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Community Satisfaction from Government-Led Emergency Response and Recovery to Pakistan Climate Catastrophe of Flood 2022 in Khyber Pakhtunkhwa

Abstract

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Keywords: Flood, Disaster, Emergency Management, Community Satisfaction, Response, Disaster Risk Reduction

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Title

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Abstract

Khyber Pakhtunkhwa's vulnerability to climate-related disasters was tragically highlighted by the 2022 floods, affecting millions. This study aims to investigate community satisfaction with government-led emergency response and recovery efforts in Khyber Pakhtunkhwa Province. A mixed-method approach was employed, combining surveys and In-depth Interviews. Despite government claims, the results of this study show significant gaps in government support, specifically in early warning communication, protective evacuation, damages compensation, and lack of inclusiveness in service delivery to the affected population. Financial constraints, political instability, and limited technical capacity to design and implement robust recovery plans hindered effective response. The study highlights the need for enhanced disaster management strategies, community-centered emergency response, and improved government accountability. Findings inform policy reforms and provide valuable insights for disaster risk reduction and climate resilience initiatives in Khyber Pakhtunkhwa, Pakistan.

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Contents

Introduction

Pakistan is located in South Asia and is listed as a low-income country (Sayed & González, 2014). Pakistan's 796,096 km² territory is a blend of diverse geography including plains, high-altitude mountains, deserts, forests, coastlines, and plateaus between the Karakoram Range and the Arabian Sea.

Geographically, it overlaps the Eurasian and Indian tectonic plates (Chaudhry, 2017 Ullah et al., 2018). This topographical diversity is a mixed blessing, providing opportunities while simultaneously increasing susceptibility to various natural disasters. Disasters affecting Pakistan contain floods (Shah et al., 2020), droughts (Ullah et al., 2021), earthquakes (Ali

et al., 2022), glacial lake outburst floods (Qureshi et al., 2021), cyclones (Hussain et al., 2023), landslides (Su et al., 2022 & Gardezi et al., 2021), and forest fires (Tariq et al., 2021), etc. Pakistan has experienced several devastating disasters, including the 2022 floods affecting 33 million people (Nanditha et al., 2023), the 2010 floods impacting 20 million people (Atta Rahman & Khan, 2013), and the 2005 earthquake resulted in over 73,000 deaths (Pande, 2005). Within Pakistan, the Khyber Pakhtunkhwa (KP) a province with a 40.85 million population faces a distressing array of natural and human-induced disasters, compounded by a protracted complex emergency (Government of Pakistan, 2023). The province's disaster risk management capabilities are inadequate, lacking a cutting-edge framework to reduce vulnerability and enhance preparedness (Jan & Muhammad, 2020). Recently in 2022, KP experienced severe flooding upstream of the Swat River, downstream of the Kabul River (Nowshera and Charsadda), and Indus at Dera Ismail Khan (FFC, 2023). The floods caused widespread destruction, resulting in 311 deaths, 381 major injuries, and displacing 674,318 people. The disaster damaged 91,468 houses, destroyed 107,220 acres of crops, and killed 39,000 livestock. Essential services, including healthcare, water, and sanitation, were on the brink of collapse, increasing the risk of waterborne diseases (Government of Khyber Pakhtunkhwa, 2022b). Figure 01 provides details of sector-wise damages of flood 2022 in the Khyber Pakhtunkhwa province. To reduce the risk of disasters, enhance capacities, and minimize suffering various laws i.e. National Disaster Management Act 2010, Pakistan Climate Change Act, and Khyber Pakhtunkhwa Emergency Services Act 2012 Amended, 2014 have been promulgated (Jan & Muhammad, 2020).

Figure 1

Sector Wise Damages by Flood 2022 in Khyber Pakhtunkhwa

Deaths	Injuries	People Dislocated	Houses Damaged		Cattle Losses
			Fully 37,525	Partially 53,943	
311	381	674,318	37,525	53,943	6,577

Bridges	Roads	School	Heath Infrastructure	Agricultural Land	Water Supply	Tube Wells	Water Channels	Water Tanks	Roads (in Km)
107	964	1,458	256	107,220 acres	1,093	172	1,333	477	1,575

As a mandatory requirement of these acts, institutions like the National Disaster Management Authority (NDMA), Provincial Disaster Management Authority (PDMA), Emergency Rescue Services 1122 (hereinafter referred to as Rescue 1122), District Disaster Management Units (DDMUs), and Ministry of Climate Change were established to reduce risk and response to emergencies and conduct recovery activities (Khan & Jan 2014). Several policies have been promulgated to ensure the protection of the citizens from the impacts of disasters. Despite all these efforts the risk of disasters was not reduced in the province and each episode of disaster exposed the system and its weaknesses (Jan & Ahmed, 2018). An ad-hoc approach dominates the state-led emergency response system. Emergencies are dealt with on a case-to-case basis and there are no coordinated efforts to mitigate risk and reduce vulnerabilities. In the context of this study emergency response is defined as the collective actions taken by institutions and organizations before, during, and after a disaster to ensure public safety, save lives, reduce health impacts as well as meet the basic needs of the people affected by disasters (UNDRR, 2017). Emergency Management system is responsible for creating a framework that enables communities to reduce vulnerability to hazards and effectively respond to disasters, with the ultimate mission of protecting lives and property by mitigating, preparing for, responding to, and recovering from natural and man-made disasters (McEntire, 2021). Most of these features of emergency response as per definition are missing or

not practiced in Khyber Pakhtunkhwa. Emergency response and robust risk reduction are not considered a state obligation but are subject to a choice (Shah et al., 2020). Besides, governance failures and several challenges also reduce the capacity of the system to effectively respond to disasters. These challenges are inadequate early warning system, insufficient flood-risk zoning, absence of disaster preparedness plans, delayed response and slow mobilization of resources, poor coordination among stakeholders, silos-based governance, limited technical human resources, scarce funding, and poor planning for long-term recovery and reconstruction (Jan & Muhammad, 2020).

Despite these challenges, the government claims that they effectively responded to floods in 2022. The government's data says that they have implemented a multifaceted response to flood during 2022 floods in KP. The government claims the evacuation of 406,538 people, the rescue of 69,775, and the establishment of 130 relief camps with relief distributions to 153,722 individuals. Moreover, infrastructure repairs have restored 1,300 kilometers of roads, 52 bridges, and 288 water supply systems, while 53,587 tents have been provided for shelter. Data reveals that 34,426 applications for cash assistance were received at PDMA. The authorities scrutinized 7,964 applications, approved 1,677, and only issued cheques to 542 households (Government of Khyber Pakhtunkhwa, 2022b). The provincial government promised people that the government would be providing 1 million as compensation for the deaths caused by floods, 0.3 million to the severely injured, 0.5 million to fully damaged housing units and shops, and 150000 to the head of livestock (Government of Khyber Pakhtunkhwa, 2022a). Despite these statistical figures, print media regularly highlight the miseries of the flood victims. Research has also highlighted weaknesses in the government-led emergency response to provide full assistance to the flood victims and recover communities to normalcy (Petrova & Rosvold, 2023). Keeping in view the government claims, there is a need to evaluate the government-led emergency response to floods 2022 at the community level in KP. This study aims to assess the level of community satisfaction with the government-led emergency response and recovery efforts following the 2022 Pakistan floods. The study evaluated the government's emergency response and recovery efforts, assessing its effectiveness, impact, and community satisfaction to identify areas for improvement. The study answers two basic requestions i.e., how satisfied are communities with the government's emergency response efforts? And what are the critical gaps in the government-led flood recovery efforts?

Methodology

This study employed a Mixed Methods Research (MMR) approach. MMR combines numerical data analysis with contextual exploration, integrating quantitative and qualitative methodologies (Neuman, 2014). Within the mixed method, a Convergent Parallel design was adopted. The convergent mixed methods design integrates quantitative and qualitative data for a comprehensive analysis. Data is collected concurrently, and findings are merged to draw overall conclusions. This design resolves any discrepancies or inconsistencies between the results (Creswell & Creswell, 2018). Figure No 02 provides details of the Convergent Mixed Method design adopted for this study.

Figure 2

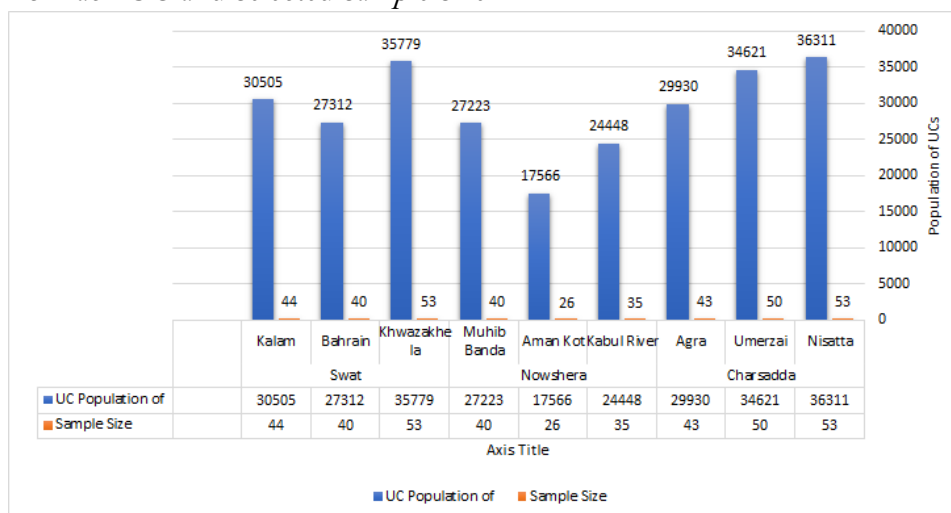*Convergent Mixed Method Design of the Study*
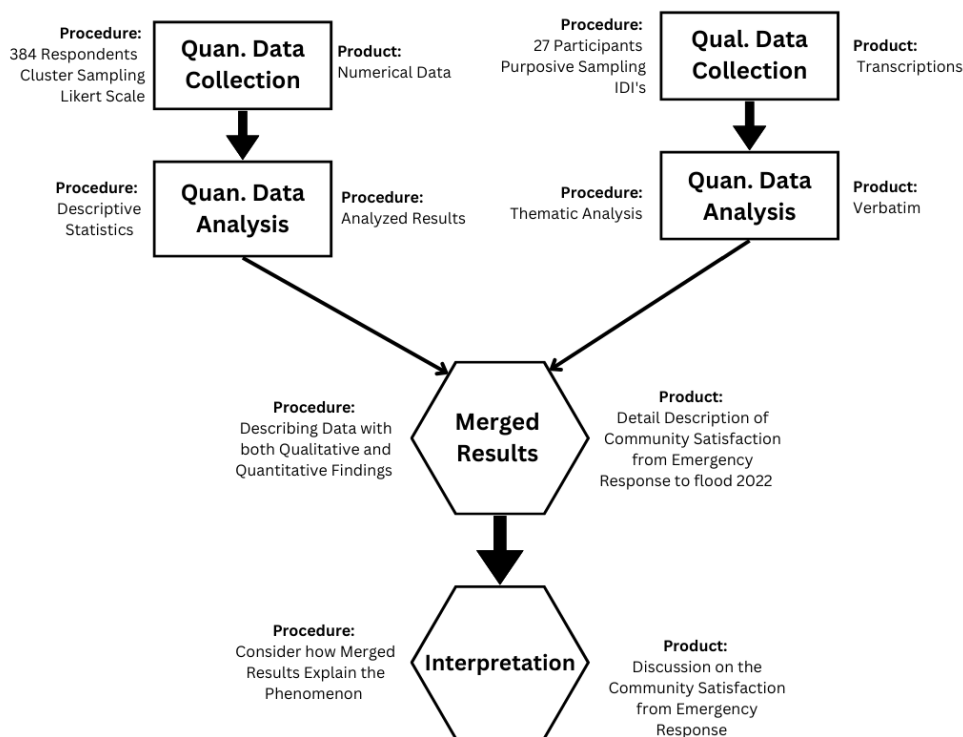
Before conducting field investigations, an extensive literature review was undertaken to examine key aspects of the 2022 flood. The review enabled the identification of crucial attributes and variables, which informed the development of in-depth interview guides and quantitative data collection instruments i.e., a Likert scale Structured Interview Schedule. Additionally, the literature review guided the selection of three districts Nowshera, Swat, and Charsadda for primary data collection, providing a targeted and informed approach to the field investigations. The NDMA designated these districts as high-risk flood zones, based on their Relative Severity Index scores (Government of Pakistan, 2024). Based on historical disaster data, the PDMA has declared these districts as particularly susceptible to disasters (Government of Khyber Pakhtunkhwa, 2024). Besides, these districts were severely affected by

the floods in 2022 in KP (Government of Pakistan, 2022). Within each district, three Union Councils (UCs) were chosen based on the severity of impacts from the 2022 flood. Subsequently, cluster sampling, informed by the Sekaran framework, was employed to select respondents for the quantitative study (Sekaran, 2016). Proportionate allocation was applied to allocate the quantitative sample size of 384 respondents across all UCs. For qualitative data collection, a purposive sampling strategy was employed, selecting 3 key informants from each UC. A total of 27 participants were selected for the qualitative study. An inclusion criterion was employed to select participants and respondents having been directly affected by the 2022 floods. Individuals unaffected by the flood were excluded from the study. Figure 3 illustrates the nine sampled union councils selected for this study.

Figure 3

Total Population of Each UC and Selected Sample Size

	Kalam	Bahrain	Khwazakhe la	Muhib Banda	Aman Kot	Kabul River	Agra	Umerzai	Nisatta
		Swat			Nowshera			Charsadda	
UC Population of	30505	27312	35779	27223	17566	24448	29930	34621	36311
Sample Size	44	40	53	40	26	35	43	50	53

Source: (Government of Pakistan, 2023)

Equation 01: Formula Used for Proportional Allocation Method

$$\mathbf{n} = \left(\frac{\text{N1}}{\text{Ni}}\right)\text{ni}$$

n=Sample size of each stratum
N1=Total Population of Each Strata
Ni=Total Population
ni= Total sample size
Source: (Cochran, 2007)

Data Analysis

To collect quantitative data, a structured interview schedule was employed, utilizing a 3-point Likert Scale (Agree, Disagree, Don't Know). Each statement and question were read in the local language (Pashto) to the participants. During each interview, the researcher recorded the respondents' answers in their presence. To ensure cultural sensitivity, a female data investigator conducted interviews with female respondents for both qualitative and quantitative data collection. Quantitative data was analyzed through a Statistical Package for Social Sciences (SPSS).

Descriptive statistics were applied, comprising frequency analysis and percentage calculations, to summarize and describe the data. Frequency analysis determined the number of responses within each category, while percentages revealed the proportion of respondents. These statistical methods provided a comprehensive overview of the data, facilitating the status of community satisfaction from the emergency response activities.

For qualitative data, each IDI was first transcribed. A specific code was allotted to each interview's transcripts. For example, the code allotted to the transcript conducted at Kalam, Swat was tagged as P/S/K/#. P represented the participant, S represented Swat, K represented Kalam and # represented the number of interviews in the total of 27 interviews. Codes were also allotted to the data and major themes were identified and labeled as shown in Figure No.04). After the identification of major themes, data was interpreted in paragraph form and has been presented systematically in this research study. Throughout

Figure 4

Codes, Label, and Noted Generated from Qualitative Data

Codes/Labels	**Participant's View**	**Notes/Ideas**
1) Not Satisfactory Response 2) Inadequate Early Warning 3) Disorganized Evacuation 4) Relief Camps Establishment 5) Comparison to Past Floods Event and Response 6) Social Protection of Vulnerable Groups 7) Lack of Cultural Sensitivity and Gender Inclusiveness 8) Self-Supported Rehabilitation 9) Lack of Shelter 10) Cascade Effects of Floods 11) Restoration of Critical Facilities 12) Lack of Cash Compensation	During the 2022 floods 2022, the emergency response from the government fell short of expectations. Although we have been affected by several floods recently, the response was not satisfactory[1] if I compare it with the response of floods 2010. We received delayed and inadequate early warnings[2] which hundred our timely evacuation efforts. The evacuation process was disorganized[3], leaving many stranded and forcing those who escaped to fend for themselves without government support. Relief camps were located far away from our community and lacked basic amenities[4], and the distribution of essential items was unfair. In 2010, the government immediately provided us with the Watan Card containing 25000[5] cash for use in emergencies. Later, the government also compensated us for housing, business, and agriculture damages. In 2022, we faced several problems in the initial days of flooding. The children, women, and elderly faced serious consequences in access to age-specific nutrition, hygiene, and medical[6] aid. We follow strict purdah culture[7] and in the camp, we didn't see any such arrangements. Many of our community members avoided going to camp due to this problem. After the subsidence of the flood, we return to our areas on a self-support basis[8] with no support from the emergency response agencies. Winter season was approaching and only a tent was provided to the people whose houses were damaged by floods. In 2010, the NGOs and government provided us with the fabricated structure[9] as temporary houses. On one side flood affected us on the other side the subsequent winter impact[10] placed us to contact with cold diseases. The roads, schools, and Basic Health Units were restored temporarily[11] but many public sector infrastructures still need reconstruction. The government failed to provide a compensation[12] package to help affected individuals rebuild their lives, leaving many without support after losing homes, livelihoods, and belongings.	Problems in Dissemination of Early Warning to Community Haphazard evacuation with no guidance on designated routes and location of evacuation centers. Relief camps without proper facilities hindered protection of victims Immediate cash compensation and forecast based financing was lacking Cultural practices and norms affect response of vulnerable groups. Gender sensitivity was not observed in camp establishments. Violation of SPHERE and Pakistan National Humanitarian Standards No support to the early recovery and rehabilitation from government Fabricated shelter was not provided to protect people from the impact of weather in post flood situation Disease's outbreak due to sanitation and proper structural protection Cash compensation undermined the self-help bases reconstruction of houses

In the study, ethical principles were upheld, including informed consent, voluntary participation, confidentiality, anonymity (using pseudo-names), avoidance of discriminatory language, cultural sensitivity, and briefing respondents on study aims and objectives.

Major Findings:

Social and Economic Information of the Respondents

Data presented in Table No. 01 indicates that the age distribution of the 384 respondents reveals a diverse range of age groups. The largest proportion, 27.3%, falls within the 51-60 age bracket, followed by 22.9% of young adults aged 21-30. Middle-aged individuals (41-50) account for 19%, while the elderly (above 60) make up 14.1%. The respondent demographic reveals that 86.5% were male and 13.5% female. Out of the total, 68.4% were married and 28.5% were unmarried. The study reveals significant insights into family size dynamics. The joint family system dominates the social fabric as 69.0% of study respondents are living in the joint family system. Notably, 36.7% of respondents have families with 11-15 members, while 29.4% have large families with 15 or more members. In contrast, only 7.6% have small families with five or fewer members, and 26.3% have medium-sized families with 6-10 members. These findings suggest that cultural or socioeconomic factors may influence family planning decisions, leading to large family sizes. Consequently, this may strain resources,

particularly for larger families, and impact household income, education, and healthcare outcomes during floods. The study's key findings reveal a concerning educational landscape, with 42.2% of the 384 respondents being uneducated, and only 1% holding advanced M.Phil/Ph.D degrees. The remaining respondents' educational backgrounds are 8.1% up to Matric, 16.9% have Intermediate, 19.8% hold Bachelor's degrees, and 12% possess Master's degrees. These statistics indicate a significant proportion of illiterate individuals and a scarcity of advanced degree holders, suggesting limited access to education and socioeconomic challenges. Illiteracy and low levels of education seriously affect the vulnerability enhancing flood risk in the area. The occupational demographics of flood-affected communities reveal a concerning reliance on vulnerable sectors. Farmers comprise the largest group, accounting for 31.0% of the population, making them susceptible to flood-related crop damage and livestock losses. Additionally, 19.8% of the population depends on remittances, which provide a buffer during crises. While public and private sector employment provides some stability, representing 14.8% and 9.6% respectively. Unemployment affects 10.2% of the population and exacerbates economic vulnerability. The distribution of monthly family income among respondents reveals six distinct categories with significant economic implications, particularly given the region's income distribution. Approximately 61.3% of families earn between 20,001 to 50,000 rupees monthly, indicating a substantial lower middle-class presence. Within this bracket, 33.1% earn 30,001–40,000 rupees, and 23.7% earn 40,001–50,000 rupees, 19.5% earn between 20,001–30,000 rupees. Notably, 14.1% have incomes exceeding 50,000 rupees. The floods disproportionately affected families in the study area impacting their savings and assets. To promote economic growth, investments in education, healthcare, and infrastructure can benefit the middle class, while microfinance initiatives and vocational training can support lower-middle-class families. Social protection programs are essential for vulnerable families.

Table 1

Socio-Economic Profile

Age in Years	Frequency	Percent
19–20	17.0	4.4
21–30	88.0	22.9
31–40	47.0	12.2
41–50	73.0	19.0
51–60	105.0	27.3
Above 60	54.0	14.1
Total	384.0	100.0
Sex Wise Distribution		
Male	332.0	86.5
Female	52.0	13.5
Total	384.0	100.0
Marital Status		
Unmarried	109.0	28.5
Married	262.0	68.4
Divorced	4.0	1.0
Widowed	9.0	2.3
Total	384.0	

Age in Years	Frequency	Percent
Family Type		
Joint Family	266	69
Nuclear family	103	27
Extended family	15	4
Total	384	100
Family Size		
5 Members and below	29	7.6
6 to 10 Members	101	26.3
11 to 15 Members	141	36.7
above 15 Members	113	29.4
Total	384	100.0
Level of Education		
Uneducated	162	42.2
Up to Secondary School (Matric)	31	8.1
Intermediate (FA/FSc)	65	16.9
Bachelor (BA/BSC etc.)	76	19.8
Master (BS, MSc, etc.)	46	12.0
MPhil/PhD	4	1.0
Total	384	100.0
Occupation of the Respondents		
Unemployed/Jobless	39	10.2
Farmer	119	31.0
Horticulturist	15	3.9
Laborer	15	3.9
Student	22	5.7
Public/Private Servant	57	14.8
Industrialist	3	0.8
Dependent on foreign remittances	76	19.8
Businessman	37	9.6
Others	1	0.3
Total	384	100.0
Monthly Family Income in PKR		
Less than 10000	6	1.6
10001–20000	31	8.1
20001–30000	75	19.5
30001–40000	127	33.1
40001–50000	91	23.7
Above 50000	54	14.1
Total	384	100.0

(Note: Figures in the table denote frequency and Figures in parenthesis denote percentage)

Community Satisfaction from Emergency Response To Flood 2022

Effective emergency management and post-disaster recovery rely on institutional resilience and community preparedness, particularly during

catastrophic events like the flood in 2022 in the study area. The success of these efforts relies on the operational readiness of civil protection institutions, including NDMA, PDMA, DDMU, and Rescue 1122. During disasters, these institutions activate emergency response plans, leveraging technical expertise from organizations like the Meteorological Department for hazard detection, forecasting, and warning generation. Early warning messages are then disseminated to local communities through various media channels, facilitating timely evacuation and safeguarding lives. However, the study's findings (Table 02) indicate room for improvement. Data presented in Table No 02 reveals that despite the critical importance of early warnings, only 36.5% of respondents received early warning messages, while 33.9% did not have access to these messages. This disparity underscores the need for enhanced emergency communication strategies to protect lives and livelihoods. Qualitative data also converges and supports the results of the quantitative data (n=23/27).

Shayan Ahmad, a research participant, aged 57, working as a former in Kalam, Swat said:

"As such we didn't receive any warning. Normally our Deputy Commissioner's office shares advisories through social media but this time the advisory didn't contain any specific information about the quantity of rainfall in swat. Many people don't have access to the internet and are also not active users of social media. They remained ignorant of the weather advisory during flood 2022." (P/S/K/2)

Muhammad Riaz aged 42, working as a private servant from Muhib Banda, District Nowshera said:

"It was evident that a flood was coming. The government time and again notified the public but the people were reluctant to evacuate. Hourly updates were shared with the community regarding the hydrological situation by irrigation." (P/N/MB/12)

Muhammad Asad aged 22, working as a volunteer of a local community-based organization from Nasata District Charsadda said:

"With the support of a Civil Society Organization, we established a community-led

observation system to monitor the river's water level and initiate evacuation procedures when it reaches a critical point. This localized approach empowers us to take proactive action, especially in areas where official warnings may be met with skepticism or arrive too late." (P/C/N/27)

Aimal Khan aged 42, working as an employee of an NGO from Kabul River, Nowshera, said:

"Early warning messages are often hindered by various barriers, including fear of property loss, limited literacy, economic constraints, cultural norms, physical relocation challenges, and warning efficacy. Some individuals assume warnings are fictitious, while others are unfamiliar with authorities like PDMA and PAK-Met, leading to confusion. As a result, communities tend to rely on visual assessments, monitoring river levels against personal benchmarks, rather than trusting early warnings." (P/N/KR/18)

It is evident from both the qualitative and quantitative data that the community faced several types of hurdles in accessing the early warning message and response to the early warning.

Table No 02 further shows that 54.4% of respondents didn't receive the protective evacuation services before flood onset, with 31.3% confirming evacuation measures and 14.3% remaining neutral. Data reveals that the people in some areas were evacuated and supported by the government but people in Charsadda and Swat faced problems in protective evacuation and the quantitative respondents were not satisfied with the evacuation. The qualitative data (n=25/27) also reveals similar results.

Rehman Gull aged 61, a retired government servant from Aman Kot Nowshera, said:

"On the day of the flood, our village was suddenly inundated by overflowing river waters, catching residents off guard. Without prior warning or evacuation instructions from authorities, I along with my family was forced to seek refuge on the rooftop. Hours passed before local volunteers arrived with boats to rescue us. The floods resulted in catastrophic losses, including our homes, livestock, and crops. Although some government aid arrived, it was

inadequate and delayed, leaving us awaiting proper assistance. I believe that early warnings and evacuations, coupled with timely support from the government, could have greatly mitigated the damage." (P/N/AK/13)

Laila Zaman aged 27, a housewife in Kabul River, District Nowshera Said:

"We were trapped in our home for two agonizing days, desperately awaiting government aid that never came. As the floodwaters rose, our food and medicine supplies dwindled, leaving us on the brink of disaster. My children's terrified cries still haunt me, and I genuinely feared we would perish. But amid chaos, our community rallied around us. Neighbors shared their scarce resources, and brave local volunteers crafted makeshift boats to rescue those stranded." (P/N/KR/16)

Zarmeena Bibi aged 33 from Kalam (a pregnant mother at the time of the flooding), Swat said:

"I was pregnant and terrified. The floods trapped us, and I thought I'd lose my baby. We were out of food, medical help, and shelter. Only after locals helped us reach a camp. By then, I was in labor. My baby was born in a tent. I developed complications during delivery due to stress and lack of medical care." (P/S/K/3)

Both the data support each other and it is evident from the data that the government failed to evacuate the affected people during flood 2022 before the onset of the flood to ensure their safety and protection.

Quantitative data further reveals that 74.5% of respondents acknowledged the establishment of relief camps but opinions on the provision of essential items were divided. Nearly half (47.7%) reported not receiving necessary aid, whereas 45.3% received assistance. The remaining 8% of responses were unclear, and neutral about the source of the aid. These statistics indicate that although the government made a notable effort in setting up relief camps, reaching almost three-quarters of those affected, significant gaps remain in distributing essential items, with almost half of respondents left without support. The qualitative data also support the results of the quantitative data (n=21/27). Haji Sarfaraz Aged 62, working as a shopkeeper in Bahrain, Swat said:

"In the last fifteen years, I've faced three devastating disasters. In 2009 and 2010, when insurgency and floods forced us from our village, we sought refuge in Mardan's relief camps. There, we received vital assistance, including tents, food, and other essential items. In 2022, the camp was established in our community school. But somehow, the response to the government towards the protection of people was not up to the mark." (P/S/B/4)

Chand Bibi a female research participant aged 32 working as a school teacher at Umerzai District Nowshera Said:

"We were told to go to the relief camp and settle in a government school. But there was no arrangement of transportation. When we reached the camp, food was provided to us and water as well." (P/C/U/23)

A stark difference in government responses to different disasters is evident in the people's experience. Unlike the effective provision of tents, food, and essentials during the 2009-2010 insurgency and floods, the 2022 response was markedly inadequate. This decline in government effectiveness has left the community exposed to repeated disasters.

Regarding the provision of cash compensation, 87.8% of respondents did not receive cash compensation, and 68.2% believed the government failed to ensure social protection for vulnerable groups, such as women, children, the elderly, and people with disabilities. Unfortunately, a staggering 90.1% of affected individuals didn't receive government technical support for rebuilding disaster-resilient homes. Rehabilitation initiatives aimed to restore community life, but households with damaged homes faced significant risks. Most respondents (71.1%) reported non-provision of temporary movable shelters from the government. This distressing statistic highlights the egregious gap in assistance for robust housing reconstruction. Consequently, most flood-affected residents were compelled to rely on personal resources or makeshift solutions, shouldering an arduous financial burden. Moreover, the government's initiatives to promote disaster-resistant construction proved inadequate,

leaving communities purposefully exposed to future calamities. Both the data sets converge with each other and the results are identical (n=25/27).

Ghulam Muhammad aged 42 working as a horticulturist in Khwazakhela District Swat, said:

"To support victims of the 2009 insurgency and 2010 floods, the government provided us with the WATAN Card, an ATM card with a 25,000-rupee limit, providing immediate cash assistance to those displaced or living in relief camps. The government also offered cash compensation for both partially and fully damaged homes. But we didn't see any such arrangements during flood 2022". (P/S/KK/7)

Khan Gull aged 61 years and working as a farmer in Agra, District Charsadda said:

"The government announced that they will compensate our damages. Data was also collected from us regarding damages to houses, agriculture, shops, etc. But we are still waiting for the release of compensation. Only compensation for the death toll was released and the remaining is pending". (P/C/A/19)

Jan Muhammad aged 53 working as a government employee in Bahrain, District Swat said:

The lessons from the 2005 earthquake on building hazard-resistant homes were not adequately applied. Government efforts to enforce building codes remained limited to public sector infrastructure, neglecting the private sector and leaving many structures susceptible to future disasters". (P/S/B/5)

Muhamamd Nauroz aged 54 working as a carpenter in Kabul River, Nowshera said:

When I returned to my village after the floods, I was initially provided with a tent as temporary accommodation since my home was destroyed. During the 2010 flood the local government representatives, with NGO support, built a movable house using galvanized iron sheets, providing a better alternative. But this time we were left on the mercy of nature. Winter was approaching and we were living in the open sky with no roof over our heads. We got

exposure to malaria and dengue and in winter my kid suffered serious cold diseases". (P/N/KR/17)

This critical oversight has serious consequences, including heightened vulnerability to subsequent disasters, prolonged recovery timelines, and economic hardship for victims of floods. Several factors likely contributed to this deficiency, including inadequate funding, inefficient aid allocation, limited emphasis on long-term resilience, and weak collaboration between government agencies and local stakeholders.

Table No 02 reveals that an overwhelming 87.2% of flood-affected individuals reported positive experiences with public infrastructure repair efforts during rehabilitation. The government successfully restored essential infrastructure, including hospitals, schools, and roads, thereby effectively addressing critical community needs. Qualitative data also support these results (n=22/27). Muhammad Jan aged 45 running his shop in village Aman Kot in District Nowshera Said:

"The government repaired critical infrastructure after the floods. Our local hospital, schools, and roads were restored with the help of NGOs, which was a huge relief. It helped us regain a sense of normalcy and access essential services." (P/N/AK/14)

Khan Badshah aged 36 working as a volunteer with the Civil Defence team in Bahrain, District Swat Said:

"The flood washed away everything. The entire landscape of our commercial markets was changed. The road turned to a river. The government tried its best but the market was located inside the river. How it is possible to restore it?" (P/S/B/6)

The restoration of services enabled affected populations to access healthcare services, resume education, and re-establish vital transportation links. The success of these rehabilitation efforts accelerated community self-help recovery.

The floods highlighted alarming gaps in government support for long-term recovery. Over 64% of affected individuals reported no assistance for employment, livelihood, or agriculture, exacerbating economic hardship, agricultural disruption, and

community recovery delays. Moreover, 81.0% stated that the government did not launch skill training programs in their communities. These findings are consistent with the qualitative data (n=23/27). Sadaat Khan aged 49 running a restaurant at the local level in Khwazakhela, Swat Said:

"In the aftermath of the floods in 2010, NGOs provided critical assistance to our community, offering livestock (goats), agricultural equipment, seeds, and fertilizers. They also contributed to environmental recovery through an afforestation initiative, supplying plants. In the 2022 flood, no such measures were seen". (P/S/KK/9)

Fazal Maula aged 59 working as a farmer in Umerzai, District Charsadda said:

"The floods devastated our agriculture sector and local markets. With our major crops submerged, my livelihood dependent on crop productivity was severely impacted. The resulting poverty has compelled me to send my children to work as laborers. Unfortunately, we continue to wait for government assistance in our post-flood recovery efforts." (P/C/U/24)

Aziz Khan aged 49 working as a laborer at the Muhib Banda, Nowshera said:

"I was expecting some support from the government after the 2022 floods, but unfortunately, they didn't provide any skill training programs in our community. We were left to fend for ourselves, struggling to rebuild our lives. It's disappointing because such programs would have helped us acquire new skills and livelihoods, enabling us to recover faster." (P/N/MB/11)

The flood affected livelihood and primary source of income due to submerged crops. Consequently, the farmer was forced to send their children to work as laborers to cope with the resulting poverty. Despite ongoing post-flood recovery efforts, many families still await government assistance. This situation highlights the farmer's economic vulnerability due to reliance on agriculture, making them susceptible to flood-related economic shocks. The floods also led to child labor, potentially harming the children's education, health, and well-being. The lack of timely government support exacerbates the farmer's struggles, underscoring issues with disaster response and recovery.

Table 2

Community Satisfaction From Emergency Response To Flood 2022

Attributes	Option			Total
	Agree	Disagree	Neutral	
Forecast and Early Warnings for floods was Disseminated on time by the government	140 (36.5%)	130 (33.9%)	114 (29.7%)	384 (100%)
The government evacuated citizens before the onset of the flood	120 (31.3%)	209 (54.4%)	55 (14.3%)	384 (100%)
The government set up relief camps to shelter those displaced by the flood.	286 (74.5%)	81 (21.1%)	17 (4.4%)	384 (100%)
The government supplied flood victims with necessary relief materials	174 (45.3%)	183 (47.7%)	27 (7.0%)	384 (100%)
Cash grants were disbursed to compensate the affected population	25 (6.5%)	337 (87.8%)	22 (5.7%)	384 (100%)
Flood Emergency Response efforts prioritized the social protection of women, children, seniors, and individuals with disabilities.	83 (21.6%)	262 (68.2%)	39 (10.2%)	384 (100%)
Post-flood emergency support facilitated the return of displaced persons to their areas	22 (5.7%)	320 (83.3%)	42 (10.9%)	384 (100%)

Attributes	Option			Total
	Agree	Disagree	Neutral	
Portable shelters were issued by the government to facilitate early recovery and rehabilitation.	69 (18.0%)	273 (71.1%)	42 (10.9%)	384 (100%)
The government restored essential infrastructure, including roads, hospitals, and schools, to support community recovery.	335 (87.2%)	30 (7.8%)	19 (4.9%)	384 (100%)
Government assistance facilitated hazard-resistant reconstruction efforts in affected communities.	3 (0.8%)	346 (90.1%)	35 (9.1%)	384 (100%)
Residents received government support for employment, income generation, and agricultural rejuvenation during post-flood recovery.	93 (24.2)	247 (64.3)	44 (11.5)	384 (100)
The government has introduced a skills training program to safeguard the well-being of affected individuals, providing them with essential skills to enhance their employability and livelihoods.	21 (5.5%)	311 (81.0%)	52 (13.5%)	384 (100%)

(Note: Figures in the table denote frequency and Figures in parenthesis denote percentage)

Discussion

The devastating 2022 floods demonstrated the critical importance of effective government-led emergency response and recovery. This study assessed community satisfaction with government initiatives in Khyber Pakhtunkhwa, revealing mixed sentiments. Timely warnings and organized evacuations were crucial in safeguarding lives by relocating people from flood-prone areas, thereby minimizing casualties. In Pakistan, several agencies are responsible for the dissemination of early warning messages from federal to local levels but the system didn't work properly during the 2022 floods and many people remained exposed to the impacts of floods. Community participation in the Early Warning System (EWS) was totally lacking. Research suggests that A well-designed EWS must consider community-specific risks, provide mitigation measures, and integrate key elements: risk knowledge, continuous monitoring, clear communication, and response capacities (Shah et al., 2022). The research underscores evacuation's vital role in emergency management,

emphasizing the need for designated routes and shelters. However, in Khyber Pakhtunkhwa, executing protective evacuations poses significant challenges for both communities and authorities. Despite identified evacuation zones, residents lack awareness of safe passage and assembly points, exacerbating vulnerability during recent flooding. According to Aslam (2018), effective flood management in Pakistan requires risk reduction strategies that integrate evacuation procedures, bridging the gap between knowledge and action. Similarly, Crichton et al. (2009) emphasize the critical role of evacuation site maps and designated routes in ensuring efficient emergency response management. In response to floods, the government's relief camps offered crucial support to affected individuals. Camps provide secure shelter, facilitate recovery from trauma and PTSD, and serve as a base for ongoing rehabilitation efforts (Bashawri et al., 2014). However, a significant majority reported that the relief items were not provided on time. The camp's establishment demonstrates a commitment to addressing the immediate needs

of disaster victims. However, the study pointed out that the government agencies failed to comply with the Guidelines for Minimum Standards of Relief in Camps. The government has established these guidelines for relief camps, outlining minimum standards for food, shelter, drinking water, sanitation, and healthcare (NDMA, 2017). These guidelines, developed in 2017, align with the National Disaster Management Act 2010 and international human rights standards, such as SPHERE standards and the Camp Coordination Camp Management Toolkit. The implementation of these guidelines would have ensured that relief camps meet essential requirements and efficient relief services. Establishing relief camps and providing essential items is just the beginning of supporting disaster victims – to truly recover, they also need cash compensation to rebuild their homes. Unfortunately, many flood-affected individuals in the study area didn't receive government cash grants. The death's compensation has been released and the remaining people are still waiting to receive their compensation. However, research has shown that cash transfer programs can be highly effective in disaster relief (Ali, 2018). For example, after the 2005 earthquake and 2009 Insurgency, the Cash Transfer Programme provided financial assistance to millions displaced. This program continued during the 2010 floods, benefiting 1.5 million people with cash relief for shelter. The Provincial Disaster Management Authority (PDMA) in Khyber Pakhtunkhwa province also has a history of providing financial assistance to victims of various crises, including insurgency, floods, and earthquakes. In fact, during the 2010 floods, the PDMA distributed 5.5 billion rupees to 274,984 beneficiaries through WATAN Card and 10.54 billion rupees to 260,000 families through cash transfer. These efforts highlight the importance of cash compensation in disaster relief and recovery (PDMA, 2012).

Floods disproportionately affected vulnerable populations, including women, children, the elderly, and individuals with disabilities. These groups faced heightened risks, such as women experiencing harassment, children being engaged in child labor, older adults struggling access to essential resources like medicine, and individuals with disabilities losing critical mobility devices. This exacerbated existing vulnerabilities, worsening their quality of life. Studies have consistently highlighted these concerns, including Sami et al. (2009) findings of higher injury rates among females and children during the earthquake, Sadia et al. (2016) report of 485,000 pregnant women affected by floods between 2010 and 2013 requiring specialized care, and Bukhari & Rizvi (2015) research on flood impacts on women, reveals poor relief camp conditions compromising physical and emotional well-being. Therefore, incorporating gender-sensitive interventions into emergency response strategies is crucial to prioritize vulnerable groups' unique needs and reduce their susceptibility during disasters.

Following floods, the government's lack of support for victims' repatriation to their native towns has been evident, highlighting the need for swift restoration of essential infrastructure like schools, roads, markets, water supply, and access bridges to facilitate safe return. Initiatives like cash-for-work and food-for-work programs have proven effective globally and in Pakistan. For instance, Pakistan Red Crescent's Cash for Work program in Muzaffarabad restored watermills and canals, while their conditional cash grants in Khyber Pakhtunkhwa supported shelter and latrine construction, boosting livelihoods and economic productivity (Amin, 2008). Locally, Lasoona's collaboration with the District Swat Local Government Department

engaged 200 community members in desilting the critical "KHAIREE KAKA NEHHER" water channel, resuming water supply to 11 villages after the 2022 floods (Lasoona, 2023). Such community-driven rehabilitation strategies promote resilient recovery, and economic revitalization, and underscore the importance of empowering local communities in disaster recovery efforts.

Disasters bring destruction, but also opportunities for resilient development. Post-disaster reconstruction can integrate hazard-resistant measures, yet this potential was untapped in the 2022 floods study area. Successful examples from Pakistan and China showcase transformative recovery efforts, highlighting proactive strategies, innovative construction, and training programs that reduce vulnerability and promote sustainability ((Lodi et al., 2016 & Bilau et al., 2015).

Despite the urgent need for support, government agencies fell short in addressing employment, livelihood, and agricultural recovery after the floods, intensifying the hardship faced by local communities. Disasters have a devastating impact on well-being, resulting in the loss of agricultural tools, seeds, livestock, farm access, and employment opportunities (Shahbaz et al., 2012). However, research suggests strategic interventions can reduce vulnerability and enhance resilience. Studies show that employment diversification, education, and skill training can mitigate flood vulnerability (Shah et al., 2018), while skill training can reduce unemployment and alleviate post-traumatic stress disorder. Enhancing skills in hazard reconstruction technology upgrades the future workforce. Providing agricultural resources, adapting farming techniques, and introducing multiple crops enhances economic protection (Dorosh et al., 2010). Local communities prioritize safe resettlement, farmland access, and cash jobs for productive lifestyles (He, 2019). To effectively support disaster-affected communities, recovery efforts must be tailored to their specific needs, incorporating these evidence-based strategies for resilient recovery and sustainable development.

Conclusion

The 2022 Pakistan floods underscored the critical need for effective government-led emergency response and recovery efforts. This study assessed community satisfaction with government initiatives in Khyber Pakhtunkhwa, revealing mixed sentiments due to inadequate early warning systems, insufficient relief camps, delayed provision of essential items, lack of cash compensation, limited consideration for vulnerable populations, and untapped potential for resilient recovery. To address these gaps, the study recommends strengthening early warning systems, improving evacuation procedures, incorporating gender-sensitive interventions, promoting community-driven rehabilitation, and investing in resilient reconstruction. A multifaceted approach is crucial to addressing complex community needs, and integrating these recommendations can help Pakistan mitigate future disaster impacts, foster resilient development, and ensure sustainable recovery. Building on these findings, further research is necessary to investigate early warning systems' effectiveness, cash transfer programs' impact, community engagement in reconstruction, and context-specific disaster response guidelines. Ultimately, implementing these recommendations and prioritizing collaboration, context-specific planning, vulnerable population support, and resilient infrastructure can strengthen Pakistan's disaster management framework, enabling more effective response and recovery efforts in future disasters.

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