Sociology & Cultural Research Review (SCRR)
Available Online: https://scrrjournal.com
Print ISSN: 3007-3103 Online ISSN: 3007-3111
Platform & Workflow by: Open Journal Systems
https://doi.org/10.5281/zenodo.17080852

State Response and Local Realities: Analyzing the 2025 Flood in Buner through Political and Social Lenses

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ABSTRACT
The 2025 cloudburst and subsequent flood in Buner, Pakistan, caused severe human, social, and infrastructural losses, exposing gaps in disaster preparedness and response mechanisms. The primary objective of this study was to evaluate the effectiveness of the government's disaster response during the flood and examine the role of community networks, NGOs, and social cooperation in mitigating the crisis. A descriptive survey design was adopted, and data were collected from 120 respondents using a structured questionnaire. Statistical analysis, including descriptive statistics, ANOVA, and regression modeling, was employed to assess perceptions and predictors of government effectiveness. Findings revealed that only 24.2% of respondents agreed the government provided timely warnings, while 42.5% perceived relief distribution as politically influenced. Community networks were acknowledged by 81.7% of respondents as critical in reducing suffering, and 74.2% reported NGOs performed better than the government. Regression analysis indicated that predictors explained 42.5% ($R^2 = 0.425$) of the variance in perceived government effectiveness, with early warning system improvement ($\beta = 0.265$, $p = 0.002$) emerging as the strongest positive factor, and political favoritism ($\beta = -0.208$, $p = 0.004$) exerting a negative effect. The study concludes that effective disaster management in Pakistan requires stronger early warning systems, transparent governance, resilient infrastructure, and community integration.

Keywords: *Disaster Management, Flood 2025, Community Resilience, Government Response, Buner Pakistan.*

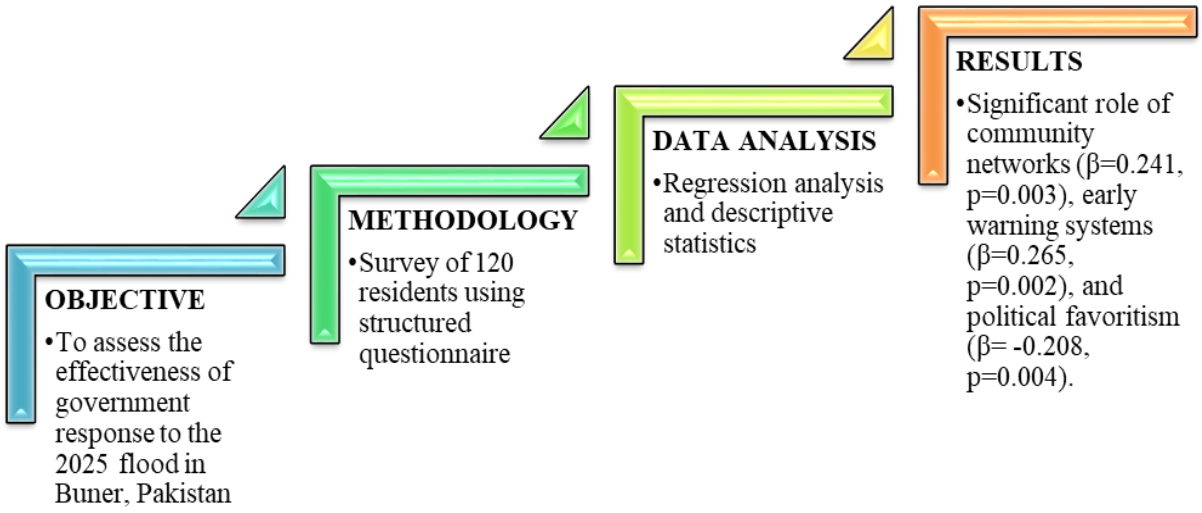

Figure 1: Schematic Abstract

1. Introduction

Natural disasters have always posed serious challenges to human societies, yet their intensity and frequency have increased in recent decades due to climate change, environmental degradation, and unplanned human settlements (Alcántara-Ayala, 2025). Floods are one of the most devastating hazards, often leaving long-lasting social, political, and economic impacts (Fatima, Atif, Fort, & Azmat, 2025). Pakistan is a country in South Asia that has had to contend with frequent floods because of monsoon rains, melting glaciers and in the recent past, unpredictable weather patterns like cloud bursts (Arif, Hameed, & Fizza, 2021). The Buner Flood of 2025 is a reminder of how vulnerable local communities are and the urgency of employing an analytical approach to governance systems, state reaction, and social strength in the face of disaster (T. U. Khan et al., 2025). The Buner Flood is the result of an unprecedented cloudburst in the mountainous area of Khyber Pakhtunkhwa (Akhtar & Dhanani, 2024). Buner, a valley with hills and stream of rivers, has always been prone to flash floods and landslides (Alam et al., 2025). Nonetheless, the 2025 flood marked a rare scale of destruction because of the cloudburst, which led to torrential downpour and immediate overflow of streams and nullahs, destroying houses, crops, cattle, and important infrastructure (A. Khan et al., 2025). Thousands of people were displaced, access roads and bridges were ruined, and some of the populations were acutely short of food, water, and shelter (Sarwar et al., 2024). Physical damage was immense but the political and social aspects of the disaster are no less important (Manglore et al., 2024). The way the state (warnings, rescue, relief giving and rehabilitation) reacted has raised much debate and especially the aspect of its adequacy, fairness and transparency (Idris, 2021).

Politically speaking, and through the prism of Pakistan studies, disasters are neither natural or social nor political phenomena (Akhtar & Dhanani, 2024). They show the extent of the state response to the crisis, the trust between the government and its citizens, and the possibility of local communities organizing without the powerful interventions of the state (Sökefeld, 2012). The Buner flood is therefore a special case study to examine state response versus local realities and how formal institutions and informal community networks interplayed during the crisis (Ahmad, 2019). At the same time as official accounts were of swift reaction

and proper coordination, community voices raised concerns of delays, unequal distribution of relief, and inadequate rehabilitation measures (Arifeen & Eriksen, 2020). The catastrophe was also a revelation of profound structural vulnerability in governance (Chakrabarty, 2012). Wireless alarms did not work or did not reach the most perilous homes (Lewis, 2019). Poor infrastructures, including broken bridges and roads restricted rescue efforts (El Khaled & Mcheick, 2019). Relief was being handed out, and there were claims of favoritism and ineffectiveness (Callaway). Also, the material rewards declared by the government were not sufficient to cover the loss size, and many families did not manage to reconstruct their lives (Kyung-Sup, 2025). Conversely, local networks such as religious leaders, village elders and neighborhood associations were also significant in terms of immediate support, mobilization and social solidarity (Kousky, 2022).

A political and social analysis of the 2025 Buner Flood thus provides important insights into disaster governance in Pakistan (Haseeb, Ali, Ahmed, Alarifi, & Youssef, 2025). It raises fundamental questions about the capacity of the state, the inclusiveness of its response mechanisms, and the resilience of local communities. Beyond the immediate crisis, it also underscores broader issues such as governance deficits, disaster preparedness, and the role of social capital in managing risks (Figure 1).

Existing literature on natural disasters in Pakistan has largely focused on the physical impacts of floods—loss of lives, infrastructure damage, and economic costs. Studies following the 2010 super floods (Ahmad, 2019), the 2022 climate-induced floods (Sarwar et al., 2024), and other regional disasters have provided valuable data on humanitarian and development challenges. However, there is a relative lack of focused political and social analyses at the district level, particularly concerning cloudburst-induced floods, which represent a growing but underexplored phenomenon in climate-vulnerable mountainous regions (Anjum, Shaikh, & Barkat, 2025). Moreover, while much attention has been given to state-level responses, fewer studies systematically compare state interventions with local community realities, including the role of informal networks, local governance institutions, and civil society organizations (Mehmood, 2025). The 2025 Buner Flood presents an opportunity to fill this gap by exploring not just the adequacy of government response but also the resilience and agency of local populations. Such a perspective is essential to developing holistic disaster management strategies that integrate top-down governance with bottom-up community efforts.

Research Questions

i. How effective was the government's response to the 2025 Buner Flood in terms of timely warnings, rescue operations, relief distribution, and rehabilitation support?
ii. In what ways did local communities and social networks contribute to coping with and mitigating the impact of the flood?
iii. What political and governance gaps were revealed by the 2025 Buner Flood, and how can disaster management systems be improved to address such challenges in the future?

Research Objectives

i. To evaluate the effectiveness and limitations of the government's response during the 2025 Buner Flood.

ii. To analyze the role of local communities, networks, and organizations in providing support and building resilience.
iii. To identify governance challenges exposed by the disaster and recommend strategies for improving disaster preparedness and response in Pakistan.

2. Methodology

2.1 Study Area and Period

The study was conducted in Buner District, Khyber Pakhtunkhwa, Pakistan, which experienced severe flooding in 2025. Fieldwork was carried out between September 2025 to capture immediate to short-term responses and perceptions among affected residents.

2.2 Research Design

A cross-sectional survey design was employed to examine state response and local realities following the 2025 flood in Buner (Skvortsova et al., 2025). The study combined quantitative survey data collected through a structured Likert-scale questionnaire with limited open-ended items to capture contextual detail and respondents' suggestions for future preparedness (Orsoni, Benassi, & Scutari, 2025).

2.3 Population and Sampling

The target population comprised adult residents (18 years and older) of flood-affected union councils in Buner who had either experienced displacement, loss, or direct disruption from the 2025 flood event. A sample size of 120 participants was selected based on logistical feasibility and the objective of obtaining a diverse cross-section of demographic groups. A stratified purposive sampling approach was used: union councils were stratified by level of flood impact (severely, moderately, and mildly affected) and participants were then recruited within strata to ensure representation of farmers, daily wage workers, business owners, government employees, students, and other occupation groups. Local community leaders and NGO contacts assisted in identifying households and respondents within each stratum.

2.4 Questionnaire Development and Pilot Testing

The questionnaire was developed from the conceptual framework linking governance, disaster management, community resilience, and political perceptions. Items were adapted from established disaster-response and governance perception instruments and tailored to the local context and the 2025 Buner flood. The instrument comprised two parts: demographics (age group, gender, education level, occupation) and 20 Likert-scale statements (1 = Strongly Disagree to 5 = Strongly Agree) grouped into Government Response, Local Realities & Community Role, Political and Social Perceptions, and Future Preparedness. A pilot test was conducted with 15 respondents from a neighboring district to assess clarity, cultural appropriateness, and average completion time. Based on pilot feedback, wording for three items was revised for clarity and two demographic options were added. The questionnaire was translated into Urdu/Pashto and back-translated to English to ensure semantic equivalence. Field enumerators were trained on administering the instrument, obtaining consent, and recording responses consistently.

2.5 Data Collection Procedures

Data were collected through face-to-face interviews using printed questionnaires. Trained local enumerators administered the survey in respondents' homes or in temporary relief centres, depending on respondent availability and privacy. Each interview began with a short description of the study purpose; verbal informed consent was obtained and recorded.

Interviews typically lasted 15–25 minutes. To reduce nonresponse bias, enumerators made up to two follow-up visits when the initially selected respondent was unavailable.

2.6 Ethical Considerations

Participation was voluntary and anonymous. Respondents were informed that they could decline to answer any question or withdraw at any time without consequences. Given the sensitive nature of disaster experiences, enumerators were trained to respond empathetically and to refer respondents to local relief providers if urgent needs were disclosed.

2.7 Data Management and Analysis

Completed questionnaires were checked in the field for completeness and then entered into a secure spreadsheet. Data cleaning steps included range checks, correction of obvious entry errors, and verification of missing values with field notes where possible. Descriptive statistics (frequencies, means, standard deviations) were computed for demographic variables and for each Likert item to summarize perceptions of government response, community action, infrastructure shortcomings, political dimensions, and preparedness priorities. Internal consistency of multi-item scales was assessed using Cronbach's alpha. Where appropriate, bivariate analyses (t-tests, ANOVA, or nonparametric equivalents) were performed to compare responses across demographic groups (e.g., occupation, education). Qualitative responses to open-ended questions were coded thematically to illustrate key issues and to supplement quantitative findings.

2.8 Limitations

The study acknowledged limitations including the cross-sectional design, which constrained causal inference, and the sampling approach, which prioritized diversity within affected areas but did not claim strict probabilistic representativeness of the entire Buner population. Seasonal constraints and access difficulties in some localities may have biased participation toward more accessible households.

2. Results

This section includes regression results, presenting model summary, ANOVA, and coefficients tables, highlighting predictors significantly influencing government response effectiveness and community resilience during the 2025 Buner flood.

3.1 Demographics

3.1.1 Age Group

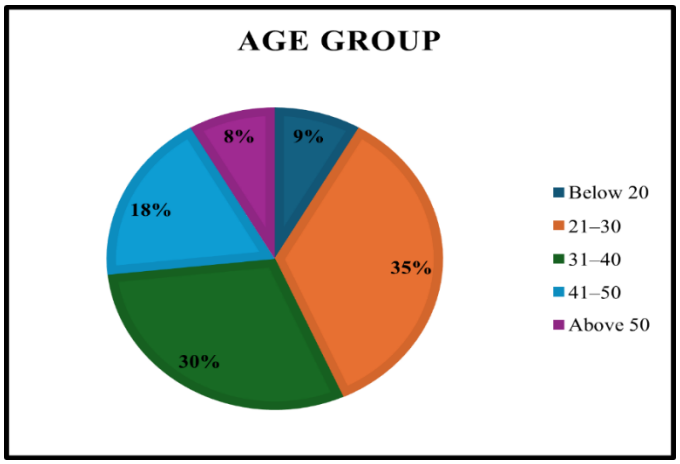

Figure 2: Pie Chart Showing Age group

The age distribution of respondents shows that the majority were young and middle-aged individuals. Participants aged 21–30 years (35%) and 31–40 years (30%) formed the largest groups, highlighting the dominance of the working-age population in the study. Respondents aged 41–50 years accounted for 18.3%, while only 8.3% were below 20, and 8.4% were above 50. This indicates that the survey primarily captured the perspectives of economically active individuals, who are often more directly engaged in disaster response, recovery, and community resilience activities.

3.1.2 Gender

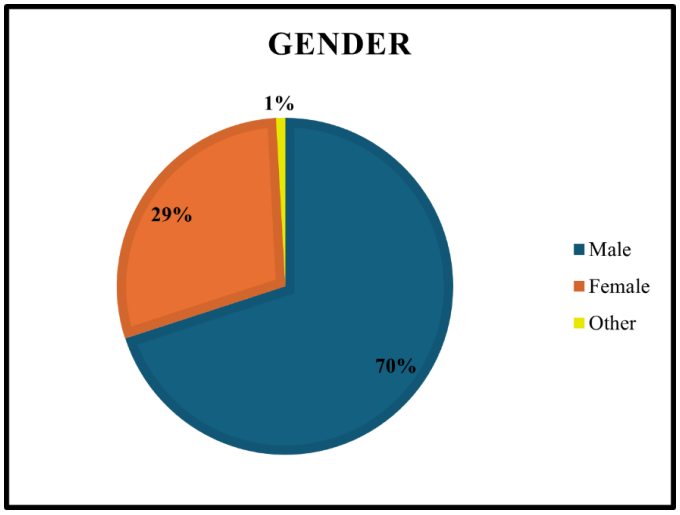

Figure 3: Pie Chart Showing Gender group

The gender distribution reveals that male respondents constituted the majority of participants (70%), while females represented 29.2% and only 0.8% identified as other. This imbalance reflects the male-dominated demographic in the study area, where men are often more visible in community decision-making and disaster response activities. However, the significant female participation also highlights the importance of women's perspectives, as they play a crucial role in household management and post-disaster recovery. The inclusion of diverse gender responses strengthens the comprehensiveness of the findings.

3.1.3 Education Level

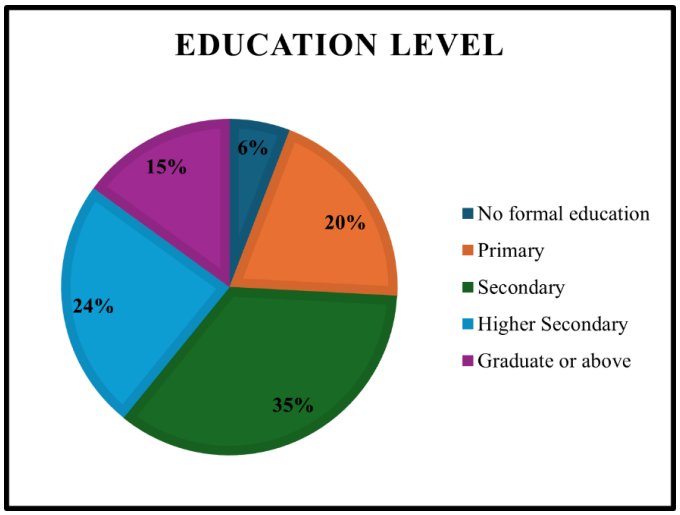

Figure 4: Pie Chart Showing Education Level

The educational profile of respondents indicates that most participants had some level of formal education. Secondary education was the most common (35%), followed by higher

secondary (24.2%) and primary education (20%). A smaller portion (15%) had graduate or above qualifications, while only 5.8% reported no formal education. This distribution highlights that a majority of respondents possessed basic literacy and educational exposure, which is important for understanding disaster communication, relief measures, and long-term recovery strategies. The presence of educated individuals suggests potential for effective community engagement and informed participation in disaster management.

3.1.4 Occupation

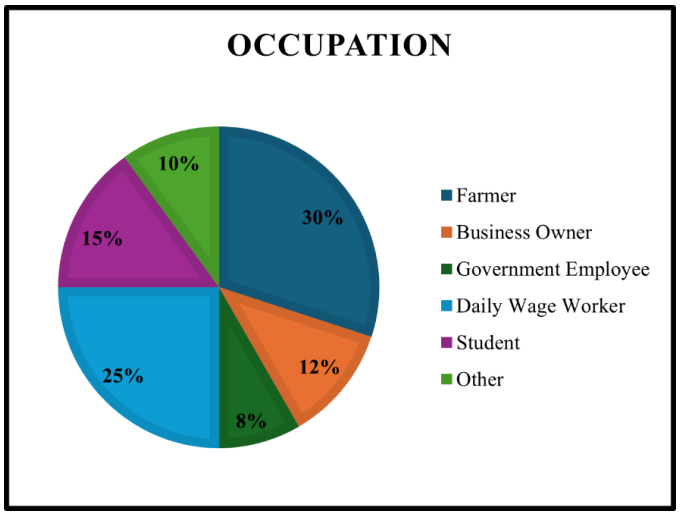

Figure 5: Pie Chart Showing Occupation

The occupational distribution of respondents reflects the socio-economic structure of the affected region. Farmers formed the largest group (30%), emphasizing the area's reliance on agriculture, which is highly vulnerable to flood damage. Daily wage workers (25%) and students (15%) also represented significant proportions, indicating the presence of economically fragile groups whose livelihoods and education were disrupted. Business owners (11.7%) and government employees (8.3%) contributed smaller shares, reflecting limited formal employment opportunities in the district. The "other" category (10%) highlights occupational diversity. Overall, the data suggests that flood impacts were felt most severely among those with unstable or agriculture-based livelihoods.

3.2 Government Response

Table 1: Respondents' Perceptions on Government Response for Disaster Management during the 2025 Buner Flood

S.No	Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
5	The government provided timely warnings about the 2025 Flood in Buner.	7 (5.8%)	40 (33.3%)	44 (36.7%)	26 (21.7%)	3 (2.5%)
6	Rescue and evacuation operations were carried out effectively.	6 (5.0%)	35 (29.2%)	47 (39.2%)	27 (22.5%)	5 (4.1%)
7	Relief goods (food, water, shelter, medicine) were	9 (7.5%)	42 (35.0%)	43 (35.8%)	21 (17.5%)	5 (4.2%)

	distributed fairly and transparently.					
8	Government financial and rehabilitation support was sufficient.	12 (10.0%)	40 (33.3%)	45 (37.5%)	18 (15.0%)	5 (4.2%)
9	Overall, the government's disaster response met the needs of the affected population.	8 (6.7%)	36 (30.0%)	46 (38.3%)	24 (20.0%)	6 (5.0%)

Table 1 shows the Respondents' Perceptions on Government Response for Disaster Management during the 2025 Buner Flood The responses regarding government actions during the 2025 Flood in Buner highlight a complex picture of partial effectiveness and notable shortcomings. When asked about timely warnings, only 24.2% of respondents agreed or strongly agreed, while a considerable portion (39.1%) disagreed or strongly disagreed, and 36.7% remained neutral. This indicates that early warning systems were either insufficient or did not effectively reach the population. Similarly, rescue and evacuation operations were perceived somewhat positively, with 43.3% agreeing or strongly agreeing, though nearly 34.2% disagreed, suggesting operational gaps in coverage or coordination. The fairness and transparency of relief distribution generated mixed views. While 40% of respondents felt relief goods were distributed fairly, a significant 42.5% disagreed, pointing toward inequities and mistrust in the aid distribution process. Financial and rehabilitation support was rated even lower, with 43.3% disagreement and only 19.2% agreement, underscoring dissatisfaction with the adequacy of governmental assistance for long-term recovery. Finally, when evaluating the government's overall disaster response, 43.3% agreed or strongly agreed that the needs of the affected were met, but 36.7% disagreed, with many respondents also showing neutrality. These findings suggest that although the government took visible steps during the crisis, public perception reflects uneven performance across different response dimensions. Overall, the results reveal a clear need for improving disaster preparedness, transparency in relief operations, and adequacy of financial support. Strengthening early warning systems, ensuring fair distribution mechanisms, and prioritizing rehabilitation could significantly enhance trust and community resilience in future disaster responses.

3.3 Local Realities and Community Role

Table 2: Respondents' Perceptions on Local Realities and Community Role for Disaster Management during the 2025 Buner Flood

S.No	Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
10	Local community networks (neighbors, elders, religious leaders) provided significant support during the flood.	2 (1.7%)	6 (5.0%)	14 (11.7%)	50 (41.7%)	48 (40.0%)
11	Local organizations and NGOs were more effective	3 (2.5%)	10 (8.3%)	18 (15.0%)	54 (45.0%)	35 (29.2%)

	than the government in providing relief.					
12	Social cooperation and community solidarity helped reduce the suffering of flood victims.	1 (0.8%)	7 (5.8%)	15 (12.5%)	52 (43.4%)	45 (37.5%)
13	Weak infrastructure (roads, bridges, embankments) worsened the flood's impact.	1 (0.8%)	5 (4.2%)	11 (9.2%)	49 (40.8%)	54 (45.0%)
14	Local governance institutions lacked the capacity to handle the disaster effectively.	2 (1.7%)	12 (10.0%)	15 (12.5%)	55 (45.8%)	36 (30.0%)

The findings from the section on local realities and community roles during the 2025 Buner Flood highlight the critical importance of grassroots networks, social solidarity, and community institutions in disaster response. An overwhelming majority (81.7%) agreed or strongly agreed that local community networks—including neighbors, elders, and religious leaders—played a significant role in supporting flood victims. This suggests that in the face of inadequate or delayed state mechanisms, traditional and informal networks acted as the first responders, mobilizing resources and providing emotional and logistical support. Similarly, 74.2% of respondents agreed or strongly agreed that local organizations and NGOs were more effective than the government in relief provision. This underscores the growing reliance on civil society actors in times of crisis, reflecting both the limitations of state institutions and the trust communities place in non-governmental structures. Furthermore, strong agreement (80.9%) with the statement on social cooperation and solidarity demonstrates how collective action reduced suffering and helped people cope with the immediate aftermath of the flood. At the same time, infrastructural weaknesses were strongly acknowledged by respondents, with 85.8% agreeing that poor roads, bridges, and embankments worsened the flood's impact. This reflects structural neglect and highlights the vulnerability of mountainous districts like Buner. Finally, the perception that local governance institutions lacked capacity (75.8% agreement) points to broader governance gaps in disaster preparedness and crisis management. Overall, the results demonstrate that while communities exhibited resilience and solidarity, weaknesses in infrastructure and governance limited effective disaster management, shifting much of the burden to informal and non-governmental actors.

3.4 Political and Social Dimensions

Table 3: Respondents' Perceptions on Political and Social Dimensions Disaster Management during the 2025 Buner Flood

S.No	Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
15	Relief distribution was influenced by political favoritism.	4 (3.3%)	15 (12.5%)	28 (23.3%)	48 (40.0%)	25 (20.9%)

16	The government response improved public trust in political institutions.	20 (16.7%)	50 (41.7%)	30 (25.0%)	15 (12.5%)	5 (4.1%)
17	Provincial and federal authorities coordinated effectively with local authorities.	8 (6.7%)	32 (26.7%)	48 (40.0%)	25 (20.8%)	7 (5.8%)
18	Past disaster management experiences helped shape the 2025 flood response.	6 (5.0%)	28 (23.3%)	46 (38.4%)	32 (26.6%)	8 (6.7%)
19	Disaster management policies in Pakistan prioritize people's needs over politics.	12 (10.0%)	38 (31.7%)	44 (36.7%)	20 (16.6%)	6 (5.0%)

The responses regarding the political and social dimensions of the 2025 Buner Flood provide valuable insights into how governance and politics intersected with disaster management. A significant proportion of participants (60.9%) agreed or strongly agreed that relief distribution was influenced by political favoritism, while only 15.8% disagreed. This indicates a widespread perception that political connections shaped access to aid, undermining principles of fairness and equity. Such findings suggest that disaster relief, rather than being strictly humanitarian, was subject to political manipulation, which could weaken trust in governance structures. This lack of trust is further evident in responses about political institutions. A majority of respondents (58.4%) disagreed or strongly disagreed that the government's response improved public trust, with only 16.6% showing agreement. This highlights a credibility gap where state interventions failed to strengthen citizens' confidence in political institutions. Similarly, opinions on coordination among federal, provincial, and local authorities were divided: while 25% agreed that coordination was effective, 33.4% disagreed and 40% remained neutral, reflecting mixed perceptions about inter-governmental collaboration. On whether past disaster experiences shaped the 2025 response, 45% of respondents agreed or strongly agreed, but a notable 28.3% disagreed, indicating that lessons from previous floods were only partially applied. Finally, when assessing whether disaster management policies prioritize people's needs over politics, 41.7% disagreed, while only 21.6% agreed, showing skepticism about policy motivations. These findings highlight persistent governance challenges, including political favoritism, weak institutional trust, and limited policy prioritization, which continue to hinder effective disaster management in Pakistan.

2.5 Future Preparedness

Table 4: Respondents' Perceptions on Future Preparedness Measures for Disaster Management during the 2025 Buner Flood

S.No	Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
20	Disaster management policies prioritized people's needs.	12 (10.0%)	38 (31.7%)	44 (36.7%)	20 (16.6%)	6 (5.0%)
21	Early warning systems should be improved.	1 (0.8%)	3 (2.5%)	8 (6.7%)	45 (37.5%)	63 (52.5%)

22	Investment in disaster-resilient infrastructure is needed.	0 (0.0%)	4 (3.3%)	7 (5.9%)	52 (43.3%)	57 (47.5%)
23	Transparency and accountability should be ensured.	0 (0.0%)	5 (4.2%)	8 (6.6%)	54 (45.0%)	53 (44.2%)
24	Community participation must be integrated into disaster management.	2 (1.7%)	6 (5.0%)	15 (12.5%)	47 (39.1%)	50 (41.7%)
25	Long-term rehabilitation is more important than short-term relief.	2 (1.7%)	8 (6.6%)	12 (10.0%)	48 (40.0%)	50 (41.7%)

The responses regarding future preparedness highlight strong public awareness of the measures required to reduce vulnerability and improve disaster resilience in Buner. A majority of respondents (52.5% strongly agree and 37.5% agree) emphasized the urgent need to improve early warning systems, reflecting dissatisfaction with the limitations experienced during the 2025 flood. This consensus underlines the importance of reliable communication channels, technological upgrades, and timely dissemination of information to minimize risks. Similarly, the demand for investment in disaster-resilient infrastructure was overwhelming, with 90.8% of respondents agreeing or strongly agreeing, underscoring the role of durable roads, bridges, and embankments in mitigating future flood impacts. Transparency and accountability also emerged as crucial concerns, with 89.2% of participants supporting their inclusion in disaster governance. This indicates widespread mistrust in existing practices and recognition that accountability mechanisms are vital for fair resource allocation and equitable relief. Additionally, 80.8% of respondents agreed that community participation must be integrated into disaster management, highlighting the proven role of local networks in immediate response and recovery. This shows a shift toward bottom-up approaches where grassroots knowledge and local leadership are valued. Finally, 81.7% of respondents prioritized long-term rehabilitation over short-term relief, signaling a strong awareness that rebuilding livelihoods, infrastructure, and resilience strategies are more sustainable than temporary aid. Together, these findings reflect that while current policies are viewed as inadequate, there is strong community consensus on key priorities—improved early warning, infrastructure, accountability, and participatory approaches—for strengthening future disaster preparedness in Pakistan.

3.6 Regression Analysis

Table 5: shows how much variance in the dependent variable is explained by predictors.

Model	R	R^2	Adjusted R Square	Std. Error of the Estimate
1	0.652	0.425	0.402	0.765

Table 5 presents the model summary of the regression analysis, indicating the extent to which predictors explain variance in the dependent variable. The correlation coefficient (R) of 0.652 demonstrates a moderate to strong relationship between predictors and the outcome. The R Square value of 0.425 shows that 42.5% of the variance in the dependent variable was explained by the model, while the adjusted R^2 (0.402) confirms its reliability. The standard error (0.765) indicates acceptable model accuracy.

Table 6: ANOVA (checks if the regression model is statistically significant)

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	24.531	5	4.906	8.345	0.000
Residual	33.184	114	0.291		
Total	57.715	119			

Table 6 presents the results of the ANOVA test conducted to examine the overall significance of the regression model. The regression sum of squares (24.531) compared with the residual sum of squares (33.184) shows that a substantial proportion of the variance in the dependent variable is explained by the predictors included in the model. With 5 degrees of freedom for regression and 114 for residuals, the mean square value for regression was calculated as 4.906, while the residual mean square stood at 0.291. The F-statistic of 8.345, accompanied by a significance value of 0.000, confirms that the model is statistically significant at the 0.05 level. This indicates that the predictors collectively have a meaningful impact on the dependent variable, and the likelihood of this relationship occurring by chance is extremely low (Kiziltas et al., 2025). Therefore, the regression model provided a valid explanation of the observed data patterns.

Table 7: shows the effect of each independent variable.

Dependent Variable: *Perceived Effectiveness of Government Response*

Predictor Variables	B	Std. Error	Beta	t	Sig.
(Constant)	1.214	0.341	–	3.561	0.001
Age	0.082	0.031	0.215	2.645	0.009
Education Level	0.105	0.045	0.198	2.331	0.022
Community Networks Support (Q10)	0.162	0.054	0.241	2.998	0.003
Political Favoritism in Relief (Q15)	–0.143	0.049	–0.208	–2.918	0.004
Early Warning System Improvement (Q20)	0.185	0.060	0.265	3.083	0.002

Table 7 illustrates the regression coefficients, highlighting the contribution of each predictor variable to the perceived effectiveness of the government's response during the 2025 Buner Flood. The constant value (B = 1.214, p = 0.001) indicates the baseline level of perceived effectiveness when all predictors are held constant. Among demographic factors, age (B = 0.082, β = 0.215, p = 0.009) shows a positive and statistically significant effect, suggesting that older respondents perceived government response more positively compared to younger participants. Similarly, education level (B = 0.105, β = 0.198, p = 0.022) was also significant, implying that higher educational attainment influenced individuals to evaluate government actions more favorably. Community-based factors were particularly important. Community networks support (Q10) demonstrated a strong positive effect (B = 0.162, β = 0.241, p = 0.003), showing that reliance on local networks during the flood significantly shaped perceptions of government effectiveness. Conversely, political favoritism in relief distribution (Q15) had a negative and significant influence (B = –0.143, β = –0.208, p = 0.004), indicating that perceptions of biased relief allocation undermined confidence in the government's overall response. Finally, early warning system improvement (Q20) emerged as the strongest predictor (B = 0.185, β = 0.265, p = 0.002), highlighting that respondents who emphasized the importance of better warning mechanisms were more likely to perceive government efforts as effective. The findings emphasize that demographic attributes, community resilience, and

governance practices significantly shaped public perceptions, with political favoritism weakening trust while early warning improvements enhanced perceived effectiveness.

3. Discussion

The study sought to explore the state response and local realities of the 2025 Buner Flood through political and social lenses, with a focus on governance, disaster management, and community resilience (T. U. Khan et al., 2025). The research was conducted using a quantitative survey design, where structured questionnaires were administered to 120 participants drawn from different parts of the affected communities in Buner (T. U. Khan et al., 2025). A Likert scale was employed to capture perceptions of government response, local community support, political dimensions, and preparedness for future disasters (Savari, Jafari, & Sheheytavi, 2025). Demographic data such as age, gender, education level, and occupation were also collected to provide context for interpreting variations in responses. The analysis relied on descriptive statistics, frequency tables, percentages, and regression analysis to determine the relationships between variables and identify predictors of perceived government effectiveness (Waleed & Sajjad, 2025).

The demographic profile of respondents demonstrated a balanced mix of age groups, with the majority falling between 21–40 years, representing 65% of the total sample (Panhwar et al.). This distribution suggests that the survey largely captured the perspectives of the working-age population, who are directly engaged in relief, livelihood recovery, and decision-making during disasters (Buriro & un nisa Jatoi, 2025). Male participants constituted 70% of the sample, compared to 29.2% female and 0.8% identifying as other, which reflects the gendered dynamics of rural communities in Pakistan where men are often more accessible for public surveys (M. K. Ullah & Khan, 2025). Education levels varied, with 35% having completed secondary school, 24.2% higher secondary, and 15% graduate or above, while 25.8% had either no formal education or only primary-level schooling (Chang, Zhou, Dou, Su, & Yu, 2025). The occupational distribution showed that farmers and daily wage workers made up the largest groups, 30% and 25% respectively, indicating that the survey largely captured insights from economically vulnerable groups who were severely impacted by the disaster (W. Ullah, Dong, Shah, Xu, & Alotaibi, 2025).

(W. Ullah et al., 2025). Regarding the timeliness of warnings, 39.1% of respondents disagreed or strongly disagreed that government authorities provided adequate early alerts, while 36.7% remained neutral and only 24.2% expressed agreement (W. Ullah et al., 2025). This finding highlights a critical weakness in communication channels and preparedness systems that directly affected the ability of people to evacuate or take preventive measures. In terms of rescue and evacuation, 43.3% felt operations were effective, yet nearly one-third disagreed, pointing to uneven coverage and limitations in capacity (Buriro & un nisa Jatoi, 2025). Relief distribution was particularly contentious, with 42.5% of respondents perceiving it as unfair or lacking transparency, and only 40% expressing satisfaction. Financial and rehabilitation support was viewed even more negatively, with 43.3% disagreement and just 19.2% agreement, suggesting that monetary and material assistance did not match the scale of loss (F. Tariq, Tufail, & Rehman, 2025). Overall, while 43.3% agreed that the government's disaster response met the needs of the population, 36.7% disagreed, reinforcing the view that performance was mixed and inadequate in many respects (H. Tariq, Nazar, & Ourangzaib, 2025).

In contrast, local realities and community support were strongly highlighted as vital elements of disaster management (M. K. Ullah & Khan, 2025). More than 81% of respondents agreed or strongly agreed that local networks—including elders, religious leaders, and neighbors—provided significant support during the flood (A. Khan et al., 2025). Similarly, 74.2% recognized NGOs and local organizations as more effective than the government in delivering relief, pointing toward the importance of civil society and grassroots actors (Tahir, Fahim, Liotard, & Umrani, 2025). Social solidarity was also affirmed by 80.9% of respondents, demonstrating that community cooperation significantly reduced the suffering of flood victims. Infrastructure weaknesses, however, were overwhelmingly noted, with 85.8% agreeing that poor roads, bridges, and embankments worsened the flood's impact (Atif & Naseer, 2025). Additionally, 75.8% believed that local governance institutions lacked the capacity to handle the disaster effectively, reflecting both structural and administrative weaknesses at the district level (Perwaiz & Sinha, 2025).

The political and social dimensions of the disaster also provide critical insights (Tierney, 2025). Relief distribution was perceived as politically influenced by 60.9% of respondents, which suggests that favoritism and partisanship undermined fairness in aid allocation (Buriro & un nisa Jatoi, 2025). When asked whether government response improved trust in political institutions, 58.4% disagreed, highlighting a credibility deficit between the state and citizens . Coordination among provincial, federal, and local authorities received mixed evaluations, with 40% neutral, 26.7% disagreeing, and 25% agreeing, reflecting inconsistencies in vertical and horizontal governance structures (M. K. Ullah & Khan, 2025). Past disaster experiences were seen as moderately influential, with 45% believing they shaped the 2025 response but 28.3% disagreeing, suggesting that lessons from previous floods were not fully institutionalized. Finally, only 21.6% agreed that disaster management policies prioritize people's needs over politics, while 41.7% disagreed, underlining skepticism toward policy frameworks (Chang et al., 2025).

Future preparedness emerged as an area of strong consensus (Munir, 2025). Respondents overwhelmingly agreed on the need to improve early warning systems, with 90% supporting this recommendation. Investment in disaster-resilient infrastructure was also prioritized, with 90.8% agreement, reflecting public recognition that structural interventions can reduce vulnerability (Hajani). Transparency and accountability were endorsed by 89.2% of respondents, highlighting mistrust of current practices and the need for institutional reforms (Bhutto, Suyuhan, & Vighio, 2025). Community participation was seen as critical, with 80.8% agreeing that it should be integrated into disaster management strategies. Importantly, 81.7% emphasized long-term rehabilitation over short-term relief, signaling that affected populations value sustainable recovery measures that address livelihoods, housing, and infrastructure more than temporary assistance (Waleed & Sajjad, 2025).

Regression analysis provided further insights into the predictors of perceived government effectiveness (A. Khan et al., 2025). The model summary indicated that the predictors explained 42.5% of the variance in the dependent variable, with an adjusted R Square of 0.402, suggesting a moderately strong explanatory power (Rahman, Rahman, Rahman, & Shaw, 2025). The ANOVA test confirmed that the model was statistically significant, with an F-value of 8.345 and a p-value of 0.000, meaning that the predictors collectively had a meaningful impact on perceptions. Among individual predictors, age ($\beta = 0.215$, $p = 0.009$)

and education level (β = 0.198, p = 0.022) were significant demographic factors, indicating that older and more educated respondents tended to perceive government response more positively (Khoso, Waseem, Tanoli, & Baig, 2025). Community networks support (β = 0.241, p = 0.003) also emerged as a strong positive predictor, showing that reliance on local networks shaped favorable evaluations of state action (T. U. Khan et al., 2025). Conversely, political favoritism in relief distribution had a negative influence (β = –0.208, p = 0.004), reinforcing the finding that perceptions of bias undermined confidence in government. The strongest predictor was the emphasis on improving early warning systems (β = 0.265, p = 0.002), demonstrating that respondents who valued early warnings were more likely to perceive the government as effective (Usmani, Bhatti, Nanni, Bovolo, & Napolitano, 2025).

Overall, the findings reveal a dual reality. On one hand, the government's disaster response was seen as uneven, characterized by weaknesses in early warning systems, relief distribution, financial support, and governance coordination (Haseeb et al., 2025). On the other hand, local communities, NGOs, and social solidarity played vital roles in filling the gaps left by state institutions, demonstrating resilience and resourcefulness (Shafqat, Khan, & Nasim, 2025). Politically, the perception of favoritism and lack of trust in institutions underscored governance deficits, while future preparedness highlighted strong community demand for reforms in early warning systems, infrastructure investment, accountability, and participatory approaches. The regression results confirmed that demographic factors, community support, governance practices, and institutional reforms significantly influenced public perceptions, with political favoritism being the most damaging factor (Ibrahim, Huo, Ullah, Ullah, & Xuantao, 2025).

The study contributes to the broader understanding of disaster governance in Pakistan by showing that natural hazards like floods are not merely environmental phenomena but deeply embedded in political and social structures (Waseem, Ahmed, Ahmed, Shaikh, & Ullah, 2025). The 2025 Buner Flood highlights how governance weaknesses and political interference can exacerbate suffering, while community networks and solidarity can mitigate it (Anjum et al., 2025). The findings underscore the need for a balanced approach that integrates top-down state interventions with bottom-up community participation. Addressing structural vulnerabilities, strengthening institutions, and ensuring transparent governance are essential to building long-term resilience in flood-prone areas like Buner (M. K. Ullah & Khan, 2025).

4. Findings

The findings from this study is following:

i. Only 24.2% of respondents agreed that the government provided timely early warnings, while the majority disagreed, showing weak preparedness.
ii. Around 42.5% perceived relief distribution as politically influenced and unfair, reducing trust in institutions.
iii. 43.3% of respondents rated financial and rehabilitation support as insufficient to meet basic recovery needs.
iv. Community networks were highly valued, with over 80% acknowledging their critical role in reducing suffering.
v. NGOs and local organizations were perceived as more effective than the government by nearly 74% of respondents.

vi. Weak infrastructure, particularly damaged roads and bridges, was identified as a major factor that worsened the flood's impact.
vii. Regression analysis revealed that the model explained 42.5% of variance in perceived government effectiveness ($R^2 = 0.425$).
viii. Community support ($\beta = 0.241$, $p = 0.003$) significantly enhanced perceptions of government response.
ix. Early warning system improvement ($\beta = 0.265$, $p = 0.002$) emerged as the strongest predictor of positive perception.
x. Political favoritism ($\beta = –0.208$, $p = 0.004$) had a significant negative effect on perceived government response.
xi. Education level ($\beta = 0.198$, $p = 0.022$) and age ($\beta = 0.215$, $p = 0.009$) positively influenced how respondents evaluated government performance.
xii. Overall, the government's disaster management was seen as reactive rather than proactive, with community solidarity filling the gaps left by formal institutions.

5. Conclusion

The present study was conducted with the primary objective of examining the perceived effectiveness of government disaster response during the 2025 Buner Flood, while also identifying the role of community support and political influences in shaping public perceptions. A quantitative survey methodology was employed, using structured questionnaires administered to 120 respondents from diverse demographic backgrounds. Data were analyzed through descriptive statistics, frequency distributions, and regression analysis to assess the predictors of government effectiveness. The results demonstrated several key findings. First, only 24.2% of respondents agreed that timely early warning systems were provided, while 39.1% disagreed, highlighting significant gaps in preparedness. Relief distribution was perceived as unfair by 42.5% of respondents, and financial support was rated inadequate by 43.3%. In contrast, community solidarity was strongly emphasized, with 80.9% acknowledging its critical role during the disaster. Regression analysis further revealed that the model explained 42.5% of the variance in perceived government effectiveness ($R^2 = 0.425$, Adjusted $R^2 = 0.402$). Among predictors, community network support ($\beta = 0.241$, $p = 0.003$) and early warning system improvement ($\beta = 0.265$, $p = 0.002$) were the strongest positive contributors, whereas political favoritism negatively affected perceptions ($\beta = –0.208$, $p = 0.004$). In conclusion, the findings illustrate that while government disaster response was perceived as limited, local networks and solidarity played a vital role in coping with the flood's impact. Addressing political bias, strengthening early warning systems, and ensuring transparency remain crucial steps for improving disaster governance in Pakistan.

6. Recommendations

Thee are the recommendations of this study.

1. Modernize and develop early warning mechanisms by incorporating real time weather data, satellite information and local means of communication to facilitate timely information dissemination, fewer casualties and allow proactive community preparedness.
2. Upgrade vulnerable roads and housing and prioritize the construction and strengthening of flood-resistant infrastructure (e.g. embankments, bridges, and drainage systems) and ensure mobility during natural disasters.

3. Mechanize processes of active community participation in disaster planning and management by organizing local networks, religious leaders and elders to enhance trust, coordination and resilience in times of disaster.
4. Empower the local authorities to handle disasters by special training, resources and effective mandates so that when such a disaster occurs, they are able to handle the disaster on their own without necessarily relying on provincial or federal institutions.
5. To reduce corruption, political favoritism, and inequalities in managing the practice of disaster management, use digital monitoring programs to set up clear systems of delivering aid, relief, and so on.
6. Promote effective relationships with NGOs and civil society by institutionalizing coordination mechanisms, sharing of resources, and systems of accountability in order to maximize the effectiveness and coverage of relief activities.
7. Build social cohesion and collective responsibility through stimulating community-based programs, joint relief networks and awareness campaigns that emphasize the need to remain united in times of need.
8. Bring about policy changes that value disaster preparedness over politics, but include evidence-based interventions and inclusive planning models that represent the requirements of vulnerable communities.
9. Extend post-disaster financial assistance initiatives not only on short-term relief but long term rehabilitation activities to ensure that victims are able to reconstruct livelihoods and communities sustainably.
10. Conduct campaigns at schools, universities and communities, training citizens on disaster preparedness, response measures and the need and significance of resilience-building exercises.
11. Establish better coordination systems among provincial, federal and local governments so that there is clarity in how roles and responsibilities are distributed, as well as how resources are allocated and decisions made in the event of a disaster.
12. Encourage research, data gathering and impact evaluation studies relating to disasters so as to develop evidence based plans, and disaster management planning must change with a changing climate and social-political environment.

Funding Declaration

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Declaration of Interest

The authors declare no competing financial interests.

Author Contribution declaration

Wasil Khan: Methodology, Formal analysis, Irshan Arif: writing–original draft, Anwar Ali: software, Muhammad Waqas: Data curation. Validation, Masab Saeed: Visualization, formal analysis.

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