



Pakistan 2010 floods. Policy gaps in disaster preparedness and response



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ARTICLE INFO

Article history:

Received 8 February 2015

Received in revised form

8 March 2015

Accepted 9 March 2015

Available online 11 March 2015

Keywords:

Floods

Policy gaps

Disaster preparedness

Pakistan

Disaster prevention

Poverty traps

Livelihoods

ABSTRACT

The 2010 floods have caused widespread devastation of farmland, livestock, infrastructure, businesses, homes, and impacted 18 million people. The majority of these people were already living in abject poverty; some illegally residing in the floodplains of the river Indus. During the floods, households were stripped of their entire means of livelihood and their dignity. The government and the international community provided short-term relief responses and interventions to restore livelihoods. Based on interviews conducted with key Punjab government officials and lessons drawn from experiences of flood prevention, disaster recovery and rehabilitation, policy responses for recovery and reconstruction have been recommended that can be translated into long-term sustainable development goals. This study reveals several institutional gaps and regulatory weaknesses that prevail in disaster preparedness and response. In order to reduce vulnerability to extreme climate shocks, the government needs to enact legislation that regulates floodplains, introduce productivity enhancing safety nets, seed systems interventions, public works programs for creating employment opportunities, cash transfers, livestock protection, institutional reforms and adopt effective flood prevention policies. More important, the government needs to make disaster response and preparedness a national priority.

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1. Introduction

Since 1973 Pakistan has had seven major flood disasters affecting approximately 40 million people in total, a drought in 1999 affecting 3 million people and major earthquakes in 2005 and 2008 affecting 7 million people [1]. The government of Punjab referred to the 2010 floods as a 'super flood' [2]. The flood followed the annual monsoon season, in Pakistan, reaching floods levels that were unprecedented in the known history of the Indus river system. Out of a total of 141 districts, 78 districts (approximately 160,000 km² of land) were inundated. Severe flooding in Khyber-Paktunkhwa (KPK), Punjab, and Sindh provinces resulted in the deaths of 2000 people, while 1.8 million homes were either damaged or destroyed. Out of a total population of 168 million, nearly 18 million people were adversely impacted, displaced, or impoverished [3]. In Punjab alone, 200 villages, 500,000 homes, and 1.7 million acres of farmland were damaged and billions of dollars worth of crops and livestock were destroyed [4].

A nation-wide Damage Needs Assessment (DNA) recorded an estimated \$9.7 billion worth of damages to infrastructure, farms and homes, which included reconstruction costs for transport, communication, energy, health, water, sanitation, irrigation, social

protection, and public administration services [5]. According to the DNA, the agriculture and livestock sectors were impacted the most, followed by complete or partial damage to a large number of houses. Flash floods in the hilly regions of provinces, Azad Jammu and Kashmir/Gilgit Baltistan, Khyber Pakhtunkhwa and Baluchistan swept away people, houses, crops, livestock and stores of feed, food, and seed. Roads and irrigation facilities were also seriously damaged, especially in southern Sindh province [6].

In Pakistan vulnerable households/groups have been identified as people who are concentrated in rural areas, engaged in the agricultural sector, have low skills, limited access to education, adequate food, health services, and water and sanitation [7]. These people are also the most vulnerable to ill-health, economic dislocation and natural disasters, which invariably exacerbate material poverty [8]. Vulnerability is therefore defined as a person or group's 'capacity to anticipate, cope with, resist, and recover from the impact of a natural hazard' [9]. The 2010 super floods impacted these groups the most. Their homes, their agricultural fields, infrastructure, medical facilities, and schools have either been destroyed or severely damaged. Consequently, there will be a negative impact on Pakistan's Human Development Index, which is comprised of indicators such as access to education, health, and public services.

HDI and GDP indicators are also determinants of the government's capacity to respond to a natural disaster. Pakistan's GDP in

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2008 was estimated at US \$164 billion. According to the Human Development Report in 2009 [10], Pakistan's HDI was 0.572, ranking Pakistan at 141 out of 182 countries covered in the HDI. Pakistan's GDP per capita is \$955 giving Pakistan a rank of 132nd. The Human Poverty Index value of 33.4 percent for Pakistan, ranks 101st among 135 countries [10].¹ Judging from these statistics it is evident that the government was weak and ill-equipped to prevent such a disaster, or provide the necessary relief and rehabilitation.

This paper will first give an overview of how the 2010 floods impacted vulnerable households and undermined informal coping strategies. Second, based on interviews with Punjab government officials, an analysis of the Punjab government's capacity, disaster preparedness, and relief coordination will be given. Third, policy recommendations will be made regarding policy gaps, institutional reform and capacity building. Data for this paper has been collected through primary sources, such as interviews with key government officials and development specialists, and secondary sources such as official government websites, donor websites, reports, and news articles.

2. Research methodology

This study derives information from two sources. Primary fieldwork, interviews with key government officials. Secondary research involved a review and analysis of the existing literature on floods, poverty traps, and disaster relief, response and rehabilitation. Government documents and donor organization's annual reports and updates, newspaper articles, and other grey literature was utilized to get descriptive accounts of disaster affected persons, disaster response by NGOs and other philanthropic organization in Pakistan.

The primary research involved three interviews with key informants in the government and NGO sector, who were involved in the disaster response in the provinces Punjab and Sindh. The author conducted the personal interviews in November 2011.

3. Increased vulnerability following the 2010 floods

The poorest households are the most affected by natural disasters [11], such as floods. Impacts of floods include loss of life, homes, possessions, livestock, and livelihoods, and an increased vulnerability to water-borne diseases [12]. Floods undermine agricultural systems by contaminating water bodies, destroying irrigation systems and other infrastructure, causing loss of harvest or livestock, and increasing susceptibility to human and livestock diseases. The impacts of floods on agricultural systems result in losses in farm yields, national harvest, and national food security [13]. Households, which rely solely on these production systems, are more likely to fall into poverty traps, defined as 'a critical minimum asset threshold' [14], below which families are unable to establish a sustainable livelihood [11,14–17]. Results from a cluster survey [18] six months after the flood revealed that majority of the households affected by the floods reported that their homes had been damaged beyond repair, and that they had spent at least two or more weeks in an internally displaced persons camp. An overwhelming majority (77%) reported health related problems following the flood. In addition, 55% of the rural households reported that their livelihoods and income had not recovered.

¹ The Human Poverty Index (HPI-1) focuses on the proportion of people below a certain threshold level in each of the dimensions of the human development index—living a long and healthy life, having access to education, and a decent standard of living. The HPI-1 represents a multi-dimensional alternative to the \$1.25 a day (PPP US\$) poverty measure.

Natural disasters therefore, increase household vulnerability to poverty when traditional coping mechanisms, which rely on assistance from friends and family within the community, are overstretched and prove to be ineffective [19–21]. A study by Heltberg and Lund [21] looked at shocks, coping mechanisms, outcomes, and safety nets in Pakistan. It concluded that even though households experience a high incidence of shocks, they often lack effective coping options. Presently, private and public social safety nets (*Zakat* and *Bait-ul-Mal*) are ineffective and insufficient. Households rely mostly on informal coping mechanisms, which include use of informal credit and self-insurance, by increasing labor supply, and through assistance from friends and relatives.

However, informal coping mechanisms are ineffective and have adverse effects on human capital in the short and long run. For example, a household's inadequate nutritional resources following a natural disaster increases susceptibility to infectious diseases. This disease-driven poverty trap reduces household member's capacity to work, and early childhood malnutrition has long-term impacts on children's health and performance in school [22–24]. Most households, therefore, do not recover from resulting poverty traps [25].

The Multi-cluster Rapid Assessment Mechanism (McRAM) assessment revealed that 57 percent of the households surveyed had lost 75 through 100 percent of their main sources of income.² Agriculture was the main source of livelihood for 80 percent of the flood-affected households [26,27]. The floods damaged 1.3 million hectares of standing crops such as rice, maize, cotton, sugar cane, orchards and vegetables. Furthermore, approximately 1.2 million large and small animals, and six million poultry had perished [27].

For farmers and agricultural dependents, livestock is a critical juncture in poverty alleviation, acting as an important income source [28,29]. Animal husbandry systems in developing countries contribute significantly to their GNP and cultural heritage [30]. According to the Pakistan Livestock Census, livestock has emerged as an important sub-sector of the agricultural sector, accounting for 11 percent of the GDP during 2005–06, more than the 10.3 percent contributed by the aggregated crop sector [31]. Small-holder management systems, representing about 30–35 million rural households, derive 30–40 percent of their incomes from livestock production. These households do not consider themselves poor [25] for livestock is widely used as a livelihood strategy [29].³ Rural households keep livestock for producing food, generating income, providing manure, producing power, serving as financial instruments and enhancing social prestige [29]. Their buffalo, goats, and chickens are sufficient for an entire 'vulnerable but presently non-poor household' [32] to generate income by selling buffalo milk. However, livestock losses occurring during covariate shocks undermine coping strategies. Livestock mortality risk increases due to underdeveloped livestock marketing systems,

² The MCRAM is a post-emergency assessment tool that provides timely feedback on emergency situations through participating and support providing agencies. A preliminary assessment of the humanitarian situation of the impact on the livelihoods of people living in the flood-affected areas was conducted using the MCRAM. The various agencies involved in MCRAM: World Health Organization, World Food Program, FAO, United Nations Population Fund, Institute of Medicine, International Labor Organization, United Nations High Commissioner for Refugee, United Nations Educational, Scientific and Cultural Organization, United Nations Children's Fund, OCHA, the Pakistan Humanitarian Forum, International Committee of the Red Cross, United Nations Department of Safety and Security, United Nations Development Program and the Royal Charity Organization.

³ The International Livestock Research Institute (ILRI) has identified three main livelihood strategies, (1) securing household asset base by creating a buffer for risks associated with other income generating strategies (2) specialization and intensification can increase the productivity of livestock in turn increasing household incomes (3) improving access to market opportunities that increase livestock productivity and incentivize increased production and sales.

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