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A SOCIOLOGICAL ANALYSIS OF NATURAL DISASTERS AND RESPONSE IN SINDH, PAKISTAN

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Abstract:
Climate change is the most important issue of the 21st century, the whole world is facing the consequences of climate change. Countries that are poor and have low capacity are always vulnerable to natural disasters. Many initiatives are being taken to improve the resistance power of communities affected by disasters. This study was conducted to analyze the utilization of funds and capacity to respond to disasters caused by flash floods in 2010. The study was conducted using key informant interviews and focused group discussions. A thorough qualitative analysis was conducted to understand the financial and technical initiatives taken by the government to respond to the disaster. The data were analyzed using simple thematic and content analysis methods. The study has identified the common threats of riverine floods in affected districts and the capacity of the local and provincial governments. The study has also analyzed the pre-disaster preparations and capacity of the government. Two districts were taken understudy from Sindh province one from the north and one from the south. The study found the obvious flood threat for the southern district was the left bank outfall drain hereinafter (LBDO). Whereas the potential flooding threat for the northern district was the river Indus. The study found that the existing government structure and community are not strong and prepare enough to face disasters. The study has identified capacity-building and preparation gaps at the levels of community and government. The study has identified the gap in managing and analyzing regular data and building a structure that facilitates on-time evidence-based decisions to reduce the impact of future disasters.

Keywords: climate change, natural disasters, response

1. Research Questions

- What types of disasters hit the areas, how frequently, what were the impacts, and how these were coped with by the community?
- How did the government respond to these disasters?

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2. Literature Review

As per the report of Pakistan's climate change department in 2012, during the 20th century, an increase in global temperature was recorded as 0.76 °C. Nearly 60% of agricultural land receives less than 250 mm of rainfall per year and 24 percent receives between 250-500 mm. The rivers of Pakistan are predominantly fed by the Hindu Kush-Karakoram Himalayan glaciers which are reported to be receding rapidly due to global warming. The Indus delta is in a hot zone where increasing temperature can impact human health. Heat strokes can cause diarrhea, cholera, and other vector-borne diseases, (Climate change report of Pakistan Metrological Department, "PMD", 2012).

Due to global warming and climate Pakistan is likely to get affected and the country cannot manage such disasters. If any infrastructural damages occur due to megafloods there shall be the risk of food shortage and malnutrition in underprivileged communities. They do not have resilient shelters, WASH infrastructure, and alternative livelihoods. Humanitarian assistance and recovery programs aiming to strengthen community resilience, work on these underlying causes of malnutrition.

The most of population of Pakistan economically depends on climate-sensitive sectors such as agriculture, fisheries, and livestock. In contrast, Pakistan is highly vulnerable to natural disasters caused by climate change (Farooqi & et al., 2005).

The geographic location of Pakistan has jeopardized the country it is most at risk of natural disasters. Compared to that vulnerability country has a weak capacity to cope with disasters caused by climate change (Ullah and Takaaki, 2016).

As per an estimation 21% of the population in Pakistan nearly 21% lives under the poverty line and that makes them vulnerable in many aspects of socioeconomic life, (Bhutta and Hafeez, 2015).

The recent National Nutrition Survey (NNS) conducted in 2011, has found that 72% of families in Sindh province are living with food insecurity (National Nutrition Survey, 2011).

This food insecurity is already adding to the vulnerability of the population in normal lives without any disaster. The lack of accessing nutritious food is badly affecting the future population. The (Multi Indicator Cluster Survey, 2014) found that 30% of the newborn in Sindh province weigh less than 2500 grams at the time of birth.

The vulnerable populations consecutively bear more damage in disaster situations. The women living in the camps during flood and rain disasters in 2010 and 2011 were without proper food and Water, Sanitation, and Hygiene (WASH) facilities.

Considering climate change/ extreme weather events and the capacity of communities to cope with this context. Many nongovernment organizations (NGOs) are working on disaster risk reduction (DRR) and livelihoods after the 2010 floods.

This study was conducted to examine the impacts of previous disasters on different topographic regions of Sindh province and how well the government is prepared now after working together with NGOs during the flood response of 2010.

The study was operational research and qualitative data collection tools were used from the targeted respondents who were selected based on non-probability extreme

deviant purposive sampling. Following the sampling strategy two extreme districts were selected for the study. The district Kashmore was selected from the north and the district Badin was selected from the south of the Sindh Province of Pakistan.

3. Methodology

The study is operation research because it tried to find out the impact of humanitarian projects or operations on the capacities of the government and targeted populace. The study was conducted using an ethnographic approach of qualitative research. The study aimed to seek rapid information about the knowledge, attitude, and practices (KAP) of people towards nutrition and disaster preparedness. The goal of ethnographic study is to collect data in such a way that the researcher imposes a minimal amount of their own bias on the data (Brewer and John, 2000).

3.1 Data Collection Tools

The Key informant interviews (KIIs) were conducted with government officials and Focused Group Discussions (FGDs) were conducted in most affected villages.

3.2 Sample

The non-probability purposive sampling was used to select key informants. Most specifically the sub-type of purposive sampling, extreme deviant purposive was used in this study (Palys, 2008).

3.3 The Approach to Data Analysis

The qualitative data were analyzed using a simple thematic approach. The key themes of the study were selected against research questions. As explained by (Braun and Clarke, 2006) thematic analysis is identifying the pattern of qualitative data.

4. Findings and Discussion

Established on research questions the findings are distributed and analyzed into two study themes.

4.1 Theme 1: History of Disasters/ Extreme Weathers

Table 3: Types of disasters and districts under study across years

Years →	**1999**	**2010**	**2011**	**2015**	**2016**
Types of disaster →	Cyclone	Floods	Rain floods	Heatwave	Heatwave
District →	Badin	Kashmore & Badin	Badin	Kashmore & Badin	Kashmore & Badin

Table 3 above shows the types of disasters and extreme weather events that affected both of the studied districts in different years. These disasters and timelines were highlighted by communities as well as key informants during data collection.

> *"District Badin is a very vulnerable district in terms of being hit by frequent disasters and the economic status of people. In 1999, the district was affected by a cyclone/ sea storm which damaged many houses and caused casualties. In 2001, the district was shacked by an earthquake, but it was at a very low rector scale and no major losses were reported except mass hysteria. In 2003 when the Arabian Sea level raised and pushed back the water in Left Bank Outfall Drain (LBOD) it was a weak structure so was damaged and caused floods that damaged standing crops on 600,000 Acers of land (Key informant, Government Department, Badin). In 2010 there were riverine floods that damaged the LBOD again and the water of LBOD is very saline which damaged crops and also spread diseases among humans and livestock. In 2011, heavy rain continued for 48 hours that causing floods; even in Badin city, drainage, roads, and houses were affected."* (KII With Focal Point District Government in District Badin)

Whenever there is heavy rainfall on the hills of Koh-i-Suleiman "the hills of Solomon/ Suleiman" in South Punjab causes floods in some parts of Balochistan and Kashmore. When rain flows from Koh-i-Suleiman, it enters Balochistan, there is the Shahi branch in Balchostin which gets flooded and usually breaks from its right bank due to land scale and water comes into Union Council (UC) Tangwani of Kashmore and Thulh of Jacobabad (Key informant, Government Department, Kashmore). Due to the breakage of the River Indus Bank, massive flooding occurred in the year 2010. Usually, there is a natural path for flooding in the west of the river from Ali Wahan that is used to flow the water into desert areas when it is flooding in river Indus since the time of British Rule. During the floods of 2010, there were no such assumptions about super floods and when water in River damaged the right bank (in the west of the river) it caused floods in districts Kashmore, Jacobabad, and Dadu until water flowed back into River Indus (KII with Focal Point of District Government in District Kashmore).

There is a natural/old path for flooding in the west of the river Indus from Ali Wahan that is used to flow the water into desert areas. The path has been used since British Rule to save the Sukkar Barrage in monsoon flooding days (KII with Focal Point of Local Government District Kashmore).

In 2003 when the Arabian Sea level raised and pushed back the water in Left Bank Outfall Drain (LBOD) it was a weak structure and it was damaged that caused floods that destroyed standing crops on 600,000 Acers of land (KII with Focal Point of Local Government Department, Badin).

As depicted in Table 3 the district Badin in the south of Sindh is more frequently hit by disasters as compared to the district Kashmore which shows the vulnerability of district Badin. Since the year 2010, there have been consequent disasters and extreme weather in both districts. It was found during FGDs that both of the districts were affected by floods in 2010 and heatstroke in 2015 and 2016. The data inform that the impacts of floods in 2010 were substantial specifically on livestock, agriculture, shelter, and the health of people. Disasters, extreme weather, and displacement have negative health impacts on general populations and livestock. Unsafe food and drinking water also cause

contagious diseases like skin and stomach infections are widespread. *"Our buffaloes died due to the heatwave in 2016."* (FGD at a Village from District Badin)

Disasters like rain and floods result in slippery land/roads contributing to slipping incidents and an increase in injuries. It is unsafe to walk on such ground particularly for pregnant women because there is the fear of miscarriage in case they fall on the ground. "*One of our women in the village faces a miscarriage during the heatwave of 2015."* (FGD at a Village from District Badin).

Figure 2: Word Tree of FGD in both districts

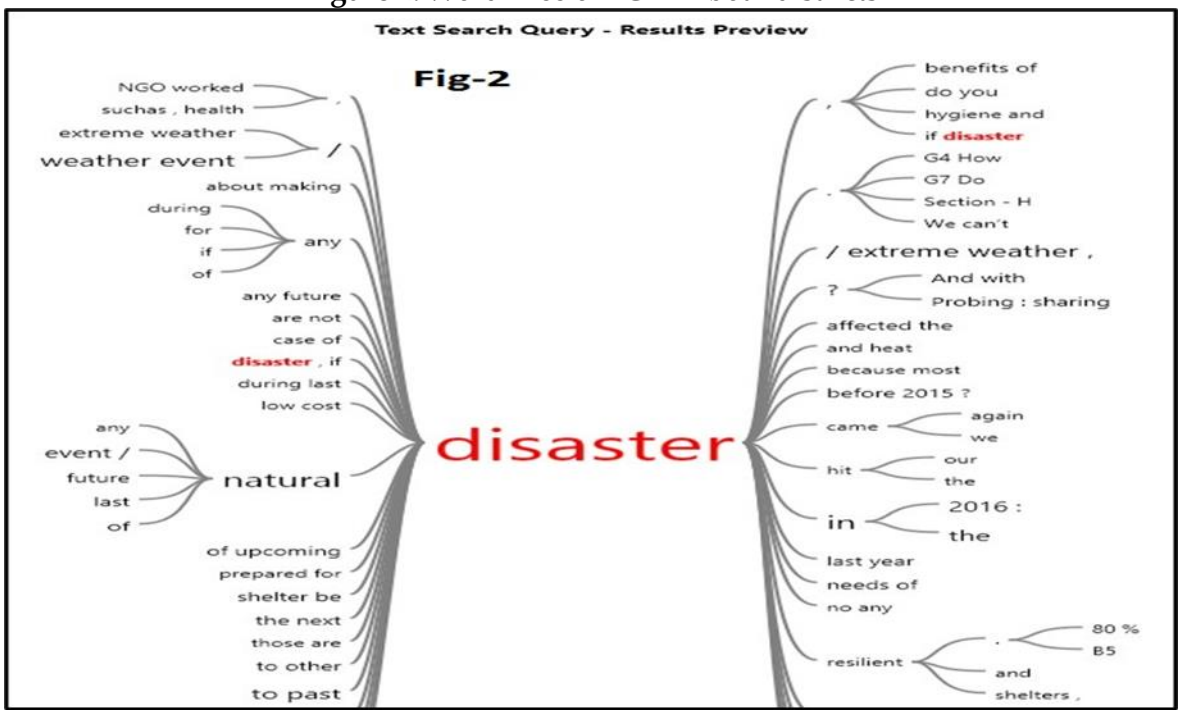

Figure 2 above was extracted using the word tree method of FGDs conducted in both districts. The hazardous point in district Badin is the sea and poor struct of the Left Bank Outfall Drain (LBOD). District Badin has been hit by frequent different natural disasters, such as the flood of 2010 and heavy rain in 2011 that destroyed the crops, agricultural fields, and shelters. "*The 2012 earthquake did not result in any major destruction and life loss; albeit, it caused some cracks in old and weak houses."* (FGD at a Village from District Badin).

District Kashmore is one of the well-known districts of Sindh for its hot and harsh weather during summer as shared during FGDs, district Kashmore is also very vulnerable and hit by frequent disasters. "*District has two hazardous points, the Indus River and rainfall in hilly areas of Punjab and Balochistan known as Koh-i-Suleman."* (FGD at a Village from District Kashmore).

In northern Sindh, there were riverine floods in 2010 and heavy rainfall in 2012. Due to the situation of law and order and difficult access to rural areas, very few NGOs work in the district.

4.2 Theme 2: Government Response to These Disasters

In both, the district government did not have any Disaster Risk Reduction (DRR) plan that can be applied every time in any situation. Because every disaster has its dynamics, so, every year during monsoon season district government starts working on a DRR plan that mostly covers the aspects of damage assessment, rescue, camping, and coordination with humanitarian workers. District Disaster Management Authority (DDMA) works during emergencies, meanwhile, the district government nominates a focal person in the offices of District Coordination Officer (DCO) or Deputy Commissioner (DC), for regular updates and coordination. In district Badin World Health Organization (WHO) is building a warehouse to store nonfood items that are supposed to be used during emergencies.

The early warning system works under the revenue department. This early warning system is very simple, during flood or rain emergencies communities are coordinated by officials of the revenue department regarding anticipated threats and damages. The government does not have any stock of food or nonfood items. Government facilitates rescue and temporary camping. District Disaster Management Authority (DDMA) works during emergencies, meanwhile, the district government nominates a focal person in the offices of the District Coordination Officer (DCO) or Deputy Commissioner (DC), for regular updates and coordination.

> *"There are no such specified indicators with the government to declare disasters and magnitude. Mostly the local NGO (LHDP) have been working in district Badin with the support of donor agencies, they have been working on multiple projects with a special focus on humanitarian and relief projects. Government departments like Provincial Disaster Management Authority (PDMA) and revenue, usually work on rescue and relief. During the floods of 2010 and heavy rains in 2011, they provided rescue, temporary camps in government school buildings, and distributed cooked food in camps* (KII with Focal Point of District Government District Badin).

> *"The right bank of the river at the point of district Kashmore is called Torri bank, which is the first bank of the Indus River after that there is the Mewal Shah defense bank. It was assumed that when Torri is broken water will pour out of the river that will reduce pressure on barrages, then water will flow inside the defense bank and finally after a few kilometers will go back into river Indus again, but unfortunately, the defense bank (Mewal Shah) could not sustain the pressure of water and many districts of Sindh faced massive flooding*." (KII with Focal Point of District Government District Kashmore).

> *"Government departments like Provincial Disaster Management Authority (PDMA) and revenue, work on rescue and relief activities. During the floods of 2010 and heavy rains in 2011, they provided rescue, temporary camps in government school buildings, and distributed cooked food in camps."* (KII with Focal Point of District Government District Badin)

5. Conclusion

The southern province of Pakistan (Sindh) is most prone and vulnerable to natural disasters caused by climate change. Contrary the government of Sindh province cannot face such disasters. Albeit it is not impossible to save people from recurrent natural disasters. The province from the extreme north to the extreme south is very vulnerable to heatwaves and floods. The temperature on the globe is increasing which shall cause more climate change and consecutive disasters in the future. There are two possible areas where the government of Pakistan can work to save the country from the worse effects of natural disasters. The government of Pakistan needs to develop capacity for disaster risk reduction by planning proper drainage and a strong early warning system. The second most important area is building strong coordination among the government, the humanitarian sector, and communities. Disasters are inevitable therefore it is important to put in place mitigation systems in the country. The study has found that government is not prepared to cope with coming natural disasters caused by climate change.

5.1 Recommendations

- Considering the history and level of damage caused by natural disasters, the government needs to prepare a DRR plan. The context-specific planning could save the communities from heatwaves and floods.
- Considering the mandate of the government and actions taken, it would be good to keep close coordination with humanitarian agencies and communities so that a quick emergency response could be launched.

Conflict of Interest Statement

The author declares no conflicts of interest.

About the Author

The author has a PhD in Sociology from University of Sindh Jamshoro. His work is focused on humanitarian research. The author has been working with humanitarian organizations.

References

Braun, V. and Clarke, V. (2006). Using thematic analysis in psychology. Qualitative Research in Psychology, 3 (2): 77-101. Available from http://eprints.uwe.ac.uk/11735

Brewer, J. (2000). *Ethnography*. McGraw-Hill Education, London, England.

Bhutta, Z., Soofi, S., Zaidi, S., Habib, A., Hussain, I. (2011). Pakistan National Nutrition Survey, 2011. DOI: https://ecommons.aku.edu/pakistan_fhs_mc_women_childhealth_paediatr/262.

Farooqi, A. B., Khan, A. H., and Mir, Hazrat (2005). Climate Change Perspective in Pakistan. Pakistan Journal of Meteorology 2 (3) 11-21.

Palys, T. (2008). Purposive sampling. The Sage Encyclopedia of Qualitative Research Methods, 2, 697-698.

Rasul, Gh., Afzal, M., Zahid, M., and Bukhari, S. A. (2012). Climate Change in Pakistan Focused on Sindh Province. DOI: 10.13140/2.1.2170.6560.

Sindh Bureau of Statistics and UNICEF. 2015. Sindh Multiple Indicator Cluster Survey 2014, Final Report. Karachi, Pakistan: Sindh Bureau of Statistics and UNICEF.

Ullah, W., and Takkaki, N. (2016). Climate Change Vulnerability of Pakistan Towards Natural Disasters: A Review. International Journal of Environment Protection and Policy 4 (5): 126-132. DOI: 10.11648/j.ijepp.20160405.13.