

DISASTER  
RELIEF

CASE REPORT  
PAKISTAN-Floods  
August 1973

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to appear that way.*

Agency for International Development  
Washington, D.C. 20523



*More than 10 million acres of land in Punjab and Sind Provinces were inundated. Agricultural losses were estimated at \$661.5 million*

**Foreign Disaster Case Reports are publications of the Office of the Foreign Disaster Relief Coordinator, Agency for International Development. This office has responsibility for coordinating U.S. Government foreign disaster relief responses and for the further coordination of such activities with those of the U.S. private and international disaster relief communities.**

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## PAKISTAN

### Floods—August 1973

Severe floods of an unprecedented magnitude ravaged Pakistan's two most populous provinces, Punjab and Sind, in August and September 1973. Lives lost totalled 474 people, 4.8 million people in 9,717 villages suffered the loss or damage of 885,000 houses, nearly 54,000 animals were lost, and over 10 million acres of land including almost four million acres of cropped area were inundated. Damage to public works, industry, and educational and health facilities was also severe. The disaster caused a major setback to Pakistan's developing economy. World-wide assistance was provided by the following:

U.S. Government .....	\$41,682,080	
U.S. Voluntary Agencies .....	<del>1,157,610</del>	1185874
Other Governments .....	17,364,016	
League of Red Cross Societies .....	<del>4,977,376</del>	1949112
United Nations .....	4,019,437	
Private Groups and Organizations .....	271,411	
	<u>\$66,471,930</u>	

The occurrence of unusually heavy rains in the mountains of Kashmir and further to the east of Pakistan coinciding with torrential rains in the Punjab plains resulted in the overflow of the Indus, Jhelum, Chenab, Ravi, and Sutlej Rivers in Punjab Province and the Indus River in Sind Province. In Punjab Province the flood waters crested in mid-August, but the main flood waters did not pass through Sind Province until the first week in September. The intensity and volume of the water flow caused breaches in the flood protection bunds in several places. Since the breaches were not anticipated, the people in the stricken areas received little warning of the impending disaster. Where the breaches occurred, water overflowed into adjoining areas and inundated villages, towns and crop land. The most extensive damage occurred in Punjab Province in which 17 of 19 districts experienced the wrath of the floods. Those districts suffering the most damage in Punjab Province were Multan, Muzzaffargarh, Rahimyar Khan, Bahawalpur, and Sialkot. In Sind Province, eight of eleven districts were affected.

The total area inundated by the floods in the two provinces was an estimated 10.4 million acres. The cropped area adversely affected was nearly four million acres, of which 2.4 million acres were totally damaged and 1.6 million acres were partially damaged. Losses in the agricultural sector occurred in four areas: standing crops, stored foodgrains, livestock, and implements. Standing crops affected included cotton, rice, sugar cane, maize, fodder, and wheat. The heavy rains delayed the maturing of the undamaged portion of the rice crop and thereby increased the danger of rice stem borer infestation. Many small vegetable gardens were also ravaged. Losses to standing crops due to the floods were estimated at \$504,646,465. The loss of stored foodgrains, mainly wheat and seed, was estimated at 633,000 tons, valued at \$153,737,374. These losses occurred primarily in the stores of farmers and small traders, with negligible losses in Government stocks. An estimated 53,961 livestock were also lost during the floods, of which 23,800 were cows, bullocks and buffaloes, and the re-

mainder were goats and sheep. Livestock and implement losses were estimated at \$3,131,313. Total agricultural losses were estimated at \$661,515,152.

Houses either partially or totally damaged by the floods were estimated at 885,000. Helicopters provided by the Government of Pakistan (GOP) and the United States engaged in rescue operations and in the air-dropping of food, medical supplies and other essentials to the marooned population. Boats provided by the United States, Great Britain, and the Federal Republic of Germany were also used in the evacuation of stranded villagers and in supplying relief items. The homeless were sheltered in safe buildings such as schools and health centers or in relief camps established by the GOP. In these places, food was distributed from GOP stocks and medical care was provided.

A total of 7,726 educational institutions were affected by the floods. Damage to health facilities, however, was light, with only 95 reported to have been affected by the floods and only two totally destroyed. A large number of community buildings sustained extensive damage, particularly mosques, of which an estimated 30,000 were partially damaged or destroyed. Losses to industry, including loss of assets and output, were difficult to quantify but were thought to be quite severe.

The floods completely disrupted the nation's transportation network. Over 1,000 miles of roads were affected. The rail system was also seriously dislocated due to the washout of bridges and the sinking and erosion of railway roadbeds. The breakdown of transportation links between north and south resulted in an extreme shortage of certain essential materials, particularly petroleum products, in the northern provinces. These deficiencies had considerable impact on the nation's trade and production capabilities. Within the affected area, hundreds of villages were inaccessible and thousands

of people stranded. At the height of the flooding, only boats and helicopters could deliver food and emergency supplies to the victims. The limited availability of boats, however, seriously hampered rescue operations.

Telecommunications between major cities were also affected. The main line between north and south, linking the cities of Karachi, Lahore, and Islamabad, remained inoperative for about a month, until temporary repairs restored service.

Damage to infrastructure was very severe. About 25,000 of the area's tubewells were seriously damaged and required major repair or replacement. Six link canals, 10 barrages, and a number of irrigation systems in the two provinces were damaged, and serious breaches occurred in the flood protection bunds. Immediate priority was given to the repair of the canals to enable the resumption of irrigation water needed for the next planting season. Repairs to canal banks, barrages, and bunds would take longer to complete. A breakdown in power supply was confined to local areas which had been heavily flooded. In most cases the power supply was restored within a few days.

The most immediate needs of the victims were for food and medical care. Food commodities distributed by the GOP included wheat, dairy products, canned meat, canned fish, beans, edible oil, and sugar. The nation was deficit in all of these commodities except sugar and requested the assistance of other nations in meeting the food needs of the flood-affected population. Special health measures were undertaken in response to identified problems which included the threat of a malaria epidemic; the need for surveillance and special care for those suffering from enteric diseases, respiratory diseases, smallpox, and skin and eye infections; damaged water supply systems; and meeting the particular nutritional requirements of children, nursing mothers, and the sick.



*A helicopter being loaded aboard a U.S. Air Force C-141 in Korea to be flown to Pakistan for flood relief operations*

#### **ASSISTANCE PROVIDED BY THE GOVERNMENT OF PAKISTAN AND LOCAL ORGANIZATIONS**

The GOP responded quickly and energetically to the flood disaster. A disaster committee was established in the Cabinet under the direction of Prime Minister Zulfikar Ali Bhutto to coordinate and effect the receipt, allocation, and movement of relief supplies. A massive rescue and relief operation was launched immediately. Temporary shelters were established for the homeless and food, medical care, and other essentials were provided to the flood victims. At the height of the flood, more than one million people were involved in the relief effort. A Flood Relief Fund was also created by the Prime Minister to raise contributions and coordinate their use.

The Red Crescent channeled assistance provided by Red Cross Societies around the world.

#### **ASSISTANCE PROVIDED BY THE U.S. GOVERNMENT**

On August 15, 1973 the U.S. Chargé d'Affaires declared the flood a major emergency and exercised his disaster relief authority with the contribution of a check in the amount of one million Rupees (U.S.-owned local currency, equivalent to \$101,010) to the Prime Minister's Flood Relief Fund. A Mission Disaster Relief Committee was created to coordinate the assistance of all U.S. Government (USG) agencies in Pakistan. Other USG contributions included the provision of boats and helicopters for use in evacuation and the distribution of food and supplies; the airlift of pesticides from the United States; the spraying of rice fields to prevent stem borer infestation; the provision of transport planes to move petroleum products and other supplies from Karachi to isolated northern provinces; the deployment of teams of telecommunication technicians

and medical specialists to survey the damage and recommend solutions; and the furnishing of vegetable seeds, PL 480 commodities, and medical supplies. Grant and loan funds for medium and long-range rehabilitation assistance were also made available.

Boat operations were conducted by a U.S. Disaster Assistance Relief Team (DART) composed of 24 U.S. Army personnel from SAFASIA (Security Action Forces Asia) in Okinawa. Between August 23 and September 10 the DART evacuated 2,471 persons, delivered 173,700 lbs. of food and inoculated 3,713 persons.

Six UH-1 helicopters manned by 38 U.S. Army personnel were sent from the 52nd Aviation Detachment in Korea to conduct resupply, evacuation, spraying and maintenance operations. Between August 24 and September 23, the team delivered 188,000 lbs. of cargo, evacuated 171 people, com-

pleted six emergency evacuations, and transported 349 passengers. Spraying operations by helicopter began on September 9 and were completed on September 22. A total of 315,316 acres were sprayed in Punjab Province.

Additional spraying of the rice fields to prevent stem borer infestation was conducted between September 11 and 22 under the direction of a U.S. Department of Agriculture Forest Service (USDA FS) team headed by Ernest W. Amundsen of the USDA FS Equipment Development Center in Missoula, Montana (MEDC). Other team members, all of the MEDC, were Lynn Marsalis, Pest Control Planner; Anthony Jasumback, Mechanical Engineer; and John Cavill, Engineering Technician. Two U.S. Air Force (USAF) C-47 aircraft flown in from Thailand were used in these spraying operations. A total of 100,100 acres were sprayed in Sind Province. Total acreage sprayed through both operations was 415,416.



*Boat operations conducted by U.S. military personnel evacuated 2,471 flood victims*



*Four U.S. Air Force C-141 aircraft were equipped to transport POL supplies from Karachi to Islamabad and Lahore*

A USAF team using four C-141 aircraft also moved fuel, pesticides, cargo, and seeds from Karachi to Islamabad and Lahore. Between September 3 and 18, the team delivered 674,100 gals. of POL, 267,929 lbs. of pesticides, 182,800 lbs. of cargo, and 50,340 lbs. of seed.

A U.S. military team conducted an on-site survey from September 2 through 12 to assess the damage to the communications network. The team made recommendations on the provision of emergency equipment to restore communications between Karachi and Lahore.

The epidemiological team sponsored by the U.S. Agency for International Development (A.I.D.) visited hospitals and health centers in the affected area to obtain information on the incidence of typhoid and other diseases in the post-flood period. The first survey was conducted in accessible areas in Punjab Province between August 31 and September 4. The team was headed by Dr. Karl A. Western, an epidemiologist with the U.S. Public Health Service Center for Disease Control (CDC) in Atlanta, Georgia.

Other team members were Dr. Claude de Ville, WHO Epidemiology Fellow at the CDC, and Mr. Chaudhry U. Hayat, USAID/Islamabad. A second field visit was conducted in Punjab Province by Dr. de Ville between September 11 and 24. Concurrently, between September 19 and 24, another field visit was being conducted in flood-affected districts of Sind Province by Dr. Michael B. MacQuarrie of AID/CDC and Mr. Khwaja S. Ahmand, USAID/PH, Karachi.

Immediate medical problems identified were incidences of clinical malaria, diarrhea/dysentery, skin conditions, eye conditions, miscellaneous conditions such as headaches and nervousness, and anemia due to hookworm infection. Specific communicable disease problems noted were clinical malaria, diarrhea/dysentery, and clinical typhoid fever. Snake bites were also a major problem. No cases of either cholera or smallpox were confirmed, though probable cases of both were thought to exist. An intense vaccination effort was carried out by the GOP. The medical teams also stressed the need for safe sewage disposal and uncontaminated water supplies in the affected area to prevent gastrointestinal diseases. The problem of clinical malnutrition, particularly among children, was seen as the most serious long-term medical problem. Observations and recommendations were submitted to the GOP Ministry of Health.

A.I.D. provided by air 47,300 lbs. of vegetable seeds which arrived in Karachi on



*A medical specialist of a U.S. Disaster Assistance and Relief Team (DART) inoculates Pakistani flood victims in efforts to prevent cholera in flooded areas*

September 10 and in Islamabad on September 12. In Islamabad, they were packaged by volunteers from the American Women's Club and the International School. The packages were then air-shipped to villages in the affected area.

U.S. PL 480 commodities made available to the GOP included the diversion of 2,250,000 lbs. of wheat/soya blend (WSB) from UNICEF stocks, 60,000 metric tons of Title I wheat, and 40,000 metric tons of Title II wheat.

The USG also provided medical supplies at the request of the GOP.

**Summary of USG Assistance:**

One million USG-owned rupees donated to the Prime Minister's Relief Fund, equivalent .....	\$ 101,010 ✓
Medical supplies; procurement costs and transportation .....	328,492 ✓
CDC epidemiologists (2) .....	4,200 ✓
Vegetable seeds; purchase price and transportation .....	78,225 —
Communications team .....	4,784 —
Department of Defense (DOD)	
Helicopter operations (6 UH-1) .....	282,089 —
Boat operations (10 boats and crews) .....	232,320 —
Other DOD costs .....	2,120 —
In-country fuel airlift .....	801,840 —
Spraying operations; pesticides, transportation, and technical support .....	2,394,000 —

**U.S. PL 480 food commodities**

Diversion of 2,250,000 lbs. of wheat/soya blend (WSB) from UNICEF stocks; valued at .....	253,000 —
Title I, 60,000 metric tons of wheat .....	11,000,000 —
Title I, 40,000 metric tons vegetable oil .....	17,700,000 —
Title II, 40,000 metric tons of wheat .....	8,500,000 —

TOTAL \$41,682,080

**ASSISTANCE PROVIDED BY U.S. VOLUNTARY AGENCIES**

The following voluntary agency contributions were made to the relief effort:

Catholic Relief Services	\$ 41,048 ✓
Cooperative for American Relief Everywhere (C.A.R.E.)	1,041,603 ✓
Church World Service	9,000 ✓
Direct Relief Foundation	1,871 ✓
Seventh-Day Adventist Welfare Service	4,000 ✓
World Council of Churches	56,588 ✓
World Relief Commission N.A.E.	3,500 ✓
	<u>\$ 1,157,610</u>

China (People's Republic of)	1,063,830 ✓
Denmark	18,000 ✓
Finland	27,086 ✓
France	47,086 ✓
Germany (Democratic Republic)	396,004 ✓
Germany (Federal Republic of)	255,706** ✓
Great Britain	358,587** ✓
Holy See (Vatican)	80,000 ✓
Indonesia	4,926 ✓
Iran	326,599* ✓
Italy	108,517 ✓
Japan	3,838 ✓
Jordan	107,033 ✓
Kenya	33,202** ✓
Korea (Democratic People's Republic of)	10,386 ✓
Kuwait	1,379,310 ✓
Libya	1,015,658 ✓
Luxembourg	2,663 ✓
Malaysia	* ✓
Maldives (Republic of)	2,463 ✓
Mauritius	12,315 ✓
Netherlands	* ✓
New Zealand	135,282

**INTERNATIONAL COMMUNITY**

Value of contributions and cash donations were as follows:

**ASSISTANCE FROM OTHER GOVERNMENTS**

COUNTRY	VALUE
Argentina	* ✓
Australia	* ✓
Bulgaria	\$ 42,424 ✓
Canada	3,001,010 ✓

\* Value of assistance not reported.

\*\* Incomplete value of assistance reported.

Norway	44,723 ✓
Poland	25,000** ✓
Qatar	500,000 ✓
Rumania	20,202 ✓
Saudi Arabia	2,338,221 ✓
Singapore	* ✓
Somalia	2,525 ✓
Sudan	1,313 ✓
Sweden	1,189,213 ✓
Switzerland	109,998 ✓
Syria	* ✓
Thailand	505** ✓
Turkey	4,495** ✓
United Arab Emirates	4,505,051 ✓
U.S.S.R.	140,845 ✓
Yugoslavia	50,000 ✓

TOTAL \$17,364,016

#### LEAGUE OF RED CROSS SOCIETIES

The value of cash and in-kind donations received from National Societies, governments, private groups and organizations:

COUNTRY	VALUE
Afghanistan	\$ 45,703 ✓
Algeria	30,287 ✓
Australia	18,414 ✓
Austria	1,387 ✓
Bahrain	331 ✓
Belgium	56,413 ✓
Canada	133,784 ✓
Denmark	104,318 ✓
Egypt	5,983 ✓
Finland	46,569 ✓
France	16,517 ✓
Germany (Democratic Republic)	458,637 ✓
Germany (Federal Republic of)	101,939 ✓
Great Britain	37,693 ✓
Greece	2,494 ✓
Iceland	993 ✓
Iran	97,512 ✓
Ireland	4,818 ✓
Japan	373,097 ✓
Kuwait	2,978 ✓
Lebanon	99 ✓
Liechtenstein	758 ✓
Netherlands	25,920 ✓
New Zealand	6,760 ✓

Norway	12,593 ✓
Rumania	54,798 ✓
Singapore	886 ✓
South Africa	1,768 ✓
Sweden	99,692 ✓
Switzerland	21,029 ✓
Turkey	44,176 ✓
United States	28,264 ✓
U.S.S.R.	137,988 ✓
Vietnam (Republic of South)	991 ✓
Yugoslavia	1,787 ✓

TOTAL \$ 4,977,376

#### UNITED NATIONS SYSTEM

United Nations Disaster Relief Office	\$ 32,000 ✓
United Nations Development Program	1,000,000 ✓
World Food Program/FAO	1,686,000 ✓
U.N.I.C.E.F.	680,420 ✓
World Health Organization	120,000 ✓
UN Pakistan Displaced Persons Fund	500,000 ✓
UN Staff—Islamabad	1,017 ✓

TOTAL \$4,019,437

#### PRIVATE GROUPS AND ORGANIZATIONS

Caritas/Germany	\$ 28,571 ✓
Caritas/Italy	136,772 ✓
Caritas/Switzerland	16,502 ✓
Christian Aid (U.K.)	3,685 ✓
Diakonische Werk (Germany)	25,510 ✓
Help the Aged (U.K.)	14,742** ✓
Lutheran World Federation	* ✓
OXFAM (U.K.)	26,781** ✓
Salvation Army (U.K.)	12,285** ✓
Save the Children Fund (U.K.)	2,211** ✓
War on Want (U.K.)	2,475 ✓
Sub Total	\$ 269,534 ✓
Diplomatic Corps	1,010 ✓
Pakistani Employees of U.S. Government Agencies	867 ✓
TOTAL	\$ 271,411

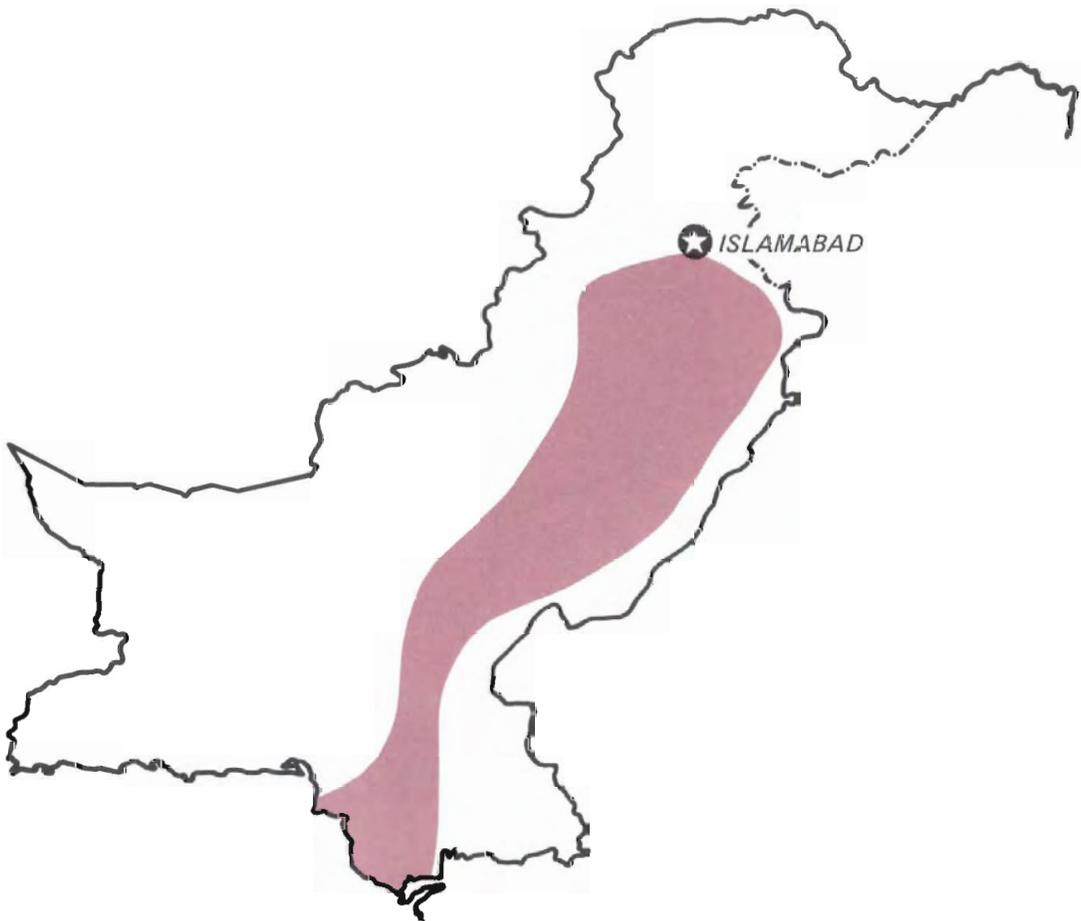
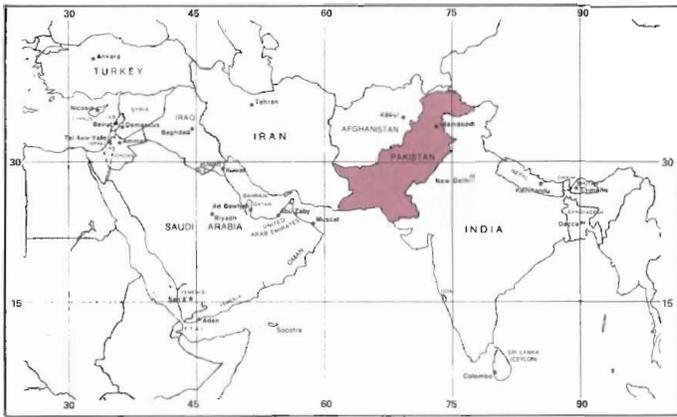
\* Value of assistance not reported.  
\*\* Incomplete value of assistance reported.



*A Pakistani family waits for bags of food to be dropped to their flood-isolated home from a U.S. Army helicopter*



*A U.S. helicopter spraying insecticides on a rice field to minimize the damage of stem borers to the maturing rice crop*



**PAKISTAN**