

PAKISTAN FLOODS, 2010 – CAUSES, IMPACTS AND AID

In August 2010 Pakistan experienced devastating river floods that were the worst within living memory. The previous flood event that came close to their severity was in 1929, and water levels in the River Indus, which runs the length of the country, were said to be the highest in 110 years. The humanitarian disaster which unfolded in the wake of the flooding directly affected one-ninth of Pakistan's population of 190 million. Relief efforts by the Pakistani government were widely criticised, and the international aid response has also proved inadequate. Recovery is expected to take several years and the lives of millions of people, mostly poor peasant farmers and their families, have been changed for ever.

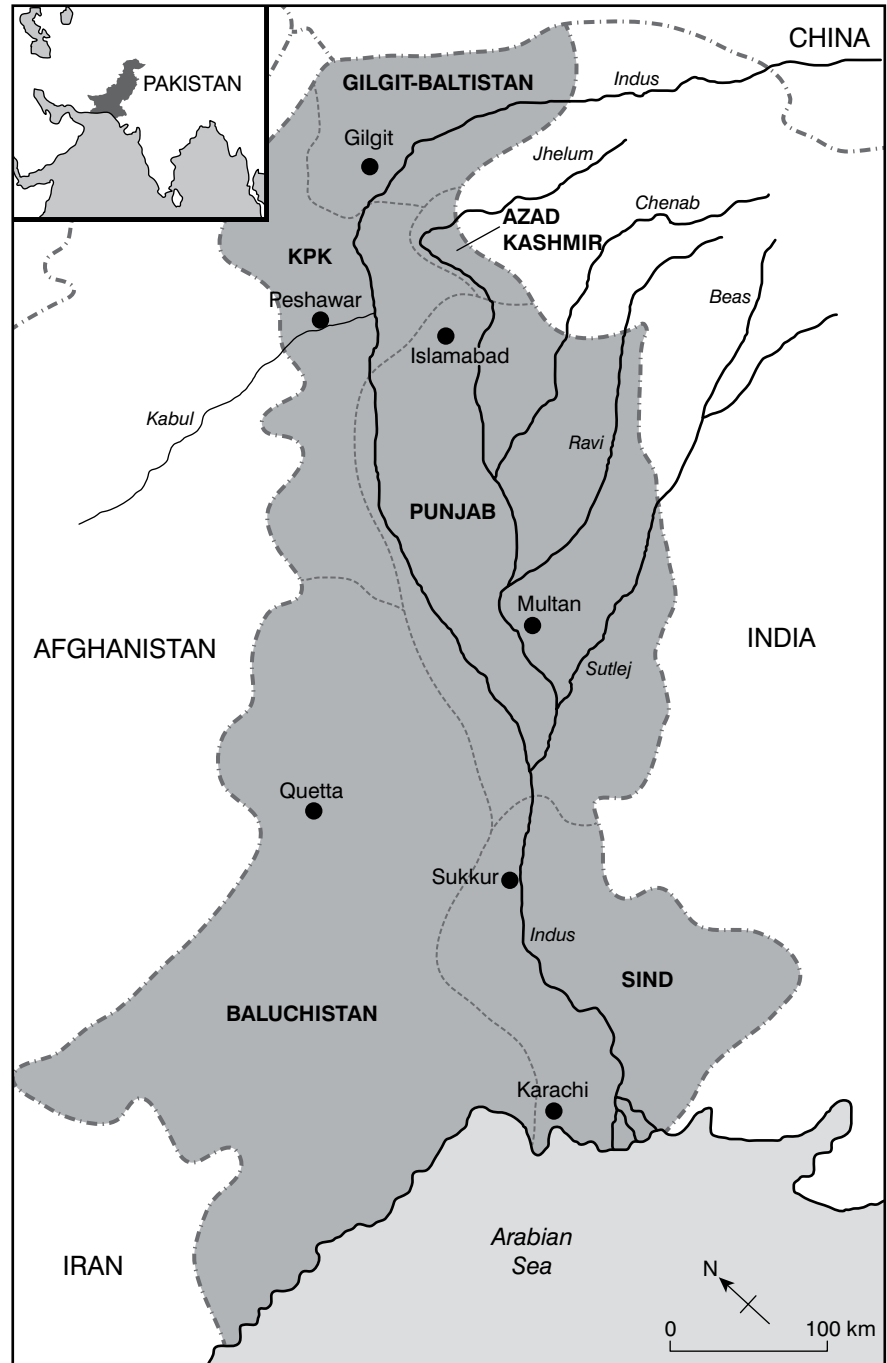
Geographical background

With a land area of almost 800,000 sq km, Pakistan is a large country, over three times the size of the United Kingdom (Figure 1). Its population density is high, at 200 per sq km. Located in the north west of the Indian subcontinent, it has very varied relief, ranging from precipitous mountain chains bordering Afghanistan and the disputed frontier of Kashmir, to the low-lying plains of the Punjab and Sind that adjoin India in the south and east. These are part of the great Indus valley, holding the river that rises in Tibet and flows nearly 3,000 km to the Arabian Sea through the middle of Pakistan.

In 1960 the use of the River Indus, and its five tributaries, was divided between India (Rivers Ravi, Beas, Sutlej) and Pakistan (Rivers Indus, Jhelum, Chenab). These waters are an invaluable source of agricultural irrigation and power generation, derived from large barrages built across the main channel of the Indus.

Pakistan's climate is dominated by the seasonal reversal of winds known as the monsoon (Figure 2). This produces a rainy season, covering most of the country from late June to early October, when there are

Figure 1: Pakistan



hot, wet and oppressively humid conditions. Only the desert areas of the south east and the mountainous north do not experience the heavy monsoon rainfall. Between October and February is the cool season, when the weather is warm, pleasant and sunny by day, though conditions in the mountains are distinctly cold and wintry. From March onwards the temperatures gradually

increase to a peak in June, before the monsoon breaks.

Causes of the flooding

At the end of July 2010 the north west province of Khyber Pakhtunkhwa (KPK) (Figure 3) was hit by a five-day period of exceptional precipitation, including 60 hours of continuous rainfall,

Figure 2: Climate graph for Islamabad, NE Pakistan

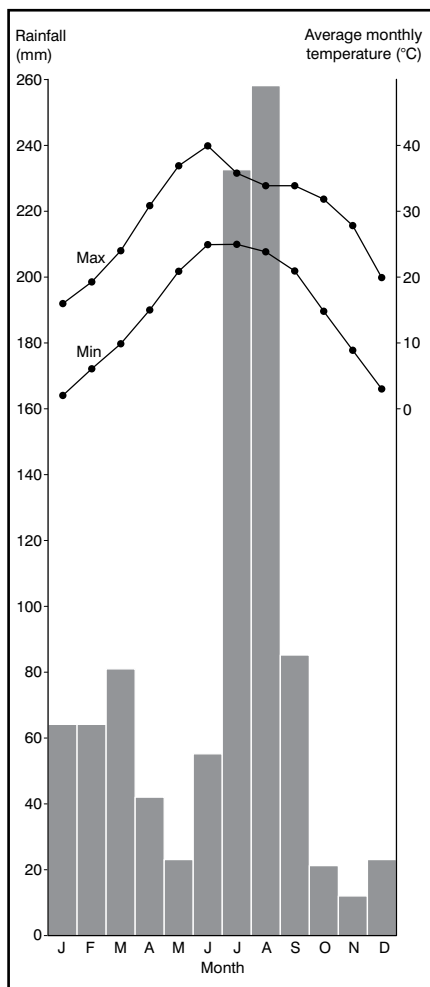
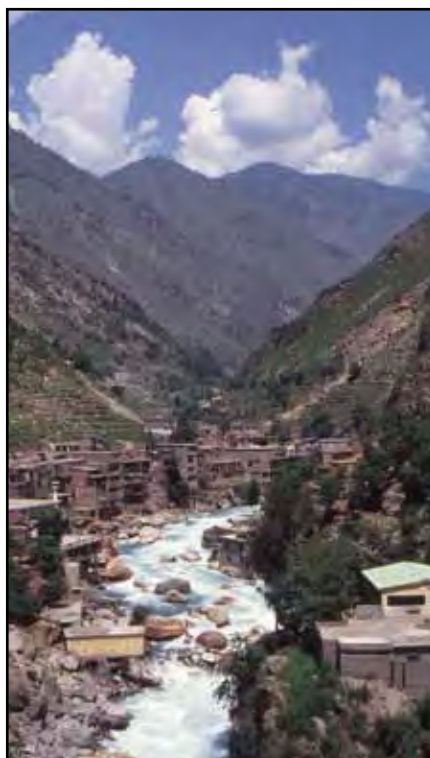


Figure 3: A village in KPK



Source: Michael Morrish

which exceeded the usual total for the three months of the monsoon season in this region by 30%. The National Weather Forecasting Centre in Islamabad described these as ‘once in a century’ levels of rainfall. A highly destructive ‘tsunami-like’ wave of water tore through the mountain valleys that feed into the main channel of the Indus, creating floods that travelled southwards to affect the entire river course in the centre of Pakistan. This represents the most densely populated rural region of the country. It took about a week for the flood waters to pass down the Indus between the Swat valley in KPK, and Sukkur in the southern province of Sind, a distance of 1000 km. Sukkur is particularly vulnerable because it lies downstream of the convergence of the five major eastern tributaries with the Indus.

After this initial flood surge, the monsoon rains continued as normal to add to the river’s discharge. More heavy storms in the north west and the far north east province of Gilgit-Baltistan (Figure 4) produced at least two further waves of flooding in mid-August that prolonged the inundation of affected areas and covered some previously untouched districts. At the gates of the one mile wide Sukkur barrage, river flow peaked at 32,000 cubic metres per second, falling back to 26,000 cumecs, before the later flood surges lifted it above 28,000 cumecs again later in the month.

The effects of the flood waters were increased by several other factors:

- The Swat valley in KPK had suffered widespread deforestation while under the control of the Taliban, before they were driven out by a Pakistan army offensive in 2009. The Taliban collaborated

with timber smugglers to strip trees from the steep hillsides, leaving an unobstructed path for the torrential rains to flow straight into the river.

- In Sind the construction of levées (embankments) had raised the river channel above the surrounding plains, leaving them exposed to extensive flooding in the event of the levée being breached or overtopped.
- Repairs to the river banks and protective dykes were prevented by the heavy monsoon rains and successive waves of flooding.
- In a normal year the monsoon anticyclone high over the Himalayas and Pakistan pushes the subtropical jet stream to the north of the Tibetan plateau, preventing active weather systems from penetrating very far south. A rare meteorological pattern in the summer of 2010 allowed storms to spread into Pakistan, combining with the monsoon to produce record rainfall.
- Climate change has led to a rise in the occurrence of extremely warm temperatures globally, and an increased number of heavy rainfall events in many regions.

Flood impacts

1. Environmental

Altogether, one-fifth of Pakistan was submerged by the floods, representing an area roughly the size of England (Figure 5). In parts of lowland Sind province the Indus was 24 km across, 25 times its normal width. Vast stretches of countryside became swamps or resembled an inland sea. More than 11,000 villages were inundated and 1.2 million houses were damaged or destroyed. An estimated 7 million ha of the most fertile arable land was obliterated.

Figure 4: The confluence of the Indus and Gilgit rivers



Source: Michael Morrish

In the province of Punjab, Pakistan's breadbasket, the flooding of crops and loss of grain stores caused shortages which led to the doubling or tripling of food prices. By the end of August the cost to agriculture was put at £1.5 billion. To relieve the pressure of floodwaters on major dams and barrages, dykes were deliberately breached, to release water onto surrounding farmland. When floods spread into the Jaffarabad district of Baluchistan it was alleged that they had been deliberately diverted by the Sind authorities. The ancient ruins of the city of Mohenjo-Daro, dating back to 2500 BC, were at risk. Throughout Pakistan, bridges and roads were washed away, including significant damage to the Karakoram Highway, built by the Chinese over 20 years, which links the capital Islamabad and the northern provinces with the far west of China.

2. Human

In the short term, the number of deaths attributed to the flooding remained surprisingly low, at 1600, with most fatalities being recorded in the early stages. The majority of these were caused by violent walls of water which ravaged the mountain valleys of Khyber Pakhtunkhwa, sweeping people away as their remote villages were overwhelmed.

However, the overall number of people affected by the floods made this a disaster on a scale unmatched in recent years (Figure 6). The UN estimated there were 4 million flood victims in the first week of August (one-third of the Pakistan government figure), then issued a revised total of 6 million just two days later. By mid-August the UN reported 14 million people affected, more than the combined number of victims for the 2004 Indian Ocean tsunami plus the 2005 Pakistan and 2010 Haiti earthquakes. Of these 14 million, 6 million were children and 3 million women of child-bearing age. Government estimates were higher, with a figure of 20 million being quoted at the same time. Nationally, 6 million were thought to be at risk from starvation if food aid failed to get through. The first cases of cholera were confirmed in the Swat valley in KPK, where 600,000 people had been cut off during the initial flooding.

Figure 5: Flood-affected areas



Most flood victims were poor, rural peasants whose limited assets consisted of their houses, farmland and animals. In many cases the floodwaters destroyed all three, leaving people destitute and homeless refugees. After the first week, 300,000 refugees had gathered in the city of Sukkur in Sind province. Once the 20 relief camps were full, people were sleeping by the roadside, under bridges, on a new by-pass and in the railway station. Conditions were hot and humid, encouraging swarms of mosquitoes which plagued the refugees, who had no reliable supplies of food or water. Other victims on the plains of Sind were marooned when their villages were isolated by the floods. Though built on slightly higher land, the villages were still waist deep in water, so people took refuge on raised embankments, with no food or shelter from the sun. Some farmers refused to be rescued unless they could take their animals with them, which represented their only surviving source of income.

Aid issues

1. Pakistani aid efforts

There was widespread criticism of the Pakistan government's response to the flood crisis, both at home and from the international community. Many flood victims felt abandoned and angry at the lack of help during the emergency and the meagre level of official assistance in its aftermath. A week into the flooding, Pakistan's Prime Minister, Yousaf Raza Galani, publicly admitted that the government simply could not cope. It was left to the country's armed forces to make the most effective rescue efforts, and the army's rapid, energetic reaction enhanced its national standing. As soon as the floodwaters struck in the north west there was an immediate military airlift of people stranded on rooftops. In the Punjab the army used boats and helicopters to save 30,000 people in the space of 72 hours.

Although storms subsequently grounded the helicopters, 30,000 soldiers were involved in relief efforts: delivering food, rebuilding bridges and setting up camps for refugees. By the end of the first week the army had rescued 100,000 people in total.

Figure 6: Flood impacts and aid provided, by province

Province	Estimated number affected (millions)	Homes damaged or destroyed	Tents provided (thousands)	Food aid provided (thousand tonnes)
Punjab	5.33	483,000	92.4	27.9
KPK	5.30	259,000	116.6	32.6
Sind	2.74	296,000	55.1	25.7
Baluchistan	0.60	73,000	17.5	4.5
Gilgit-Baltistan	0.08	3,000	5.3	1.9
Azad Kashmir	0.05	7,000	4.3	2.1

Source: *The Guardian* 2 October 2010; data sources: WFP, Reliefweb, IORO, BBC, OCHA

In contrast, government action was seen as slow, uncoordinated and ineffective. This reflected a number of influences:

- President Asif Ali Zardari was condemned for making a trip to Europe shortly after the floods broke and failing to take the initiative in leading relief operations.
- On his return, President Zardari failed to declare a national state of emergency, though some provinces did so independently.
- After a week of flooding the government had still failed to provide any emergency supplies: no food, water, tents, blankets or medicines. It was also late in setting up camps to house refugees.
- Funds for aid were short: a mere 5% of Pakistanis pay tax. The Pakistan relief fund only raised £900,000 within the country and there were accusations that the government was pocketing aid money.
- Hundreds of thousands of military personnel were involved in fighting the Taliban in north west Pakistan and could not be diverted to help with flood relief.

2. International aid

The international response to Pakistan's flood emergency was regarded as unexpectedly sluggish and ungenerous. Ten days after the crisis began, the United Nations launched an appeal for \$460 million (£295m) to cover the first three months' requirements: at that stage the total amount of aid committed and pledged was US\$158 million. Only five donor countries – the UK, USA, Australia, Italy and Kuwait – had given more than \$5 million. It is instructive to

compare the sum received for the Pakistan floods with the amounts committed and pledged after 10 days for other recent natural disasters. The 2005 Kashmir earthquake appeal had raised almost twice as much, while donations following the 2010 Haiti earthquake were over ten times more generous. If the sums are related to the number of people affected, this equates to \$4 per person for the Pakistan floods compared with \$495 per person in Haiti.

By mid-August the World Bank was estimating that \$1.7 billion would be needed to meet reconstruction costs. Fortunately this coincided with a rise in donations, including the first contributions, albeit modest, from India and China. The World Bank announced that it was making \$900 million immediately available for emergency aid, and the following day Saudi Arabia became the biggest donor with a pledge of \$105 million, though mainly in relief goods. There were also significant pledges from the European Union and USA (€0 million euros and \$76 million respectively). In the UK, the Disasters Emergency Committee, which coordinates fundraising for 13 major

charities, had raised £12 million. A fortnight into the crisis the United Nations appeal was half-way to its target and the total amount pledged, including the UN and NGOs (non-governmental organisations), had reached \$465 million. This sum had doubled by the end of August.

However, it was proving extremely difficult to translate the surge in funding into the delivery of aid on the ground. The UNHCR (United Nations High Commission for Refugees), one of the main relief agencies, spoke of being 'tested to its limits'. It cited a range of problems:

- blocked access routes
- collapsed bridges
- lack of dry land to erect tents
- lack of clean water supplies
- lack of sanitation
- shortage of relief supplies
- difficult security conditions

Unfortunately, by the end of August, media coverage of the disaster had largely faded away and the rate of donations slowed dramatically. At the end of 2010 the UN flood appeal was still only half-funded. Various theories have been put forward to explain the poor humanitarian effort on the part of the world community. It has been suggested that, unlike the sudden catastrophe of an earthquake, tsunami or hurricane, the scale of this unprecedented flooding emerged only slowly and therefore lacked an immediate impact. The familiar concept of 'donor fatigue' has been quoted, while an additional element, particular to Pakistan, of 'image deficit' may also have been at work. This phrase implies that there was a shortage of sympathy for the Pakistani victims and a distrust of the country's government, in that aid might not be correctly allocated to those in most need.

FOCUS QUESTIONS

1. Given the many millions of people directly affected by the flooding in Pakistan, what factors could account for the very low death toll?
2. In what ways have the lives of Pakistan's flood survivors been blighted, in both the short term and the long term?
3. Discuss what the priorities for reconstruction and redevelopment should be in the flood-affected areas of Pakistan.
4. Compare the impacts of the Pakistan floods with those of another recent natural disaster you have studied, and explain the similarities and differences.