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KEYWORDS	ABSTRACT
climate change, political accountability, government responsiveness, transparency, procedural fairness, citizen participation, Skardu	The aim of this study was to explore the relationship between government responsiveness, transparency, procedural fairness, citizens' participation and political accountability with citizens' assessment of local government climate response in Skardu, Gilgit-Baltistan. A quantitative cross sectional survey was done among 402 adult urban and rural residents. The strongest predictors of citizens' evaluation of local climate response were government responsiveness and political accountability. There was also strong positive impact of procedural fairness and citizen participation, and a smaller direct effect for transparency, once political accountability was accounted for in the model. The mediation analysis revealed positive indirect effects of all four governance processes via political accountability. Evaluation of the climate governance assessment is not only conducted on the services that are provided, but also on how fast, fair, open and accountable public institutions are.
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Introduction

Governance issues are, for example, how to put formal plans into real and stable public services. This new guidance document is about local integration, integration, reporting, monitoring, communication and disaster risk reduction (UNDRR, 2025, 2026).

NDMA Summer Contingency Plan 2026 lists the waves of lightning, landslides. The Glacier related threats are enormous risks to the north of Pakistan and the importance of anticipatory action, coordination and local willingness was emphasised (NDMA, 2026a).

Citizens faced the challenge of managing climate through timely warning, rehabilitation of the road and community infrastructure, access to assistance, the handling of complaints and setting of priorities. The regional data support this vision. Fatima et al. (2025) identifies weaknesses in policy implementation and institutional constraints within Gilgit-Baltistan; Shah et al. (2026) documents community-based community-based adaptation; and Fahim et al. (2026) reports weaknesses in education, early warning, coordination, resources and participation in Community in Skardu.

Citizens' inputs also give a meaningful sense of the disaster management experience at the local level. According to Ilyas and Sharifi (2026), Pakistan Citizen Portal was subjected to complaints related to floods, losses due to heat, and public concerns. The measures and key explanations were positive as they related to citizens' satisfaction, and the concept of justice helps in assessing the response after a disaster (Mata et al., 2023; Nie & Wang, 2023).

The questions in this study are whether or not the general public will strengthen response, transparency, procedural fairness and involvement in the political accountability and whether Bovens (2007) is a question as to whether State players should explain and justify behaviour and whether work could be questioned. The research supports hazard and institutional studies with a citizens' quantitative assessment.

Background of the Study

Gilgit-Baltistan is part of the High Mountain Asia with climate change glaciers, steep slopes, water, streets, farming, settlement and tourism. Research indicates changes in snow cover, glaciers, floods, landslides, water-related problems and the loss of livelihoods (Ali et al., 2023; Ali et al., 2024). Recent studies in the remote Gilgit-Baltistan valleys also showed effects on climate change, which are not uniform for all groups and which are crucial for local inclusive adaptation (Ullah et al., 2026). Ghizer risk perception study demonstrates that the dangerous experience and social conditions shape the way people understand climate and GLOF risks (Aslam et al., 2022).

Skardu complement was termed as the institutional dimension. The gaps identified by Fahim et al. (2026) include risk assessment, early warning, coordination, preparedness, resources and participation over the community. NDMA illustrated the preparations for the Gilgit-Baltistan monsoons, which consisted of sudden flooding, landslides, GLOFs, local resources and public information of July of 2026 (NDMA, 2026b).

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Problem Statement

The public institutions in Skardu are constantly under pressure because of climate related risks. However there are restricted statistics that indicate citizens' evaluation of the quality and accountability of local government. The several Gilgit-Baltistan studies will provide valuable inputs about the effects of climate change from the community perspective, structural adjustment strategies and institutional capacities. They do not provide a full account of how ordinary citizens make sense of the experiences they have had with government communication, responsiveness, fairness, participation and responsiveness in their overall assessments of local climate policy.

This gap is important with regard to research and administration, and it is not only planning, division or infrastructure that defines Institutional performance. Therefore, a missing explanation link is noted in the literature between climate governance and civilian assessment. Skardu research identifies institutional weaknesses (Fahim et al., 2026), Gilgit-Baltistan in research identifies locating and implementing (Fatima et al., 2025) gaps and system-wide reporting data from Pakistan complaints show how disaster experiences are bad for the general public and deliver services (Ilyas & Sharifi, 2026).

However, they are not integrated into quantitative frameworks at civil level with an emphasis on political accountability. The objective of research was to have a better understanding of governance process and political responsibility of citizens that shaped their expectation and perception of the local government's climate related risks response in Skardu.

Research Objectives

To find out the citizen's perception of the threat from the climate hazards in Skardu.

To evaluate the perceptions of citizens with respect to government responsiveness, transparency, procedural fairness, citizen participation and political accountability in climate-related governance.

To examine the relationship between political accountability and citizens' evaluation of local government climate response.

To examine the direct effects of government responsiveness, transparency, procedural fairness, and citizen participation on citizens' evaluation of local government climate response.

To examine the mediating role of political accountability between governance processes and citizens' evaluation of local government climate response.

To identify practical governance improvements that can strengthen accountable and citizen-centred climate resilience in Skardu.

Research Questions

RQ1. How do citizens in Skardu perceive climate-related hazards and the adequacy of local government response?

RQ2. How do citizens perceive government responsiveness, transparency, procedural fairness, citizen participation, and political accountability in climate governance?

RQ3. Is government responsiveness significantly associated with citizens' evaluation of local government climate response?

RQ4. Are transparency, procedural fairness, and citizen participation significantly associated with citizens' evaluation of local government climate response?

RQ5. Is political accountability significantly associated with citizens' evaluation of local government climate response?

RQ6. Does political accountability mediate the relationship between governance processes and citizens' evaluation of local government climate response?

Research Hypotheses

H1: government responsiveness is positively associated with citizens' evaluation of local government climate response.

H2: Transparency is positively associated with citizens' evaluation of local government climate response.

H5: political accountability is positively associated with citizens' evaluation of local government climate response.

H6: government responsiveness, transparency, procedural fairness, and citizen participation are positively associated with political accountability.

H7: political accountability mediates the relationships between government responsiveness, transparency, procedural fairness, citizen participation, and citizens' evaluation of local government climate response.

Literature Review

The vulnerability of mountains, climate change and local government.

The mountain climate risks are related to the interplay between physical risks, infrastructure, livelihood and institutional capacity. Glacier and snow cover changes, extreme rainfall events and

slope instability impact water supply and transport, as well as agriculture and population and tourism (IPCC, 2022). In Gilgit-Baltistan, studies have been conducted that show modifications in snowfall, glacier conditions, flood, and landslide, along with water and maintenance availability (Ali et al., 2023; Ali et al., 2024). People Center, participation and communication and the reduction of disaster risks at the local level thus becomes the focus of UNDRR (2025, 2026).

It will be a Climate Governance in the region of Gilgit-Baltistan & Skardu.

The analysis of regional data shows there is a disconnect between policy design and policy implementation at the local level. Fatima et al. (2025) identifies finance, technical, coordinating, and localisation limitations, Shah et al. (2026) document community-based alertness, security infrastructure, population movements, and local preferences. In Community, Skardu, Fahim et al. (2026) highlights the lack of weaknesses in the areas of risk assessment, preparedness, early warning, coordination, resources, participation, and the fact that the community is not adequately engaged. These conclusions help in the research on the formal citizens' responsibility for the climate response.

Political Accountability

Political accountability is about accountability not universal approval. It is a relationship where a public player is required to explain and justify the actions of a forum that can ask questions and make evaluations about the public player's performance, as Bovens (2007) said. Mees and Driessen (2019) add to the mix clear responsibilities, transparency, monitoring, civilian surveillance and verification of climate change adaptation or sanctions. Assessment of accountability was conducted based on information provided in the areas of responsibilities, the declaration, the complaint management, the inspection and the resources, but not by asking respondents to provide an account of the parties or of individual political leaders.

Government Responsiveness

Whether institutions have an awareness of the needs and whether they react to the needs appropriately and in a timely manner. Nie and Wang (2023) are convinced that action and explanatory answers bring the most satisfaction to citizens. The preventive measures, complaint prosecution, road clean-up, emergency measures coordination, rehabilitating public utilities, reacting to the emerging risks and binding declaration of immediate action stopping were included in Skardu.

Open and Access to Information.

Transparency enables citizens to be informed, select risks, prioritise and utilise resources. These might include prevention criteria, the right to help, project priorities, damage assessment, response dates and readiness.

Procedural Fairness and Perceived Justice

Climate crises require Governments to place priority on inadequate aid, equipment, security and compensation. Citizens will therefore be assessed on the basis of needs and information about vulnerable groups, whether these processes are consistent, impartial or needs-based. Mata et al. (2023) found that reasonable fairness and quality of service facilitate the full satisfaction of disaster response. Transparent priorities and declarations are crucial in delaying assistance to remote regions on the geographic scale of Skardu.

Citizen Participation and Local Knowledge

Participation is used to enable residents to acquire local knowledge of water channels, unstable slopes, closed roads, at risk of housing and prior threats. Gilgit-Baltistan studies focused on community-based and local-level adjustments (Ali et al., 2023; Shah et al., 2026). Participation will also facilitate the determination of responsibility where individuals can express their concerns, obtain clarification and monitor follow-up activities – not just visits, but more important than visits which are important.

Citizen Evaluation, Satisfaction, and Trust

The citizen evaluation is a diagnosis of the suitability and effectiveness of local climate response and differs from the broader political trust response. Pakistan's evidence confirms this point of view: Petrova and Rosvold (2024) demonstrates that, in some circumstances, disaster response may have an impact on political trust, while Ilyas and Sharifi (2026) demonstrates that citizens' complaints reveal services failing, real estate problems, negative attitude and unwillingness. For example, structured citizen feedbacks can incorporate governance dimensions which may lack administrative output.

Research Gap

Available data indicate high climate risk at Skardu and Gilgit-Baltistan, institutional implementation deficiencies and citizens' feedback. But very few quantitative studies in Skardu provide answers, transparency, procedural fairness, participation, political accountability. In a single model, the total citizen evaluation is integrated. The current study will bridge this gap by looking at the political accountability as a direct predictor and mechanism which connects governance processes with the citizen's assessment.

Theoretical and Conceptual Framework

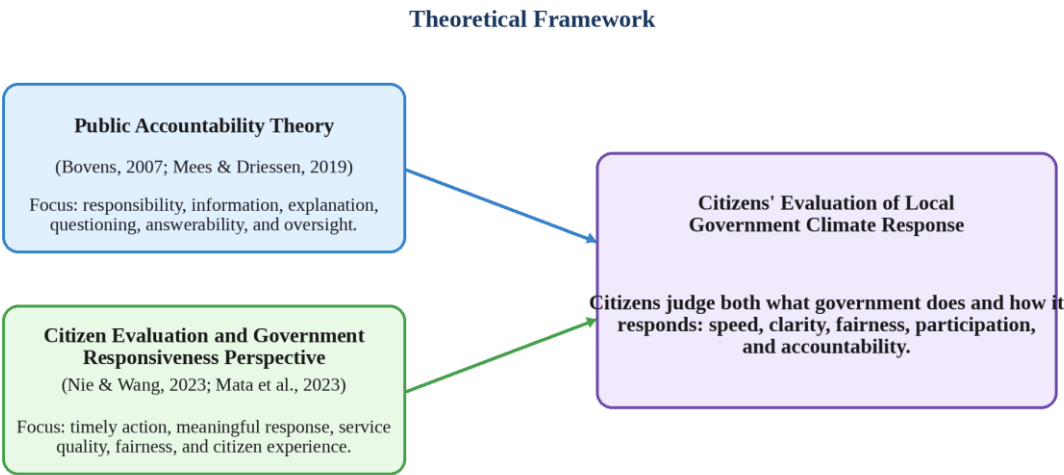
Public Accountability Theory

Public Accountability Theory is the main theory which is employed in the study. According to Bovens (2007) the concept of accountability can be seen as a process of informing and clarifying to

authorities, clarifying and justifying decisions, answering questions, and making open to judgement and consequences. This implies that there should be a way for people to know who knows why decisions are taken, to ask questions, make complaints and see that the question of climate policy is being taken care of. A clear approach to accountability in relation to local adaptation to climate change will also be key and responsibility, transparency, civil oversight, supervision and review will be clear, as has been demonstrated by Mees and Driessen (2019).

Citizen Evaluation and Government Responsiveness Perspective

The other theoretical context is how the citizens and public administration evaluate comments. People generally take a more positive look at government reactions, concerns, useful explanations and honesty when the authorities listen to complaints. Nie and Wang (2023) indicate that action-based and explanatory responses can be attributed to a high level of satisfaction while Mata et al. (2023) suggests that service quality and observed justice affects disaster response. The two theoretical lenses are the reason why government-led actions and the accountability of Governments can determine citizens' opinions on climate behaviour.



The two theoretical lenses are used together to explain how governance processes shape citizen evaluation.

Figure 1. Theoretical framework of the study: Public Accountability Theory and the Citizen Evaluation and Government Responsiveness Perspective (Bovens, 2007; Mees & Driessen, 2019; Nie & Wang, 2023; Mata et al., 2023).

Conceptual Relationships

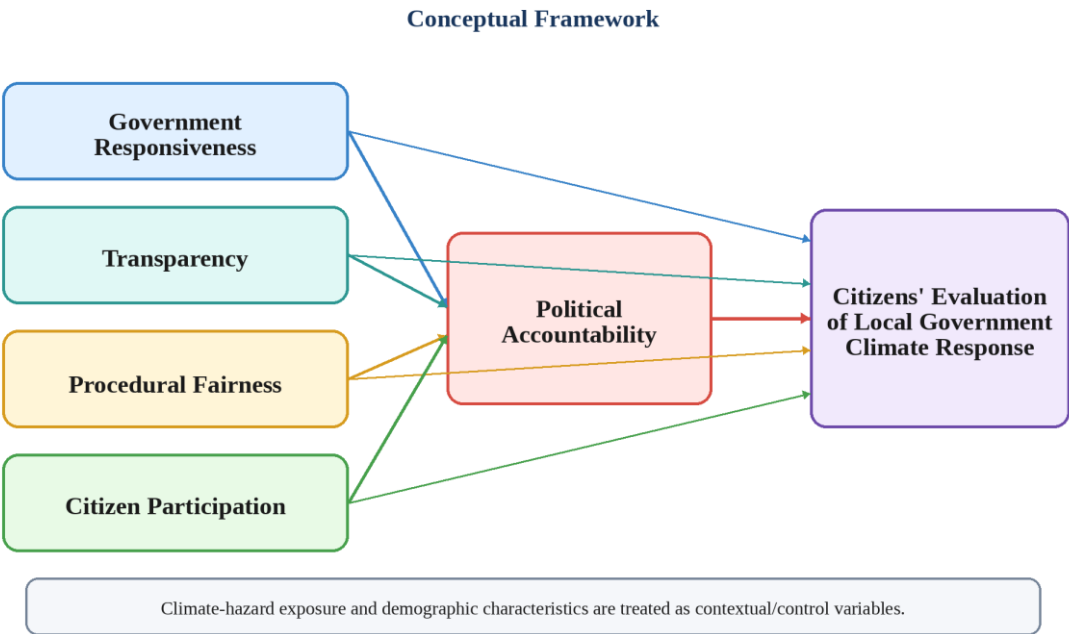


Figure 2. Conceptual framework showing the relationships among governance processes, political accountability, and citizens' evaluation of local government climate response.

Conceptually, the relationship of government responsiveness, transparency, procedural fairness and citizen participation with political accountability, and the relationship of political accountability as a mediator between the four governance processes and citizens' assessment of local government climate response were analyzed.

Methodology

Research Design

The design of this study was cross sectional survey with quantitative approach. The design was based on relationships between governance perception, political accountability, and citizen evaluation at a single time point and comparison of relationships between these variables across groups of citizens with different demographic characteristics and climate-hazard exposures.

population

The study was carried out in Skardu District of Gilgit-Baltistan province of Pakistan. According to the Government of Gilgit-Baltistan's tourism website, there is a total area of 10,168km² with a

population of 278,885. Eligible participants were the adults of 18 years or above and were residing in Skardu District for last one year or more.

Sample Size

The minimum sample size was determined by Cochran's formula with a maximum allowable error (E) of 5%, a population proportion (p) of 50% and a level of confidence (α) of 95%. At least 384 questionnaires had to be filled out. The final number of questionnaires used was 402.

Sampling Procedure

Multistage sampling procedure was used. First, the town of Skardu was divided into urban and rural areas and then settlements neighbourhoods were demarcated and households were approached in a systematic manner. One adult respondent meeting the criteria for eligibility was selected from each household participating. The procedure was followed to achieve de-concentration of central areas and to achieve representation by sex, age and area.

Process of instruments and measures

The questionnaire examined the exposure of people to climate hazards, citizens' perception of government response to climate threats, transparency, procedural fairness, citizens' involvement in decision making, political accountability, citizens' evaluation of local government's climate response. Items related to substance use were assessed using a 5-point Likert scale from 1 (strongly disagree) to (5 strongly agree). The items were developed on the literature of accountability, disaster management, participation, public governance and adapted for Skardu. The instrument was drafted in an easily understood language and translated to Urdu/Balti if needed.

Table 1:

Construct	Items	Operational focus	Literature basis
Climate-hazard exposure	4	Perceived experience of floods, landslides, glacier-related hazards, water disruption, unusual weather, and impacts on livelihoods/infrastructure	Aslam et al. (2022); Ali et al. (2023, 2024)
Government responsiveness	5	Timely action, complaint response, early warning, practical assistance, follow-up	Nie & Wang (2023); NDMA (2026a)
Transparency	4	Flood, landslide, glacier related hazard, disruption of water, unusual weather, impacts on livelihoods/infrastructure are perceived.	Mees & Driessen (2019); OECD (2024)

Procedural fairness	4	Timely action, response to complaints, early warning and practical assistance and follow-up.	Mata et al.(2023)
Citizen participation	4	Availability/understandability of information, explanation of decisions, relief criteria, preparedness information.	OECD (2024); Shah et al.(2026)
Political accountability	5	Needs-based prioritisation, uniform treatment, equal and attentive treatment of vulnerable groups.	Bovens (2007); Mees & Driessen (2019)
Citizen evaluation	5	Answerability, responsibility, scrutiny, complaints, explanation of the use of resources Overall adequacy, preparedness, effectiveness, assistance, risk reduction	Rahim & Shirazi (2018); Mata et al. (2023)

Table 1 summarizes the operationalization

Content validity was assessed through expert review and pilot testing. Internal consistency was examined using Cronbach's alpha, with values of .70 or above treated as acceptable. Item-total correlations and factor analysis were considered where necessary to assess measurement quality.

Table 2: Example Questionnaire Items

Construct	Measurement items
Government responsiveness	Local authorities take action immediately after a climate-related emergency; Government officials act when complaints from the community are made in response to climate hazards; Emergency information is communicated to citizens at the right time.
Transparency	The Government provided adequate information to the citizens about its activities

Procedural fairness	related to the issue of climate change; authorities explained what they did in case of disaster and how they provided assistance. Climate-related assistance was provided based on actual needs; In emergencies, different communities were treated fairly; and Vulnerable groups got fair treatment.
Citizen participation	Local residents will be able to voice their concerns regarding climate-related; Community representatives will be consulted before the preparation; Local knowledge will be considered when making decisions on climate-related.
Political accountability	Responsible officers might be asked why they have failed to act in response to the climate; Authorities should be called upon to account for its actions; the departments of Government would be held accountable for their failure to ensure preparedness or response.
Citizen evaluation	Local authorities' response is overall effective in focusing on climate related issues. I appreciate the work on the climate hazards by the Government and the measures they are taking to reduce the climate risks in my community.

Data Collection Procedure

The survey was carried out by trained enumerators. The respondents were informed about the nature of the study and their voluntary participation. Questionnaire was self-administered or interviewer-administered as per the literacy needs. To minimise the influence of social-desirability pressure, data was gathered off site of public officials, as much as possible.

Ethical Considerations

Before collecting data, the study's design guaranteed the participant's voluntary engagement and informed consent. All participants' names and any other individual details were kept confidential and anonymous. The subjects could skip any question or drop out at any stage without being punished. All the data collected were kept in a secure manner and only used for academic purposes. Appropriate citations for all sources were used, and no data was reported in a way that was intended to deceive or mislead. The relevant university authority has granted the necessary ethical permission (as applicable).

Data Analysis

For the summarisation of respondent characteristics and the study variables, descriptive statistics were used. Reliability of the scales was determined by Cronbach's alpha. The direction and strength of bivariate relationships has been examined using Pearson correlation. Predictors of political accountability and citizens' evaluation were tested using multiple regression analysis. To explore whether political accountability was a mediator between the four governance processes and citizens' evaluation, a bootstrap mediation analysis was employed. Prior to interpretation of models, multicollinearity and regression assumptions were tested.

The results were analysed using statistical analysis.

Table 3: Respondent Profile

The gender, age group and urban-rural distribution of the 402 respondents is shown in Table 3.

Characteristic	Category	N	%
Gender	Male	227	56.5
Gender	Female	175	43.5
Residence	Urban	216	53.7
Residence	Rural	186	46.3
Age	18-29	112	27.9
Age	30-39	127	31.6
Age	40-49	115	28.6
Age	50-59	37	9.2
Age	60+	11	2.7

Descriptive Statistics and Reliability

Each construct is shown in terms of mean, standard deviation, and Cronbach's alpha in Table 4. All alpha values were >.70 which is acceptable to excellent internal consistency. Exposure to climate hazards had the highest mean score (M = 3.18) while citizen participation had the lowest mean (M = 2.68) followed by political accountability (M = 2.78) and transparency (M = 2.84).

Table 4:

Construct	Items	Mean	SD	Cronbach's α
Climate-hazard exposure	4	3.18	0.78	.78
Government responsiveness	5	2.95	0.87	.89
Transparency	4	2.84	0.88	.87
Procedural	4	2.88	0.89	.88

fairness				
Citizen participation	4	2.68	0.83	.84
Political accountability	5	2.78	0.91	.91
Citizen evaluation	5	2.86	0.91	.91

Correlation Analysis

Table 5 indicates that the bivariate relationships between the main governance variables and citizens' evaluation of local government climate response were positive with political accountability being the most ($r = .62$), followed by government responsiveness ($r = .59$), procedural fairness ($r = .50$), citizen participation ($r = .46$), and transparency ($r = .41$).

Table 5:

Variable	CHE	RESP	TRANS	FAIR	PART	PA	EVAL
CHE	1.00						
RESP	.28	1.00					
TRANS	.18	.37	1.00				
FAIR	.21	.38	.37	1.00			
PART	.17	.37	.37	.40	1.00		
PA	.20	.48	.50	.54	.53	1.00	
EVAL	.18	.59	.41	.50	.46	.62	1.00

CHE = climate-hazard exposure, RESP = government responsiveness, TRANS = transparency, FAIR = procedural fairness, PART = citizen participation, PA = political accountability, EVAL = citizens' evaluation of local government response.

Predictors of Political Accountability

Government responsiveness, transparency, procedural fairness and citizen participation were then included as predictors of political accountability to test H6. All four predictors had statistically significant positive effects.

Table 6:

Predictor	Standardized β	T	P
Government responsiveness	.192	4.69	< .001
Transparency	.235	5.78	< .001
Procedural fairness	.275	6.67	< .001
Citizen participation	.259	6.28	< .001

The model explained 49.5% of the variance in political accountability ($R^2 = .495$; adjusted $R^2 = .490$, $F = 97.47$, $p < .001$). Procedural fairness ($\beta = .275$, $p < .001$) and citizen participation ($\beta = .259$, $p < .001$) had the strongest effects, followed by transparency ($\beta = .235$, $p < .001$) and government responsiveness ($\beta = .192$, $p < .001$).

Table 7: Predictors of Citizens' Evaluation

Predictor	Standardized β	T	P	Interpretation
Climate-hazard exposure	-.029	-0.79	.428	Contextual variable
Government responsiveness	.340	8.18	< .001	H1 supported
Transparency	.037	0.90	.368	H2 direct effect not supported
Procedural fairness	.156	3.67	< .001	H3 supported
Citizen participation	.103	2.45	.015	H4 supported
Political accountability	.303	6.20	< .001	H5 supported

The model explained 52.3% of the variance in citizens' evaluation ($R^2 = .523$; adjusted $R^2 = .516$, $F = 72.24$, $p < .001$). government responsiveness ($\beta = .340$, $p < .001$) and political accountability ($\beta = .303$, $p < .001$) were the strongest predictors. Procedural fairness ($\beta = .156$, $p < .001$) and citizen participation ($\beta = .103$, $p = .015$) also had significant positive effects. Transparency had a small and non-significant direct effect after political accountability was included ($\beta = .037$, $p = .368$).

Table 8: Mediation Analysis

Indirect pathway	Indirect effect	95% bootstrap CI
Responsiveness → Accountability → Evaluation	.058	.031, .090
Transparency → Accountability → Evaluation	.071	.042, .105
Fairness → Accountability → Evaluation	.083	.051, .120
Participation → Accountability → Evaluation	.079	.047, .119

Results of the mediation revealed that political accountability mediated part of the relationship between each governance process and citizens' evaluation. The indirect effects were .058 (responsiveness), .071 (transparency), .083 (procedural fairness), and .079 (citizen participation). None of the bootstrap confidence intervals contained zero, suggesting statistically significant indirect effects. Transparency result was important specifically because it did not have a direct impact, but rather had an indirect impact through political accountability, which was positive.

Table 9: Hypothesis Summary

Hypothesis	Relationship	Outcome
H1	Responsiveness → citizen evaluation	Supported
H2	Transparency → citizen evaluation	Direct effect not supported
H3	Procedural fairness → citizen evaluation	Supported
H4	Participation → citizen evaluation	Supported
H5	Political accountability → citizen evaluation	Supported
H6	Governance processes → political accountability	Supported
H7	Indirect effects through political accountability	Supported

Discussion

Responsiveness and the Citizen Experience of Climate Governance

The government responsiveness measure was the only one that made a significant impact on the citizens' evaluation ($\beta = .340, p < .001$). The more local authorities act promptly to complaints, show concern, and promptly provide reasons for any delays, the more likely that positive responses will be given on local climate reactions. This is in line with 2026, where Nie and Wang (2023) and NDMA (NDMA 2026a, 2026b) are focusing on providing timely warning and coordination for the timely implementation of response measures. In the case of Skardu, as there is a complex mountain environment, it can be argued that acting in time and giving context with good explanations are of special importance.

Political accountability is one of the crucial elements of governance.

The evaluation is also highly positively correlated with the citizen's evaluation of the political accountability ($\beta = .303, p < .001$). When the authorities explained to the citizens the reason for their decision, they were more positive, accepted responsibility, and were ready to answer questions

about their decisions. This corresponds with the ideas of accountability of Bovens (2007) and Mees & Driessen (2019). It is also consistent with the most recent evidence from Skardu, which shows that there are multiple coordination, preparation, early warning, and resource provision concerns (Fahim et al., 2026). The analysis result indicates that there is a need for the accountability factor in citizens' climate reaction perception.

Transparency and Accountability

At the bivariate level transparency was positively related to citizen evaluation, but this direct relationship was reduced and rendered non-significant with the addition of political accountability to the regression model. Not necessarily; just the information isn't sufficient. The transparency can be even more enriching if it allows the citizens to understand who is responsible, what for, and how the decision is being challenged. From an accountability point of view, spending information can contribute to an increase in accountability (Mees & Driessen, 2019) as long as it is transparent, and then spending rules of support, time limits, and priorities follow.

Equality in Sharing of Climate-Response Resources

Procedural fairness positively affected citizen evaluation and political accountability the most ($\beta = .156, p < .001$; and $\beta = .275, p < .001$, respectively). It is therefore important that citizens should be concerned about decisions that are fair, consistent, need-driven, and concerned with the vulnerable. This finding is consistent with Mata et al. (2023), which considers justice important for disaster response's satisfaction. Understanding and tough decisions for distribution can be made easier if clear and honest rules are put in place in Skardu.

Participation, Local Knowledge & Follow-Through

Citizen participation was also found to have a significant positive impact on citizens' evaluation ($\beta = .103, p = .015$) and political accountability ($\beta = .259, p < .001$). Another way its accountability has a positive effect is indirectly. The local knowledge-based approach has been found to be very significant in the studies of community-based and local knowledge-based adaptation in the region of Gilgit-Baltistan (Ali et al., 2023; Shah et al., 2026). Being listened to, learning about what is going on today, and learning how community input can help in decisions are the most useful participations.

Context (Not a Complete Explanation): Climate-Hazard Exposure.

This study was also tested with the addition of the governance variables, and climate hazard exposure was found to be small and not significant. So, having been exposed to the hazard is not a sufficient reason for the government to be assessed by the citizens only. Warning effectiveness and assistance, equity, communication, and follow-up efforts may vary for persons with comparable risk. This is also the case in the Gilgit-Baltistan (Aslam et al., 2022) region's risk perception study.

The recent proof of Pakistan is relevant in how?

The findings were also found to be in line with the recent evidence in Pakistan. As revealed in the study conducted by Ilyas and Sharifi (2026), the complaints of the citizens during the floods and heatwaves are service issues, real estate issues, negative emotions, and poor preparedness. However, aid in disasters can in some circumstances have an impact on political trust, as Petrava and Rosvold (2024) demonstrated. The research backs up the local Skardu view with information on the relationship between accountability, integrity, participation, transparency, and accountability in evaluating citizens' status.

Practical and policy implications

Information should be provided by local authorities regarding alerts, incidents, response time, assistance given in relief and complaints made and if any issues reported have been resolved, on a clear and regular basis. More than one communication channel should be utilized such as the telephone, SMS text message, community communication systems, local representatives, etc. Information should also be shared on how scarce resources are prioritized and considerations of risk and vulnerability and access critical infrastructure should be taken into account when making decisions.

Resident notification and input should be the use of two-way communication for hazards, services and needs.

Selection of emergency equipment, relief and protection should be transparent and well documented based on need, vulnerability, access and risk on infrastructure.

Limitations

The cross sectional design was used and only described the associations among the variables examined and did not seek to draw cause/effect conclusions. For some associations, common method bias and response bias might have occurred since all key governance indicators were collected in the same survey. The next study needs to be conducted to include citizen perceptions of warning time, coverage of emergency-relief efforts, problems with road closures and delays, and citizen complaints. Outcomes of remote mountain communities may not necessarily be transferable to all municipalities. Longitudinal and mixed methods studies on certain aspects of political accountability should be conducted in the future, as well.

Conclusion

The climate change scenario is an issue of environment and governance in Skardu. Despite the climate risks being significant, there are still significant gaps in preparedness, warnings, coordination, and resources and community participation (Fatima et al., 2025; Fahim et al., 2026; Shah et al., 2026).

The results indicated that the citizens' assessment of local climate response is most significant when it comes to the government's response and political accountability. High levels of procedural fairness and citizen participation were also observed. Transparency seemed to have direct impact primarily on political accountability. That is, not only were citizens expecting something to be produced by the government to address climate change, but they also had expectations of speed of output, fairness of the process, and transparency and accountability of the government.

To enhance the governance of climate change in Skardu, strong technical systems as well as good relations with communities should be established. Early warnings, protection of infrastructure, emergency assistance, and relief are always necessary but are strengthened by the following: a clear division of responsibilities, clear priorities, local knowledge being used, a complaints mechanism, and public decisions being subject to review.

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Appendix A. Survey Instrument

All substantive items are rated on a five-point scale: 1 = strongly disagree, 2 = disagree, 3 = neutral,

4 = agree, and 5 = strongly agree. Demographic questions should be asked after the substantive scales to reduce priming.

Climate-hazard exposure

1. My community has experienced noticeable climate-related environmental changes.
2. Floods, landslides, glacier-related hazards, water shortages, or unusual weather have affected people in my area.
3. Climate-related hazards pose a serious risk to households in my community.
4. Climate-related events have affected local infrastructure, livelihoods, or essential services.

Government Responsiveness

1. Local authorities respond promptly when climate-related emergencies occur.
2. Government officials respond to community complaints regarding climate hazards.
3. Emergency information reaches citizens at an appropriate time.
4. Relevant departments act when vulnerable infrastructure is reported.
5. Government responses address the practical needs of affected communities.

Transparency

1. Citizens receive adequate information about climate-related government activities.
2. Government agencies clearly communicate disaster-preparedness measures.
3. Information concerning relief and assistance is accessible to citizens.
4. Authorities provide reasonable explanations for climate-response decisions.

Procedural fairness

1. Climate-related assistance is distributed according to genuine community need.
2. Different communities are treated fairly during emergency response.
3. Political or personal connections do not determine access to assistance.
4. Vulnerable groups receive fair consideration in climate-response decisions.

Citizen participation

1. Citizens have opportunities to raise climate-related concerns with local authorities.
2. Community representatives are consulted regarding disaster preparedness.
3. Local knowledge is considered when climate-related decisions are made.
4. Citizens have meaningful opportunities to provide feedback on government response.

Political Accountability

1. Responsible officials can be questioned about inadequate climate response.
2. Authorities are expected to explain their decisions to affected communities.
3. Government departments accept responsibility for failures in climate preparedness or response.
4. Citizens can raise complaints when government response is inadequate.
5. Public officials are expected to account for how climate-response resources are used.

Citizen evaluation

1. Overall, local authorities respond effectively to climate-related problems.
2. I am satisfied with local government preparedness for climate hazards.
3. Local authorities provide adequate assistance during climate-related emergencies.
4. Government actions contribute to reducing climate risks in my community.
5. Overall, I evaluate the local government's climate response positively.