chemical burns or vomiting blood and one man was temporarily paralysed. On July 10, dockworkers temporarily stopped work to protest their exposure to the toxic waste without adequate protection. The last ship left Koko on Aug. 15, and all of the waste was returned to Italy, where it was disposed of in accordance with Italian environmental protection standards.

Assistance Provided by the U.S. Government

On June 15, following a direct appeal from the FRN and a diplomatic note to Secretary of State George Shultz, U.S. Ambassador Princeton Lyman determined that the toxic waste dump at Koko posed a serious environmental risk to Nigeria and, therefore, warranted USG assistance. OFDA convened a meeting with officials from the U.S. Department of State and the U.S. Environmental Protection Agency (EPA) to discuss the USG response. Three technical specialists from EPA, Captain Ellery Savage, John Gilbert, and Harry Compton, were assembled, briefed, and dispatched to Nigeria to provide technical assistance to the FRN. The EPA technical team was joined by Dr. Jason Weisfeld, a CDC epidemiologist stationed in Kaduna, Nigeria, to perform health surveys on the local population. They began their assessment on June 20 and spent three days examining the site. Team members wore protective suits and used radiation meters and chemical analyzers to measure toxicity. The team found high concentrations of toxic chemicals, but no appreciable levels of radioactivity. They shared the results of their survey with subsequent assessment teams from the United Kingdom and Japan. In its final report to the Minister of Works, the team made a number of recommendations concerning containment of the site and options for disposal of the waste. OFDA paid for the airfare and 14-day per diem of the team members at a cost of \$40,700.

TOTAL \$40,700

Assistance Provided by U.S. Voluntary Agencies

None reported

Assistance Provided by the International Community

Friends of the Earth (U.K.) - sent an environmental assessment team.

International Atomic Energy Agency - dispatched a radiation expert to detect radioactivity.

Italy - sent 2 ships to Koko to transport the waste back to Italy. The GOI paid for the cost of loading the ships and disposal of the waste. The GOI also agreed to decontaminate the site.

Japan - dispatched 2 teams to examine toxicity of the waste.

United Kingdom - sent a team to conduct an environmental assessment of the site and investigate the threat of radioactivity.

Date

May 27, 1988 - present

Location

Northwestern Somalia; an area bounded on the east by Las Anod and Erigavo, and on the west by Boroma; this area is approximately 88,400 sq. km. (34,000 sq. miles)

No. Dead

Estimated at 10,000-20,000 civilians

No. Affected

1,000,000; about 300,000 Somalis fled to Ethiopia

Damage

Extensive damage to the cities of Hargeisa and Burao and surrounding villages, particularly in the triangle bordered by those two cities and the port of Berbera; the war also caused damage to other areas of the north as far east as Erigavo and as far west as close to Boroma; homes, infrastructure, water systems, and livestock destroyed

The Disaster

There has long been enmity between the Somalis and Ethiopians, with both countries making a claim over the Ogaden, an area under Ethiopian sovereignty but whose population comprises predominantly Somali and related Muslim people. Tensions spilled over into full-scale war in 1977 when the Somali army invaded the Ogaden in support of the anti-Ethiopian Western Somali Liberation Front (WSLF) uprising. The new Marxist Ethiopian government, with emergency help from the Soviets and Cubans, pushed back the Somalis. In the wake of the Somali defeat, hundreds of thousands of people fled to Somalia in search of refuge. The majority of these mostly Ogadeni refugees still remain in camps in both northern and southern Somalia.

Since a 1969 coup, the Somali government has been led by Siad Barre. President Siad is a member of the Marehan clan (of the Darod clan family) and there has been some resentment among other clans of the perceived dominance of the Marehans and other Darod clans such as the Ogadenis and Dolbahantes. This resentment became more pronounced in the 1980s, particularly in northern Somalia among the Issak and other northern clan families. The Issaks believed that they were being unfairly pushed out of jobs and government posts in favor of Darod clan members. Some of the anti-government sentiment among the Issaks was directed at the Ogadeni refugees in their midst, who were viewed as prime beneficiaries of government favoritism.

Increasing dissatisfaction and resentment with the government led to the formation of the Somali National Movement (SNM) in the early 1980s. The Issak-dominated SNM was supported, in weapons and other material needs, largely by the Ethiopian government. In early 1988, the governments of Somalia and Ethiopia concluded an agreement to stop supporting each other's rebel groups. Shortly after this, on May 27, 1988, the SNM launched an attack on Burao; this was followed on May 31 with an attack on the old capital of British Somaliland and the largest town in the north, Hargeisa. The Ogadeni refugee camps of Las Dhure and Agabar were also

attacked by the SNM in these early days of the conflict.

The battles in Burao and Hargeisa lasted for several months and were very brutal. SNM soldiers dispersed themselves in heavily populated residential civilian neighborhoods. The Somali Armed Forces responded with heavy aerial bombardment. Civilian crossfire deaths reached into the thousands, and many thousands of Issak survivors fled these towns. At least 90% of Hargeisa was left damaged by the time the Somali Armed Forces re-took the city. Fighting was also intense in the surrounding rural areas: the Somali government forces attacked many Issak villages, whether or not SNM forces were present, in savage reprisal for SNM activities. The SNM continued to target Ogadeni refugee camps throughout the summer, claiming that many of the men were actively fighting with the Somali Armed Forces. Summary executions---in many cases seemingly motivated only by tribal affiliation---were carried out by both sides. The largest group of such executions took place in Berbera, a port town in which the United States has interests, and which had not been the scene of battle. For at least four months in the summer of 1988, the Somali Armed Forces rounded up Issak men, detained them for varying lengths of time, and them systematically executed them, usually by cutting their throats. At least five hundred men, and possibly more than a thousand, lost their lives in this manner. These atrocities were described in a State Department report written by Robert Gersony, an independent consultant who, in the spring of 1989, interviewed almost 300 refugees, displaced persons, and others affected by the war.

It is estimated that at least 10,000-20,000 civilians lost their lives in this war. In addition, hundreds of thousands of Somalis---mostly Issaks---fled the north for sanctuary in other countries, particularly Ethiopia. Thousands of other northerners, both Issaks and non-Issaks, have felt compelled to leave their homes for other towns or for remote interior locations.

By the beginning of 1989, the level of violence had seemed to have significantly decreased, but

the situation remained very tense in northern Somalia. The continued insecurity in the north made relief operations difficult.

Assistance Provided by the U.S. Government

President Muhammad Siad Barre approached U.S. Ambassador T. Frank Crigler on July 26, 1988, requesting relief assistance for northern Somalia. On Aug. 1, 1988, Ambassador Crigler determined that the intense civil strife had caused a disaster in northern Somalia. The USG then sent a three-person assessment team to Somalia to observe the extent of damage in the north and to recommend appropriate USG relief options. The team was headed by the State Department's Bureau for Refugee Program's Deputy Assistant Secretary Kenneth Bleakley and comprised OFDA's Joseph Gettier, the Africa Division's Deputy Assistant Director, and USAID/Mogadishu's food specialist Tom Brennan. The team arrived in Somalia on Aug. 8, met with donor and Somali government officials, and traveled to Garoe, Las Anod, Berbera, and Hargeisa. The team decided that OFDA would concentrate its efforts on the needs of the displaced, while the Bureau for Refugee Programs would take responsibility for providing USG assistance to refugees, both those of *Ethiopian* origin in Somalia, who had been receiving assistance for close to a decade, and those *Somalis* who had fled to Ethiopia. OFDA assistance to the displaced in Somalia in FY 1988 was as follows:

Amb. authority used for the local purchase of relief supplies	\$25,000
250 rolls of plastic sheeting from the Leghorn stockpile	\$72,475
Radio equipment	\$4,078
TOTAL	\$101,553

The continued insecurity in the northern regions of Somalia in the summer and fall of 1988 precluded the implementation of a more extensive relief program.

Assistance Provided by the International Community

International Organizations

EC - provided \$44,800 to the Somali Ministry of Health for medicine.

FAO - performed an assessment on the potential food deficit situation in the north and on the outlook for the following year's harvest.

ICRC - provided, in conjunction with the Somali Red Crescent Society, medicine and equipment for hospitals in Mogadishu, Garoe, Berbera, and Las Anod; provided a surgical team comprising a surgeon, operating nurse, and four ward nurses to Martine (military) Hospital in Mogadishu; and taught a four-day course for Somali doctors in basic principles of war surgery. The ICRC augmented its expatriate staff in-country to 16 in anticipation of increased medical needs.

UNHCR - sent drugs for refugee health units in camps east of Hargeisa.

UNICEF - provided medicine and medical supplies, valued at \$770,000.

WFP - pledged to resume its refugee feeding programs in the north.

Governments

Egypt - delivered 5.5 MT of medicine and provided four more surgeons to work with a 12-doctor, ongoing medical program.

Italy - contributed 60,000 bags of IV fluid and antibiotics; donated relief supplies valued at \$1,000,000; and provided \$1,100,000 for hospital equipment.

United Kingdom - gave \$83,738 to Christian Aid for medical supplies and drugs.

TOTAL \$2,998,538

Food Shortages **South Africa**

Date
1988

Location
Gazankulu, Venda, Lebowa, Bophuthatswana, Qwa-Qwa, Kangwane, KwaZulu, Transkei, and Ciskei homelands and black townships in Cape, Orange Free State, Natal, and Transvaal provinces

No. Dead
Unknown

No. Affected
1,350,000 requiring emergency food assistance

The Disaster

The number of black South Africans requiring emergency food assistance continued to climb in 1988. Over 1.3 million people depended on a daily food ration of protein stew and mealie meal in 1988, compared to 1.2 million in 1987 and 850,000 in 1986. Most of these people live in the so-called black homelands, marginal rural areas established by South African government for the relocation of large numbers of the black population. These areas are often barren landscapes, completely unsuitable for subsistence agriculture. Most homeland residents live in overcrowded shantytowns, without access to potable water, sanitation, or adequate health services. A large percentage of the children suffer from severe malnutrition and the homelands population has one of the highest infant mortality rates in the world. In addition, approximately 225,000 Mozambican refugees have fled to the homelands to escape the civil strife in their country.

The underlying cause of this chronic human disaster is South Africa's system of apartheid. The homelands are entirely dependent on the economy of South Africa for their survival. Approximately 60% of the black males residing in the homelands work in the cities or mines of South Africa. The income from these workers, who earn barely a subsistence wage, accounts for roughly 70% of the gross income of the homelands. South Africa's current economic recession has drastically reduced the remittances that these laborers send to their families. This, coupled with spiralling inflation of basic food staples, has forced over 1.3 million black South Africans to rely on free food rations in order to survive. The South African government takes no responsibility in providing assistance to the homeland population.

Action Taken by South African Non-Governmental Organizations

Operation Hunger, a multi-racial, non-political private voluntary organization, manages the largest emergency feeding program in South Africa. Operation Hunger works independently of the South African government and the homeland authorities and relies entirely on donations from

local businesses, church groups, public fund-raising campaigns, and foreign donors. It responds only to community requests for assistance and distributes food rations through schools, clinics, churches, and other designated outlets. Operation Hunger also manages self-help gardening projects in the homelands, designed to relieve community dependence on food assistance. While several homeland communities became self-sufficient, other communities were forced to join Operation Hunger's feeding program. In 1988, Operation Hunger provided food rations to 1.35 million people. The vast majority of the recipients were women, children, the elderly, and the increasing number of unemployed. The daily food ration consisted of dehydrated protein stew and a portion of mealie meal, the staple of the black South African diet. The food is trucked in by Operation Hunger and then prepared by local women and children.

Assistance Provided by the U.S. Government

For the third year in a row, the USG provided assistance to Operation Hunger's feeding program inside South Africa. During the previous two fiscal years, OFDA obligated two grants of \$125,000 each to Operation Hunger. On Feb. 18, U.S. Ambassador Edward J. Perkins determined that the grave situation in the homelands constituted a disaster warranting USG assistance. USAID/Pretoria recommended that OFDA continue to fund Operation Hunger's program. On Feb. 24, OFDA allocated a matching grant of \$200,000 to Operation Hunger. As in previous years, OFDA agreed to match one dollar for every three dollars collected by Operation Hunger.

TOTAL \$200,000

Assistance Provided by U.S. Voluntary Agencies

Presbyterian Hunger Program - donated \$162,010 to Operation Hunger.

TOTAL \$162,010

**Assistance Provided by the International
Community**

Belgium - donated \$16,400 to Operation Hunger.

Deutsche Welthungerhilfe - contributed \$841,000 to
Operation Hunger.

Germany, Fed. Rep. - donated \$1,200,000 for the
purchase of maize meal through German NGO
Agro-Action.

ICRC - distributed supplies to Mozambican
refugees in Gazankulu and Kangwane

United Kingdom - gave \$41,000 to Operation
Hunger.

TOTAL \$2,098,400

Date
1988

Location

Civil strife in southern Sudan, provinces of Equatoria, Bahr El Ghazal, and Upper Nile; drought in Northern Darfur and Northern Kordofan Provinces

No. Dead

At least 250,000 are estimated to have died of starvation in 1988.

No. Affected

2,000,000 affected by civil strife; 1,750,000 affected by drought

No. Displaced

1,481,300 listed as displaced, with over 1,000,000 of these people living around the greater Khartoum area.

The Disaster

Historic enmity between the Islamic north and the Christian and animist south has been the cause of bloody civil warfare since Sudan's independence in 1958. The current civil strife began in 1983 and has largely been waged in the three southern provinces of Bahr El Ghazal, Upper Nile, and Equatoria. In 1988 heightened conflict between the Moslem-dominated Government of Sudan (GOS) and the black African Sudan People's Liberation Army (SPLA) created large displaced populations in the southern war zone, provinces north of the war zone, and the capital city of Khartoum. An estimated two million people were affected, most of which were displaced by war. Failure to deliver adequate relief food to these victims prior to the rainy season resulted in a famine that killed an estimated 250,000 people. Furthermore, the emergency situation in Sudan was exacerbated by a drought in the western provinces of Darfur and Kordofan.

Both sides of the civil war posed major obstacles for the transport of relief food to southern Sudan. The GOS was very slow to provide military escorts and fuel for truck, rail, and barge convoys going to the south. In Juba, frequent commandeering of relief vehicles by the military halted final distribution of commodities in and around the town. The GOS expelled two foreign private voluntary organizations in 1987. At the same time, the SPLA threatened to shoot down all aircraft that flew over its territory. The international community had virtually no access to SPLA-held territory and only limited access to government-held towns. Opportunities to assist the displaced were largely restricted to the towns of Juba and Malakal in the south, and people from Bahr El Ghazal who could reach Southern Kordofan and Southern Darfur provinces.

Equatoria: In mid-February 1988, Oxfam/UK reported that the number of displaced in Equatoria province was steadily rising at about 3,000 per month. The towns of Juba and Yei faced severe food shortages, but began receiving adequate supplies by road and air in March 1988. Over the next six months the number of displaced rose from 36,500 to 90,000 in Juba, and from

4,800 to 60,000 in Yei. The relief situation remained very tenuous throughout the year, with the availability of relief supplies varying weekly. Heavy SPLA attacks in September 1988 ended deliveries by road; much of the food bound for Juba by truck from Kenya and Uganda never made it beyond Yei.



Carboni sister administers feeding program in Wau
Photos by Joe Gettier, OFDA

Upper Nile: The situation in Malakal, in Upper Nile province, was described by Sudanaid (an indigenous PVO) as desperate in early February 1988. It had been over one year since the last delivery of commercial and relief food reached the town; sorghum prices had soared and relief stocks were virtually exhausted. One delivery of relief food arrived in March 1988, but by September food stocks were depleted and many of the displaced began dying of starvation. Relief agencies were assisting 14,000 displaced in February 1988 and the number rose to 45,000 by November 1988.

Bahr El Ghazal: The ICRC conducted a survey prior to the summer of 1988 in Wau, a town in Bahr El Ghazal. It reported that 60% of the 30,000 displaced persons were severely malnourished, with between 10 and 15 dying every day. In Aweil, another town in Bahr El Ghazal, more than 8,000 displaced persons died of starvation between June and September, 1988. Aweil was cut off from resupply of food due to the rainy season, a deteriorating security situation, and bottlenecks in the transport of food by train from Southern Kordofan. By November 1988, the number of displaced in Aweil had reached 65,000.

Southern Darfur: Beginning in the spring of 1988 a rapid influx of 15,000 displaced persons from the south flowed into Safaha and Southern Darfur. The malnourished state of displaced persons arriving in Safaha presented clear evidence of the horrible conditions in Bahr El Ghazal. A major effort to assist these recent arrivals was mounted through a joint venture of European PVOs. Within several months, these people were settled into seven manageable centers in Southern Darfur.

Southern Kordofan: Huge influxes of displaced persons moved from Bahr El Ghazal into Southern Kordofan, to locations such as Muglad, Babanusa, El Meiram, and Abyei. This was the first time that donors had access to these people and they were in desperate need of food and medical attention. Due to an unusually heavy rainy season, road and rail transport to the affected towns was even slower than in normal times and relief food was not reaching its destinations.

Babanusa is a major rail juncture in Southern Kordofan and receives food coming in by train from the north. By November 1988 there were an estimated 3,000 displaced persons in the town. Muglad, a town just south of Babanusa, accommodated over 4,000 new arrivals by November 1988. By the end of 1988 there was rampant malaria, chest infections, and diarrhea among the displaced in these towns and water supply was critical.

In El Meiram, the number of displaced rose from 4,000 in May 1988 to 26,000 in August 1988. A report of Aug. 4 indicated that an average of 280 persons were dying each week.

The situation was better by September 1988 when the last of three train loads of relief food arrived on September 19. The total population in need sank from 26,000 in August to 13,000 in September.

A staggering rate of 100 deaths a day due to starvation were reported in Abyei in August 1988. By September 1988, an estimated 25,000 displaced persons from the south occupied this small market town, in addition to about 4,000 people who were displaced by tribal fighting and isolated in Abyei by the rains. There had been no resupply of relief food since mid-June and these people were in desperate need of assistance.

Khartoum: Some of the displaced from the south made it to Khartoum. The arrival of one train from Aweil in April 1988 with 1,781 displaced persons, 30 who died along the way, and six children who died in the Khartoum railway station, gives some idea of the magnitude of the tragedy. Heavy rains and flooding in August destroyed many of the displaced persons camps in and around Khartoum (see "Sudan Floods"). By November 1988 there were more than 1,000,000 displaced persons in Khartoum.

Northern Darfur and Northern Kordofan: In 1987 serious food deficits resulting from a drought were reported in Northern Darfur and Northern Kordofan provinces in western Sudan. This emergency continued into 1988, affecting about 1.75 million people. Grain needs for the period from December 1987 through September 1988 were estimated at 71,000 MT for Kordofan and between 27,000 and 35,000 for Darfur. Food stocks were released from the Agricultural Bank of Sudan (ABS) to the Regional Governors of the affected provinces for subsidized distribution. In April the ABS was closed due to labor strikes. Lack of trucks and fuel presented major obstacles to the timely movement of food to affected towns. Donors responded with financial commitments for the purchase, transport, and distribution of in-country stocks. However, needs were not as great as originally estimated, and most of the food was diverted to Southern Kordofan and Southern Darfur to meet the needs of the displaced persons from the south.

Action Taken by the Government of Sudan (GOS) and Non-Governmental Organizations

The GOS appealed to the international community for assistance to manage relief efforts for drought in the west, and displaced persons in the south, in Kordofan and Darfur provinces, and in the greater Khartoum area.

The Relief and Rehabilitation Commission (RRC) is the national coordinating organization for emergency relief programs. The RRC held Technical Coordination Committee meetings on a weekly basis with NGOs, donors, Government officials, and UN officials to review the aid situation and problems in the west and south.

guidelines set by the RRC. Membership of these LRCs typically included: an RRC representative (Chairman), a Local Authorities representative, a representative of Security, a representative of the Ministry of Health, and representatives of locally active NGOs.

CART, a consortium of NGOs working in southern Sudan, distributed food, seeds, and tools to the needy in and around Juba. CART members included Sudanaid, the Episcopal Church of Sudan (ECS), the Islamic African Relief Agency (IARA), and the Sudan Council of Churches (SCC). Sudanaid and SCC also operated programs in



Irish Concern-run displaced persons camp in Muglad

The ABS released food from its stocks in Southern Kordofan. The RRC and regional governments oversaw relief food transportation, distribution, and monitoring in Kordofan and Darfur provinces. Local Relief Committees (LRCs) at distribution centers in the west and in the southern garrison towns were responsible for supervising the final allocation and distribution of relief supplies in accordance with general distribution

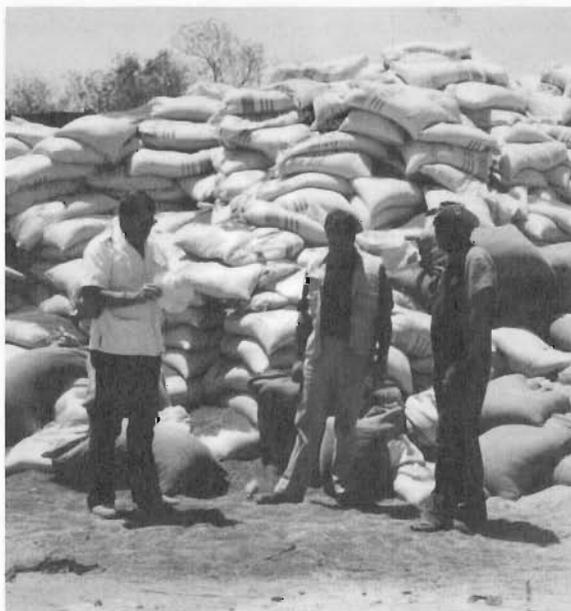
Upper Nile, Bahr El Ghazal, and Khartoum. The Sudanese Red Crescent (SRC) was the main relief agency operating in Darfur, where it developed an early warning system.

Assistance Provided by the U. S. Government

In the early part of FY88, OFDA began providing assistance in anticipation of a possible

drought emergency. In November 1987, it sent a logistics consultant to assess the country's transport infrastructure for enhancing the food delivery system. OFDA also funded a four-month continuation of services (January to April 1988) of a delegate from the League of Red Cross and Red Crescent Societies (LRCS) to ensure timely start-up of a relief program in North Darfur. Finally, it gave a \$105,000 grant to CARE for a 10-month project in North Kordofan that would assist the provincial government in food monitoring, food allocations, and crop production assessments. On Feb. 28, 1988, U.S. Ambassador Norman G. Anderson declared a disaster for drought in the west and civil strife in the south.

USAID/Khartoum, the EC, and the Netherlands assisted the GOS with the western drought relief effort by financing the purchase, transport, and monitoring costs of sorghum shipments from ABS stocks. USAID/Khartoum committed seven million Sudanese pounds for the first tranche of 30,000 MT shipped to Kordofan and Darfur, 10 million Sudanese pounds for the second tranche of 37,730 MT, and 10 million Sudanese pounds for the third tranche of 37,730 MT.



OFDA's Joe Gettier, center, and others inspect U.S.-donated food in Abyei.

By spring 1988, it became more evident that large quantities of food would be needed to meet the needs of the displaced persons streaming north from Bahr El Ghazal into Southern Kordofan. Since needs in Northern Darfur and Northern Kordofan had been overestimated, USAID began coordinating with the GOS and private voluntary organizations (including Concern/Ireland, MSF/Holland, and MSF/France) to divert western drought relief food to the displaced in Southern Kordofan. Emergency food stocks were prepositioned in Babanusa, Muglad, Abyei, and El Meiram by early summer, but were not enough for the large influx of displaced persons.

In addition to food, plastic sheeting was sent to Sudan to provide temporary shelter to the displaced persons. OFDA dispatched a DOD aircraft to deliver 750 rolls of plastic sheeting from the OFDA stockpile in Maryland to Khartoum on June 4-5. The plastic was turned over to Sudanaid for distribution to displaced persons in and around Khartoum. Another 385 rolls of plastic sheeting was airlifted the following month to Khartoum for the same purpose. The Ambassador's Authority of \$25,000 was given to Sudanaid to pay for the costs of distribution of the plastic sheeting.

Visits to Southern Kordofan in September 1988 by USAID/Khartoum personnel generated reports to AID/Washington of a deteriorating situation among the displaced persons there. Since USG personnel were denied access to the south, NGOs were relied upon to conduct assessments in the southern provinces. By summer, reports of massive starvation in the south began filtering out of Sudan. Large influxes of displaced persons into Aweil and Wau in Bahr El Ghazal, and Malakal in Upper Nile, also raised much concern in Washington. The worsening situation in Southern Kordofan and Bahr El Ghazal and the continual delay of ICRC to begin relief operations on both sides of the conflict, prompted the United States Government to conclude that immediate action must be taken.

On Sept. 30, the last day of the USG fiscal year, a five member OFDA team was dispatched from Washington to Khartoum to assess the emergency needs of displaced persons from southern Sudan,

to make recommendations for emergency food and medical assistance, and to develop the logistical framework for delivering food and appropriate medical assistance to populations in need. OFDA Deputy Assistant Director for Africa Joseph Gettier headed the mission, accompanied by a FFP officer, a CDC nutrition expert, a DOD logistics officer and an administrative/information support specialist. The team conducted several field assessments and developed a prioritized list of actions for responding to the immediate needs of the most severely affected displaced persons in and near conflict areas in Southern Kordofan and northern Bahr El Ghazal. Based on the team's recommendation, an initial airlift of 90 MT of USAID food from Khartoum to Abyei was started on October 13, with funding provided to the RRC under a recently signed \$1.5 million grant from OFDA. Remaining OFDA funds were used primarily to fund logistical activities in support of relief operations in Southern Kordofan and Bahr El Ghazal, including airlifts and train transport of relief food to Aweil and the purchase of four vehicles for the RRC. For a description of additional relief activities which started in FY89, see the FY89 *Sudan - Civil Strife* case report.

Most of the USG assistance was in the form of emergency food aid. A.I.D.'s Office of Food for Peace allocated 46,353 MT of Title II emergency food commodities directly to the GOS. Another 4,531 MT of Title II emergency food was allocated to U.S. PVOs. Of this amount, 2,361 MT went to SCF, 1,078 MT to WVRD, 727 MT to CRS, and 365 MT to CWS.

Summary of USG Assistance

OFDA Assistance

Transportation assessment consultant	\$14,045
LRCS delegate for 4 months	\$18,481
Grant to CARE for monitoring support project in west	\$105,000
Grant to Saban Orphan Project	\$159,200

Grant to CWS to monitor the distribution of Zaire food	\$42,670
Cost of 750 rolls of plastic sheeting . . .	\$224,850
Airlift of 750 rolls of plastic sheeting to Khartoum	\$147,000
Forklift rental for off-loading of plastic sheeting	\$400
Grant to SUDANAID for relief program in Khartoum	\$25,000
Funding for two PSCs in support of Mission operations	\$142,000
Airlift of 385 rolls of plastic sheeting . . .	\$93,292
Grant to the RRC to support relief efforts	\$1,510,522
TDY of DOD logistician and CDC nutrition expert	\$10,520
Total OFDA	\$2,492,980

FFP Assistance

46,353 MT of Title II food to GOS	\$5,144,600
Transport costs of 46,353 MT	\$6,333,800
2,361 MT of Title II food to SCF	\$564,200
Transport costs of 2,361 MT	\$288,500
1,078 MT of Title II food to WVRD	\$134,800
Transport costs of 1,078 MT	\$80,900
727 MT of Title II food to CRS	\$90,900
Transport costs of 727 MT	\$480,900
365 MT of Title II food to CWS	\$45,600
Transport costs of 365 MT	\$872,400
Total FFP	\$14,036,600

TOTAL \$16,529,580

Assistance Provided by U.S. Voluntary Agencies

CRS and CWS - channeled relief food to southern Sudan through their local counterpart agencies, Sudanaid and SCC.

CARE - established programs in Kordofan and participated in the development of regional plans and allocations for drought relief.

LWR - conducted relief operations in Malakal, employing only Sudanese nationals.

SCF - operated programs in Kordofan and participated in the development of regional plans and allocations for drought relief.

WVRD - was expelled from southern Sudan in late 1987.

Assistance Provided by the International Community

International Organizations

EC - provided funds to transport ABS stocks to western Sudan and funded the airlift of 1,000 MT of wheat from Port Sudan to Juba and an airlift of 1,000 MT of sorghum from Khartoum to Juba.

ICRC - began negotiations in February 1988 to provide relief assistance on both sides of the conflict in the south. Because of the intransigence of both the GOS and SPLA, the ICRC was not able to start actual deliveries until December 1988.

UNICEF - conducted vaccination campaigns in DP camps in Juba and provided health and water assistance in Southern Kordofan.

WFP - channeled international food donations to southern Sudan and sponsored airlifts that carried 3,700 MT of food from Entebbe to Juba. A WFP operations manager coordinated the delivery of emergency food aid to Kordofan and Darfur provinces.

Governments

Iraq - donated 58 MT of food for Juba.

Italy - arranged a rice for maize swap with the Government of Kenya, which provided 10,000 MT of maize for southern Sudan.

Netherlands - funded MALT, the Management and Logistic Team of the RRC and donated \$1,533,100 to the ICRC for relief operations in the south.

Switzerland - gave \$565,500 through the ICRC.

U.K. - financed the purchase and airlift of 400 MT of grain from Khartoum to Juba and contributed 13,000 MT of food for distribution in the North.

TOTAL \$2,098,600

Date

March - May 1988

Location

Khartoum and environs; also occurring to a lesser extent in Darfur and Kordofan provinces

No. Dead

1,608

No. Affected

23,267

The Disaster

In February 1988, several cases of cerebrospinal meningitis caused by group A meningococcus appeared in Khartoum. As the outbreak turned into an epidemic, cases continued to be concentrated in Khartoum and the central region. These two areas accounted for 70% of the 23,267 cases reported as of May 5. Darfur, Kordofan, and northern and eastern regions also reported significant numbers of cases. About 1,608 victims died from the disease. Health officials predicted that the disease would peak in May and fall off as the rains began. The severity of the epidemic was attributed to the intersection of a six-year cycle and a 25-year cycle of the disease.

Action Taken by the Government of Sudan (GOS)

Along with UNICEF, the Ministry of Health (MOH) conducted intensive vaccination campaigns in areas struck by the epidemic. After using the 1.5 million to 2.9 million doses held in storage, the MOH requested additional vaccine from the international community.

Assistance Provided by the U.S. Government

On April 20, U.S. Ambassador G. Norman Anderson declared that a state of disaster existed in the Sudan and recommended that OFDA grant UNICEF/Sudan \$65,000 for the purchase of vaccine and \$25,000 for the purchase of needles and syringes. OFDA authorized a grant of \$90,000 to UNICEF at the end of April and facilitated locating the vaccine in the United States since available supplies were limited.

CDC also initiated a plan to evaluate epidemic prevention and control strategies in the Sudan. Due to the high level of international cooperation during the epidemic, USAID/Khartoum suggested that CDC involvement be postponed until needed.

TOTAL \$90,000

Assistance Provided by U.S. Voluntary Agencies

None reported

Assistance Provided by the International Community**International Organizations**

WHO - provided 500,000 doses of vaccine and administered the vaccine in refugee camps.

UNICEF - contributed 250,000 doses of vaccine and worked with WHO and the MOH to locate and administer the vaccine.

Governments

Canada - funded vaccine and transportation costs, valued at \$65,000.

Kuwait - gave 200,000 doses of vaccine.

Libya - provided 1,000,000 doses of vaccine.

Saudi Arabia - furnished 400,000 doses of vaccine.

Non-Governmental Organizations

Goal (Irish PVO) - worked in refugee camps with victims of the epidemic.

Institute Merieux - sent a team to inspect and certify MOH storage and handling of vaccine.

TOTAL \$65,000

Date

Aug. 4-5, 1988

Location

East-central Sudan, including Khartoum and environs (Omdurman), Kassala, Ad Damer, Atbara, Showak, and Gedaref

No. Dead

96 dead, although other estimates reached into the hundreds

No. Affected

At least 1,500,000

Damage

Hundreds of thousands of homes were structurally damaged or destroyed; hydro-electric turbines, telephone and power lines, transportation routes, and city water system sustained serious damage.

The Disaster

Unprecedented rains on Aug. 4 and 5 deluged Khartoum and other urban areas of east-central Sudan producing the worst floods ever to have hit the country. Unofficial reports indicated a death toll in the hundreds. Floods left many victims in critical need of food, shelter, and medicine.

Hundreds of thousands of homes were destroyed or critically damaged, leaving at least one million people homeless. Most of the makeshift houses of the displaced southerners in shantytowns around Khartoum were washed away. City transportation routes were impassable for a time, making the squatter settlements inaccessible for the initial transport of relief goods and food. Railways and roads to the north and east were also damaged. Other affected cities included Kassala, Ad Damer, Atbara, Showak, and Gedaref. At least 1.5 million people were severely affected by the floods.

Silt and debris clogged turbines at Roseires dam, located on the Blue Nile southeast of Khartoum. Resulting power shortages reduced the availability of potable water, which is usually circulated by electric pumps in every residence. The rains also destroyed the majority of telephone and electrical lines throughout the affected areas. As of October 1988, telephone service in Khartoum was still out of order.

An abundance of stagnant water in the aftermath of the floods generated great concern over the health hazards associated with waterborne diseases and malaria.

Heavy showers on Aug. 12 exacerbated flood conditions in the Khartoum area. The Nile, still swollen from the deluge of Aug. 4-5, peaked at 17 meters (56 feet) in height on Aug. 27.

Action Taken by the Government of Sudan (GOS) and Non-Governmental Organizations

The Sudanese military proved instrumental in the immediate evacuation of flood victims to higher ground. The GOS declared a six-month national emergency and allocated an initial 6 million

Sudanese pounds (\$1.3 million) for emergency efforts. Due to the severity of the flooding, the GOS also appealed to the international community for assistance.

The military also managed a system for distributing incoming relief supplies from the airport to affected areas and permitted only limited participation of the international community in this system. The GOS transported donations of medical supplies directly from the airport to central medical stores for inspection and clearance. From there, the Ministry of Health distributed supplies to existing health centers in affected areas.

The leading national NGOs designated to assist flood victims included the Sudan Council of Churches, Sudanaid, the Islamic African Relief Agency (IARA), and the Sudanese Red Crescent.

National NGOs, with assistance from the USG and other donors, implemented an emergency water program, targeting an estimated 400,000 flood victims. Water was pumped from a variety of sources, chlorinated, and then transported in tankers to affected populations.

Assistance Provided by the U.S. Government

On Aug. 6, U.S. Ambassador G. Norman Anderson declared that the floods in the Sudan warranted USG assistance. USAID/ Khartoum provided 1,000 MT of sorghum and 200 MT of supplemental foods from in-country USG stocks. In addition, USAID/Khartoum gave \$79,000 in local currency for the purchase of 8,000 bags of charcoal for cooking to be distributed by the Sudanese Red Crescent.

OFDA dispatched disaster expert Fred Cuny to assess damage to housing and to assist USAID and the Embassy in directing the USG relief response. On Aug. 10, a C-5A carrying Mr. Cuny and 2.2 million sq. ft. (858 rolls) of OFDA- donated plastic sheeting departed the United States for Sudan. Local NGOs distributed the plastic sheeting to the displaced in Khartoum for temporary shelter. OFDA delivered an additional 770 rolls of plastic sheeting in September and



Khartoum neighborhoods inundated by Nile flood waters.

Photos by Dr. Ellery Gray, OFDA

October 1988. *[Note: Some of the plastic sheeting may have been distributed to people displaced by civil strife, which was a simultaneous disaster (see "Sudan Civil Strife"). In OFDA accounts, the cost of airlifting 385 rolls of plastic (half of the 770 rolls) was charged to the civil strife/drought disaster, and the airlift cost of the remaining 385 rolls was charged to the flood disaster.]*

OFDA medical officer Ellery Gray, a Public Health Service employee detailed to OFDA, traveled to Khartoum on Aug. 14 and remained until Aug. 22 to assist the GOS in assessing health facility needs. USAID/Khartoum, UNICEF, WHO, the GOS MOH, and the Sudanese Red Crescent developed an emergency health care delivery system, using approximately five million Sudanese pounds from counterpart funds to support the operations.

OFDA dispatched a four-member epidemiological team from the CDC, Atlanta, on Aug. 17 to assess health conditions of flood victims in the Khartoum area. The team carried its own diagnostic equipment and lap-top computers to Khartoum. It also transported 40 water kits donated by OFDA and 16 hand-held radios on loan from OFDA.

To cover one-quarter of the cost of a contribution of medicine and blankets from UNICEF, OFDA contributed \$80,000. OFDA dispatched 25 incubators and other needed equipment to test bacteriological contamination of water sources in Khartoum and other flood affected areas.

In response to requests from the GOS, OFDA contracted for the shipment of critically needed electrical connectors for repair of the electrical distribution system serving the greater Khartoum area. The connectors arrived in Khartoum on Sept. 22 and the second shipment arrived on Oct. 10. Both shipments were turned over to the National Electricity Corporation.

Summary of USG Assistance

FY 1988

Ambassador's authority used for local expenses of the health assessment team \$25,000

Replacement cost of 858 rolls of plastic sheeting to the New Winsor stockpile . . \$248,649

Transport of plastic sheeting from Dover AFB \$4,141

DOD airlift of plastic sheeting from Dover AFB to Khartoum \$185,000

Travel expenses of disaster shelter expert Fred Cuny from INTERTECT . . . \$22,888

Travel expenses of 4 epidemiologists (Michael Toole, Edward Brink, Bradley Woodruff, and Daniel Rodriguez) from CDC \$33,193

40 water testing kits purchased from Hach Co. (including air freight to Atlanta) \$2,835

Grant to UNICEF for emergency medical assistance to flood victims \$80,000

25 incubators with water purification kits (including air freight to Khartoum) \$18,319

600 electrical connectors purchased from Raychem Corporation of California \$181,478

Air freight of electrical connectors \$23,125

Replacement of 770 rolls of plastic sheeting \$223,223

Total FY 1988 \$1,047,851



Family dries out belongings.

FY 1989

Airlift of 385 rolls of plastic \$89,644

Replacement cost of support kits for response team \$1,705

Total FY 1989 \$91,349

TOTAL \$1,139,200

Assistance Provided by U.S. Voluntary Agencies

ADRA - sent blankets, tents, plastic sheeting, clothing, and medicine.

ARC - donated \$100,000 through the LRCS.

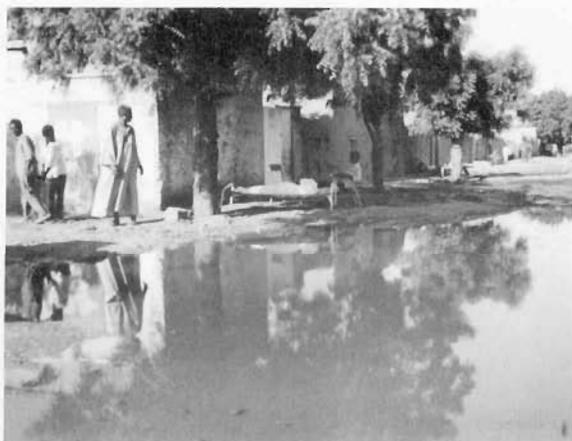
CARE - contributed \$10,000 for temporary housing materials and purchase of scarce commodities.

CRS - gave \$100,000 through CAFOD (Catholic Fund for Overseas Development) to Sudanaid for logistical support in the Khartoum area.

LWR - committed \$50,000 to the WCC and the LWF for airlifting tents, blankets, and other supplies from Europe and Africa.

SCF/US - provided \$10,000 for shelter materials, food, and medicine.

TOTAL \$270,000



Streets filled with stagnant water

Assistance Provided by the International Community

International Organizations

EC - gave a total of \$728,000 through the Danish Red Cross, the British Red Cross, MSF/Belgium, MSF/Holland, and MSF/France for several plane loads of relief assistance, including, 1,000 tents, 33,250 blankets, 10 large and 93 small water containers, 1,000,000 water-purifying tablets, 125,000 ampicillin tablets and other medicine, and medical teams and supplies; donated 500 rolls of plastic sheeting; and gave an additional \$728,700.

Executive Bureau of the Council of Arab Ministers for Social Welfare - contributed \$500,000.

ICRC - donated 2,000 MT of food.

LRCS - provided logistical coordination for non-perishable relief items arriving in-country and issued an appeal for contributions from national Red Cross societies (see "Non-Governmental Organizations" below).

LWF - see WHO, below.

OPEC - sent water tanks and medicine, valued at \$100,000.

UNICEF - contributed \$420,000 for the airlift of medicine and blankets (the USG contributed \$80,000 for that same airlift); sent medicine from UNIPAC, Copenhagen, costing \$172,073 with air freight; and sent 38 MT of medicine, milk powder, generators, kerosene lamps, and other supplies, valued at \$180,684.

UNDP - established an emergency coordinating committee and donated \$50,000.

UNDRO and Italy - organized an airlift (Aug. 8) of 13 MT of emergency supplies, including, 2,500 blankets, 10 generators, 60 tents, and 2 inflatable rafts with outboard motors, and donated \$20,000.

WHO - gave antimalarial medicine, antibiotics, and rehydration fluids.

WCC and LWF - jointly funded an airlift of shelter materials and relief supplies (22,000 blankets and 200 rolls of tarpaulin from Nairobi), valued at \$194,000; funded an airlift of relief supplies from Europe for \$131,000; provided \$50,000 for an airlift of medical supplies; and gave the Sudan Council of Churches \$175,000 for the local purchase of food.

WFP - supplied more than 6,000 MT of emergency food and other relief.

Governments

Algeria - sent 5 flights of relief supplies.

Australia - gave \$162,600 to the relief effort.

Austria - channeled \$76,336 through UNDRO.

Belgium - sent 3 flights of relief supplies, including food airlifts valued at \$102,564.

Germany, Fed. Rep. - donated 100 tents, valued at \$37,800; provided 2 planeloads of relief supplies for SRC and SCC; and donated \$27,027 for local transport costs.



Temporary shelter for those displaced by the floods

Canada - donated \$83,300 through LRCS to the Sudanese Red Crescent, \$416,633 through UNICEF, and \$41,500 through UNDRO.

Denmark - supplied \$138,000 for the WCC/LWF airlift and \$276,000 through UNICEF and the Danish Red Cross.

Egypt - sent 14 planeloads of tents, medicine, and food.

Finland - channeled \$56,180 through UNDRO.

France - provided medicine and disinfectants, valued at \$40,000, and food and medical supplies through SRC, valued at \$2,698,413.

Greece - dispatched 4 flights of relief supplies.

Holland - sent 2 flights with relief supplies.

Iran - furnished a flight of relief supplies.

Iraq - sent 24 flights of relief supplies.

Ireland - contributed \$725,799 through UNDRO, LRCS, Irish Concern, Goal, and Oxfam/UK.

Italy - sent one planeload with food and relief supplies, valued at \$200,000 and 4 additional flights with unspecified relief supplies.

Japan - deployed a 5-member emergency medical team, 70 tents, 35 generators, 10 water purifiers, 10 storage tanks, medicine and medical equipment, and protein biscuits, all valued at \$356,000.

Jordan - supplied 2 relief flights.

Kuwait - furnished 22 flights of relief supplies.

Libya - sent 9 flights of tents and other relief supplies.

Luxembourg - gave \$128,205 through MSF and Caritas/Luxembourg and Caritas/FRG.

Morocco - dispatched a relief flight.

Netherlands - channeled \$238,100 through UNDRO, \$100,000 through the Netherlands Red Cross, \$142,900 through Inter-Church Coordination Committee, and \$102,500 to Sudanaid for inland transportation.

Nigeria - sent 5 flights of relief supplies.

Norway - supplied 2 MT of protein biscuits for the UNDRO/Italy airlift; donated \$280,000 through the Norway Red Cross, \$148,889 through Redd Barna to SCF/UK, and \$280,000 through Norwegian Church Aid; and gave 35 MT high-protein biscuits through UNICEF, valued at \$186,900.

Qatar - dispatched 5 flights with relief supplies.

Romania - directed a relief flight.

Saudi Arabia - sent 157 relief flights to Khartoum transporting food, tents, blankets, medical supplies, vehicles, and generators; collected approximately \$4,000,000 from the National Guard for medical supplies and other relief goods; and released \$8,000,000 from King Fahd's personal account for the relief effort.

Spain - sent tents, beds, medicine chests, blankets, and medicine boxes; total contribution and transport came to \$73,469.

Tunisia - dispatched a planeload of relief supplies.

United Arab Emirates - sent 9 planeloads of food, medicine, and other supplies.

United Kingdom - provided 500 tents, 6 5-kVA generators, 1,000,000 water purification tablets, a water-purifying unit, 500,000 tetracycline tablets, and 400 rolls of plastic sheeting, all valued at \$255,000.

Yemen Arab Rep. - dispatched 45 flights carrying relief supplies.

Yemen People's Dem. Rep. - sent 2 relief flights.

Non-Governmental Organizations

Action Aid (U.K.) - gave 300 rolls of plastic sheeting, 17,000 blankets, 100 boxes of batteries, and other relief supplies, all valued at \$346,000.

Brot fuer die Welt (Germany, Fed. Rep.) - donated \$50,000 through WCC/LWF.

Caritas/Austria - gave \$76,923 through CAFOD/Sudanaid.

Caritas/Germany, Fed. Rep. - gave \$378,300 through Sudanaid and \$227,600 for shipment of plastic sheeting, blankets, water purification tablets, and high protein biscuits.

Caritas/Netherlands - contributed a total of \$196,100 for shipment of 16,750 kg. of biscuits and 20,000 blankets.

Caritas/Switzerland - channeled \$64,900 through CAFOD and \$129,800 through Sudanaid for local purchase of food and gave \$11,700 for clothing.

Corps Mondial de Secours (France) - sent 2 rescue teams.

Federal Republic of Germany (FRG) Council of Churches - gave \$2,702,703 and relief food and supplies.

Goal (Ireland) - provided medicine, valued at \$43,541.

Interaid International (Netherlands) - provided medicine, valued at \$27,958.

MSF/France, MSF/Belgium, and MSF/Netherlands - provided 4 hospital tents and health kits from in-country stocks.

Oxfam/UK - gave \$208,600 for 468 rolls of plastic sheeting, water tanks, blankets, and other relief supplies.

The following national Red Cross or Red Crescent societies made cash and in-kind contributions:

sheeting, tetracycline tablets, Ringer's lactate, oral rehydration salt, and other medical supplies

USSR - tents, blankets, and medicine

Redd Barna (Norway) - contributed \$66,600 through SCF/UK.

TOTAL \$27,804,72

Cash Contributions

Australia	\$ 4,065
Austria	\$ 6,494
Canada	\$ 55,000
Finland	\$ 68,182
France	\$ 8,065
Ireland	\$ 36,200
Italy	\$ 22,468
Libya	\$ 30,000
Netherlands	\$ 47,619
Norway	\$ 29,630
Spain	\$ 24,590
Sweden	<u>\$118,110</u>
	\$450,423

In-Kind Contributions

Algeria - blankets, camp beds, medicine, rice, and tents

Austria - blankets, medicine, and stretchers

Denmark - blankets, cooking sets, generators, medical supplies, and spare parts

Finland - generators

Germany - plastic sheeting

Greece - blankets, tents, baby food, and pharmaceutical equipment

Netherlands - blankets, WHO kits, plastic sheeting, biscuits, and WPTs

Spain - tents, camp beds, relief pharmacies, blankets, and medicine

Sweden - WPTs, blankets, generators, a landcruiser, and medicine

Switzerland - medicine, kitchen sets, and blankets

Turkey - food

United Arab Emirates - blankets, tents, and cooking utensils

U.K. - tents, blankets, water containers, ampicillin tablets, WPTs, plastic

Date
1988

Location
Soroti, Kumi, Apac, Lira, Gulu, Kitgum, Kotido, and Moroto districts in northern and northeastern Uganda

No. Dead
Unknown

No. Affected
2,700,000

The Disaster

Uganda has endured continuous upheaval and human rights abuses stemming from civil strife which began with the rule of Idi Amin in 1971. Fighting in recent years has occurred primarily in the north and northeast between government troops and various armed rebels, including a religious group called the Holy Spirit Movement. U.S. and other donors provided assistance to victims displaced by fighting in northern and northeastern Uganda.

Although President Yoweri Museveni signed a peace agreement with the last of his significant armed opponents in June 1988, the problems of rebuilding a shattered regional economy, of restoring agricultural productivity, and of dealing with the suffering and dislocation of local inhabitants remained. Many of those who had fled returned lacking the most basic means of survival. Almost 3 million displaced persons were estimated to need emergency help, specifically in the northern districts of Soroti, Kuni, Apac, Lira, Gulu, Kitgum, Kotido, and Moroto in 1988.

Action Taken by the Government of Uganda (GOU) and Non-Governmental Organizations

In response to this most recent displaced persons' emergency, the GOU shipped grain into the area and donated 14 trucks for commodity transport. The Ugandan Red Cross conducted a nutrition survey and dispatched a medical team to the area.

Assistance Provided by the U.S. Government

U.S. Ambassador Robert G. Houdek declared a disaster due to the urgent needs of Ugandan displaced persons on July 5, 1988. The USG gave \$320,000 in emergency assistance to the PVO Agricultural Cooperatives Development International (ACDI) for the purchase and delivery of pangas, hoes, and crop seeds in the north. OFDA furnished \$220,000 of this amount in response to a Mission request, and USAID/Kampala reprogrammed \$100,000 from an existing

Rural Economy Recovery grant to the GOU for which ACDI was the implementing agent. Local currency funds were used to support a small farmers' credit scheme in the affected area by the Uganda Commercial Bank. OFDA also provided \$75,000 from its funds targeting orphans, a Congressionally directed earmark, to UNESCO for an emergency relief project.

Total OFDA \$295,000
Total Other USG \$100,000

TOTAL \$395,000

Assistance Provided by the U.S. Voluntary Agencies

ACDI - arranged for the local purchase and delivery of pangas, hoes, and crop seeds for the north.

WVRD - operated 3 feeding centers in Gulu, conducted a nutritional survey, and provided blankets and eating utensils.

Assistance Provided by the International Community

EC - donated \$280,000 from local funds.

Germany, Fed. Rep. - contributed \$2,100,000.

Italian Medical Volunteers - provided health services in Kitgum.

Italy - gave \$750,000.

Korea, Rep. - contributed \$320,000.

MSF/Holland - supported a feeding center and health services in Soroti.

Oxfam/UK - conducted a needs assessment and a feeding program in Kitgum.

United Kingdom - furnished \$2,100,000.

TOTAL \$5,550,000

Date
1987**Location**
Karamoja Province
in northeastern
Uganda**No. Dead**
None reported**No. Affected**
331,000**Damage**
The drought destroyed the bean and pea crops and reduced sorghum and corn output in the northern district by about 75% of the norm. About 70,000 cattle perished. Only about 40% of the boreholes in North Karamoja Province were functioning by fall 1987.**The Disaster**

Sufficient rains failed to materialize for the second straight spring in the Ugandan province of Karamoja, jeopardizing food availability for 331,000 people. Especially affected was the district of North Karamoja, an area that suffers agricultural shortfalls in the best of times. In 1987, sorghum yields there dropped to 28% of the norm, corn output registered only 22% of the average, and bean and pea production was a near total loss. Local officials in the district capital of Kotido reported that commodity prices had risen six to seven times over the previous year and that 70,000 cattle had perished between January and November. As of the late fall of 1987, only 80 out of 192 boreholes in North Karamoja were functioning. Corn and sorghum yields were down in South Karamoja as well, with food prices three to four times higher than in 1987.

The lack of water and cattle raiding had forced herdsmen to move their livestock to winter pastures near the Iteso District border, leaving elderly people, women, and children in the settled areas without an important source of nourishment. However, UNICEF-sponsored surveys of affected children under five, performed in November 1987 and February 1988 in both districts, found that the emergency had not increased malnutrition levels and that there was no immediate need for feeding centers. Unusually heavy off-seasonal and seasonal rains in December 1987 and during the following spring helped ease the drought's severity.

Action Taken by the Government of Uganda (GOU)

Immediately following crop failures in Karamoja Province between May and June 1987, an interministerial committee was set up under the prime minister's aegis to monitor the situation. In November, a delegation of top government officials toured the region to assess emergency food requirements. The prime minister's office bought 10,000 MT of corn for shipment as far north as Kotido and the Ministry of Rehabilitation furnished 16 trucks to move corn, beans, and other commodities from food-surplus ports of Uganda to

Karamoja Province.

Assistance Provided by the U.S. Government

At the invitation of the UNDP, U.S. Ambassador Robert G. Houdek and USAID/Kampala Director Richard Podol made a one-day trip on Nov. 4 to the towns of Kotido in North Karamoja and Moroto in South Karamoja. Following this visit, Ambassador Houdek made an emergency declaration due to drought on Dec. 17, 1987. He granted \$25,000 in disaster funds to WFP for the purchase of fuel needed in emergency food transport.

TOTAL	\$25,000
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Assistance Provided by U.S. Voluntary Agencies

None reported

Assistance Provided by the International Community

AICF - conducted a nutritional survey and feeding programs.

EC - gave \$126,000 for fuel and maintenance costs and \$650,000 for pulses.

Oxfam/UK - operated a feeding center.

UNDP - donated \$50,000 for administrative costs.

UNICEF - contributed \$132,000 for 8 vehicles and sponsored nutritional surveys.

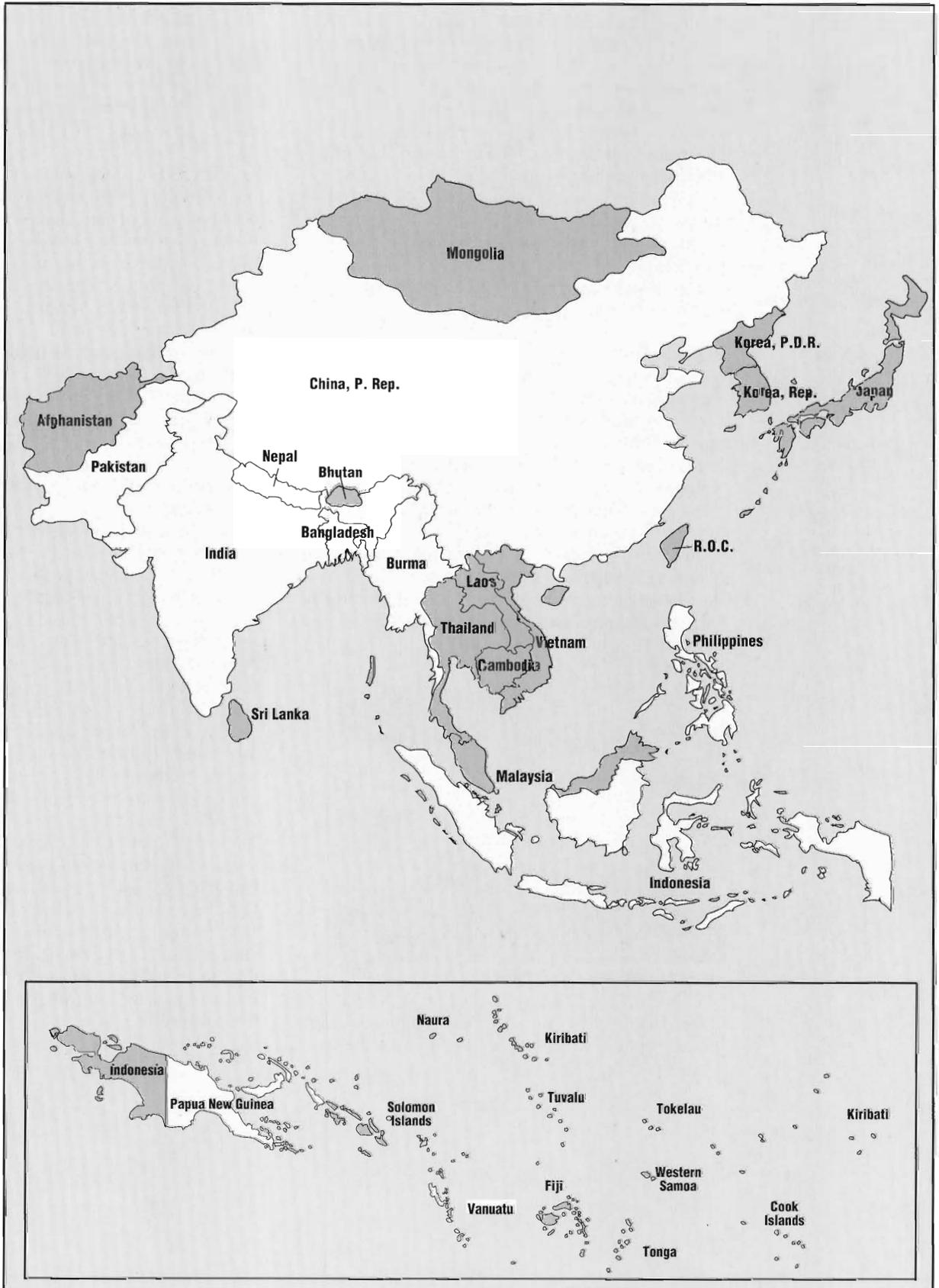
WFP - furnished 10,640 MT of grain and 240 MT of CSM.

TOTAL	\$958,000
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Asia and the Pacific

DISASTERS

- Bangladesh Floods
- Burma Civil Strife
- Burma Fire
- China Floods I
- China Floods II
- India Earthquake
- India Floods
- Indonesian Volcanic Eruption
- Nepal Earthquake
- Pakistan Accident
- Papua New Guinea Landslide
- Philippines Fire I
- Philippines Fire II
- Philippines Typhoon
- Vanuatu Cyclone



Date

August - September 1988

Location

53 of 64 districts, including the capital city of Dhaka; 323 of the country's *upazilas* (townships) affected

No. Dead

At least 2,379 (1,644 officially from the floods and more than 735 subsequent deaths from diarrheal diseases)

No. Affected

45,000,000;
25,000,000 to
28,000,000 homeless

Damage

The floods caused major damage in all sectors. The preliminary estimate of recovery costs for capital stock was \$1,137,000,000 and for housing \$1,000,000,000.

The Disaster

Bangladesh is a flat, deltaic country, having about 60% of its 144,000 sq. km. six meters or less above mean sea level. With three major river systems crisscrossing the country, seasonal floods are part of the fabric of life. During some monsoon seasons, however, the flooding is particularly devastating. Such was the case in 1987 when a third of the country was inundated and 30 million people were affected (see *OFDA Annual Report FY 1987*). But even a nation inured to suffering during periodic disasters was not prepared for the ravages of the 1988 monsoon floods, widely described as the worst of the century.

Rainfall for the month of June was far above the normal average, and river levels rose above the danger mark in the Meghna River Basin in the north and northeast and in the southeastern hill basin. The more normal precipitation levels over Bangladesh during much of August were not matched in the main catchment areas in the Himalayan foothills where the rivers flowing through Bangladesh originate. There, rainfall continued to be heavy, and extensive flooding was reported in August in the northern tier of the Bangladesh districts bordering the river systems of the Brahmaputra (northwest), the Meghna (northeast), and the Ganges (west).



Flooding affected 83% of the districts.

Photo by Fred Cole, OFDA

Toward the end of August, flood conditions deteriorated rapidly, with more than a third of the

country under water and road and rail links cut to the northwestern districts. The Indian government warned that it was releasing water from the barges on the Brahmaputra and Ganges systems which control water flow in Bangladesh. This release of water may have contributed to the rapid rise in the major river basins.

As the crest of flood waters moved south to the Bay of Bengal, new areas in the central and southern parts of the country were inundated. Water levels reached historic highs at a number of hydrological monitoring points and receded slowly, due in part to the high tides and southerly winds from the Bay which created backwash effects. The spill-over from the major rivers eventually covered 122,000 sq. km., or 84% of the national territory. With flood waters up to three meters deep in some places, much of the country had become one vast, muddy sea in which only treetops and the roofs of buildings were discernible.

The millions of people forced from their homes took refuge wherever they could find a bit of higher ground, huddling on rooftops, in trees, and on embankments. Cut off from all life-sustaining supplies, the stranded people had neither sufficient food nor a safe water supply. Any food that might have been salvaged could not be cooked because of the lack of fuel and a dry area, and the only drinking water was the surrounding contaminated flood waters. With rail and road links severed, the delivery of relief supplies to the marooned and desperate people was greatly hampered. The death toll rose daily from drownings, diarrheal diseases, and the poisonous bites of snakes, which were competing with humans for scarce high ground.

The more fortunate of the flood's victims were able to escape to safer areas where they received care. Hundreds of thousands of displaced people poured into the capital city of Dhaka, seeking refuge in relief camps, parks, buildings under construction, or with relatives. But Dhaka itself was not spared in this historic flood. By Sept. 4, the capital was virtually isolated, cut off from the outside world by the collapse of a rail bridge near Tongi and the forced closure of Zia International Airport to all

but small planes. The airport remained under water and closed to international traffic from Sept. 2 to Sept. 8; the bridge was expected to reopen Sept. 16. The country's main port of Chittagong remained operational throughout the flood but was cut off from Dhaka and the rest of the country by road or rail for several days. Power and water supplies in Dhaka were disrupted as pump houses and substations were inundated.

As the flood waters receded, concern focused on the possible spread of waterborne diseases and the deadly effect this could have on an already weak and malnourished people, many of whom were homeless and exposed to the elements for a prolonged period. The government's estimate of 1.3 million cases of diarrheal disease between mid-July and mid-October referred only to cases reported and treated by government health teams. The actual incidence was believed to have been much higher.

The problem of food distribution until the transport sector could be rehabilitated was another area of concern, as was the longer-term effect that lost jobs would have on the nutritional status of the population. The damage to crops and small industries was expected to reduce employment and buying power in the flood's aftermath, possibly resulting in "economic famine." An October survey revealed that the floods had resulted in an immediate loss of jobs in all sectors for 4.25 million people (14% of the employed labor force). Particularly hard hit were the poorer households which had to resort to distress sales of land and livestock in order to survive the flood period. Later production statistics seemed to indicate that the flood had less impact on national economic output than early assessments had indicated. Nevertheless, the disaster caused heavy losses in the country's capital stock, particularly infrastructure and housing, and was responsible for significant pockets of malnutrition and disease.

A government/UNDP survey reported provisional statistics as follows: 12.8 million public and private buildings damaged or destroyed (USAID considered this an overestimation); about 2.0 million ha. of cropland damaged, with loss of 2.5

million MT of food grains (donors estimated 1,950,000 MT); and 720,000 head of livestock and 400,000 poultry lost. Infrastructure losses included damage to 2,500 km. of embankments, 1,900 water control structures, 13,000 km. of national and local roads (including 898 bridges), 1,303 km. of rail track (including 269 bridges), 1,468 health facilities, 19,016 educational institutions, 240,000 public tubewells, and 288,373 small and cottage industries, and 1,070 medium and larger industrial units. Damage was also extensive to inland waterways and ports, as well as to civil aviation and power and telecommunications systems.

The floods dramatized once again the extreme vulnerability of Bangladesh to this type of disaster and prompted renewed interest in exploring a regional approach to water management problems. Although the excessively heavy rainfall in a relatively small area over a short period of time was identified by government meteorologists as the primary cause of the catastrophic flooding, the larger dimensions of the problem were also recognized. Environmental conditions, both within and outside Bangladesh's borders, such as deforestation, erosion, river silting, and flood control practices would have to be examined for their possible effect on the recurring flood hazard in Bangladesh.

Action Taken by the Government of Bangladesh (BDG) and Non-Governmental Organizations

President Hussain Muhammed Ershad toured some of the stricken areas by helicopter on Aug. 31 and verified reports of widespread human suffering and economic disruption. The BDG marshalled all available resources to conduct round-the-clock relief operations, supervised by the President. President Ershad personally joined relief workers to help distribute supplies.

On Sept. 1, President Ershad appealed to all nations for assistance, particularly for food, helicopters, and other means of transport for the distribution of relief items to victims isolated from usual commodity sources. Also given priority were medical supplies (especially water purification tablets-WPT), building materials, and cash

contributions.

As morbidity increased, the BDG raised its appeal for WPT to 40 million tablets and also asked for large quantities of ORS and other essential drugs and surgical equipment. The domestic production of ORS was stepped up and output doubled in the weeks following the floods.



Humans and livestock search for higher ground.

Photo by Fred Cole, OFDA

Organized relief progressed slowly in the beginning because of the immense damage to infrastructure. The main means of distributing relief items was by boats, rafts, and helicopters, operated principally by the military. Helicopters (some provided by other countries) made regular sorties to supply isolated groups of people. The armed forces helped also with embankment protection and the repair of roads and bridges.

Workers in all essential services were mobilized. Over 3,000 medical teams were organized at the height of the emergency and other medical personnel were on standby to prevent an outbreak of waterborne disease. Workers in public utilities--water, power, gas, and telephone--put in long hours to restore services. The Flood Situation and Relief Activities Monitoring Cell of the President's Secretariat coordinated and reported on relief operations.

While Zia International Airport was closed to wide-bodied aircraft between Sept. 2 and Sept. 8, BIMAN (Bangladesh Airlines) continued to fly F-28s and F-27s to several cities in Bangladesh. an effort to compensate for road and rail disruption BIMAN flew extra flights everyday in addition to regularly scheduled service and maintained an airbridge between Dhaka and Calcutta, India, for international passengers. A massive reconstruction effort was undertaken to restore the Tongi bridge and reestablish the rail link between the capital and the rest of the country.

The prevention of malnutrition among the flood victims was a matter of primary concern. The BDG had instituted a food security system after the 1987 flood and had some 1.3 million MT of foodgrains (2-3 months' supply) in 1,140 public food warehouses well-positioned throughout the country. Using all available means to reach the affected population, the BDG had distributed more than 59,000 MT of rice, wheat, pulses, and other food by Sept. 8, either as gratuitous relief or in food-for-work activities. Food stocks were sold to people with resources to purchase commodities. The BDG had also provided \$1,729,000 in cash payments to flood victims as of that date, as well as clothing, candles, cooking utensils, and building supplies. Some of the relief items were distributed to displaced people in relief camps. The government opened 1,693 such camps in schools, churches, mosques, and other public buildings. As of Sept. 19, there were 400 camps still operating in Dhaka, sheltering 700,000 people.

BDG ministries and U.N. organizations hosted frequent donor meetings throughout the emergency phase to coordinate international response.

Looking ahead to the rehabilitation period, the BDG appealed to the international community to finance the purchase of 5,000 MT of wheat seed, 500 MT of corn seed, and 20 MT of vegetable seed to compensate for losses to the aman rice crop. The BDG Minister of Agriculture met with donors on Sept. 7 to set up a procurement system after the UNDP agreed to establish a fund to purchase the seed from regional sources in time for the September and November planting seasons.

To further refine assessments for rehabilitation needs, the BDG, USAID/Dhaka, and UNDP jointly conducted a survey of flood damages and outlined a program of recovery. A report titled "1988 Floods: Impact, Relief, and Recovery" was first presented at a BDG-convened meeting of chiefs of missions and donors on Oct. 27 and later at a special U.N. meeting on Bangladesh on Nov. 16. An action plan was adopted to guide rehabilitation and reconstruction efforts, focusing on four areas: 1) an agricultural rehabilitation scheme for livestock, crop production, and fisheries; 2) house-building loans and reconstruction of schools and other buildings; 3) repair and restoration of water pumps for fresh water supply and irrigation; and 4) repair of roads, railways, and embankments.

While still coping with the extraordinary crisis, President Ershad issued an urgent appeal to the donor community for assistance in finding the root causes of recurring flooding in Bangladesh in an international and regional context. As a first step in regional cooperation, Bangladesh and India set up a joint task force to look at the problem. The BDG also initiated a national flood policy study for which a UNDP-supported international team arrived in Dhaka in November to provide expertise on flood management.

Numerous private citizens and local voluntary organizations contributed significantly to the relief and rehabilitation effort. The Bangladesh Red Crescent Society (BDRCS) responded early, sending two staff officers and 200 volunteers to help with the distribution of BDRCS stocks of food, clothing, and other relief supplies. In an emergency session on Aug. 31, the BDRCS planned an operation targeted for 200,000 families (1 million people) at a cost of \$6.9 million.

First priority was given to food distribution (rice and pulses) to 60,000 families (300,000 people) for 30 days in 90 upazilas. The BDRCS issued a local appeal for \$1,087,560 for immediate requirements. CSS (the local counterpart of World Relief Corp.) dispatched in-country staff to some of the most needy and accessible areas to perform an assessment.

Assistance Provided by the U.S. Government

Based on reports by the BDG and other sources and a personal survey of the stricken area on Aug. 31 with President Ershad, U.S. Ambassador Willard A. DePree determined that monsoon rains and subsequent flooding had created a state of calamity in Bangladesh. The Ambassador exercised his disaster assistance authority on Sept. 1, releasing \$25,000 for President Ershad's Emergency Relief and Welfare Fund.

To support in-country relief and distribution programs of U.S.-based PVOs working in Bangladesh, OFDA furnished grants to SCF, WVRD, and CARE. USAID/Dhaka executed the grants. (See next section for a description of the PVO relief programs.)

OFDA arranged with DOD to fly a C-5A cargo plane to Bangladesh on Sept. 9, carrying a USG assessment team and OFDA-donated commodities. A.I.D. Deputy Administrator Jay Morris, serving as President Reagan's envoy, accompanied the U.S. team which comprised representatives from WASH, DOD, the U.S. Forest Service, CDC, A.I.D. (including the offices of OFDA and FFP), and other USG offices. Three additional CDC doctors arrived in Bangladesh by commercial flight on Sept. 12, and a shelter expert, contracted through A.I.D.'s Office of Private Enterprise/Housing, arrived on Sept. 14.

The team members worked with USAID/Dhaka to provide technical assistance in the areas of disaster management, health, water, purification, temporary shelter, financial management, logistics, food, and communications. The group joined OFDA regional disaster management advisor Everett Ressler,

who had been dispatched from Bangkok to Dhaka to perform an assessment of the general situation.

The commodities aboard the C-5A consisted of the following: 1,008 rolls of plastic sheeting to be used for temporary shelter; 10,010 plastic collapsible water jugs; 26 3,000-gallon water storage tanks; five crates of three-inch flexible plastic pipe; two water purification units (on loan); and communications equipment to support the team and local relief activities. The water units, each of which could produce approximately 2,400 gallons an hour, were accompanied by two operators/trainers.

A second USG airlift, the cost of which was shared by OFDA and DOD, arrived in Bangladesh Sept. 15. The C-141 aircraft carried items from OFDA's Panama stockpile: six fiberglass boats, six outboard motors, one boat trailer, 150 tents, and 6,884 blankets. The boats, motors, trailer, and 3,000-gallon water tanks were donated to the BDG while the other commodities were consigned to PVOs working in Bangladesh. The total value, of the boats, motors, trailer and tents was \$80,410 (these items were not charged to a fiscal year account).

The C-141 flight also carried commodities donated by DOD from its Excess Property program. The items included cots; medical/first aid kits; dressing and surgical instrument sterilizers; isopropyl alcohol; suction and pressure apparatus; compresses, bandages and gauze dressings; plastic sheeting; field operating tables; 17 five-gallon water cans; water tank and pump; generator and accessories; four small boats; and surgical instrument stands.

Because unsafe drinking water in flood-affected areas posed a serious threat to human health, the procurement of oral rehydration salts (ORS) and water purification tablets (WPT) became a high priority. The USAID/OFDA team identified an immediate need for 2.8 million packets of ORS and 10 million WPTs. OFDA purchased a first shipment of 1 million ORS packets and 14,000 packets of WPTs from UNICEF on Sept. 15. A worldwide shortage of chlorine-based WPTs, which the BDG preferred over iodine-based

tablets, delayed further procurement while a largely unfruitful search was conducted through regional U.S. embassies. A supplier of WPTs was located in Suffolk, United Kingdom, (Kirby-Warrick) and OFDA purchased 5 million 25-liter tablets from that source on Sept. 29. OFDA entered into an agreement with the UNICEF pharmaceutical-forwarding agency, UNIPAC, for the purchase and transport of the remaining drugs and medical supplies identified by USAID as urgent requirements. The order to UNICEF on Sept. 30 was for 5 million packets of ORS (later increased by 3.7 million packets), 5 million 20-liter WPTs, and medical supplies which included antibiotics, anti-fungal medications, ophthalmic ointment, disposable needles and syringes, and aspirin. The Mission planned to distribute most of the drugs through NGO programs.



A.I.D. Deputy Administrator Jay Morris provides relief package to flood victim
Photo by Renee Batalis, OFDA

The CDC team remained in-country until late September, meeting with officials from the Ministry of Health, UNICEF, and the International Center for Diarrheal Disease Research/Bangladesh (ICDDR/B) to assess the immediate and longer-term needs for health intervention programs. The CDC team identified measles as a significant risk to flood-displaced people and recommended a targeted immunization program for children six months to 36 months in urban relief camps. A consultant from REACH (Resources for Child Health), an A.I.D.-funded project in Bangladesh, assisted the CDC physicians in implementing the immunization program.

The CDC team worked with USAID/Dhaka and the ICDDR/B to develop a rapid health survey for selected areas to determine the impact of the flood on nutritional levels. The results showed a significant decline in nutritional levels in children in the surveyed area and suggested that the right families were being targeted for food aid but that insufficient quantities were being received by the families. Based on projections of high morbidity and mortality rates due to flood-related diseases during the months following the disaster, the continued surveillance services of a CDC epidemiologist were requested through Dec. 15. Dr. Eric Mast began his assignment on Sept. 28. Congressman Tony Hall, a member of the House Select Committee on Hunger and chairman of its international task force, visited Bangladesh from Sept. 20 to Sept. 23 to assess the flood situation and to report his findings to Congress. During his four day visit, he met with President Ershad, other BDG officials, and representatives of the international donors working with flood victims. Congressman Hall viewed several disaster areas and toured the affected areas of Jumuna, Tangail, and Ghatail by helicopter.

To help restore vital transportation links destroyed by the floods, USAID requested that the U.S. Commander-in-Chief, Pacific, (USCINCPAC) consider a civil assistance project in Bangladesh. Two CINCPAC engineers joined the USG assessment team and completed an initial review of transport rehabilitation needs. A CINCPAC exercise ultimately was not needed as USAID/Dhaka supported a UNDP road rehabilitation project.

In response to the BDG's appeal for seeds to replenish stocks before the winter planting season, USAID and the UNDP established a joint donor fund and assisted the BDG in a search for procurement sources. OFDA and UNDRO provided \$1 million each toward this request, to cover the purchase of 2,000 MT of wheat seed and 500 MT of maize seed.

The USAID staff participated with other donors in several assessment and surveillance activities in the post-flood period. USAID spearheaded a multi-donor crop damage assessment with Canada, FAO, WFP, and UNDP as principal collaborators. USAID/ Dhaka's work in this area as well as in nutrition and health surveillance, in a road assessment, and in a socio-economic survey of flood damage undertaken in cooperation with the BDG Planning Commission contributed to the development of a BDG/UNDP disaster report presented at a special U.N. meeting on Nov. 16.

In view of the continuing need for relief assistance in Bangladesh, Ambassador DePree asked the OFDA Director to extend the relief/rehabilitation period to March 31, 1989. OFDA provided an \$800,000 mission allotment from FY 1989 accounts to fund continuing activities identified by the Mission. Use of the funds included local costs for handling of emergency commodities; various assessments, including a road sector assessment; monitoring of ongoing relief programs; and a grant to WVRD for housing rehabilitation.

One of the earliest USG responses to the flood disaster in Bangladesh was the promise of food assistance. A.I.D.'s Office of Food for Peace (FFP) agreed on the immediate release of 10,000 MT of P.L. 480 Title II food-for-work program wheat from CARE's stocks for food relief. A portion of the wheat (about 1,000 MT) was used as in-kind payment to millers engaged by CARE to process the wheat while the remainder was distributed to flood victims. The remaining in-country stocks in CARE's Title II program (over 36,000 MT of wheat) were also directed to emergency feeding. Additionally, the regular 80,000 MT program approved for FY 1989 was augmented to provide 10,000 MT of wheat directly for food relief.

The interagency committee responsible for the FFP program ensured that up to \$60 million in Title III commodities already programmed for Bangladesh in FY 1989 could be dispatched early. An agreement for an initial \$20 million in food aid was signed on Sept. 24 to allow for an early arrival in November. The regular program was later amended to include the provision of more than 120,000 MT of wheat, valued at \$20 million, to add to country stocks depleted by flood damage. The additional commodities would be monetized to provide funding for flood-related programs.

The past sale of P.L. 480 Title III food commodities had generated local currency which was made available for reconstruction projects. The activities, jointly undertaken by the BDG and the USG in the context of P.L. 480 programs, were expected to make use of at least \$50 million and possibly as much as \$80 million over a two-year period (through 1990). One of the programs financed by local currency was implemented by the Grameen Bank and involved the provision of small-scale loans, primarily to groups of farmers for reconstruction of storage facilities and tubewells.

Based on the results of key assessments undertaken by the Mission, USAID proposed that the Asia/Near East (ANE) Bureau provide funding beyond the regular operating budget for FY 1989 to support a reconstruction and preparedness program in Bangladesh. This would constitute additional USG assistance, supplementing continued food aid directly related to flood relief and OFDA commitments for FY 1989. The added funding from the ANE Bureau, totaling \$10.5 million, was directed to the following activities: 1) \$5.5 million as a "buy-in" to a UNDP-designed disaster management and preparedness program to develop BDG and NGO response mechanisms for a range of potential emergencies; 2) \$2.0 million for re-equipping damaged electrical installations; and 3) \$3.0 million for health programs which would purchase additional ORS for longer-term use, set up a surveillance system in cooperation with WHO to track the need for early interventions, and reconstruct warehouses holding medical supplies to raise them above ground level.

The ANE Bureau also diverted commodities from the closed-out Burma program, consisting of nearly 16,000 MT of fertilizer valued at \$4,917,646 and UNICEF health kits worth \$648,000.

The "Bangladesh Disaster Assistance Act of 1988," passed by the U.S. Congress in October, amended Section 301 of the Agricultural Trade Development and Assistance Act of 1954 to allow funds accruing from the sale of commodities under the title to be used for disaster relief, rehabilitation, and reconstruction. The Act specified that not less than \$100 million in local currency generated under Food for Development agreements with Bangladesh should be used for disaster relief. The Act also stated that no later than six months after enactment, the President should submit to Congress a report on the efforts of the international community and governments of the region to develop regional programs for the Ganges-Brahmaputra Basin to ensure an equitable water supply and promote better flood control mechanisms.

To comply with the provision of the Bangladesh Act requiring a report to Congress, the ANE Bureau contracted the Irrigation Support Project for Asia and the Near East (ISPAN) to conduct a study on the causes of flooding in Bangladesh and on the issues involved in regional water management.

A report titled "Eastern Waters Study: Strategies to Manage Flood and Drought in the Ganges-Brahmaputra Basin" was published in April 1989.

Summary of USG Assistance

FY 1988

Ambassador's authority donated to the BDG
Emergency Relief and Welfare Fund . . . \$25,000

Grants to SCF (\$120,000), WVRD (\$232,000),
and CARE (\$50,000) \$402,000

DOD airlift (C-5A) of assessment team
and commodities \$265,000

DOD airlift (C-141) of stockpile items \$145,000

Replacement cost for 1,008 rolls of plastic sheeting from the supplier and stockpiles \$292,220

Replacement cost of 6,884 blankets from Panama stockpile \$27,192

Delivery of support kits for USG response team \$368

Field support costs of USG response team \$26,000

Travel expenses of DOD logistics expert on USG relief team \$4,595

Travel expenses of USCG communications expert on USG relief team \$4,595

Contract with shelter assessment team \$17,028

Cost of TDYs of 3 CDC epidemiologists \$28,000

Expenses of CDC epidemiologist Dr. Eric Mast to assist BDG with health program (9/28-10/30) \$6,995

Travel of OFDA advisor Everett Ressler . \$1,735

Cost of miscellaneous items (50 battery packs and freight, 6 fuel line assemblies and gas lines for outboard motors, and radio circuit boards) . \$933

Procurement from UNICEF and shipping of 1,000,000 packets of ORS and 14,000 packets of WPT \$240,673

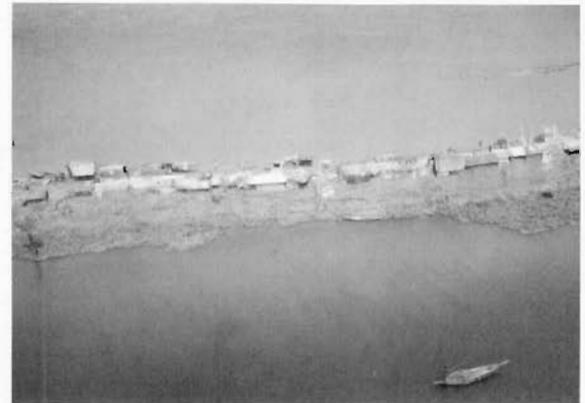
Procurement from UNICEF and shipping costs for 8,700,000 packets of ORS, 5,000,000 WPTs, and miscellaneous medical supplies . \$1,929,980

Contract with Kirby Warrick for 5,000,000 WPTs and shipping costs \$95,205

Grant to UNDP for procurement of seeds \$1,000,000

Travel expenses of OFDA disaster officer (travel budget) \$3,840

Total FY 1988 (all OFDA) \$4,516,359



Flooding stranded thousands who fought for scarce ground.

Photo by Fred Cole, OFDA

FY 1989

Cost of transporting plastic sheeting from supplier to Dover AFB (C-5A flight) \$5,659

Return airlift of OFDA communications equipment \$747

Ocean freight to replace blankets in Panama stockpile \$10,775

Debriefing by Dr. Mast in preparation for next phase of health program \$575

Replacement costs of 26 3,000-gallon water tanks to stockpile \$56,000

Replacement of support kits used by USG response team \$1,312

Mission allotment to continue relief program \$800,000

Value of 46,575 MT of P.L. 480 Title II wheat and of 120,000 MT Title III wheat (AID/FFP) \$33,129,300

Funding from for reconstruction and preparedness program (AID/ANE Bureau) \$10,500,000

Diversion of commodities from Burma program (AID/ANE Bureau) \$5,565,646

Total OFDA \$875,068

Total FFP \$33,129,300

Total Other USG \$16,065,646

Total FY 1989 **\$50,070,014**

TOTAL \$54,586,373

(Note: The total for USG assistance does not include the use of local currency, which is jointly programmed by the BDG and the USG.)

Assistance Provided by U.S. Voluntary Agencies and Private Groups

American Express Company - funneled \$25,000 through the International Child Health Foundation to the ICDDR/B and provided a \$25,000 grant to LRCS.

ARC - channeled \$50,000 through LRCS for the BDRCS.

CARE - distributed emergency relief supplies to 25,000 isolated, destitute families hard-hit by the flooding. The supplies included prepared food, candles, matches, WPTs, and shelter materials to sustain a family of 5 for up to 3 days. OFDA provided a grant to support the program. CARE also contributed \$225,000 from other donations to the CARE International fund.

Church of the Nazarene - gave \$10,000 through WRC, which in turn channeled the donation through CSS for emergency food assistance.

CRS - provided \$500,000 through Caritas/Bangladesh.

CWS - contributed \$5,000 from the Executive Director's emergency fund and along with the WCC provided 10,000,000 WPTs.

Episcopal Church (Presiding Bishop's Fund for World Relief) - provided a \$15,000 grant.

Food for the Hungry, International (FHI) - donated \$75,000 through its field office in Bangladesh.

International Child Health Foundation - channeled an American Express donation to the ICDDR/B for emergency epidemic control and assistance.

MAP - shipped 23 MT of medicine valued at \$1,637,105 to be distributed by the Salvation Army and the YWCA and sent a team to do an assessment.

Operation California - arranged an airlift of medical supplies and other relief goods to be distributed through CARE. Transportation and commodities cost \$1,000,000.

Oxfam/USA - sent its executive director on Sept. 13 to supervise distribution of Oxfam/USA-donated biscuits, WPTs, and medicine in the Comilla area and to meet with government officials and donor representatives.

Rotary International - gave \$30,000.

SCF/US - carried out a 3-stage relief and rehabilitation program for 40,000 flood victims in Nazinagar, Ghior, and Mirzapur. SCF distributed dry food, ORS, WPTs, and shelter materials in the first stage; provided seeds, small loans, and food-for-work reconstruction activities in the second stage; and supported cooperatives in the third stage. OFDA supplied grants in support of stage one; SCF/US contributed approximately \$400,000 (including a SCF/Sweden donation) to fund the program.

Texaco/NY - provided medicine and medical equipment to a central hospital and 3 clinics in the Sylhet region.

WRC - forwarded a contribution from the Church of the Nazarene and sponsored several teams which delivered 8 MT of rice, medicine, and alum powder (to purify water) each day to the needy. World Relief expected 7 doctors to arrive in-country to work with the distribution teams.

WVRD - distributed locally purchased rice, lentils, salt, molasses, and flour to flood victims in Bogra, Mymensingh, Netrakona, Sherpur, Dhaka, Barisal, and Faridpur. OFDA supplied grants to WVRD for distribution costs. WVRD also financed a \$2,100,000 rehabilitation program.

YMCA - channeled \$50,000 of emergency food and \$200,000--collected from YMCA chapters worldwide--through the Bangladesh YMCA.

YWCA - contributed \$10,000 from chapters around the world.

TOTAL \$6,357,105

Assistance Provided by the International Community

International Organizations

Asian Development Bank - sent a team to appraise damage and initiate additional funding for the rehabilitation and reconstruction of infrastructure.

CARE International - raised \$750,000 (does not include CARE/US contribution) and solicited in-kind donations to assist relief activities coordinated through the CARE Crisis Center in Bangladesh.

Caritas Internationalis - provided general assistance worth \$2,423,139.

EC - furnished \$560,000 through the Fed. Rep. of Germany Red Cross and Irish Concern for the local purchase of food, clothing, transport, and other essentials; pledged to replace more than 100,000 MT of wheat and 1,800 MT of vegetable oil from a consignment of EC food sent to Bangladesh in June, worth \$31,188,340; donated rice, worth \$447,273, through the Fed. Rep. of Germany Red Cross; and financed emergency medical aid valued at \$1,110,000.

FAO - provided vegetable seeds and animal vaccine, all valued at \$550,000; appealed to donors for assistance in areas of food, agricultural inputs, and logistics.

International Civil Aviation Organization (ICAO) - assisted in the restoration of runway lighting and guidance electronics at Zia International Airport.

LRCS - on behalf of the BDRCS, issued appeals to sister societies for donations; provided \$2,237,636 worth of food, clothing, and transportation funds.

OIC - provided relief supplies worth \$50,000.

OPEC - gave \$100,000 through UNDRO for purchase of medicine and medical supplies.

U.N. Women's Guild - contributed \$649.

UNDP - gave \$50,000 for the purchase of cattle vaccine; implemented a low-cost housing reconstruction program costing \$1,100,000; reprogrammed current assistance activities valued at \$4,500,000 toward short-term rehabilitation; and set up a seed procurement project with the BDG and contributed \$1,000,000 toward the appeal.

The UNDP (and UNDRO) coordinated donor contributions during the emergency phase; participated in a U.N./BDG joint study on the flood's impact for a special U.N. meeting on Bangladesh; and fielded an international team to collect and evaluate data on flood causes and provide expertise on flood management and preparedness.

UNDRO - contributed \$25,000 for relief goods, established a disaster relief fund for seed procurement, and launched a general international appeal for assistance at the BDG's request. U.N. Secretary General Javier Perez de Cuellar appointed UNDRO director Mohammad Essaafi as coordinator of international donations to Bangladesh. Essaafi traveled to Bangladesh on Sept. 13 to perform an assessment. UNDRO assisted in the disaster preparedness component of the UNDP-supported preparedness training and management program.

UNICEF - appealed internationally for contributions (\$5,000,000) in the areas of health, nutrition, water and sanitation. UNICEF increased its ORS project and its mass media campaign associated with UNICEF's health and sanitation project.

UNICEF also mobilized a major NGO partner (the Bangladesh Rural Advancement Committee) to procure, cook, and distribute food to the homeless and destitute victims.

WCC - provided food, saris, towels, ORS, candles, matches, seeds, and cattle feed; commodities, transport and handling costs totaled \$331,201.

WFP - reprogrammed 19,000 MT of wheat, valued at \$4,800,000, and sent an additional 16,830 MT of wheat and rice worth \$3,700,000, including transport. As of Sept. 30, the total amount of food received in response to WFP appeals was 275,330 MT, of which 245,330 MT was new aid. The food was channeled through in-country WFP programs.

WHO - provided a \$40,000 grant from its New Delhi regional office and relief supplies worth \$36,170. WHO staff independently pooled \$1,948 from its own personnel for relief.

World Bank - assumed leadership in developing a matrix of funding requirements by sector and sources of funding for a rehabilitation program in Bangladesh.

Governments

Argentina - gave 3,000 MT of wheat, valued at \$600,000, through the WFP.

Australia - supplied relief goods and a damage assessment worth \$293,652; 5,000 MT of wheat valued at \$813,000; and reconstruction assistance totaling \$81,301.

Austria - provided seeds through UNDRO valued at \$147,000.

Belgium - contributed \$1,600 and a shipment of ORS, potable water, cereals, and containers, all valued at \$251,607; also provided medicine, tents, and boats worth \$256,410 through the Belgian Red Cross for the ICDDR/B.

Bhutan - donated relief supplies worth \$706,000.

Canada - provided relief supplies through NGOs valued at \$3,500,000; medicine through UNICEF worth \$833,333; and 36,000 MT of wheat through the WFP worth \$7,380,000. Canada also reprogrammed \$131,200 in bilateral assistance for reconstruction activities.

China, People's Rep. - lent 3 helicopters.

Denmark - channeled \$278,000 through Danchurchaid and about \$375,000 through UNICEF; also gave \$120,000 through ICDDR/B and 20,000 MT of rice, valued at \$6,300,000, through WFP.

Finland - donated \$320,000 through NGOs.

France - furnished 10,000 MT of wheat, including maritime transport, and an airlift of logistical equipment for relief and reconstruction, all worth \$5,031,000. France also provided 2 ultra-light aircraft on loan.

Germany, Fed. Rep. - contributed lentils and clothing through the Red Cross valued at \$259,460; foodgrains worth \$811,000; and \$5,405,000 in rehabilitation assistance.

Hungary - provided medicine valued at \$40,000.

India - lent 4 helicopters and provided food and clothing.

Indonesia - gave relief supplies worth \$95,000.

Iran - sent a planeload of relief supplies.

Iraq - lent 2 helicopters.

Ireland - channeled \$508,000 in relief supplies through NGOs.

Italy - donated relief and rehabilitation supplies worth \$2,200,000 and 2,500 MT of rice.

Japan - gave \$500,000 for relief assistance and \$8,000,000 to procure materials for rehabilitation of flood-affected areas; also provided 15 boats, medicine, 30 tents, 10,000 WPTs, 20 water tanks, MT biscuits, and 1,000 blankets, all valued at

\$390,000, and transported goods sent by Japanese local governments at a cost of \$148,720. And, Japan pledged 5,000 MT of wheat and reprogrammed bilateral activities to provide vegetable seeds worth \$442,000 and low lift pump engines valued at \$14,727,540 for rehabilitation purposes.

Korea, Rep. - donated medicine and other relief supplies worth \$150,000.

Kuwait - sent 8 planes loaded with relief goods.

Luxembourg - provided food, medicine, and reconstruction materials valued at \$256,410.

Malaysia - donated food and medicine worth \$117,930.

Maldives - furnished relief supplies, valued at \$20,000, through UNDR0.

Nepal - provided \$100,000 in emergency aid.

Netherlands - contributed cash and food, clothes, plastic sheeting, and medicine, all valued at \$351,000; also \$2,031,000 through Dutch NGOs for relief and rehabilitation supplies.

New Zealand - gave \$133,000 for relief items.

Norway - supplied food, medicine, and clothes worth \$880,000; high protein biscuits, valued at \$148,547, through UNDR0/WFP; and \$863,308 through NGOs; also reprogrammed \$1,000,000 in bilateral assistance for flood rehabilitation.

Pakistan - furnished medicine valued at \$392,000 and 3,000 MT of cereals worth \$560,000.

Philippines - donated medicine worth \$115,000.

Poland - contributed medicine, WPTs, and blankets.

Qatar - dispatched 5 relief flights laden with medicine, milk, rice, and other food.

Saudi Arabia - sent 12 planeloads of food and supplies and furnished 3 helicopters on loan.

Singapore - donated biscuits and WPTs.

Sri Lanka - provided \$320,000 in emergency relief.

Sweden - purchased food, medicine, WPTs, and other relief supplies through NGOs, all valued at \$1,386,747; and gave 20,000 MT of wheat, valued at \$1,500,000, through WFP.

Switzerland - assisted the UNDR0 damage assessment at a cost of \$15,000 and supplied food, ORS, WPTs, tarpaulins, tents, and other relief items, all valued at \$933,701.

Thailand - gave \$20,000 worth of medicine and 500 MT of rice valued at \$150,000.

Turkey - supplied \$10,000 for emergency assistance.

United Kingdom - furnished 50,000 MT of wheat valued at \$8,445,500 and other relief items worth \$4,222,500; also provided airport lighting spares at a cost of \$337,800 and other rehabilitation assistance valued at \$4,223,000. The United Kingdom also reprogrammed \$11,823,000 of bilateral assistance to provide bridging materials.

Yemen, People's Dem. Rep. - gave 1,000 MT of rice.

Yugoslavia - donated \$100,000 worth of relief supplies.

Non-Governmental Organizations

Caritas/Germany, Fed. Rep. - donated \$150,000.

Christian Commission for Development Bangladesh (CCDB) - gave \$150,000.

France-Liberte - supplied medicine, rubber boats and dinghies.

French NGOs (others) - contributed rice, vaccine, and other relief supplies.

Germany, Fed. Rep. NGOs - channeled relief items worth \$756,000 through Caritas and Diakonisches Werk.

IIRO (Saudi Arabia) - provided \$196,978 for relief and rehabilitation assistance.

Japanese local governments - collected relief goods valued at \$656,000 (transported by the Japanese government).

Japanese NGOs - donated \$411,287.

Japanese private company - donated sewing machines.

Netherlands private company - gave 5,000 kg. of seed potatoes through CARE.

Oxfam/UK - distributed food and WPTs and assisted with house repair, all valued at \$522,523.

Redd Barna/Norway - gave \$50,000.

Shapla Neer - provided winter vegetable seeds.

Tear Fund/UK - channeled \$10,000 through CSS/Kulna for emergency food needs.

United Kingdom Red Cross - contributed 3 fiberglass boats, motors, and spare parts through BDRCS; the items were valued at \$15,000.

TOTAL \$159,470,410

Date

June 1988 - October 1988

Location

Rangoon, Mandalay, Sagaing

No. Dead

At least 1,400

No. Affected

Exact numbers unknown; the USAID program said to have benefitted 160,000 people

The Disaster

From 1962 to 1988 Burma was ruled by an authoritarian, one-party, military government which kept a tight lid on civilian protest. In early 1988, Burma's cities were wracked by student-led anti-government demonstrations. Throughout the summer, students, joined by workers, professionals and Buddhist monks, continued to protest the economic and political policies of the government, and to call for an end to one-party rule. In response to the unrest, Burma's president of 26 years, U Ne Win, resigned in late July. He was replaced by a protege, Sein Lwin. Seventeen days later, Sein Lwin also resigned.

After a series of violent protests left 1,000 demonstrators dead and more than 2,000 wounded, Maung Maung, another U Ne Win ally, was appointed as president. Despite the regime's promises to consider a national referendum on multi-party rule and other concessions, demonstrations continued. On Aug. 24, one million people marched in Rangoon demanding that open elections be held. On Sept. 18th, the army chief of staff and defense minister, Gen. Saw Maung, seized control of the government. In the next few days government troops killed an estimated 150 to 400 demonstrators. Burmese hospitals, which were short of supplies prior to the protests, were overwhelmed by the casualties coming in after the demonstrations. As a result of the unrest, items such as food and gasoline were scarce and expensive and the distribution of available goods was slowed by the disruption of transportation.

Action Taken by the Government of Burma (GOB) and Non-Governmental Organizations

The Government of Burma (GOB) was responsible for most of the casualties of the civil strife; it is unclear what role it played in facilitating or providing care for the wounded. The government did permit western relief organizations to distribute food through a Burmese NGO, the Interfaith Religious Committee of Burma (IRCB), for several months without interfering. Many individual Burmese donated money to buy medical supplies.

Assistance Provided by the U.S. Government

On Aug. 15, 1988, Ambassador Burton Levin declared a civil strife disaster in Burma. The Ambassador requested \$25,000 to purchase and transport medical supplies to Burmese hospitals to treat wounded demonstrators. Supplies were bought in Thailand and arrived in Rangoon on Aug. 19. They were distributed under the supervision of Burmese doctors and nurses.

At the Ambassador's request, OFDA committed another \$25,000 to the disaster, \$9,085 of which was spent on surgical instruments and \$15,230 of which was spent on anesthesia medicines. An additional \$3,386 was allocated to pay for transportation costs, along with the remainder of the second \$25,000.

In September, the USG cut off development aid to Burma to protest the government's actions against the demonstrators. Around the same time, OFDA exercised its disaster assistance authority and allocated \$392,004 to the IRCB to procure and distribute rice and other emergency food relief. The IRCB was an excellent funnel for U.S. aid: it provided a wide network of contacts throughout the country and functioned as a multi-denominational organization, with representatives from Burma's Hindu, Muslim, Christian, and Buddhist communities.

USAID/Rangoon formed a special committee to monitor the USG-donated portion of the emergency food program. UNICEF called weekly meetings of all emergency food donors to exchange information, and supervised the overall emergency food program.

The IRCB targeted needy households and individuals through its many chapters. Rice, cooking oil, and beans were distributed, as well as vitamin and mineral supplements. Approximately 44,514 households in 10 townships received food through the USAID USG grant.

In November, USAID/Rangoon requested and received an additional \$325 for an airlift of medical supplies.

Total FY 1988 **\$445,390**
Total FY 1989 **\$325**

TOTAL **\$445,715**

Assistance Provided by U.S. Voluntary Agencies

None reported

Assistance Provided by the International Community

International Organizations

UNICEF - coordinated and supervised emergency food aid and belonged to the IRCB. UNICEF also distributed emergency medical supplies, including those donated by expatriate Burmese.

Governments

Australia - provided funds for emergency food aid and distribution through IRCB.

Canada - contributed funds for emergency food distribution and transportation through IRCB.

Germany, Fed. Rep. - donated \$430,000, some of which passed through the IRCB program. In September, the FRG discontinued all initiatives on development cooperation in Burma and postponed debt remission plans, but it continued to donate funds to NGOs.

Japan - provided \$450,000 for emergency food purchase and distribution through IRCB.

TOTAL **\$880,000**

Date

March 20, 1988

Location

Lashio, a town in northeastern Burma

No. Dead

113

No. Affected

20,000 homeless

Damage

The fire destroyed 2,000 buildings.

The Disaster

On March 20, 1988, a fire raged across the town of Lashio in northeast Burma, killing 113 people, leaving 20,000 homeless, and destroying 2,000 buildings. This fire was recorded as one of the worst in Burma's history. According to official reports, the fire consumed everything in its path. Many of the victims were trapped and engulfed by the three-hour blaze. High walls and fences around the tightly packed houses made any rescue attempt during the blaze impossible. The suffering and the sudden loss of family members or friends and possessions left many people in a state of confusion.

During the February to May dry season, Burmese cities and towns are particularly vulnerable to fires. Lack of fire safety and flammable construction materials are often blamed for the frequent fires. Residential dwellings, especially those in poverty stricken neighborhoods, are built with teak and bamboo frames with thatched roofs. The use of kerosene lamps and open cooking fires in these houses increases the risk of fire.

Action Taken by the Government of Burma (GOB)

Burmese military units helped local fire brigades to extinguish the fire. The survivors were sheltered in Buddhist monasteries and public facilities. The Ministry of Social Welfare distributed basic disaster emergency provisions, which included medicine, blankets, cooking utensils, and clothing. The GOB appealed to the international community for assistance.

Assistance Provided by the U.S. Government

On March 23, 1988, following a survey of domestic reports and contacts by Burmese officials, U.S. Ambassador Burton Levin declared the fire a disaster. He exercised his disaster assistance authority, committing \$25,000 to the relief effort organized by the Burmese Ministry of Social Welfare.

TOTAL \$25,000

Assistance Provided by U.S. Voluntary Agencies

CWS - contributed \$5,000 in support of the relief effort by the Burma Council of Churches.

TOTAL \$5,000

Assistance Provided by the International Community

UNDRO - contributed \$25,000 for emergency relief.

TOTAL \$25,000

China, People's Republic

Date

May 20-26, 1988

Location

Fujian Province in southeastern coastal China, particularly the province's northern counties of Jianyang, Chongan, and Zhenghe; flooding from rivers in Fujian caused death and damage in the provinces of Hunan, Jiangxi, and Guangdong

No. Dead

158 (108 Fujian, 32 in Hunan, 13 in Jiangxi, and 5 in Guangdong)

No. Affected

2,880,000 (in Fujian)

Damage

The Chinese government estimated the direct economic loss to Fujian at \$91,644,000 (340 million yuan); this included: the collapse of 167,000 houses; the destruction of 350 ha. of farmland; the death of 6,800 heads of livestock and 70,000 chickens; and damage to 2,475 MT of grain, 75 bridges, 3,908 sections of roads, and 6,000 irrigation channels.

The Disaster

In late May, torrential rainfall deluged Fujian Province, in the southeastern part of the country, causing 108 deaths and millions of dollars' worth of damage and destruction. The hardest hit areas of the province were its northern counties of Jianyang, Chongan, and Zhenghe. Up to 257 mm. (10 in.) of rain fell in a 24-hour period between May 20 and 21. By May 26, the Min River had already risen 4.6 meters above the danger level, its highest point in 30 years. Daily rainfall in late May was often over 100 mm. (4 in.) in 12 Fujian countries and cities, with parts of Chongan County receiving 344 mm. (14 in.) of rain a day. About 350,000 ha. of farmland were drenched, communications were cut, factories had to stop production, livestock perished, and houses were destroyed. More than 100,000 people were forced to flee from flooded areas, while 108 people lost their lives due to the floods.

Rainstorms also extended beyond Fujian to the nearby provinces of Hunan, Jiangxi, and Guangdong. Fifty people were killed by the flooding in these areas, with considerable damage to farmland and houses. The floods were among the most serious results of the unusual weather affecting China in May; the coastal and central parts of the country were hit by hailstorms during that month, while a tornado touched ground in Guangdong.

Action Taken by the Government of the People's Republic of China (GPRC)

The Ministry of Civil Affairs coordinated relief efforts, while the army provided assistance in evacuating 100,000 people from the flooded areas of Fujian. Those evacuated were sheltered in factories, schools, and government buildings. Government officials mobilized 10,000 people to help combat the floods and appealed for international aid to assist the victims.

Assistance Provided by the U.S. Government

In response to the Chinese government's appeal on June 2, 1988, U.S. Ambassador Winston Lord declared the Fujian flooding to be a disaster.

After discussions with Chinese authorities and other donors, the U.S. Embassy in Beijing decided that the most appropriate assistance would be chlorine powder for water purification. Therefore, a check for \$25,000 (equal to 82,750 yuan) was given to the Ministry of Civil Affairs to purchase 189.286 MT of chlorine bleaching powder in Fujian. The U.S. contribution was part of a larger, multi-donor effort headed by the United Nations to provide funds for the local purchase of chlorine powder.

TOTAL **\$25,000**

Assistance Provided by U.S. Voluntary Agencies

None reported

Assistance Provided by the International Community

EC - provided 5,000 MT of cereals, valued at \$1,344,000.

Japan - donated medicine, medical supplies, water purifiers, generators, and biscuits, all worth \$196,500.

UNDP - gave \$50,000 for the local purchase of chlorine powder.

UNDRO - gave \$15,000 for the local purchase of chlorine powder.

UNICEF - gave \$25,000 for the local purchase of chlorine powder.

United Kingdom - purchased 1,000 MT of rice, valued at \$260,000, on the local market.

WHO - gave \$10,000 for the local purchase of chlorine powder.

TOTAL **\$1,900,500**

China, People's Republic

Date

Spring and summer
1988

Location

Zhejiang and
Heilongjiang
provinces

No. Dead

At least 577

No. Affected

Over 22,000,000

Damage

Damage was severe to houses, roads, bridges, dikes, reservoirs, and other infrastructure; and millions of hectares of farmland were inundated, with heavy crop losses and damage to stored grain. Economic losses in the 2 provinces were estimated at over \$1,063,564,000.

The Disaster

Natural calamities plagued the People's Republic of China in 1988, with few regions left unaffected. A devastating drought and record heat wave gripped several provinces during the summer months. Violent rainstorms and flooding relieved drought conditions in some areas but created new emergencies.

Two of the provinces most seriously affected by the year's disasters were Zhejiang in the southeast and Heilongjiang in northeastern China. Torrential rains beginning June 11 flooded 280,000 ha. of farmland in Zhejiang and Jiangxi provinces and left 50,000 people homeless. More than 70 deaths were attributed to the June floods.

The weeks of scorching heat and drought conditions in Zhejiang province that followed the June deluge posed an equally serious threat to the population. Nearly 42,000 cases of heat stroke were reported in the province, and the loss of 350,000 MT of rice was expected to create a serious food shortage.

The rains that ended the drought were not entirely beneficial, however. During a 12-hour period from July 29 to 30, some 350 mm. to 400 mm. of rain soaked eastern Zhejiang Province, unleashing floods described as the worst to hit the province in 40 years. The floodwaters had hardly begun to recede when the province was again struck by disaster. Typhoon Bill ripped through coastal areas on Aug. 7, its violent winds and heavy rains leaving a path of destruction.

The July rains and August typhoon struck hardest in the cities and prefectures of Hangzhou, Ningbo, Shaoxing, Zhoushang, Jiaying, Huzhou, and Taizhou. The two disasters caused tremendous damage to dwellings, transportation and communications lines, agriculture, and industry. According to incomplete statistics, 12.7 million people were affected, including 200,000 evacuated, 424 killed, 84 missing, and 3,000 injured. Over 126,000 houses collapsed and 610,000 were damaged. Flood waters inundated 290,000 ha. of cropland and destroyed at least 35,000 tons of stored grain. Reservoirs, hydropower stations, and

irrigation projects were destroyed or sustained serious damage, and 1,300 boats were sunk or washed away. Direct economic losses from the two disasters were estimated at \$538.8 million.

The year of disasters in Heilongjiang province started out with an unusually wet, cold spring. Rainfall reported to be twice as heavy as usual from mid-April to early May delayed planting and reduced the area normally devoted to spring wheat and other crops. Thirty counties were hit by hailstorms later in the summer, causing further crop losses of \$21 million. In Lanxi county, one of the areas hardest hit by the hailstorms, 903 people were injured and 170,000 were affected.

As heavy rains resumed in Heilongjiang in mid-July, river floods submerged the prefectures and cities of Suihua, Qiqihar, Harbin, Heine, Daqing, and Yichuan. Some 9 million people were affected by the floods, which left 83 dead and 2,560 injured. The Nengjiang River reached its second-highest peak in recorded history in mid-August, forcing the evacuation of thousands of people from Qiqihar, a city of 1 million residents, and from smaller settlements along the river's course. Floodwaters covered 3.3 million ha. of farmland, representing 38% of the sown area, and forced production cuts in the country's largest oil field in Daqing. Over 220,000 houses collapsed and 412,000 were damaged by the raging floods. Dikes, reservoirs, bridges, and long stretches of highway and railroads were also damaged or destroyed. Total losses in the July to August floods in Heilongjiang were estimated at about \$503.8 million.

Action Taken by the Government of the People's Republic of China (GPRC) and Provincial Governments

The provincial governments mobilized manpower for relief and rescue efforts and distributed relief supplies. Soldiers and police joined the special work teams to assist the rescue and clean-up operations. Special medical and public health teams, equipped with disinfectants and pesticides, were dispatched to the affected areas in Zhejiang to control the spawning of mosquitoes and the

spread of disease.

In Heilongjiang Province, thousands of soldiers and civilians raced to fill sand bags and reinforce dikes along the Nengjiang River to prevent flooding in the industrial city of Qiqihar. During the August floods, authorities evacuated thousands of residents of Qiqihar and other settlements along the river.

The Disaster Relief Bureau of the central government's Civil Affairs Ministry distributed funds and relief materials to the affected provinces.

As of Aug. 10, the PRC had allocated \$142 million to areas affected by floods, droughts, and other natural disasters and planned to spend more. This represented more than half of the annual relief budget.

The GPRC formally requested international disaster relief assistance through UNDRO in late September. The relief needs identified by the PRC for Heilongjiang and Zhejiang provinces included grain, fertilizer, building materials, medicines, and bleaching powder, and funds for repairing infrastructure.

Assistance Provided by the U.S. Government

U.S. consulate officers monitored events throughout the summer and advised the Embassy of the very significant needs created by the several emergencies and of the PRC's lack of adequate resources to respond. When the GPRC formally requested specific disaster relief assistance, U.S. Ambassador Winston Lord declared a disaster on Sept. 26 and recommended the allocation of his \$25,000 disaster assistance authority for the purchase of penicillin and other medicines for Zhejiang and Heilongjiang provinces. The funds were obligated by OFDA on Sept. 28, and a check for \$12,500 was presented to provincial Civil Affairs officers in each of the two provinces in late October.

TOTAL \$25,000

Assistance Provided by U.S. Voluntary Agencies

CWS - joined the WCC effort to raise funds for flood relief and sent \$5,000 from the Executive Director's Emergency Fund. CWS issued an appeal for \$50,000.

TOTAL \$5,000

Assistance Provided by the International Community

Australia - promised \$5,000 for Zhejiang relief activities.

WCC - forwarded \$30,000 to the Amity Foundation from the Asia Flood Fund and launched an appeal for \$200,000.

WFP - provided 7,200 MT of wheat valued at \$936,000, with shipping costs of \$1,700,000.

TOTAL \$2,671,000

Date

Aug. 21, 1988

Location

North and Central Bihar State and parts of South Bihar

No. Dead

382; 3,766 injured

No. Affected

20,000,000

Damage

149,334 dwellings were damaged or destroyed; power, communications, and transportation lines were disrupted; the preliminary damage figure was \$71.5 million.

The Disaster

A pre-dawn earthquake measuring 6.7 on the Richter scale rocked eastern India and Nepal on Aug. 21, flattening buildings and leaving thousands of people dead or injured in the two countries (see *NEPAL - Earthquakes*). The epicenter of the quake was located about 80 km. northeast of Darbhanga in Bihar state, close to the India-Nepal border. Tremors were felt in several surrounding states, but serious damage on the India side of the border was confined to Bihar, where the districts of Darbhanga, Monghyr, Madhubani, Saharsa, and Samastipur were among the hardest hit.

The earthquake snapped power and communications lines, hampering efforts to assess the extent of damage. Transportation was also disrupted following the collapse of rail lines, bridges, and roads. Flooding occurred in 50 villages in Madhubani District when the quake disturbed river beds or shifted embankments already weakened by heavy and continuing monsoon rains.

The death count was reported at 382 and the number of injured at 3,766 when the final tally was made. Most of the victims were buried alive under collapsed buildings. Abnormally high temperatures may have saved the lives of some rural residents of Bihar who were sleeping in the cooler outdoors when their homes fell. In the city of Darbhanga, the capital of one of the hardest-hit districts, older buildings proved most vulnerable to earthquake forces. According to preliminary estimates, property damage totaled \$71.5 million.

Action Taken by the Government of India (GOI), the Government of Bihar (GOB), and Non-Governmental Organizations

Both the central and the Bihar state governments acted promptly to assist the earthquake victims. Immediately upon receiving news of the disastrous earthquake, the GOB chief minister flew to the affected districts to supervise relief and rescue operations. Prime Minister Rajiv Gandhi and the GOI ministers of urban development, health, and agriculture toured the stricken area on Aug. 22.

Six columns of the Indian armed forces were deployed to assist the relief and rescue effort. Air Force helicopters flew medical teams and supplies to the stricken area and carried the injured from remote locations to the nearest hospitals. The GOI also ordered 80 army personnel and eight boats to Saharsa District where many earthquake victims were trapped in flooded waters.

The GOI Ministry of Health coordinated the dispatch of medical teams (orthopedists and surgeons) to help treat victims in the overcrowded hospitals in the affected districts.

A national committee was formed under the GOI Ministry for Women and Child Welfare to oversee relief activities affecting women and children. The Ministry of Agriculture, the GOI ministry responsible for providing relief to victims of natural disasters, remained in close touch with GOB agencies and other central government ministries to coordinate relief efforts. A special committee was set-up under the Ministry of Agriculture to carry out this task.

At the state level, the Bihar Cabinet appointed a four-person subcommittee to monitor relief and rehabilitation operations. A specially created Chief Minister's Relief Fund was to be channeled to needy districts through district magistrates who prepared lists of casualties and damages.

As is customary in India, the central and Bihar state governments approved direct cash payments to the earthquake victims. The GOB announced *ex gratia* payments of \$1,070 to dependents of those killed and smaller amounts to each of the injured. The GOI provided a grant of \$214,200 from the Prime Minister's Relief Fund to supplement the efforts of the state government. A payment of \$714 from this sum was given to the dependents of each person killed, and the remainder of the grant was to go for relief measures identified by the state of Bihar. The Prime Minister also announced a grant of \$71,428 from the All India Congress Committee and the Bombay Pradesh Congress Committee. Donations from other Indian states, industrialists, and private individuals

added \$448,212 to the Chief Minister's Relief Fund. The GOI further assured earthquake victims of the availability of soft loans to rebuild or repair their damaged homes.

Red Cross workers from the national society and the provincial branch were also quickly at the disaster scene, delivering food, clothing, tents, medicines, and other supplies. Two directors of the Indian Red Cross (IRC) visited Bihar to assess needs. Following the visit, the IRC established a relief program for 5,000 families, which included the provision of rice, cooking oil, and milk powder; cooking utensils and clothing; water purification tablets; nine vehicles for the Bihar state branch; temporary shelters; and three medical posts and personnel. The food, cooking utensils, clothing, and medical supplies were valued at approximately \$236,970.

Various other local voluntary bodies, including the Ramakrishna Mission and Bharat Sevashram Sangha, began relief operations immediately. The Churches Auxiliary for Social Action (CASA), the local counterpart of the World Council of Churches, distributed 4,000 relief sets in Darbhanga and Monghyr.

Assistance Provided by the U.S. Government

After hearing reports of the extensive damage and loss of life caused by the earthquake in Bihar, U.S. Ambassador John Gunther Dean declared that a disaster existed warranting USG assistance. He exercised his disaster assistance authority to donate \$25,000 to the Prime Minister's National Relief Fund.

The A.I.D. Mission Director, as the designated Mission Disaster Relief Officer, held daily meetings on the earthquake situation and was in regular contact with GOI officials. To help with the assessment process, USAID sent two officers to join CRS personnel on an inspection of the more remote areas of the earthquake zone. USAID also approved the diversion of P.L. 480 Title II stocks from PVO feeding programs for emergency distribution in Bihar as required. CRS used a total of 191 MT of emergency food from its

stocks (159 MT of bulgur, 13 MT of oil, and 19 MT of CSM), valued at \$73,430.

The joint CRS/USAID assessment team recommended that some 6,000 plastic sheets be procured locally for use as temporary shelters for earthquake victims in Bihar and for flood victims in Bihar, West Bengal, and Assam. OFDA then provided separate grants to CRS for the two disasters to purchase the recommended temporary shelter supplies. The amount provided for the earthquake shelter program was \$42,762 (see also *INDIA - Floods*).

Total OFDA \$67,762
Total FFP \$73,430

TOTAL \$141,192

Assistance Provided by U.S. Voluntary Agencies

CRS - identified 191 MT of P.L. 480 Title II stocks (bulgur wheat, CSM, and soybean oil) and 6 MT of EC-donated milk to divert for emergency feeding. CRS also conducted an on-site inspection of the earthquake zone and administered an OFDA grant to purchase plastic sheeting for an emergency shelter program. Brother Bernard Singh, the authorized counterpart of CRS in Patna, organized the distribution of the plastic sheets.

Assistance Provided by the International Community

International Organizations

EC - provided \$550,000 for earthquake relief, channeled through LRCS, and 6 MT of milk, valued at \$7,956, distributed by CRS.

LRCS - donated 45 tents from its regional warehouse in Singapore.

LWF - implemented a relief operation through local affiliated agencies and contributed \$240,000 (from various sources).

WCC - contributed \$20,000.

Governments

Canada - gave \$21,428 through a fund administered by the Canadian High Commission; additional amounts from the fund went to PVOs working in the quake-affected area.

Japan - contributed \$25,000.

Korea - donated \$20,000.

United Kingdom - provided \$17,142 through the British High Commission.

Non-Governmental Organizations

Caritas/Austria - gave \$19,231 (half of a reported donation for India/Nepal).

Caritas/Germany, Fed. Rep. - gave \$54,054.

Red Cross Societies - provided the following assistance:

Austria - family tents

German Democratic Republic - medical supplies

Japan - 1 four-wheel drive vehicle, 10 water tanks (2,000 liters each), rice cookies, and 1,500 blankets

Spain - \$23,377

Sweden - 300 tents

Switzerland - 15 multi-purpose tents

Swedish Lutheran Church - gave \$72,000 (half of a reported donation for India/Nepal).

TOTAL \$1,070,188

Date

Aug. 20-28, 1988

Location

Northeastern India, especially the states of Assam, West Bengal, and Bihar

No. Dead

250

No. Affected

16,500,000 (10,000,000 in Assam, 3,000,000 in West Bengal, and 3,500,000 in Bihar); 7,140,000 homeless

Damage

The floods destroyed or damaged 245,636 buildings, submerged roads and other infrastructure, inundated over 1,000,000 ha. of standing crops, and killed over 30,000 domestic animals. The value of lost crops was \$15,200,000 in Bihar and \$914,000,000 in Assam. Crude oil production in Assam was cut to about 30% of the normal daily capacity.

The Disaster

After a year-long drought that affected all of India except parts of the northeast, the 1988 monsoon season arrived on time in June but brought excessive rainfall and flooding to many regions. In the northeastern states of Assam and West Bengal, flooding and landslides were already being reported in late June. After successive periods of torrential rainfall, all major rivers in northeastern India were flowing well above the flood stage by August. The situation became critical when the rainfall recorded for Aug. 20-28 was 900 mm., or more than the average of 800 mm. for the entire month.

In Assam, which is surrounded by hills and suffers annually from flooding in the Brahmaputra and its tributaries, all of the state's 18 districts were under water, with the districts of Dibrugarh, Lakhimpur, Jorhat, Sibsagar, and Nagaon the most seriously affected. Ten million people were marooned, of which six million were left homeless. Large areas of agricultural land were inundated, damaging one million hectares of crops. Landslides and breaches in important roads slowed rescue efforts. Even rescue operations by boat were made difficult by the ferocity of the floodwaters. Several of the state's oil and gas fields were forced to shut down, reducing crude production to about 30% of its daily rated capacity.

Six northern districts--West Dinajpur, Cooch Behar, Maldah, Jalpaiguri, Murshidabad, and Nadia--were the districts most severely affected by the flooding in West Bengal. More than three million people were marooned or otherwise affected. Over 40,000 cases of gastro-enteritis were reported as shortages of potable water became acute. Thousands of hectares of cultivated land were under water at the height of the emergency, and several major roads were submerged. Important bridges were washed away in the Malda-Raiganj National Highway, resulting in the diversion of traffic (mainly transport trucks carrying goods to the northeastern states) through a detour route. Rising rivers in Bihar caused severe flooding in four districts, including the earthquake-affected districts of Munger, Darbhanga, and Madhubani in the northern part of the state. More than

3.5 million people were affected by the floods in Bihar that claimed several lives. Standing crops valued at \$15.2 million were destroyed in the state.

Action Taken by the Government of India (GOI), the Governments of Assam (GOA), West Bengal (GOWB), and Bihar (GOB), and Non-Governmental Organizations

The governments of Assam, West Bengal, and Bihar mounted rescue and relief operations in their respective states, with assistance from the Army, the Border Security Force and the Indian Red Cross. In Assam, where rescue efforts by boats were hampered by the furiously swirling waters, helicopters were pressed into service for airdrops and to evacuate threatened populations. The GOI sent in troops to shore up embankments with sandbags and to assist with relief and rescue efforts. The GOA was sheltering over 914,000 people in relief camps at the height of the emergency. Teams of doctors and paramedical staff also visited the affected areas. The voluntary agency, "Bosco Reach Out", initiated effective relief and rehabilitation activities as well.

The Indian Army also worked with West Bengal officials to assist flood victims in that state. Hundreds of thousands of people were evacuated from their threatened homes to safer locations. Some 1,517 relief camps were opened to shelter 1.44 million homeless people. The GOWB rushed emergency rations and other relief supplies to the temporary shelters and GOWB ministers were posted to monitor operations. The state spent all of its funds allocated for relief (\$17 million) on the flood emergency.

Disaster officials in Bihar called upon rural owners of boats and launches to help with the evacuation of families from low-lying areas. The GOB opened hundreds of relief camps, health centers, and cattle shelters in the floods-affected areas.

The government of the three states appealed to the central government for financial contributions for flood damage relief. The GOA also requested additional allocations of rice and wheat.

Assistance Provided by the U.S.

Government

The U.S. Consulate General in Calcutta monitored events in the flood-ravaged northeastern states and advised the Embassy on the extent of the disaster. Based on these reports, U.S. Ambassador John Gunther Dean determined on Sept. 4 that a state of disaster existed in Assam, West Bengal, and Bihar as a result of the monsoon floods.

A joint USAID/CRS assessment team (see *INDIA - Earthquake*) recommended that plastic sheeting be made available for the temporary shelter of earthquake and flood victims. OFDA provided separate grants to CRS for the local purchase of plastic sheeting for the two disasters. The amount allocated for the flood disaster was \$42,762.

Under this grant 3,133 plastic sheets were provided to the most seriously affected families in Assam and West Bengal. USAID approved the release of 453 MT of P.L. 480 Title II stocks from the CRS program in India (391 MT of bulgur, 45 MT of oil, and 17 MT of CSM) on a non-replacement basis. The total value of the commodities was \$179,150.

<i>Total OFDA</i>	\$42,762
<i>Total FFP</i>	\$179,150

TOTAL \$221,912

Assistance Provided by U.S. Voluntary

Agencies

CRS - diverted 453 MT of P.L. 480 Title II commodities from its regular program for emergency feeding and administered an OFDA grant to procure plastic sheeting locally for use as temporary shelter for the flood victims. CRS also distributed 1 MT of EC-donated milk.

Assistance Provided by the International Community

EC - provided 1 MT of milk from its regular feeding program in India. The milk was valued at \$1,326.

TOTAL \$1,326

Date

May 9, 1988

Location

Gunung Api Island,
part of the Banda
Island group in
Moluccas Province

No. Dead

7

No. Affected

7,500 evacuated,
2,500 homeless

Damage

Approximately 60%
of the island was
inundated with lava
and over 230 houses
and buildings were
destroyed.

The Disaster

Banda Api is an active volcano on the tiny island of Gunung Api, situated in the Banda Sea, 210 km. southwest of the city of Ambon. On the morning of May 9, the residents of the island awoke to the sound of an eruption from Banda Api. Huge explosions sent blazing ash 1,000 meters into the air and molten lava spewed out for seven straight days. The villagers on Gunung Api were immediately evacuated to nearby Neira and Lonthor islands, but 150 F heat from the volcano prompted all 7,500 residents to move to Ambon Island. Lava covered over 60% of Gunung Api, leaving the island uninhabitable for several years.

Action Taken by the Government of Indonesia (GOI)

Villagers on the affected islands were evacuated by small boats to the island of Ambon, about 210 km. northeast of Banda Api. The provincial disaster relief office was activated and a command post set up to monitor and manage all disaster relief activities. The GOI Department of Social Affairs sent food, clothing, and medicine for the evacuees. Based on an assessment of Gunung Api, it was determined that all 2,500 residents of that island would be resettled on Seram Island, the largest land mass in the Moluccas Archipelago. The provincial assembly of Moluccas approved the reallocation of 500 million rupees (approximately \$303,000) from its transmigration program to pay for this resettlement.

Assistance Provided by the U.S. Government

On May 23, Ambassador Paul Wolfowitz called on the GOI Minister of Social Affairs to express his concern and offer assistance. Following this meeting, the Ambassador declared a disaster and donated \$25,000 to the Department of Social Affairs for its relief efforts.

In addition, OFDA funds a disaster preparedness project in Indonesia, providing technical assistance to the Volcanological Survey of Indonesia. Dr. Thomas Casadevall, the USGS volcanologist assigned to this project, traveled to the affected

islands in late May to perform a volcanological survey of Banda Api.

TOTAL \$25,000

Assistance Provided by U.S. Voluntary Agencies

None reported

Assistance Provided by the International Community

None reported

Date

Aug. 21, 1988

Location

Eastern Zone of Nepal but felt throughout the nation and northern India

No. Dead

709; 1,016 injured

No. Affected

At least 300,000

Damage

66,000 houses and 2,000 public buildings destroyed or damaged; extensive damage to roads, bridges, and water and electrical systems. No official figures were released, but damage estimates ranged from \$30 million to \$60 million.

The Disaster

The 6.7 magnitude earthquake that struck Nepal on Aug. 21 was the strongest tremor the mountain kingdom had experienced in over half a century. The quake was centered in the Eastern Zone, in the Udaypur District, but was felt throughout the nation and northern India. The towns of Dharan, Dhankuta, Udaypur, and Bhaktapur were among the hardest hit, with the older sections of the towns being reduced to rubble. The ancient brick and clay buildings, held together with mud mortar already weakened by seasonal rains, proved highly vulnerable to earthquake damage. Relief and rescue operations were hampered by heavy monsoon rains, the lack of roads or damage to existing roads and bridges, and the breakdown in communications. Many villages in the Himalayan foothills were completely isolated after the quake.

The full dimensions of the disaster were realized over a period of several weeks as the more remote areas became accessible. Statistics compiled by His Majesty's government showed that 709 people died in the quake and 1,016 were injured, 535 of them seriously. Thousands were left homeless as 66,000 dwellings collapsed or were damaged. The continuing rains and low night temperatures created an urgent need for temporary shelter for people left homeless or living in partially demolished structures.

Action Taken by the Government of Nepal (GON)

The GON initiated relief operations immediately after the earthquake, mobilizing the Royal Nepal Army, the police, the Nepalese Red Cross, and local officials to participate in the effort. Civilian and military medical teams were dispatched from Kathmandu to the stricken regions to treat the injured. The army played a major role in search and rescue operations and in the transport of supplies. Army rescue units flew helicopters to remote sites to transport the injured to hospitals. The most seriously injured victims were flown to hospitals in the capital and Biratnagar or to the British military hospital in Dharan. The army also purchased tents and rice for emergency

distribution. In keeping with custom, the GON provided a "death fund" payment (approximately \$100) to the family of each person killed in the quake and an allowance to each family left homeless.

The relief effort was directed by the Central Disaster Relief Committee, under the chairmanship of the Home Minister. The committee released \$312,236 as immediate relief assistance in the Eastern Zone. A Central Earthquake Relief and Reconstruction Fund was established which, among other donations, eventually included contributions from Nepalese institutions and private individuals totaling \$1.3 million.

The GON formally requested international assistance through UNDR0 on Aug. 24, having identified relief requirements at a press conference held by the GON Finance Minister the previous day. The need for helicopter support was emphasized, since this was the only transport mode that could reach remote mountain villages.

The Nepal Red Cross (NCR) was designated by the GON as the primary agency to coordinate local relief efforts. Members of the central committee were assigned responsibilities in each of the affected districts. NRC volunteers distributed food, clothing, blankets, and utensils and provided first aid and ambulance services. As of Aug. 29, the NRC had supplied relief materials for 2,700 families, food for 15,000 people, and medical services for 650, the total valued estimated at \$76,000 (of which \$13,781 was from internal resources).

As the emergency phase ended, the GON appointed the Minister of Housing and Physical Planning (MOHPP) to coordinate the rehabilitation and reconstruction effort. The MOHPP drafted a master plan to include programs for housing and public building reconstruction, major road and bridge repairs, seismic monitoring, and improved medical care and equipment in the Eastern Zone.

Assistance Provided by the U.S. Government

After hearing reports of the extensive damage and loss of life caused by the earthquake, U.S. Ambassador Milton Frank declared on Aug. 22 that a disaster existed in eastern Nepal warranting USG assistance. He authorized the donation of his \$25,000 disaster assistance authority to the GON Central Relief Committee.

Soon after the calamity, USAID/Kathmandu sent a four-person team to Biratnagar to help assess damage in the affected areas. As the list of casualties grew, the Mission also released medical supplies from regular program stocks and purchased supplies from local pharmacies to treat the injured. The value of the supplies was estimated at \$10,000.

In response to the Mission's request, OFDA sent Paul Bell, a disaster management consultant, to Nepal to assess and provide support for logistical needs. Mr. Bell arrived in Kathmandu on Aug. 27 and, in the days following, traveled to Biratnagar, Dharan, Dhankuta, and Ilam.

OFDA also arranged an airlift of 292 rolls (650,000 sq. ft.) of plastic sheeting from its stockpile in Singapore to assist with temporary shelter requirements. The plastic arrived in Kathmandu by charter flight on Aug. 31 and was turned over to the GON Home Affairs Minister. From there, the plastic was dispatched to the stricken towns for distribution, with transport by Royal Nepal aircraft.

To help ease the major logistical constraints experienced by the GON in its disaster response, OFDA provided a \$100,000 grant to UNDRO to be used for internal transport support.

In the post-disaster phase, the USG provided technical assistance to the GON through the U.S. Geological Survey (USGS). A three-person team visited Nepal from late September to mid-October to assist the GON Department of Mines and Geology (Ministry of Industry) in a field survey of the earthquake area. The objective was to gather seismological data to better define the earthquake risk in Nepal and neighboring countries and

support beginning efforts toward the long-term reduction of earthquake hazards. UNESCO paid the team's travel expenses.

Summary of USG Assistance

Grant to GON	\$25,00
Travel expenses of OFDA disaster consultant	\$6,25
Grant to UNDRO	\$100,00
Value and transport costs of 292 rolls of plastic sheeting	\$239,65
Value of medical supplies purchased by USAID/Nepal	\$10,00
<i>Total OFDA</i>	<i>\$370,90</i>
<i>Total Other USG</i>	<i>\$10,00</i>
TOTAL	\$380,90

Assistance Provided by U.S. Voluntary Agencies

CWS - sent a regional representative from Bangladesh to work with the United Mission to Nepal (UMN) in assessing needs and organizing channels for distribution of relief supplies.

Foster Parents Plan - donated \$50,000.

Rotary International - provided \$50,000.

United Mission to Nepal - assisted with a needs assessment and gave \$4,000.

U.S. Diplomatic Mission to Nepal (all agencies) - donated \$1,000 to the Central Earthquake Fund from staff contributions.

TOTAL	\$105,00
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Switzerland - gave \$50,000 through the Swiss Association for Technical Assistance.

United Kingdom - sent a medical team, medical supplies, clothing, tents, and blankets, the total value estimated at \$470,000, to its military hospital in Dharan to care for the patient overflow created by the earthquake. The hospital, with a normal bed capacity of 60, was expanded to a 250-bed hospital by setting up new wards in tents. As of Sept. 6, the hospital had cared for 850 earthquake victims.

Non-Governmental Organizations

Action Aid (U.K.) - gave \$50,000 through SSNCC and \$43,500 through Red Cross and Redd Barna (Norwegian Save the Children Federation).

British ex-servicemen - donated \$43,500 to support the military hospital operation in Dharan.

Caritas/Austria - gave \$19,231 (half of a reported donation for India/Nepal).

Japan Shipbuilding Industry Foundation - gave \$38,500.

Oxfam (U.K.) - donated \$35,000.

Red Cross Societies - provided the following assistance:

Austria - 30 family tents
Greece - 1,000 blankets, 150 sleeping bags, and ampicillin
Japan - \$15,975 and medical personnel to assist a NRC medical team in Dharan
Spain - \$8,339
United Kingdom - \$9,219

Redd Barna (Norway) - contributed \$52,000.

SCF (UK/US) - provided support for the SCF (U.K.) clinic in Dhankuta.

Swedish Lutheran Church - gave \$72,000 (half of a reported donation for India/Nepal).

TOTAL \$3,474,301

Date

April 10, 1988

Location

Ojheri ammunition storage site in Faizabad, located between the twin cities of Rawalpindi and Islamabad

No. Dead

Estimates ranged from 78 to several hundred; the number of injured ranged from 300 to several thousand.

No. Affected

The entire population of Rawalpindi, Islamabad, and adjacent areas was at risk (over 1,000,000 by 1981 census); about 15,000 people were left homeless or with damaged dwellings, and tens of thousands were evacuated.

Damage

2,899 houses and 900 shops were destroyed or damaged; financial losses were estimated at \$4,180,000.

The Disaster

A massive explosion at the Ojheri army ammunition site near Faizabad rocked the twin cities of Rawalpindi and Islamabad on Sunday, April 10, just as the Moslem work week was getting underway. The initial blast, which was apparently caused by a fire at the site, occurred at about 9:50 a.m. and sent projectiles flying in all directions for at least 10 km. Secondary explosions hurled showers of shrapnel and unexploded ordnance on the heavily populated urban areas of Rawalpindi and Islamabad, located equally distant (5-6 km.) on either side of Faizabad.

Sporadic, spontaneous shelling continued for over an hour, igniting fires at several locations and inflicting numerous casualties and extensive physical damage. Estimates of the number of people killed ranged from 78 to several hundred, and the injured numbered between 300 and several thousand. One of the casualties was a member of the national assembly who was killed as a rocket fragment hit the top of his car. Property damage, particularly to houses and stores, was widespread within an 8-km. radius of the explosion site. Financial losses were estimated at \$4.18 million. Several projectiles fell on U.S. Embassy property and on the U.S.-operated international school, but no U.S. casualties were reported. To escape the danger, tens of thousands of residents left the twin-city area for periods ranging from several days to several weeks. Many sought refuge with friends or relatives in the countryside.

A third explosion at the ammunition depot on April 17 killed one Pakistani and injured nine. The blast occurred as Pakistani army personnel attempted to remove damaged unexploded ordnance from the disaster site.

Action Taken by the Government of Pakistan (GOP) and Non-Governmental Organizations

In the capital city of Islamabad, Pakistani army troops and riot police were deployed to patrol the area and prevent panic. The injured were rushed to hospitals, which soon became jammed with

people seeking medical attention. Some 2,000 to 3,000 victims received medical assistance in the days following the accident. Health officials identified patients who required more intensive treatment and sought medical attention outside the country. Both civil and military facilities were used to evacuate and treat casualties.

Prime Minister Mohammad Khan Junejo ordered an investigation into the causes of the disaster and directed that all existing ammunition storage depots be located away from populated areas. The GOP announced three days of national mourning. As a safety precaution, all public schools and colleges in Rawalpindi and Islamabad were closed for about a week. The GOP provided some \$3.8 million in compensation for lives lost or people injured and about \$4.1 million for property damaged or destroyed.

The Pakistani Air Force took aerial infrared photographs of the area and assisted in cooling identified hot-spots and in disposing of the explosive materials.

Two Pakistan-based private voluntary organizations were active in relief work, assisted by grants provided from the U.S. Ambassador's disaster relief fund (see USG Assistance). EDHI Trust organized a rescue camp in Islamabad which cared for more than 1,000 affected people at a time. The evacuees were provided with food and household items. Twenty ambulances were called into service from nearby areas to assist with evacuation, relief, and rescue. EDHI Trust also provided medicine to hospitals and burial shrouds for the dead. The chairman of the foundation personally distributed cash among the affected people.

A group called Proud Pakistani also received U.S. funds which were spent mainly on medicine and medical supplies.

Assistance Provided by the U.S. Government

In view of the magnitude of the calamity and the extensive loss of life, U.S. Ambassador Arnold L. Rafel determined on April 11 that a localized

urban disaster existed requiring USG assistance. He exercised his disaster assistance authority to donate funds to two Pakistan-based voluntary agencies: EDHI Trust (\$23,000) and Proud Pakistani (about \$2,000) (*see above*).

At the request of the U.S. Ambassador, OFDA arranged with DOD to send a team of five medical personnel to Pakistan for 10 days to treat burn victims. The team was dispatched from the European Command headquarters in West Germany, equipped with necessary medical supplies. OFDA provided \$10,000 to cover the team's expenses.

In addition to the DOD assistance coordinated by OFDA, the U.S. Department of State arranged with DOD to transport five severely burned patients from Pakistan to Washington for treatment in U.S. hospital burn centers. The U.S. PVO AmeriCares arranged for transport within the United States and for free hospital care.

DOD also provided advisory assistance to the GOP on safety and removal measures to render remaining ordnance harmless at the ammunition storage site.

TOTAL \$35,000

Assistance Provided by U.S. Voluntary Agencies

AmeriCares - arranged for free medical treatment of 5 Pakistani burn victims at hospitals in Boston and Dallas. AmeriCares also provided transport costs of the patients from Washington to the burn centers in the United States.

Assistance Provided by the International Community

None reported

Date

Sept. 6, 1988

LocationKaiapit District of
Morobe Province**No. Dead**

At least 76

No. Affected

600 to 1,000

DamageMudslides annihilated
5 villages.**The Disaster**

Disaster struck suddenly at mid-morning on Sept. 6 when a massive mudslide wiped out five villages in a remote mountain region of Morobe Province in Papua New Guinea. A large chunk of earth, up to 457 meters high and over 3 km. wide, came loose from the mountainside and hurtled downslope, burying the villages of Mitsing, Malafan, Zumara, Tari, and Marafu under tons of mud and debris. Only one body was recovered in the days immediately following the disaster, but at least 75 people were missing and presumed dead. More than 600 surviving villagers were left homeless and in need of resettlement outside the still unstable area. The death toll would likely have been higher had the landslide occurred at a time of day when most children were not in school in a building that stood high above the valley. Although the area was experiencing torrential rains at the time of the disaster, officials believed that the landslide was triggered by volcanic activity.

Action Taken by the Government of Papua New Guinea (GPNG)

The relief operation was hampered by the remoteness of the area and the continuing heavy rains; however, the Minister of State was able to fly over the stricken area in a helicopter on Sept. 8, and officials from the National Disaster and Emergency Center conducted an assessment later the same day. Authorities evacuated the surviving villagers and launched an appeal for clothing, blankets, and food for the victims. The GPNG formally requested emergency assistance from the USG.

Assistance Provided by the U.S. Government

Recognizing the gravity of the emergency created by the landslide, U.S. Ambassador Everett E. Bierman responded to the GPNG's request for assistance by issuing a disaster declaration on Sept. 15 and exercising his disaster assistance authority. He presented a check for \$25,000 to the chairman of the PNG National Disaster

Committee on Sept. 21. The funds were to be used for the purchase and distribution of food, tents, and ground sheets, and possibly for an emergency generator and a water purification unit for use in a temporary resettlement area.

TOTAL	\$25,000
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Assistance Provided by the U.S. Voluntary Agencies

None reported

Assistance Provided by the International Community

Australia - offered unspecified assistance.

Date

April 28, 1988

Location

Pandacan area of Manila

No. Dead

None reported

No. Affected

1,600 families homeless (about 10,000)

Damage

Fire razed about 800 houses and destroyed several hundred small businesses; preliminary estimates put damage at well over \$1,000,000.

The Disaster

A fire that raged for five hours in the Pandacan area of Manila on April 28 left some 1,600 families homeless and destroyed hundreds of small family-owned businesses. In an overcrowded squatter community that stretches along the Pasig River, the fire leveled an estimated 800 houses occupying a total area of less than one hectare. The 11 fire companies responding to the blaze were unable to penetrate the narrow alleys and walkways of the shantytown and had to let the fire burn out. A fortunate shift in wind direction kept the fire from spreading to nearby oil storage areas.

Action Taken by the Government of the Philippines (GOP) and Non-Governmental Organizations

Much of the relief assistance was channeled through Caritas/Manila, including that provided by the USG. In the immediate aftermath of the fire, Caritas provided emergency food and clothing to 500 families through the Parish Service Committee of the Santo Nino Parish. The same 500 families were given temporary shelter in St. Joseph's School. To determine the extent of damage and the longer-term requirements of the displaced people, church leaders were mobilized to conduct an assessment.

Based on the survey, Caritas implemented a distribution plan to provide rice and cash payments to some of the affected families and construction materials to the majority of families.

Assistance Provided by the U.S. Government

Ambassador Nicholas Platt declared a disaster on May 2 and exercised his disaster assistance authority to donate \$25,000 to Caritas to help with the immediate provision of food and shelter for the fire victims. U.S. military personnel from Subic Naval Base purchased and delivered three truckloads of building supplies to the Pandacan area. The total USG donation served 1,556 families: 1,456 families received building materials (an average of two galvanized

iron-roofing sheets, one lawanit board, and one wooden post per family) and 100 families received cash (about \$24 per family).

TOTAL \$25,000

Assistance Provided by U.S. Voluntary Agencies

None reported

Assistance Provided by the International Community

None reported

Date

May 3, 1988

Location

La Paz area of Iloilo City (Panay Island)

No. Dead

2

No. Affected

177 families (793 people)

Damage

The blaze destroyed 80 houses and damaged 4; an initial estimate of property damage exceeded \$500,000.

The Disaster

The second major fire to hit the Philippines during the peak of the country's dry season occurred on May 3. Fire broke out at 2:45 p.m. in a squatter district of Iloilo City and burned over two hectares of homes and other buildings before being brought under control. Two people were killed in the blaze and several received minor injuries. Over 80 houses were damaged or destroyed, some of which were occupied by more than one family.

Action Taken by the Government of the Philippines (GOP) and Non-Governmental Organizations

The city mayor convened a meeting of the local disaster coordinating council, which decided that the Iloilo chapter of the Philippine National Red Cross (PNRC) and the Department of Social Welfare and Development (DSWD) would take turns serving cooked food to the fire victims. The PNRC also provided first aid and ambulance service for the injured and distributed used clothing donated by the Red Cross youth volunteers. Since most of the food requirements were met by the Red Cross and DSWD relief rations and by donations from concerned citizens, the PNRC used the USG donation of \$5,000 to purchase building supplies (*see below*).

Assistance Provided by the U.S. Government

After receiving notification of the Iloilo fire from the American consul in Cebu, the USAID/Manila Mission Disaster Relief Officer arranged for the country director of SCF/US to conduct an on-site survey of the fire scene. Based on this survey and reports from GOP disaster agencies, U.S. Ambassador Nicholas Platt determined on May 10 that the fire warranted USG assistance. Utilizing his disaster assistance authority, Ambassador Platt contributed \$5,000 to the PNRC relief effort. The funds were distributed among the fire victims for the purchase of building supplies procured by the

PNRC; 80 homeowners received about \$57 each and 15 homeowners received some \$29 each.

TOTAL \$5,000

Assistance Provided by U.S. Voluntary Agencies

SCF/US - conducted a damage and needs assessment.

Assistance Provided by the International Community

None reported

Date

Nov. 25-26, 1987

Location

Administrative divisions of Central Luzon, Southern Tagalog, the Bicol, and Eastern Visayas with several provinces in the Bicol hardest hit

No. Dead

882

No. Affected

363,637 families (about 1,818,185 people)

Damage

Damage amounted to \$56,000,000. In all, 175,507 homes were lost. Most damage occurred in the typhoon belt--the Bicol Division, particularly in Albay, Sorsogon, and Camarines Sur provinces. Roofs were ripped off, traditional homes collapsed and disintegrated; 493 schools sustained damage; coconut trees were decapitated or uprooted; rice and vegetable fields were inundated; electric and water supplies were cut; and bridges were destroyed.

The Disaster

Super Typhoon Nina (Philippine name "Sisang") slammed into the Philippines on Nov. 25 and 26. The storm first struck the Bicol Administrative Division and traversed the country in a northwest path, crossing Southern Tagalog and Central Luzon divisions before moving into the South China Sea. Nina compounded the destruction and deaths left in the wake of Typhoon Betty. (For more information on Typhoon Betty, see *OFDA Annual Report FY 1987*.)

Nina and Betty, among the worst in 30 years, were two of nine damaging typhoons which all crossed the same areas in Southern Luzon between August and December 1987. Typhoon Phyllis (Philippine name "Trining") added insult to injury plowing through the provinces of Samar, Leyte, Masbate, and Biliran only three weeks after Nina.

Winds and rains from the storms tore corrugated iron roofs from schools and clinics, caused the woven-leaf walls of traditional homes to disintegrate, decapitated or uprooted coconut trees (the staple crop important to the economy of the Bicol), sunk or swept to sea fishing equipment, and inundated fields of rice and vegetables. Typhoon Nina compounded outages of power and communications, much of which had not yet been restored after Typhoon Betty swept through the islands. Three ships plying the waters near the southern islands were forced aground.

Typhoon Nina rammed into coastal areas of the Bicol peninsula at peak wind speeds of 220 km. per hour and was followed by a storm surge on Nov. 26 which measured an average of three meters. The storm surge alone killed 200 residents of Matnog, a ferry port in Sorsogon Province along the San Bernadino straits, as the wave drew its victims into the sea. Falling coconut trees and debris were responsible for many other deaths throughout the affected areas.

Electricity in the Bicol Division and communications to remote areas within the affected administrative divisions were cut. Ham operators in Sorsogon provided initial disaster information. A major bridge on the route between the mainland

and the mainland and the Bicol Province was structurally damaged, impeding vehicular movement across the bridge. As a result, initial efforts to assess damage were hampered and immediate relief distributions depended upon air transport.

In the wake of the disaster, water and food were lacking. Sorsogon residents relied on manually obtained water which carried high levels of bacteria. In addition, the National Food Authority (NFA) warehouse in Sorsogon collapsed under the strain of water on its roof. A mixture of salt water, sewage, and rain inundated 45,000 bags of rice and palay being stored in the building. Philippine officials claimed that the palay could be dried and milled but that the rice could not be salvaged for human consumption. The strong winds and inundating waters damaged 364,000 of coconut land, and more than 2,000 ha. of other agricultural land. In Sorsogon, 80% of the provincial banana and abaca plantations were devastated. Livestock and poultry perished. In all, crop and livestock damage was reported to be \$17.4 million. Private property damage totaled \$2.7 million and the public sector sustained \$14.5 million in damage.

Throughout the early typhoon season, Bicol Administrative Division was particularly hard hit and Typhoon Nina proved especially destructive for the following reasons:

- pre-Nina typhoons weakened structures so that they succumbed to subsequent attacks;
- there was little time between typhoons to allow for recovery and repair;
- due to a government re-organization, officials were often unfamiliar with disaster preparedness systems, and they failed to activate warning systems; as a result, many people did not evacuate coastal areas;
- insurgency problems had weakened local community groups and hampered government access to certain areas;
- communication links with the rest of the country were destroyed for several days so that damage could not be assessed;
- municipal water systems were highly vulnerable to contamination;

- typhoons coincided with the period of maximum growth of tropical crops and the rice harvest, amplifying the economic impact;
- the poor, who constitute 89% to 93% of the population in the affected areas, had built homes in marginal, unsafe locations and relied on export mono-crops, such as copra, for their subsistence rather than food production; and
- environmental denudation (forests, mangrove swamps, reefs) eliminated natural barriers which restrain flooding or storm surges.

Action Taken by the Government of the Philippines (GOP) and Non-Governmental Organizations

The government of the Philippines quickly mobilized relief operations as the storm swept off the eastern coast and as it received preliminary reports of the destruction indicating an immediate need for shelter, clothing, and food for thousands of victims. On Nov. 27, President Corazon Aquino promulgated Proclamation No. 191 designating the following provinces as disaster areas: Bataan Province (Division III); Quezon, Cavite, Batangas, and Marinduque provinces (Division IV); the provinces of Albay, Sorsogon, Masbate (including Burias Island), and Camarines Sur (Division V); and Leyte and Northern Samar provinces (Division VIII). A second proclamation, No. 193, added the Rizal, Laguna, Romblon, Oriental Mindoro, and Mindoro Occidental provinces (Division IV) and the provinces of Camarines Norte and Catanduanes (Division V) to the list of nationally declared disaster areas. The declaration of calamity allowed the government to commandeer food and other supplies needed for relief and rehabilitation.

Soon after reports of damage began trickling into Manila, various GOP offices rallied to formulate a relief implementation and distribution plan. On Dec. 3, the National Disaster Coordinating Council (NDCC) Action Group chaired a meeting of official Philippine agencies at the Office of Civil Defense. Participants reviewed incoming assessments and discussed the implementation of programs aimed at relieving the suffering of citizens who lost property, means of livelihood, and family members. Represented were the GOP departments of Agriculture, Education, Health, Labor, Justice, Natural Resources, Public Works,

Transportation and Communications, Trade and Industry, and the Armed Forces. Local governments, the media, the presidential management staff, and the Philippine National Red Cross (PNRC) also participated. Initial relief plans, as outlined by this group, involved the provision of food, medicine, transportation of supplies, rehabilitation of housing, and livelihood programs.



Railroad trussel destroyed by Typhoon Nina
Photos courtesy of USAID/Manila

A Dec. 2 presidential tour through Sorsogon Province and assessments performed by the secretaries of Agriculture and the Department of Social Welfare and Development (DSWD) convinced President Aquino that food was desperately needed. As a result, she ordered the Department of Agriculture to release 1,000 MT of rice from Southern Luzon stocks for disaster victims throughout the Bicol Division. The GOP also authorized the regional directors of the Bicol and Eastern Visayas divisions to withdraw 5 MT of rice for each affected province from the

National Food Authority (NFA).

Health became a major concern after the rains ceased as water became contaminated and medicine ran in short supply. An assessment performed by the Sorsogon provincial health officer indicated that a critical shortage of such medicine as antipyretics, anti-diarrheal, and IV solution existed. As a result, the Philippine Department of Health (DOH) sent medicine, valued at \$90,000, to Bicol Division and authorized an additional \$189,600 for the local purchase of medicine in the Bicol. Because officials feared possible outbreaks of various diseases in the region, the DOH sent a surveillance team to monitor health conditions in the Bicol and authorized Bicol field offices to use their small emergency budgets in support of the affected population.

Since the major bridge linking the main island and the Bicol Province was damaged, the movement of relief goods depended on air shipments. However, the lack of an airstrip in Sorsogon hampered relief flights and forced a dependence on helicopter shuttles to many areas. The DSWD airlifted about 1,500 boxes of assorted food items, candles, and clothing to Bicol residents early during disaster operations from Manila. DSWD Secretary Dr. Mita Pardo de Tavera accompanied the first mercy flight to Legaspi.

The GOP also supported various non-governmental attempts to supply housing and livelihood inputs to typhoon victims. One GOP NGO and three U.S. PVOs implemented such programs in order to restore housing, to grow food crops, or to get other livelihood activities underway.

On Dec. 8, the Philippine Business for Social Progress (PBSP)--a local NGO--presented an emergency relief and livelihood proposal to USAID/Manila. OFDA agreed to grant the PBSP \$500,000 in support of the program which was implemented over a three-month period and provided relief to victims of Typhoon Nina in 40 municipalities located throughout Marinduque, Albay, Camarines Sur, and Sorsogon provinces. The program featured three components: (1) providing seeds, nets, and other livelihood

inputs to replace those destroyed; (2) rebuilding houses with traditional materials either retrieved from debris resulting from the storm or through the local purchase of such materials; and (3) incorporating typhoon-resistance features into rehabilitated housing. As a result of the program, 2,717 households received income-generating assistance, 2,400 families rebuilt their homes with donated or salvaged traditional materials, and 1,300 additional families received assistance in rebuilding their homes to withstand future typhoon damage.

The PBSP worked closely with its local partners such as the Masbate and Sorsogon dioceses, Naga Social Action Center for Camarines Sur, the social action commission of the Diocese of Boac, and COPSDEN/Bicol University of Albay Province. These local non-governmental volunteer groups salvaged wood from the sea, acquired access to military stockpiles, and procured lumber confiscated from illegal logging operations. The PBSP stored the materials and transported them to beneficiaries who paid a fraction of the cost of materials according to their ability to pay. The funds collected by the PBSP were spent on other typhoon rehabilitation activities not covered by the OFDA grant.

During the immediate post-disaster phase, Philippine private organizations played crucial roles in the collection, dispersal, and monitoring of relief. The PNRG issued an appeal to the LRCS and managed incoming donations generated from the LRCS request. The PNRG also channeled the U.S. disaster assistance authority to the Sorsogon City Red Cross which purchased locally available food for the victims. By Jan. 2, the Sorsogon City Red Cross Chapter had extended relief assistance to 22,902 families. The commodities comprised 1,800 sacks of rice, 400 cases of sardines, and 900 packages of noodles; the cost of commodities and transport totaled \$37,851. The Diocese of Sorsogon, the archdioceses of Nueva Caceres and Naga, and Mother Theresa's Order (the Missionaries of Charity) aided in the monitoring and distribution of USG relief goods transported by the U.S. military to affected areas. Numerous Manila newspapers held a fund drive for those affected by the disaster and raised

\$128,000 in pledges. The Manila Chamber of Commerce and Industry collected relief items for the typhoon victims.

Assistance Provided by the U.S. Government

On the same day that President Aquino declared a disaster in 11 provinces, U.S. Ambassador Nicholas Platt exercised his disaster assistance authority, releasing \$25,000, to the Sorsogon City Red Cross for the local purchase of food.

On Nov. 27, USAID officials arrived in Sorsogon Province and worked with local disaster relief teams in assessing damage and planning how to best use U.S. emergency funds. U.S. Mission Disaster Relief Officer Bryant George toured Sorsogon, the hardest hit of the central provinces, with DSWD Secretary Pardo de Tavera the next day. USAID dispatched two additional assessment officials to the Bicol on Dec. 7. One representative visited Albay and Camarines Sur provinces

while the second, an engineer, joined the GOP Department of Public Works employees who assessed infrastructural damage, particularly to the Bicol electrical cooperatives.

Based on the available assessments, OFDA agreed to fund relief, recovery, and livelihood projects by PBSP, ADRA, and CARE. The prime objectives of all three programs were to restore housing to habitable condition at minimal cost and to get fast-growing food crops cultivated or other livelihood activities underway in order to ensure shelter and food to beneficiaries within three months. OFDA provided a \$500,000 grant to the PBSP for housing and livelihood projects in Marinduque, Albay, Camarines Sur, and Sorsogon provinces. For more information on this program, refer to the previous section, *"Assistance Provided by the GOP and Non-Governmental Organizations."*

A \$26,650 grant by OFDA supported a three-month housing rehabilitation program designed and



Families attempt to resume daily routines despite damage to their homes and other personal property.

implemented by ADRA. The funding covered the cost of construction materials, transportation, and overhead for ADRA officials. Although the ADRA proposal initially targeted 500 families, the program assisted 992 families, principally victims residing on five small islands off the coast of Luzon and two barangays in Division III. Building materials were purchased locally by ADRA officials. The Seventh Day Adventists' Southern Luzon Mission assisted ADRA relief officials in distributing OFDA-funded construction material free of charge. The Filipino beneficiaries provided the labor.

CARE received an OFDA grant of \$270,515 which was used to provide core housing for 2,727 families and seeds for 1,792 families in Albay Province. CARE targeted communities where more than 60% of the homes were destroyed. The program lasted four months. Additional local currency for the program was available due to the depreciation of the peso against the dollar during the implementation period and an unexpected savings in the procurement of commodities for the program.

On Dec. 4, A.I.D.'s FFP concurred with a CRS proposal to distribute CRS in-country stocks of P.L. 480 Title II food in Southern Tagalog and the Bicol administrative divisions. The food comprised 82 MT of NFDM and 218 MT CSM and was valued at \$161,480 (including ocean freight). FFP also agreed to the diversion of \$97,948 worth of in-country P.L. 480 Title II food from CARE's regular projects to an emergency relief program.

DOD personnel and their families stationed throughout the Philippine islands not only coordinated with USAID/Manila in distributing relief goods but held their own collections and dispersal of relief supplies. On Dec. 5, USAID and U.S. military authorities from Clark, Subic Bay, San Miguel, John Hay, and Capas U.S. military bases coordinated an airlift of 54.5 MT of relief supplies to Legaspi City aboard U.S. C-130s. Much of the donated goods, including medicine, food, and clothing, was collected by U.S. military personnel and their families stationed on the islands. Two Navy and Marine H-53 helicopters

ferried items from Legaspi to the remote areas of Pilar, Dansol, Kasiguran, Magallanes, and Juban in Sorsogon Province. U.S. service personnel voluntarily flew the aircraft and distributed relief items directly to the victims at each landing site. U.S. military and Philippine constabulary officials trucked some of the available relief goods from Legaspi to Sorsogon City. OFDA provided \$50,000 to cover fuel costs for the operations. By Dec. 23, military personnel and their families stationed in the Philippines had airlifted and distributed a total of 59 MT of rice, used clothing, medicine, and canned goods in Sorsogon and service personnel had assembled approximately 15,000 family-sized food packets.

A joint U.S. Navy-USAID distribution effort occurred on Jan. 20. U.S. personnel dispersed 21.8 MT of food, clothing, essential medicine, and books to the affected population in Camarines Sur Province; the goods were collected through volunteer donations from the Subic Bay elementary schools, naval stations in Japan and Okinawa, USS Jason personnel, and naval chaplains serving in the region. The goods were divided among approximately 3,000 families in the towns and cities of Naga, Iriga, Concepcion, Pasacao, Sangay, Balatan, and Minalabac.

DOD was particularly involved in the provision of medical relief. The Clark and Subic Bay medical civic action program (medcap) services were mobilized and by Jan. 4, medcap units were treating an average of 1,700 Filipinos per day. OFDA provided an additional grant of \$12,000 to DOD on Dec. 25 for gas and oil used by the medcap units. Clark AFB personnel also provided medicine and transport support in December and January for the GOP DOH which was treating the sick in five affected provinces. The U.S. Air Force flew small trucks filled with medicine into Legaspi. On Jan. 4, Ambassador Platt visited several provinces in the Bicol Peninsula which had been severely affected by typhoons Betty (mid-August) and Nina.

Summary of USG Assistance

Ambassador's authority channeled through the PNRC for the local purchase of relief supplies \$25,000

Support of DOD airlift of donated relief supplies \$50,000

Gas and oil for DOD medcaps \$12,000

Grant to ADRA/Philippines for an emergency shelter relief program \$26,650

Grant to PBSP for an emergency relief program \$500,000

Grant to CARE for emergency family shelter and livelihood rehabilitation program \$270,515

82 MT of NFD and 218 MT of CSM from CRS P.L.-480 Title II stocks diverted for emergency feeding program and ocean freight (FFP funds) \$161,480

P.L. 480 Title II stocks diverted from CARE's regular programs to CARE's emergency relief program (FFP funds) \$97,948

Total OFDA assistance \$884,165

Total FFP assistance \$259,428

TOTAL \$1,143,593

Assistance Provided by U.S. Voluntary Agencies

ADRA - implemented a housing rehabilitation program in Albay Province utilizing OFDA funding to purchase construction supplies, with assistance from the GOP agencies in identifying qualified recipients. ADRA contributed 2 full-time staff and in-country transportation costs. (See "Assistance Provided by the U.S. Government" for a detailed description.)

CARE - dispatched an assessment team to the Bicol on Dec. 10. Based on the team's recommendations, CARE implemented a housing and livelihood program through an OFDA grant. (Refer to "Assistance Provided by the U.S.

Government" for a description of the program.) CARE personnel also diverted in-country FFP P.L. 480 Title II food from regular feeding programs to Sorsogon residents. Five full-time CARE employees worked on emergency food distributions and the housing and livelihood program.

CRS - distributed 82 MT of NFD and 218 MT of CSM from P.L. 480 Title II stocks for distribution in Southern Tagalog Administrative Division on Dec. 4.

Assistance Provided by the International Community

International Organizations

EC - channeled \$434,082 through the Danish Red Cross and the PNRC for the local purchase of rice, canned food, clothing, blankets, and roofing materials and sent food, medicine, and a medical team, worth \$186,035, through MSF/Belgium.

International Labor Organization - dispatched a team to assess damage sustained by small handicraft workshops.

LRCS - the following national Red Cross chapters channeled contributions through the LRCS:

- Australia - \$3,448
- Canada - \$3,817
- Iceland - \$1,471
- Sweden - \$49,587
- Switzerland - 2,600,000 water purification tablets
- U.K. - \$17,615

UNICEF - provided \$100,000 to purchase medicine, tarpaulins, supplementary food, and 5-liter water containers; sent 2 assessment teams to Bicol Division on Dec. 3 and 7 (the teams delivered initial supplies of medicine to the area); and coordinated donor contributions.

Governments

Australia - channeled \$37,586 through UNICEF and \$41,379 through PBSP. The Australian Embassy designated the PBSP donation for northern Samar Province where Australia sponsors

bilateral development programs.

Belgium - provided \$60,000.

Canada - gave \$76,336 through the Canadian Red Cross.

Germany, Fed. Rep. - donated \$60,100 to the PNRC for food and clothing and gave a matching sum to West German NGO counterparts working in the affected areas.

Japan - contributed \$300,000.

New Zealand - donated \$62,500 through UNICEF.

Norway - provided \$100,770 through UNICEF for the purchase of food and medicine.

Sweden - channeled a grant through the LRCS (see "*International Organizations*").

Switzerland - gave water purification tablets through LRCS.

United Kingdom - purchased local medicine (primarily antibiotics and vitamin A) and channeled the donation through the GOP DOH for distribution in Bicol Division; goods were valued at \$18,018. The U.K. also provided a matching cash contribution to UNICEF, \$18,000 through NEDA, and a cash grant through LRCS.

Non-Governmental Organizations

Caritas/Germany, Fed. Rep. - gave \$60,606.

MSF/Belgium - dispatched a 5-member team which worked with the Philippine DOH for 120 days dispensing medicine, monitoring the outbreak of epidemics, and providing food to children and lactating and pregnant women in the affected areas. The program targeted 380,000 people for assistance.

TOTAL \$1,691,450



Common damage resulting from Typhoon Nina included blown-off roofs and broken windows.

Date

Jan. 11-12, 1988

Location

Northern Vanuatu, especially the Torres and Banks groups and the island of Espiritu Santo

No. Dead

0

No. Affected

About 3,100, of which 1,600 were homeless

Damage

Many dwellings with traditional thatched roofs were destroyed, and several larger structures sustained damage. Heavy crop losses occurred, and communications, power, and water systems were disrupted.

The Disaster

Cyclone Anne passed through the South Pacific the week of Jan. 10, traveling in a south- southeasterly direction. While causing minimal damage to outlying islands in the Solomons chain, the storm inflicted more extensive damage on Vanuatu and New Caledonia. The cyclone lashed Vanuatu's northern islands with torrential rains and 241 km./hour (130-knot) winds the night of Jan. 11 to 12. Hardest hit were the Torres and Banks groups and the island of Espiritu Santo.

Approximately 1,600 people were left homeless in Vanuatu's northern islands, while the houses of some 1,500 were damaged extensively. Because many people sought safety in caves, no deaths or serious injuries were reported. The storm knocked out communications and power sources and caused a further deterioration of the already inadequate water supply. The extensive damage to traditional crops was expected to create food shortages until the next harvest in three to four months.

Action Taken by the Government of Vanuatu (GOV)

The GOV's National Disaster Coordinating Committee (NDCC) quickly mobilized to survey the cyclone damage and determine relief requirements. With transport provided by a Royal Australian Air Force helicopter, an assessment team left the capital of Port Vila for the northern islands on Jan. 13. Based on the NDCC's preliminary survey, the GOV's Foreign Ministry issued a request to the United States, Australia, and New Zealand on Jan. 14 for urgently needed supplies, including tarpaulins, tents, water tanks, and blankets. The GOV sent tarpaulins to the northern islands from its own existing stocks or those recoverable from Cyclone Uma (1987) victims, but these were not sufficient to meet emergency needs. The NDCC worked with Australian and New Zealand personnel to distribute relief items.

On Jan. 18, the NDCC met with representatives of several donor countries and organizations to brief them on the current situation. With the emergency phase ending, the GOV turned its

attention to identifying longer-term needs for rehabilitation and reconstruction.

Assistance Provided by the U.S. Government

The staff at USAID/Regional Development Office/South Pacific (USAID/RDO/SP) in Suva, Fiji, monitored the storm's course through information supplied by the Fiji Meteorological Service (FMS). The FMS, which uses real-time data provided by the AID/OFDA-funded satellite storm tracking station in Nadi, also provided regular weather assessments to the GOV. When the U.S. Embassy in Port Moresby received the GOV's request for disaster assistance, USAID/RDO/SP offered to send the Mission Disaster Relief Officer, Jim Schill, to Vanuatu to assist with a damage assessment. Mr. Schill arrived in Vanuatu on Jan. 15 and accompanied a team of New Zealand disaster specialists in a survey of the remote islands affected by the storm.

On Jan. 18, the U.S. Ambassador in Port Moresby, Everett E. Bierman, declared that a disaster existed in Vanuatu as a result of the extensive damage caused by Cyclone Anne. As recommended by Mr. Schill, the Ambassador's \$25,000 disaster assistance fund was donated to the GOV for the purchase of food and hand tools and to defray transportation costs for distribution.

TOTAL	\$25,000
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Assistance Provided by U.S. Voluntary Agencies

None reported

Assistance Provided by the International Community

Australia - sent 2 C-130 flights with relief supplies to a staging area in the affected islands and provided a helicopter to deliver the items to remote locations. The supplies included tarpaulins, water containers, farming and construction tools, and rice. Personnel from the Australian High Commission worked with the NDCC to oversee

the distribution of supplies. The total value of Australian assistance was about \$352,600.

EC - provided \$121,000 for the local purchase of rice, canned meat, and fish.

New Zealand - provided a STOL aircraft to transport an assessment team to the affected islands and to ferry emergency supplies. Personnel from the New Zealand High Commission helped the GOV coordinate the relief effort.

UNDRO - offered up to \$50,000 for relief assistance.

United Kingdom - gave \$15,000.

TOTAL \$538,600

