

# BUILDING DISASTER RESILIENCE IN VULNERABLE COMMUNITIES OF BALOCHISTAN: INNOVATIVE STRATEGIES FOR ENHANCING PREPAREDNESS AND RESPONSE CAPACITY

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## ABSTRACT

*This paper discusses disaster preparedness in vulnerable communities in the Balochistan province based on three districts of the province, namely: Awaran, Lasbela, and Kech. It uses a mixed-methods research design because it is founded on the survey data obtained among 120 respondents and Rich descriptions of in-depth interviews conducted with the representatives of the government and NGOs. The key data identifies that the most common risks that occur when it comes to droughts and flash floods but just one in every four respondents stated that they had been given early warning. The vast majority of them were unprepared in terms of disasters and one out of five judged disaster coping as poor. Additionally, it was found that resilience is closely connected with preparedness training, access to early warning systems, community participation, use of technological tools of communication, and social cohesion. The qualitative learning explained the problems of poor coordination within the institution, less application of technologies at the distance site, and the absence of community involvement. This research presupposes the prolongation of the training programs, the deepening of the scope of an early warning system, the stimulation of the participatory planning, the involvement of social trust, and the stimulation of the organization between the government and the NGOs. It also requires the necessity to carry out more studies on the inclusive strategy, indigenous knowledge, and technology adoption to improve disaster risk reduction in Balochistan.*

**Keywords:** Disaster; Resilience; vulnerable Communities; Preparedness; Response Capacity; and innovative Strategies

## INTRODUCTION

Balochistan is highly susceptible to natural calamities such as earthquakes, floods, drought, and cyclones, and the situation is worsened by environmental deprivation and depressed reserve setup. The need for disaster preparedness and resilience is evident in the intensifying sea level rise in Gwadar. In such a case, the studies point out that disaster education matters to enhance the resistance at the community level; in the study area, which still deals with ignorance as a significant impediment (Noorzai & Ahmed,

2022). Against this backdrop, there is a need to come up with new opportunities to bolster the disaster preparedness and response capacity of vulnerable populations in Balochistan. The first steps are activation of integrated disaster education programs, strengthening of the early warning system, and the development of environmental resources sustainability, which are of primary importance in terms of augmenting the level of resilience, along with the

mitigation of negative effects of natural hazards in the region.

Balochistan, the largest province in Pakistan, is characterised by dry weather conditions, the terrain is rocky, and it is surrounded by a cluster of other socio-economic problems, leaving it as the major victim of natural disasters like earthquakes, floods, and famines. To a great extent, this vulnerability is further compounded by the fact that its poor structure, low disaster preparedness, and neglect of communities have currently labelled it as one of the most vulnerable areas on the domain map. These disasters are more recurring and severe, and that requires emergency construction of resilience among such communities that are threatened (Khan & Ali, 2021). Disaster resilience may be taken to mean the capacity of individuals, communities, and systems to predict, endure, recuperate, and adjust to negative occurrences (UNDRR, 2020).

There are numerous ways applied all over the world to enhance disaster resilience, and community-based intervention has become a subject of focus. The current intervention is based on local capacities, local-government collaboration, and the expansion of indigenous knowledge in their decision-making to contemporary technology contributions (Ahmed et al., 2022). Plans to be used in dealing with Balochistan should consider both cultural and social interactions, coupled with the unique geography of the area. There is substantial significance of the local communities in disaster preparedness response because the majority of disaster responders are locals or groups located around points of interest (Patel, 2020). In this way, enlightenment, and building of infrastructures, and the development of technology can be blown away to a greater extent.

To create resilience to disasters like the one in Balochistan, a proactive, community-based approach is required to be complemented by integrating approaches on how disasters will be combated when they strike. According to UNDRR (2015), Disaster Risk Reduction (DRR) refers to a process that is systematically implemented to guide, assess, and reduce the risks associated with disasters using measures to promote preparedness, resilience, and development (sustainable). A holistic guideline

is presented in the Sendai Framework for Disaster Risk Reduction (2015-2030), which includes the following points, namely, the focus on understanding the risk of disasters, the enhancement of governance practices, investments in strengthening resilience, and effective response and recovery arrangements. It also replaces the Hyogo Framework for Action (2005 to 2015), which introduced the mainstreaming of DRR in national policies and in development plans (UNISDR, 2005). Such worldwide endeavors are also supplemented through the Paris Agreement and the Sustainability Development Goals (SDGs), which primarily emphasize the connection between climate change adaptation and poverty reduction to the resilience to disasters (UN, 2015). Such frameworks have to be coupled with local, long-term approaches in places such as Balochistan, with low infrastructural, environmental, as well as socio-economic resilience. Sustainable Livelihoods Framework (SLF), which has been worked out by DFID, is a rather insightful pattern since it connects access that people have to five types of capital, i.e., human, social, natural, physical, and financial, to their ability to resist and recover due to disasters (Kelman, 2022). The SLF is at the confluence of a vulnerability framework comprised of external shocks, trends, and seasonal pressures, which must be understood as conditioning the availability of resources and opportunities to build resilience and enable or restrict access to them. In the disaster-prone regions such as Balochistan where the population relies heavily on the vulnerable ecosystems and informal economic practices, the SLF would ensure community-based long-run solutions to orient disaster preparedness besides vulnerability by improving the local capacities, i.e., education, healthcare, infrastructure, and access to financial services (Scoones, 1998). The Sendai Framework and the SLF combined promote inclusive, risk-based planning and sustainable livelihoods, and thus, are crucial instruments that should be utilized in promoting resiliency in high-risk areas.

The development of the disaster resilience of a vulnerable area such as Balochistan will have to be done through the use of established theoretical and conceptual frameworks. Theories/models that have a multidimensional

understanding of the reaction, as well as recovery of communities in case of disasters, are the following: Systems Theory, Social Capital Theory, Ecological Resilience, Community Capitals Framework, and DROP model. The frameworks, such as, Sendai and Hyogo, focus more on proactive management and governing of risks and Pressure and Release (PAR) model focuses more on the underlying risks that are connected with low-levels of vulnerability and it is connected with the socio-political inequalities. Focus of the Sustainable Livelihoods Framework (SLF) is how people can get access to key assets such as human, social, natural, physical, and financial to be resilient, especially in structurally vulnerable regions such as Balochistan. A combination of tools, such as Brazil, Russia, India, China (BRIC) and Coalition, for Disaster Resilient Infrastructure (CDRI), and participatory practices allow determining resilience deficits and achieving context-specific, inclusive strategies of disaster preparedness and response.

In order to build disaster resilience within the vulnerable communities of Balochistan, there is a need to adopt integrated, context-specific, and a combination of technology based solutions, community based approach and sustainable development. The use of tools such as GIS, remote sensing, and early warning systems enhance the hazard mapping and instant reaction, whereas the Community-Based Disaster Risk Management (CBDRM) introduces a factor of local ownership through participatory planning. Preparedness is enhanced by education, awareness and capacity-building and local relevance is achieved through integrating indigenous knowledge and scientific methods. Recovery and adaptation are also assisted by Public-Private Partnerships (PPPs) and other economic resilience programs like microfinance, and climate-smart agriculture. These methods in combination contribute to inclusive locally-based solutions vital to the reduction of risk and enhancement of resilience in Balochistan.

Case studies can also be instructive to disaster resilience strategies in Balochistan as they represent a form of knowledge that is desirable to be emulated or applied or adapted to the needs of Balochistan communities. An example of success in locally focused preparation is the

ability of Bangladesh to respond to frequent flooding by utilising community-based early warning systems of floods, robust infrastructure and the combination of traditional and scientific forecasting, in prevention and response efforts. Likewise, the post-earthquake agencies of Nepal, which included a specific focus on community participation in planning, resilient building, and training for the community, demonstrates how grassroots involvement can enhance institutional and policy-level responses. In Sub-Saharan Africa, drought adaptation with livelihood diversification, local knowledge and management of resources, is an area where early warning systems are very important when they are coupled with community capacity building. The above examples highlight the importance of empowering nations and making strategies fit into the local context in order to achieve successful disaster risk reduction. Application of such time-tested models to realities of socio-economic and physical environment of Balochistan can contribute greatly to the enhanced preparedness and resilience of the province.

The disaster management system in Pakistan has a multi-tiered framework and presupposes the activity of federal, provincial, and local governments whose MAC is jointly managed by the National Disaster Management Authority (NDMA) and the provincial disaster managements authorities (PDMA) that act at the lower level. Regulatory tools, including National Disaster Management Act (2010) and National Disaster Risk Reduction Policy (2013) can ground the risk assessment, operational preparedness and resilience. Although international and non-governmental organizations provide technical and community based assistance to the government, coordination gaps, resource availability and local capacity are not up to mark-issues that are particularly high in the remotely located and socio economically poor districts such as Balochistan. The implementation is not always successful even with the national policies, this is because of institutional fragmentation, underfunding and failure to incorporate DRR in the overall development agendas. Such critical areas as health and infrastructure do not have any unified resilience plans and monitoring and evaluation of weak links does not take place

hence causing problems to accountability and policies fine tuning. In order to overcome such gaps, intensified inter-agency collaboration, greater grassroots capacity, and social engagement must be maintained to realise positive disaster resilience in Pakistan.

This research aimed to identify the geographical, socio-economic, and institutional vulnerability factors that contribute to disasters in communities facing disasters in Balochistan, and to assess the effectiveness of current disaster preparedness and response mechanisms, both through government and community-based efforts.

### Research Methodology

The research was based on mixed methods (i.e., inclusion of both quantitative and qualitative methods) that was supposed to offer a detailed explanation of community resilience in direction of disaster-inclined regions in Balochistan. The study design was a combination of descriptive and explorative that was used to study the patterns of disasters, preparedness, and response, and also to identify a gap in the existing practice. Both historical and present analyses of events like earthquakes, floods, and droughts have been conducted, as a cross-sectional and a case study research design was implemented.

### Selection of the Areas

The research was conducted among the high-risk districts viz. Awaran, Lasbela, and Kech districts have been chosen on the basis of their cumulative disaster and susceptibility, as per the records of NDMA and PDMA (The Nation, 2024 and Express Tribune, 2024). Household surveys, interviews, FGDs, and field observations were used to collect the primary data by spending between three and six months. The preparedness, the responses capacity, the vulnerability of infrastructure and the government and NGO support were considered to be the most important indicators. The stratified random sampling method was employed so as to cover a wide geographic and socio-economic situation. Population was initially stratified according to districts and out of this stratification Awaran, Lasbela and Kech were picked randomly.

Awaran, Lasbela and Kech districts of Balochistan were chosen as the area of the study due to the fact that these selected areas are highly susceptible to natural disasters like earthquakes, floods and drought. The districts have recorded disastrous events in the past decade which underscores the glaring lack of disaster preparedness, infrastructure and community resilience. Their geographical grades that range along coastal areas in Lasbela, arid and mountainous regions in Awaran and Kech provide a useful background where dynamics of diverse disaster risks and coping responses are analysed.

These regions were also selected because of their marginalisation in social and economic terms, lack of the access to public services and poor institutional support; it is the perfect place to study the challenges and opportunities in the area of community resilience building. Inclusion of these districts will guarantee such analysis that will be representative of the disaster-prone areas in Balochistan. The region of the study has been highlighted on a map so that the precise geographical perspective of the researched context could be achieved and the mentioned districts could be visually identified.

In every district selected, the respondents were randomly selected to give a balanced response in the region. For the sample, 120 household heads, 15 government officers and 15 NGO representatives were included. The SPSS and R were utilized in obtaining descriptive and inferential statistics on the quantitative data; whereas the qualitative data of interviews and FGDs supplemented the findings. The reliability of the data was achieved through the triangulation of data. Strict ethical standards were observed: the participants were examined with informed consent, confidentiality regarding their identity was guaranteed, and the data were only used to conduct research.

### Sample Design

The research population consists of varied stakeholders in the disaster-prone districts of Balochistan, which include such districts as Kech, Awaran, and Lasbela, to disasters. The affected households, local government officials, NGO representatives, emergency responders, educators, and community leaders of the region

who are involved in disaster preparedness are also the stakeholders.

Stratified random sampling method was used to get representation of different types of disasters, it is a sampling techniques in which subdivision of population is done into sub-groups by age, gender or income, followed by sampling of these groups using random sample and geographic areas which was further narrowed down to patters of purposive sampling, it refers to non-probability sampling where the researcher deliberately chooses the participants using a certain characteristic or knowledge or experience pertinent to the research. The researcher does not use randomisation, but judgment to select people who can give information that is the most useful. As an example in a research on teacher training, only experienced teachers could be selected and three different districts, Awaran (earthquake prone remote), Lasbela (flood affected coastal district), and Kech (drought-hit, socio-politically sensitive) were selected. In order to provide contextual and rich data concerning the dynamic nature of disaster resilience and response in Balochistan, the sample size included 120 affected people (40 in each of the three districts), 15 government representatives (5 in each of the three districts), and 15 NGO representatives (5 in each of the three districts) with a total of 150 respondents.

### Data Collection

Various secondary sources were used to verify the primary findings to a great extent as well. These were official reports and policy documents by the National Disaster Management Authority (NDMA) and the Provincial Disaster Management Authority (PDMA) Balochistan, academic research articles, official statistics by the government, reports released by the NGOs, and international databases like those maintained by the United Nations and the World Bank. These sources have given past records of disasters, socio-economic characterisation of affected areas, appraisal of resilience programmes and past analysis of disaster threat and response in Balochistan. The secondary data that was integrated gave a wider contextual comprehension which makes it possible to triangulate with the primary data in order to widen the strength and soundness of the research.

### Analytical Tools

Descriptive and inferential statistics tools were combined in order to meet the goals of this research. Descriptive Statistics (mean, frequency and percentage) was employed to describe the demographic attributes of respondents and central variables on the disaster resilience that included access to the early warning system, the preparedness level and institutional support.

In the case of inferential analysis, an ANOVA Two-Way was employed to see the effect of various independent variables, including mode of awareness and type of community intervention, to the dependent variable, which is community resilience. This kind of test was one of those to assess whether a considerable gap is present between groups in accordance with specified indicators. In the event that ANOVA assumptions were not exactly met, alternative tests were taken into consideration.

Also, correlation analysis was done to investigate correlation between main indicators such as education level, access to resources, disaster awareness, and preparedness levels. These indicators were associated logically by the following reasoned assumption, that according to which the greater the awareness, the easier access to resources and stronger institutional support has a positive result on community resilience.

Data have been analysed with the aid of the SPSS (Statistical Package for the Social Sciences) software, which is a stable means of managing, analysing and interpreting quantitative and qualitative data.

### Results and Discussion

This section outlines the results of the research in continuation with the major objectives of the research, namely, to examine the geography, socio-economic, and institutional vulnerability of the disaster-prone communities in Balochistan, evaluate available preparedness and response systems, and conduct research to identify the ways to increase resiliency. The quantitative and qualitative data are analyzed to present the overview of the community experience, the problems of the institutions, as well as the prospects of incorporating the indigenous knowledge with modern technologies and an inclusive planning into the disaster risk reducing effects. The discussion also

contextualizes these findings with respect to the literature to inform evidence-based recommendations further.

Both quantitative and qualitative data were analysed, as under

#### QUANTITATIVE

##### • Household's Ability to Cope with Disaster

The respondents were asked to rate their household's ability to cope with a disaster from 1 to 5

As part of the study, respondents were also asked to **rate their household's ability to cope with disasters** on a scale from 1 (Very Poor) to 5 (Excellent). The responses provide valuable insight into perceived household-level resilience in the face of disasters across the three districts.

##### Household's ability to cope with disasters

Table 1

| Rating (1 = Very Poor, 5 = Excellent) | Awaran | Lasbela | Kech (Turbat) | Total |
|---------------------------------------|--------|---------|---------------|-------|
| 1 - Very Poor                         | 18     | 10      | 12            | 40    |
| 2 - Poor                              | 12     | 14      | 10            | 36    |
| 3 - Moderate                          | 6      | 8       | 12            | 26    |
| 4 - Good                              | 3      | 6       | 4             | 13    |
| 5 - Excellent                         | 1      | 2       | 2             | 5     |
| Total Respondents                     | 40     | 40      | 40            | 120   |

The data reflects a generally low level of perceived household resilience to disasters among communities in Awaran, Lasbela, and Kech (Turbat):

- A combined **63% of respondents (76 out of 120)** rated their coping ability as either **"Very Poor" or "Poor" (ratings 1 and 2)**, indicating widespread vulnerability.
  - **Awaran** had the highest proportion of low ratings, with **75% (30 out of 40)** rating their household's capacity as 1 or 2.
  - In **Lasbela**, 60% of respondents rated their ability as low.
  - In **Kech**, 55% reported similarly low ratings.
- Only **15% of respondents (18 out of 120)** felt their households had a **"Good" or "Excellent"** ability to cope with disasters (ratings 4 and 5), indicating a small fraction with stronger resilience.
- **Moderate coping ability (rating 3)** was chosen by **26 respondents (22%)**, suggesting that some households possess partial coping mechanisms but still need support.

These responses highlight a critical need to **strengthen household-level disaster resilience** through capacity building, awareness campaigns, access to emergency resources, and stronger community networks. Enhancing economic stability, infrastructure, and local disaster response systems will be essential to elevate communities from low to moderate and high resilience levels in Balochistan.

##### • Community and Early Warning

As part of the study, respondents were asked whether they had **received any early warning before the disaster occurred**. Their responses provide insight into the effectiveness and reach of early warning systems across Awaran, Lasbela, and Kech (Turbat).

##### Early Warning Before the Disaster?"

Table 2

| District      | Yes | No | Total Respondents |
|---------------|-----|----|-------------------|
| Awaran        | 5   | 35 | 40                |
| Lasbela       | 12  | 28 | 40                |
| Kech (Turbat) | 10  | 30 | 40                |
| Total         | 27  | 93 | 120               |

The responses indicate that a significant majority of the population (78%) did not receive any early warning before the disaster occurred. Specifically:

- In Awaran, only 12.5% (5 out of 40) received an early warning.
- In Lasbela, 30% (12 out of 40) reported receiving a warning.
- In Kech, 25% (10 out of 40) were informed in advance.

These findings reflect serious shortcomings in the dissemination and accessibility of early warning systems, particularly in remote and disaster-prone areas like Awaran.

The limited number of early warnings received suggests a need for:

- **Strengthening local early warning mechanisms** through community-based channels such as mosque announcements, mobile alerts, and local radio.
- **Expanding the coverage and timeliness** of official warning systems.
- **Enhancing coordination** between government departments, NGOs, and local communities to ensure warnings are delivered effectively and acted upon.

Improving early warning systems is crucial for saving lives, reducing economic losses, and building disaster-resilient communities across Balochistan.

#### Identification of Vulnerable Communities

Government officials consistently emphasized that vulnerability assessments are largely reactive and based on historical disaster data. Officials admitted that comprehensive vulnerability mapping using socio-economic and geographic

indicators is still evolving. One official from Gwadar stated:

*"We look at flood and drought records, and we prioritize areas with repeated incidents and poor infrastructure, but we still need real-time vulnerability indices."*

This response indicates a reliance on retrospective data rather than predictive modeling or proactive community profiling, which reflects a gap in long-term planning.

#### Challenges in Implementation

A recurring theme was the **lack of resources and coordination**. Officials cited inadequate funding, weak inter-departmental collaboration, and a shortage of trained personnel as core barriers. One respondent remarked:

*"Even when we have plans, the challenge is in execution. Delays in funding, slow decision-making, and low local awareness hinder effectiveness."*

This illustrates a critical disconnect between policy formulation and on-ground implementation, limiting timely and effective disaster response.

#### Effectiveness Of Current Disaster Preparedness And Response Mechanisms, Both Government And Community-Based Efforts

#### QUNTITATIVE

##### Community Involvement

To assess community engagement and participation in local disaster preparedness, respondents were asked whether they had **ever been involved in any community disaster risk planning activities**.

##### Community Disaster Risk Planning Activities

Table 3

| District      | Yes       | No         | Total Respondents |
|---------------|-----------|------------|-------------------|
| Awaran        | 4         | 36         | 40                |
| Lasbela       | 7         | 33         | 40                |
| Kech (Turbat) | 6         | 34         | 40                |
| <b>Total</b>  | <b>17</b> | <b>103</b> | <b>120</b>        |

The data clearly indicate that **community involvement in disaster risk planning is extremely low** in the studied regions of Balochistan:

- Only **14% of respondents (17 out of 120)** reported having participated in any form of community disaster risk planning.
- A vast majority—**86% (103 respondents)**—were **not involved at all**, which reflects a **lack of organized, inclusive, and participatory disaster preparedness mechanisms** at the grassroots level.

This lack of engagement may be due to:

- **Limited awareness or access** to disaster management initiatives.
- **Weak coordination** between local authorities, NGOs, and community members.
- **Cultural or logistical barriers** preventing inclusive planning.

To strengthen disaster resilience in Balochistan, it is essential to:

- **Encourage and institutionalize community-based disaster risk reduction (CBDRR) activities.**

- **Train and involve local residents**—including women and marginalized groups—in planning and simulation exercises.

- **Develop local disaster committees** that collaborate with district disaster management authorities (DDMAs) for better coordination and responsiveness.

Community participation is a **cornerstone of sustainable disaster resilience**, and current gaps must be addressed through proactive policies and capacity-building programs.

- **Government Support and System**

To evaluate the effectiveness and reach of formal early warning systems, respondents were asked

whether they had **ever received a government-issued early warning** for any disaster in their area.

**Received a Government Early Warning for any Disaster?"**

(Total Respondents: 120)

| District      | Yes       | No        | Total Respondents |
|---------------|-----------|-----------|-------------------|
| Awaran        | 6         | 34        | 40                |
| Lasbela       | 12        | 28        | 40                |
| Kech (Turbat) | 10        | 30        | 40                |
| <b>Total</b>  | <b>28</b> | <b>92</b> | <b>120</b>        |

The data reveals a **significant gap in the reach of government early warning systems** across the three districts:

- Only **28 out of 120 respondents (23%)** reported receiving a government early warning for any disaster.

- A majority—92 respondents (77%)—did not receive any such warning, indicating substantial limitations in the **coverage, communication, or accessibility** of official alerts.

This limited dissemination may be attributed to:

- **Lack of infrastructure**, such as mobile networks, public announcement systems, or local radio in remote areas.

- **Low coordination between disaster management authorities and local communities.**

- **Limited awareness or language barriers** that hinder message comprehension.

To improve preparedness and resilience:

- The government must **expand and modernize its early warning systems**, especially in vulnerable and remote communities.

- Use of **multi-channel communication** (SMS alerts, mosque announcements, radio, and community mobilizers) should be strengthened.

- **Regular community education and drills** should accompany alerts to ensure understanding and appropriate response.

Reliable early warnings are essential for timely action, and strengthening these systems must be a **priority for disaster risk reduction** in Balochistan.

To assess the **effectiveness** of government-issued early warnings, respondents who had received such warnings were asked whether they **believed these alerts helped reduce the impact** of the disaster.

#### The benefits of the Government's Early Warning System

(Asked only from the 28 respondents who received a government early warning)

| Response Option        | Awaran   | Lasbela   | Kech (Turbat) | Total      |
|------------------------|----------|-----------|---------------|------------|
| Strongly Disagree      | 1        | 1         | 1             | 3          |
| Disagree               | 1        | 2         | 2             | 5          |
| Neutral                | 2        | 3         | 2             | 7          |
| Agree                  | 1        | 4         | 3             | 8          |
| Strongly Agree         | 1        | 2         | 1             | 4          |
| <b>Total Responses</b> | <b>6</b> | <b>12</b> | <b>9</b>      | <b>27*</b> |

\*One respondent from Kech did not answer this specific question.

Among the 28 individuals who received a government early warning:

- **12 respondents (44%)** agreed or strongly agreed that the system helped reduce the disaster's impact.

- **8 respondents (30%)** disagreed or strongly disagreed.

- **7 respondents (26%)** remained neutral. These mixed responses suggest that **while some beneficiaries found the warnings helpful**, many others did not feel that the alerts significantly reduced damage or risk—likely due to:

- **Delays in warning delivery**
- **Lack of follow-up instructions or actionable guidance**

- **Poor local infrastructure or limited access to safe zones**

To increase the **impact and trust** in early warning systems:

- The alerts should include **clear, actionable instructions in local languages.**

- Communities need to be **trained on how to respond to warnings.**

- Government efforts should focus on **timely dissemination and inclusive coverage**, especially in hard-to-reach areas.

A strong early warning system is only effective when it is **understood, trusted, and acted upon** by the community. This underscores the need for not only **technological investment**, but also

**community engagement and preparedness education** in Balochistan.

## QUALITATIVE

### Use of Technology in DRR

While government agencies recognize the value of technology, its application remains limited. Officials acknowledged progress with mobile alert systems and GIS tools, especially in urban centers like Quetta and Gwadar. However, rural outreach remains low. An official shared:

*"We've piloted EWS via SMS alerts, but due to low mobile coverage and literacy, impact in rural districts like Awaran has been limited."*

The insight affirms that while innovations are introduced, infrastructural limitations and user challenges reduce their effectiveness.

### Community Involvement in Planning

Most officials expressed support for **community-based approaches**, yet admitted that real participation is sporadic and mostly limited to post-disaster stages. A PDMA official said:

*"Community volunteers help during relief efforts, but we lack a formal mechanism to include them in planning or preparedness drills."*

This suggests a top-down approach still dominates disaster planning, missing the benefits of local ownership and trust-building.

### Inter-Institutional partnerships

Officials highlighted successful collaborations with NGOs like the Balochistan Rural Support Programme (BRSP) and UNDP, particularly in awareness campaigns and rebuilding efforts. However, there's a lack of consistency in coordination. One official commented:

*"We work well with some NGOs, but many operate in isolation. We need a unified platform to avoid duplication and ensure sustainability."*

### Disaster-Related Challenges and NGO Responses

Most NGO workers identified **infrastructure fragility, geographic isolation, and lack of community awareness** as key challenges. A field worker from Kech noted:

*"People in remote villages often have no access to safe shelters or drinking water post-disaster. Roads are cut off, and official aid is delayed. We try to mobilize rapid-response volunteer teams."*

These insights underscore the critical role NGOs play in reaching marginalized areas quickly, often filling the void left by delayed government response.

### Community Participation and Inclusivity

Community ownership is important as highlighted by all the respondents. Programs have to attract youth, women, and minority groups, but it is not an easy task to include people in conservative communities. According to a project coordinator, it was explained:

*"We educate women about health and hygiene after the disaster. It is difficult in patriarchal environments, though after some trust is established, women become major communicators."*

This means that community involvement enhances program efficacy and sustainability, particularly where the locals are made decision-makers.

### Conclusions and Recommendations

The paper concludes that disaster resilience among the vulnerable population in Balochistan should be built in a multidimensional and locally-based manner. The findings show that lack of awareness of the community, lack of dissemination of early warnings, and lack of institutional coordination are still a factor that shatters the right management of disasters. Nevertheless, the research also identifies the strengths held by local communities - their social network, their customary system of communication, and their local knowledge that, when applied appropriately, can significantly enhance preparedness and adaptive capacity. To achieve resilience, there must be a massive community-based training that is situation specific, such as floods, drought, earthquakes, etc and ensures that it is inclusive of women, youth, and marginalized people. The early warning mechanism needs to be improved to be wider-coverage, more accurate, and faster communication by integrating the adoption of both the use of traditional advertising, such as the announcement of the mosques and community radio, with the application of modern tools such as mobile notifications. Moreover, the establishment of local evacuation and response plans with the help of trained volunteers and regular drills will improve preparedness and alleviate mayhem in the event

of a catastrophe. To ensure resource-effective response operations, it is also important to improve coordination of government, non-governmental, and local leaders to ensure the operations are coordinated and effective. Vulnerability may also be alleviated through the investment in resilient infrastructure, particularly safe shelters, clean water supply, and ready access to health facilities. Above all, the misuse of the social capital and native practices will help to incorporate the disaster preparedness into the social framework of the community. The combination of the above measures can transform vulnerable populations into active participants of resilience and disaster risk reduction, a component of the local development planning, and not a response measure to catastrophe impacts anymore.

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