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RESEARCH PAPER

# Enhancing Disaster Resilience through Disaster Education: A Case Study of District Kech, Balochistan

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**ABSTRACT**

The focus of this research is to unearth primary barriers to disaster education (DE), and to study the underlying elements that necessitate disaster education (DE) in district Kech, Balochistan. The District has experienced a variety of disasters (natural and man-made) over the past few decades, leading to significant harm, loss of lives, and widespread destruction to individuals and communities. The research applied face-to-face interviews to 50 respondents and focus group discussions following a thematic analysis to achieve its objectives. The findings elucidated that there is a significant lack of comprehensive DE in the region. Participants stressed on the vital role of DE in strengthening community resilience, highlighting its ability to provide individuals and communities with the required knowledge and skills for their success. The study recommends a strong institutional framework for disaster management, through disaster education and awareness.

**Keywords:** Disaster Education, Disaster Resilience, District Kech, Natural Disaster, Natural Hazard, Flood

## Introduction

Floods, earthquakes, storms, tornadoes, forest fires, volcanoes, and landslides are the natural processes that have shaped the Earth's landscape for centuries. These catastrophes affect human settlements, agriculture, and infrastructure, resulting in serious effects (Chaudhary & Piracha, 2021). Therefore, there is a dire need for resilience within the communities to withstand and recover from a disaster (UNDRR, 2020), as calamities impair their financial, environmental, and social well-being, impacting the community's resilience (Council, 2012). Developing countries are extremely vulnerable to natural threats due to their lack of resilience and poor infrastructure to cope with disasters (Shah, Ye, Abid, & Ullah, 2017). Moreover, the impacts of these disasters can be resolved through a strong disaster management system (Ricci, 2020), which is only possible through knowledge transfer and awareness programs. For example, during the "*International Decade for Natural Disaster Reduction"* in the 1990s, education was recognized as having a crucial role in reducing disasters and maintaining sustainable societies all over the world (Sakurai & Sato, 2016).

In addition, the field of disaster education is gaining global importance due to the increasing risks and threats that the world faces (Kitagawa, 2021). Although it has been studied in numerous disciplines, including disaster risk management, environmental studies, and civil engineering, the conceptualization of disaster education remains comparatively unexplored (Kitagawa, 2021). However, history recognizes the importance of disaster education, which plays a great role in reducing risks and improving resilience. For instance,(Shaw, Shiwaku, & Takeuchi, 2011) underscore the efficiency of the KIDA (Knowledge, Interest, Desire, Action) model in educating people and communities about

reducing the risk of disasters. Additionally, the Great Flood of Noah and the Kamaishi Miracle (the small children's school evacuation and survival plan) during the 2011 Great Flood of Japan in the city of Kamaishi serve as remarkable examples of how disaster education can make stronger communities and save lives during emergencies and catastrophes. Hence, we find abundant stories throughout history that advocate disaster education to improve disaster resilience.

As a result, the world is increasingly recognizing disaster education as a critical tool to cope with natural catastrophes. This demonstrates the growing significance of education and resilience to recover from traumatic events (Fu & Zhang, 2024). Furthermore, this education remains a safeguard for communities during and after disasters and emergencies (Topno, 2021). Therefore, as disasters and emergencies become more common, there is a growing need for disaster education. According to (Zhang & Wang, 2022) disaster education and its knowledge are the most effective approaches for individuals and communities to prevent and reduce the severe impacts of disasters. Henceforth, there is a great need for disaster education and awareness programs for people so that they can avail themselves of essential knowledge and skills to reduce their vulnerability (Torani et al., 2019). Although there are numerous past studies on disaster education, emergencies, and response (Torani et al., 2019), there is still much to learn about how these two concepts interact in Kech District in particular and in Balochistan in general.

The main aim of this research is to determine whether disaster education increases people's capacity to survive tragedies or helps their communities withstand and recover from them. Additionally, this research pins-down the challenges that Kech faces in providing disaster education, illustrates the connection between disaster education and the enhancement of resilience, and provides practical recommendations for how disaster education could contribute to Kech's resilience.

## Literature Review

### Increase in Disasters and the Role of Education

Torani et al. (2019) in their research on *The Significance of Education in Disasters and Emergencies* discussed the increasing frequency of disasters globally. They argue that in today's world, the effective prevention and reduction of disasters depend on gaining and applying knowledge. Their study explored the importance of education and various teaching approaches in lowering disaster risks and encouraging preparedness for communities. The authors highlight how disaster education plays a role in empowering individuals and groups to protect themselves, thus reducing their vulnerability to disasters.

### Disaster Education in Vulnerable Schools and Areas

Yusuf et al. (2022) in their research on *"Disaster Education in Disaster Prone Schools"* meticulously explores '*disaster education'* within disaster-prone school areas. The focus is on analyzing guidelines, support initiatives, and challenges associated with implementing disaster education programs. This study stresses that executing disaster education programs in schools can significantly increase environmental awareness and resilience. It also observes the effects of events on children and schools, such as the 2004 tsunami and Hurricane Katrina, underscoring the role educational institutions play in post-disaster recovery efforts.

### International Partnership for Disaster Education and Disaster Resilience

Amaratunga et al. (2018) study on *"the Role of International Collaboration in Higher Education to Enhance Research Capacity in Disaster Resilience."* highlighted the importance of education in promoting disaster resilience among individuals and communities. The

authors emphasize the significant role of collaborations in reducing emergency risk and connecting scientific knowledge with legal and policy aspects to handle crises that extend beyond national borders effectively. Dilanthi believes that higher education institutions (HEIs) play a vital role in this process, with their role in research and training; they tackle global challenges and build disaster resilience through collective efforts.

**Response of Education to Natural Disasters**

Smawfield (2012) digs into the relationships between education and responses to natural calamities. The book discusses natural disasters, such as Australian bushfires, Hurricane Katrina, floods, earthquakes, and tsunamis. Smawfield examined aspects such as policy frameworks, institutional responses, safety measures in school infrastructure, educational content regarding disasters, and policies within educational settings. Furthermore, the story sheds light on teachers' roles in disaster management across educational levels and highlights the importance of research. Notably, Smawfield identified a gap in the literature on how schools address real-life disasters.

He says that despite the challenges schools face during disasters, it is not possible to implement real-time approaches, which remains difficult. However, this research not only points out connections between education and natural disasters but also highlights their crucial role in enhancing community resilience, particularly during emergencies (Smawfield, 2012).

**Case Study: Kamaishi Miracle: Disaster Response Capacity**

Katada and Kanai (2016) supports the above-discussed studies with their research article, *"The School Education to Improve the Disaster Response Capacity: A Case Study of the "Kamaishi Miracle."* They focus on highlighting the importance of education in disaster prevention. They emphasize disaster prevention education in Japan and provide an example of how elementary school students created a great evacuation plan during the *"Great East Japan Earthquake on March 11, 2011."* They further explain that the students not only saved their own lives but also the lives of the people's surroundings, and it was only possible due to the disaster prevention learning and knowledge that students obtained from the school. Therefore, the researcher stressed how disaster prevention education enhanced the capacity and morality of students to carry out the plan, and how that helped the government of Japan establish a system of disaster prevention education all over Japan.

In addition, Sakurai and Sato (2016) further discuss in their article *"Promoting Education for Disaster Resilience and the Sendai Framework for Disaster Risk Reduction."* They place emphasis on the importance of education in the framework of the Sendai Framework 2015. They say Japan hosted an international conference by gathering 187 countries and 156,082 participants, with 59 public forums focusing on education for disaster, including lessons from the Great East Japan Earthquake and Tsunami in March 2011. The objectives of the educational forum on disaster resilience were to improve disaster preparedness through global collaboration and to demonstrate that education is key to building strong and resilient communities. The scholars further discuss that Japan's Sendai Declaration stressed the importance of education in the disaster and urged cooperation to promote resilience. Therefore, the SFDR has maintained international cooperation in disaster education to enhance a community's resilience to long-term efforts.

**Disaster Education on Climate Change Perspectives**

Additionally, Acharibasa et al. (2024) in their study on strengthening climate disaster education for youth across Canada highlight that black people of Western Canada face multiple climate and disaster challenges due to their economic backwardness and racism issues. He says the current disaster or climate disaster education is not appropriate

for them to stand and recover from the climate issue. They need a practical and community-based approach and efforts on one hand, and they need a pragmatic support system to enhance diversity that makes the disaster education system better for them to tackle climate risk. The article stresses that a robust and foundational climate DE system remains very crucial for the black youth of western Canada to handle their multiple issues.

## Methodology

### Selection of Study Area

Kech district has experienced numerous overwhelming disasters, particularly floods in 1998, 2007 and 2022, which caused extensive damage due to torrential rains that severely affected the district. The 1998 flood inundated the villages and damaged houses, infrastructure, agriculture, and properties. In addition, the area faced a prolonged drought that affected agriculture and forced people to auction their animals at low prices. Likewise, in 2007, over 250,000 people almost half the population were affected by another devastating flood (DDMA, 2008). The district often experiences disasters, such as road accidents, fuel burning, drought, heatwave and flood. Unfortunately, there is no disaster management or education system to deal with these disasters. Therefore, Kech district has been selected as study area for this particular research.

The purpose of this study is to address these challenges in general and the absence of disaster education in particular that can better help communities withstand and recover from these challenges and threats of any emergency or disaster. The focus of this particular study is to shed light on the importance of disaster education in enhancing disaster resilience in the people of Kech to deal with future disasters. The research employs a qualitative method because of the absence of prior disaster documentation and material regarding disaster education. Therefore, a qualitative approach becomes more appropriate than quantitative methods (DeJaeghere et al., 2020). The research will explore the issues, thoughts, and concerns of the target groups using face-to-face interviews, and group discussions while applying analysis to understand the various perspectives of Kech Turbat residents in southern Balochistan. The rationale for applying the qualitative exploratory design is a clear and thorough understanding of various characteristics and aspects of social life, using words remains a more authentic and suitable analysis in its methods than using and applying numbers (Bricki & Green, 2007).

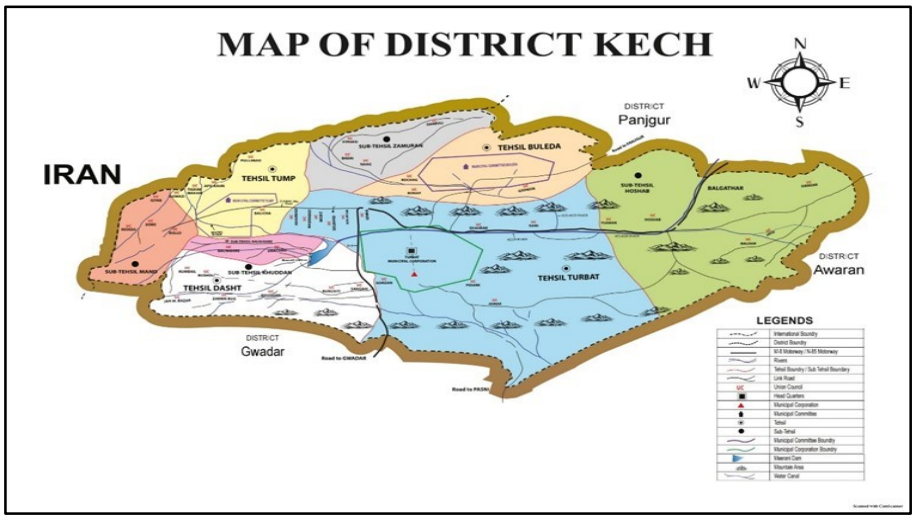


Fig. 1: Map of District Kech (Turbat) Balochistan

The researcher applied purposive sampling techniques to select the participants from different areas of District Kech. The sample comprised of community members, teachers, students, private and government officials, social workers, and mobilizers for the

interviews. The eligibility criteria for selecting participants or respondents were that they should be permanent residents of district Kech or have lived in District Kech for more than five years. Moreover, the researcher conducted focused group discussions that included teachers, students, and farmers. The group consisted of both males and females. The language was Balochi, the people's native language and the primary focus was disaster education and resilience in the context of the district of Kech. The conversation centered on disaster education and its significance to the people of Kech.

## Results and Discussion

### Importance of Disaster Education for Resilience

While doing the semi-structured interview, the researcher found that most of the participants believed that disaster education was important for building resilience in people, individuals, and communities. They believe that disaster education is the key to enhancing resilience in communities, and district Kech needs a robust disaster management system for the people promptly.

One of the participants elaborated that disaster education is not only for reducing the impact of disasters, but it also empowers communities to withstand and recover (Participant No. 01). "*Disaster education not only brings effective results but also lessens and reduces the disaster and its destructive effects. It not only reduces the effects of disasters but also increases and boosts the community's capacity to deal with them. I believe in formal disaster education because it is essential for every community, particularly in our district, Kech, which is completely backward in disaster education, and the disaster education in Kech is equal to none. I strongly believe a pragmatic disaster education system in Kech will boost the capability of the people to endure and recover from a disaster.*"

Another participant stressed the importance of disaster education in equipping individuals with knowledge for survival against disasters (Participant No. 4). "*Disaster education is very much needed because people in the Kech lack knowledge about it and providing disaster education knowledge enables the community members to rescue themselves in a better way*."

The knowledge transfer within individuals and communities was also an appreciated outcome of disaster education that can help during disasters and emergencies (Participant No. 17). "*Disaster education is very important for the community, and it must be provided. I have a strong belief that in the community, every individual should be provided with disaster education because, by doing so, they will be capable enough to know about disasters, their ramifications, their deadly effects, and their survival methods. "More importantly, they will further transfer their knowledge to others so that they can help themselves and others during emergencies*."

Another participant believed that disaster education helps to alleviate the damages caused by disasters by developing sustainable policies and development strategies and focusing on sustainable development goals (Participant No. 28). "*As a resident of the Kech district, I experienced the flood in 2007 that ruined everything—the communication system, home and agriculture, electricity, etc.—and created several health problems for the most vulnerable, such as children, women, and elders. Furthermore, I received a six-day training on earthquakes and disasters, and that helped me out in several matters related to the disaster. Therefore, I strongly believe disaster education plays a very crucial role in building a resilient community because it provides knowledge and strengthens a community during a disaster or emergency. "It can further help to alleviate the damages caused by the disasters by developing sustainable policies and sustainable development strategies and focusing on sustainable development goals*."

One of the participants, who has experienced various disasters, described the importance of disaster education and uttered (Participant No. 10). "*I have experienced both the earthquake and the flood. I have seen people in miserable conditions during these disasters, where they have nothing to save their belongings and properties. I remember the flood, which hid near our house and left us in shock, and we had no knowledge of what to do at that emergency time. Likewise, I have seen people whose mud houses were washed away during the flood, and they had nothing to do. Furthermore, we were not that resilient to withstand and recover from those disasters. We did not have any knowledge or training on how to survive a disaster. The Kech community where we live has no disaster education system. I believe disaster education has a big role in the prevention of disaster and recovery after a disaster. It is necessary for resilience measures*."

The above-discussed theme and the comments of the participants remain strong evidence that people of district Kech need "*a robust system of disaster education*" to become more resilient to withstand and recover from future emergencies. This cross-cutting theme is advocated by many researchers in the fields, for example (Khorram-Manesh et al., 2015; Rico, 2019; Torani et al., 2019), that DE is not merely a tool of knowledge, but it will provide knowledge and skills that help the communities become resilient enough to face the challenges and respond to them.

**Challenges in Disaster Preparedness and Education in District Kech**

Challenges in "*disaster preparedness and education*" have always remained a major issue in Balochistan. Many participants were concerned about that while talking about disaster education and resilience in Kech. They were concerned about the lack of disaster education, the lack of health facilities during emergencies such as floods, earthquakes, droughts, etc., and, more importantly, the *vulnerability* issues due to the "*lack of disaster education."*

One of the participants was concerned about the lack of facilities and uttered (Participant No. 35). "*There are no facilities in District Kech that prevent and prepare the people for any type of disaster*." Another participant added the same comment regarding the challenges, disaster education, and preparedness and stated (Participant No. 18). "*There are no facilities to prevent a disaster. "There are only protection walls and bands constructed for the floods, but unfortunately, these are not that suitable and strong enough*." One of the participants described that they only have WhatsApp and social media for an early warning system, and that is not enough (Participant No. 30). "I have never received a proper education or training on disaster, but I can say that I have studied a subject in environmental studies during my master in education at the University of Turbat that helped me regarding some disasters, such as heatwaves, and their implications and how to prevent or prepare for them. "As a whole, our district lacks disaster education and preparedness; there is no training or facility for disaster. We just have social media and WhatsApp where we can see early warning messages regarding a flood and heavy rain."

Considering the participants' responses regarding the challenges in "*disaster preparedness and education,*" the researcher further divided this main theme into *sub-themes*, including the "*educational approach to health-seeking measures"* and the "*educational approach to vulnerabilities"* in District Kech. According to a study, natural disasters have serious impacts on *children, women*, and *elderly people*, and the *children* are the most vulnerable part of the community. Moreover, as the *Hyogo Framework for Action (*2005–2015) recommends strengthening the resilience of nations and communities to natural calamities, *health is one of the top priorities*. The *Hyogo Framework and Sendai Framework* have always focused on the resilience of communities, and they considered education to be the best way for this. Therefore, the researcher includes the following *sub-themes.*

**Sub-theme: Educational Approach to Vulnerabilities**

Many participants believe that disaster education is the most crucial approach to addressing vulnerabilities. For example, a participant expressed their views while talking about the vulnerable group in the district of Kech.

One participant described the safety of the vulnerable as lies in attaining disaster education, and gender-sensitive disaster preparedness and planning (Participant No. 42). "*Children, women, and the disabled are the most vulnerable parts during a disaster. Due to mobility issues and cultural norms, they are not safe during the disaster. Their safety is only possible if disaster education is given to those vulnerable groups through various means, such as gender-sensitive disaster preparedness planning, capacity building of school teachers through disaster education, capacity building of the community through training and education, awareness raising for schoolchildren, and the provision of toolkits and training for their use*."

Another participant believed holistic disaster educational approaches were the best way to address the challenges of the vulnerable community (Participant No. 23). "*Children, old age, patients, women, and the disabled are the most susceptible and weak parts of our community adversities and disasters, and particularly, district Kech is most vulnerable in all fields. We therefore need a holistic disaster educational approach to tackle the vulnerability issue*".

**Sub-theme: Application of Disaster Education in District Kech**

Almost all the participants agreed on the question regarding the application of disaster education in every school, college, university, community-training center. All the participants answered "yes" and expressed their reasons. The participants believe that individuals who have knowledge and skills in disasters can benefit society, and therefore, the application of disaster education remains one of the top priorities for the community.

One of the participants, who has studied only one subject, environmental studies, during his master's degree in education, says he has learned several safety measures and techniques for how to stay safe in climate change and environmental disasters. Therefore, applying disaster education in every institution of the Kech would, no wonder benefit all communities and make them resilient enough to withstand and recover from future disasters and emergencies. As Kitagawa (2021) said, "Disaster education must be taught and given to the communities in various ways and at various times.". Such as (Kitagawa, 2021) conceptualized and categorized disaster education as "*education of and for disaster*" for disaster mitigation, prevention, and preparedness at usual times and "*education in emergencies*" to cover the reconstruction and recovery from the disaster in post-disaster time. Furthermore, researchers have divided it into formal and informal education.

One of the participants advocated for the application of disaster education in District Kech and uttered (Participant No. 32). "*Disaster education should be applied in every school and every educational training institution so that capacity and resilience in individuals and communities in Kech are enhanced. Through which, they can deal with the natural disasters and climate change implications and prevent themselves and others from the natural hazards*." Applying disaster education is necessary for all fields (Participant No. 13). "*Disaster education is necessary for all fields. Yes, it must be applied in every school and training centre of the district Kech" because it is the best key to building the capacity of people in any field, and I must say the government is responsible for providing disaster education with the help of the Province Disaster Management Disaster Authority (PDMA)*." Application of disaster education would empower the future generation and provide us with skills to save our lives (Participants No. 14 and 15). "*Of course, disaster education should be applied in every place, because when a disaster occurs, we have no idea how to save our lives and properties." It trains*

*us with skills and knowledge so that we could save our communities and ourselves. Moreover, it empowers our future generation to reduce the risk of disaster and save lives. Furthermore, we should apply DE because it will help us enhance development and construction in our district, Kech*."

Another two participants described their views while underlining the significance of applying disaster education and learning in schools and colleges (Participants No. 36 and 37). "*The application and provision of disaster education to students and communities will help them handle catastrophic emergencies and save the communities from higher losses. In addition, disaster education should be applied in every school, college, university, and training center in district Kech so that people can get awareness and spread awareness in society"*. The district needs a robust system of disaster education to protect their people and properties in the future." We must apply DE in every class of every institution in the district Kech disaster (Participant No. 38). "*Yes, disaster education must be applied in all main institutions of district Kech; it must be applied in primary schools, high secondary schools and colleges, universities, training centers, etc. We must promote disaster education in district Kech and include it in every course, research work, and syllabus. "More importantly, it must be offered in every class*."

Applying disaster education remains compulsory in District Kech, particularly in schools and training centers (Participant No. 30). "*Yes, disaster education should be applied everywhere in district Kech, particularly in schools and training centers. The application of disaster education in training centers will provide practical awareness and training about disasters, whether fabricated or natural. Conducting various sessions will provide knowledge about pre- and post-disaster measures for preparing, responding, reconstructing, and going toward rehabilitation and recovery. Moreover, we must apply and teach DE in schools as part of the syllabus to spread awareness and knowledge. Because disasters are inevitable and can occur at any time, Therefore, preparedness knowledge, prevention knowledge in pre-disasters, and response and recovery knowledge in post-disaster are necessary for a community to be resilient. As a result, the application of disaster education remains compulsory in the Kech community*"

All the participants unanimously agreed that disaster education is crucial for the people of District Kech. They emphasized that a disaster can strike at any time, and education would equip individuals and communities to handle emergencies and calamities because education remains a pragmatic solution to protect and safeguard people's lives and property all around the world. The participants highlighted the objectives of applying disaster education as *"capacity* and *resilience building," "spreading awareness," "developing skills and knowledge*," and *"reducing panic*." Most importantly, the participants' comments and views regarding this theme align perfectly with the research focus. In addition, this theme displays a dire community need for disaster education in district Kech, and participants believe it has the potential to improve disaster resilience against disaster. This theme is advocated by the *UNDRR Risk Reduction for Disasters* (UNDRR) by integrating that communities can better protect and safeguard their rights through disaster risk reduction education.

## Conclusion

The objective of this study was to assess the impact of disaster education (DE) on community preparedness and recovery in the District Kech. Specifically, the research aims to improve the advancement of effective disaster management strategies through an analysis of the correlation between disaster education and resilience. Moreover, it seeks to identify challenges and provide practical solutions. The findings elucidated that there is a significant lack of comprehensive disaster education in the region. Participants stressed the vital role of DE in strengthening community resilience, highlighting its ability to provide individuals and communities with the required knowledge and skills for their success.

However, the lack of a strong institutional framework for disaster management, inadequate and insufficient resources, and limited initiatives to promote awareness are some prominent obstacles to achieving efficient disaster management.

**Recommendations**

The study recommends that including DE in educational curricula and community outreach initiatives is a recommended strategy to improve community resilience. To effectively protect lives and livelihoods, it is crucial to have a comprehensive, pragmatic, and inclusive policy for managing disasters and emergencies. Lastly, this study emphasizes the urgent need to include DE (Disaster Education) in initiatives aimed at mitigating the risk of natural disasters in District Kech. The government, stakeholders, and policymakers may prioritize disaster education as a critical component in promoting resilience and wellbeing, enabling communities to accurately anticipate, endure, and bounce back from disasters and emergencies. In order to assure the establishment of a strong and lasting future, it is imperative to prioritize investments for this particular purpose.

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