

**Socio-economic Survival Strategies of Flood affected
Community**

(A Case Study of Basti Mehrmani, DG Khan)



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Formal Declaration

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Final Approval of Thesis

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Dedication

To my parents who supported me throughout my life

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Abstract

This study aims to explore the perception as well as social survival strategies and challenges faced by people while implementing these plans in Basti Mehrmani, a village of Tehsil Dera Ghazi Khan. This research employs qualitative research methods like in-depth semi-structured interviews, Focused Group Discussions, observation, and informal discussions to gather data from a sample size of 30 people living in flood-affected areas. The sample size was selected by purposive sampling method as research demands people with certain attributes. This research visualizes the survival strategies of people through plans they make to survive with their family and livestock and fulfill their daily needs while surrounded by water. They live in an area that is near the river and vulnerable to floods and this becomes a blessing in disguise because due to multiple floods they have suffered people created strategies that protect them from the destruction of these floods that come every year. This study highlights these strategies and efforts to alleviate the problems during floods. Perception of people about floods is also determined in this study and the way this perception helps them to prepare for problems they are encountering. Their perception makes their ideas clear regarding floods and methods to deal with disasters. Above mentioned factors lead to a systematic way to learn survival plans from these people and implement them in other social settings that are facing similar issues. Small-scale societies can develop ideas to become resistant to natural disasters then it can be a step towards a large policy to make people ready with survival strategies for future disasters.

Key Words: *Disaster, Survival, Strategy, Social Survival, Economic Survival, Perception, Basti Mehrmani*

1 INTRODUCTION

Floods are reoccurring reality in Pakistan and the problem exacerbated in recent years. It is unlikely that floods will stop coming in near future. Climate change is reality and it is also affecting Pakistan. Every year monsoon season pours more rain than expected and this creates flood like situation (Ministry of Water Resources, 2022). Villages of Dera Ghazi Khan also affected by flood water and people living in the villages were most affected by these floods.

What is the response of people that are troubled by heavy rains and floods? It is important to know that there are two type of reaction of people that are recorded by government authorities. First reaction related to people that are living away from rivers and other water reservoirs and they face floods due to breaching of dams and levees (Tariq & van de Gisen, 2012). These are the people that in a way ready to deal with coming problem that is flood in their case. When you are vulnerable to something then you find ways to deal with this issue. The second type of response comes from the people that live in an area that is between the river and the levee. During monsoons due to heavy rains and over flow of rivers floods happen in these areas. These people do not leave their houses and become refugees in tent cities established by flood relief agencies (PDMA, 2022).

Rivers were attractive locations for the first civilizations because they provided a steady supply of drinking water and game, made the land fertile for growing crops, and allowed for easy transportation. A river valley civilization is an agricultural nation or civilization situated beside and drawing sustenance from a river. A river gives the inhabitants a reliable source of water for drinking and agriculture. Additional benefits include fishing, fertile soil due to annual flooding, and ease of transportation. In prehistory, for thousands of years, humans lived in small groups, banding together to survive by gathering food, hunting and fishing. Then, in the 4th millennium BC, at around the same time, communities in the valleys of a few large river of Asia and Africa, widely separated from each other, took to growing crops systematically. Increased food production led to increase in population, rise of cities and government, and development of writing and art.

People who do not leave their houses they look for the methods to survive in flood water. Since people cannot move from one house to another because they are surrounded by water then they device ideas to travel safely in this water. Their survival in isolation from outside world is something that can help other people to become flood resistant by learning from their strategies to fulfill their daily needs. According to a report floods destroyed 0.9 million acres of crops in south Punjab where this study area is situated (United Nations, 2022).

Floods usually occur during summer time and this is the season of Kharif crops in research locale. What plans people make to protect their crops from flood water? How they protect themselves from water borne diseases and their strategies for their livestock as it is an important part of village life. According to United Nations Pakistan is in top 10 countries that are most vulnerable to natural disasters due to climate change. In 2022 Pakistan has faced 67% more rains than normal average and 72 districts across country was declared “calamity hit” by local and national government (United Nations, 2022). People of research locale are living under these harsh conditions and what strategies they make on social and individual level to deal with floods. Economic challenges they are facing and what are their strategies in floods when everything is under water how they are surviving and making their livelihood. Economy of village population is based on agriculture and their livestock and both of them come under threat due to heavy floods in riverine. This study explains how people survive under these harsh environmental conditions what their survival strategies are during floods and what we can learn from their strategies.

1.1 Statement of the Problem

Climate change is a reality and different parts of the world have been facing unprecedented environmental conditions in the last few years. In the contemporary era, the world is suffering from the phenomenon of climate change as it has intensified the severity of natural disasters globally. Recurring and intensified floods are one of the major challenges that bring substantial socio-economic distress among the affected areas. Historically, Pakistan has been suffering from recurring floods (Syed, 2014). The flood of 2022 is one of the recent examples that has affected a lot of communities across Pakistan.

According to a UN report, the 2022 flood has affected three provinces of the country, i.e., Baluchistan, Punjab, and Sindh. This has caused an estimated loss of 13 billion USD¹ to livestock and economic losses in agriculture may surpass the first direct estimation of losses (UN, 2022). The locale of the current research, Basti Mehrmani, Dera Ghazi Khan, Punjab, is one of the flood-hit regions in Pakistan that has encountered the challenges of socio-economic instability. The research aims to focus on the social survival of people living in the flood-hit region of Basti Mehrmani to adapt aftermath of flooding. It also intends to investigate the economic strategies adopted by the residents on individual and community levels to mitigate the consequences of floods. Furthermore, it projects to delve into the cultural perceptions of the residents of Basti Mehrmani about the flood. Addressing the abovementioned research objectives will contribute to building an understanding of challenges faced by the local population and their coping strategies. This will also help to mitigate challenges caused by floods and their future rehabilitation plans.

1.2 Research Objectives

The research objectives that have been explored in the current research are as followed:

1. To investigate the social survival strategies of the flood hit community in the research locale
2. To examine the economical strategies used for individual and community support
3. To explore the perception of locals about floods

1.3 Definitions of Key Terms

The key terms related to the social survival strategies of flood-affected people can be understood in simpler language.

1.3.1 Disaster

A disruption in working of a society due to hazardous events like floods, earthquake, and sudden environmental change as it was exposed to natural settings such as mountains, rivers, dams and canals and this exposure leads to human, property, livestock and environmental loss (United Nations, 2023).

¹ USD stands for United States Dollar.

1.3.2 Disaster Damage

This measured during and after the disaster and measured in physical units. It usually includes disruption of basic services, house destruction and damages to sources of livelihood like crops (United Nations, 2023).

1.3.3 Disaster Effect

This includes both positive and negatives effects. Negative and positive impact is economic losses and gains. It also includes disease, physical losses and social wellbeing (United Nations, 2023).

1.3.4 Social Survival Strategy

Survival means that using necessary means to survive in tough conditions. So we can say a social survival strategy is a strategy made by people to survive in their environment based on same ethnicity, culture and language to achieve a common goal of survival (Rivers, 1913).

1.3.5 Economic Survival

Strategies that are made to safeguard your economic interest that is safeguard of your status, wealth and power in a social setting. Economic survival can be different in different places and this depends on your social position (KEMP & VAN LONG, 1984).

1.4 Significance of the Study

This research adds new data to the knowledge of Anthropology of Disasters. This research is different from past studies as they were focused on role of government, NGOs and indigenous knowledge to deal with natural disasters but this study will be focused on how people at their own without any foreign aid dealing with floods and its social and economic impacts at individual and community level. How these strategies are working and can be beneficial for future projects to deal with natural disasters. This study will also focus on cultural perception of people about floods and it will not examine religious and spiritual views like many past studies on floods.

There are not many research studies have been conducted on floods in Pakistan after 2010 devastating floods and many of them have lapse in methodology, evidence, theory and population. This has research has tried to cover research gaps of previous studies and

discussed these gaps in the next chapter. Findings and results of this research tries to cover many gaps of previous studies.

For policy makers, this research provide an idea that how they can prepare societies to deal with floods and they can learn strategies to lower the effects of floods and how to save people from losing their houses that are living near small dams, mountains, levees and lakes. Further they can learn how people protect their livestock and what crops can sustain disaster like flood.

This research has examined how people deal with problems created by recent floods in D.G Khan, Punjab. Researcher has explored their social and economic strategies to see what they are doing to overcome issues like food scarcity, livestock loss and safety, security, health and education of their children. By this we determine how people are making livelihood for their families and animals in flood hit areas and how they are dealing with it socioeconomically as their main source of income agriculture is destroyed due to heavy rains and flood and as a community what is their strategy to deal with problems they are facing due to natural disaster. Since primary and secondary healthcare centers, education institutions and other basic services provided by government are on halt so what they are doing to fulfill their needs.

Furthermore, this research introduced practically successful socioeconomic strategies used by people of Basti Mehrmani. This study will help in disaster readiness and enhance community flexibility to endure natural calamities.

1.5 Thesis Outline

This thesis investigates the strategies employed by societies affected by floods to survive socially. It starts with an introduction that emphasizes the importance of understanding these strategies and establishes research goals. A thorough review of existing literature is conducted, covering conceptual frameworks, previous studies, and theoretical perspectives on social resilience. The methodology section outlines the chosen research approach, data collection methods, and analysis techniques. Findings and analysis explore the identification and description of social survival strategies, their effectiveness, and the factors influencing their adoption. Case studies provide detailed examinations and

showcase exemplary practices. Implications for disaster management and policy recommendations are discussed, concluding with suggestions for future research.

2 LITERATURE REVIEW

This chapter examines the previous research that has been done on topics related to floods and survival. Researcher has critically examined the previous studies and tries to explain the methodological gaps in them.

2.1 Culture, Disaster and Anthropology

Anthropology is one of the disciplines where we link and understand all related issues to solve the impacts of disasters. Anthropologists also deal with management of such events however their main focus is on planning to deal with cause, type and effects of hazards (Beniston, 2004). Since the start of 21st Century Anthropologists involved in disaster research and try to formulate a disaster theory that create a knowledge to study disaster and how people deal with these problems at their own with help of community. Anthropologists know that social phenomenon is contributing more to disasters than natural and physical processes. Anthropologists are more concerned with what role culture plays among communities to study why disaster happens and how they unfold. It is important to understand how a culture is interacting with its physical surroundings to determine the reasons and cures for floods and heavy rains (Aldrich, 2012). For this purpose Anthropologists directly coordinate with community members that what policies they device to deal with floods and its aftermath. In this scenario their focus is on how people react before and after the natural disaster. What are their risk perception, their plans and long and short term decision making when they know about floods.

Floods cause anthropological and demographical destruction in any area. Pakistan is a country that is affected by floods almost every year. Recent floods of 2022 shows that how damaging they were in terms of affecting rural population and agricultural economy. Government and private sectors are doing their efforts to rehabilitate people and international donors like United Nations, World Bank and Asian Development Bank are making promises of millions of dollars (World Bank, 2022). Floods are most damaging aspect of social life as it can wipe out the populations, livestock and turn fertile land into of no use for months. As a result unemployment, diseases and inflations soars and regional disaster turns into national issue. Developing techniques that can mitigate the problem is most debated topic and many researches have been done to solve this issue.

Floods bring the issues like poverty, health, education and hygiene into spotlight. Areas that were neglected by local and city governments suddenly become their priority to solve the issues of people. It is observed that people in villages still do not have the facility of toilets and water sanitation system. This create problem during floods when this water mixed with flood water and used by animals (Sarkar, 2022). Waterborne diseases like Diarrhea, skin infections and dengue become prevalent in society. In livestock water brings diseases related to mammary gland of cows.

Pakistan produce very small amount of carbon footprint. Pakistan ranked 8th among countries that hit by natural disasters like flood and 7th in the list of vulnerable countries that are on the mercy of nature. These kinds of risks provide us an opportunity to become climate resilient society by combining technology and local knowledge (Ashraf et al., 2023). It is interesting to see how people survive that is not living in the refugee camps. These are people that survive at their own and it is interesting to study their techniques that help them to become a climate resilient society. Their ideas and plans that seem very simple but no one can think as you need a situation to make plans and then implement those (Baqir et al., 2012).

2.2 Social Survival Strategies

Floods that come suddenly due to breakage of dams, levee and lakes cause more human and economic damages than floods that come after warnings from government agencies that a high level flood is coming and people should evacuate or take shelter at high places. Reason is simple when people know what is coming they prepare themselves and better deal with it. Sudden hazard always cause more problems and human life become vulnerable under these circumstances (Shah et al., 2022). Community under study also have the advantage to have information about the floods and further their experience from which they know that water if comes it will be during monsoon season. It makes them better prepare for natural disaster of flood.

Floods make evacuation of people and their property impossible or very difficult and in this scenario they have choice either to save their life and leave their property including animals behind or risk their lives by saving their belongings. Evacuation looks better when compared with disaster but its cost is very high. People become homeless and

heavily rely on help of government and other supporting agencies (Devi, 2022). Migration not takes place easily in research locale as people are ready to live in flood water. Very few people leave their houses when they do not have other choice as their house fall due to water erosion.

Flood water makes movement of people difficult and food supplies are important for survival of human. People need strategies that give them stockpile of food. Food that can last longer included in food storage. Dry meat, lentils and rice these foods last for long period of time. People store food not only for themselves but also for their animals (Deen, 2015). Food need special care as humidity level during floods remains high and they cannot sustain it for longer period. Dried out items last longer and during floods they are useful than fresh and green foods that are not accessible and easily wasted of not used in one or two days. Food strategy requires food that is adaptable to any environment and people can use it for days (Fahad & Wang, 2019). People under study use this technique and they save food that is not perishable. This helps them to survive within their own resources.

Food insurance is another survival strategy that used by people who are associated with agriculture. In Pakistan this trend is new and only followed by people that have large sum of lands. Farmers with little lands and people who work on leased land cannot afford insurance and hence they made their own plans to face flood issues. They move to strategies that save their crops from floods like sowing water friendly crops. Food insurance is not availed by single person in research locale and they are trying methods of stopping water and cultivate crops that stand in water (Islam et al., 2016).

Disaster hit societies often know they need warning system and food supplies but there is another important aspect what every society need when they are under floods and that is emergency supplies. People need emergency health care facilities and medicines as change in environment make diseases more powerful and human vulnerable (Jamshed et al., 2020). People of Basti Mehrmani know this fact and the store medicine for fever, malaria and pain. Due to water travelling is not possible and in emergency situation doctor cannot get to the patient so these medicines help them fight against diseases and survive.

Areas that are prone to floods build house that are flood resistant like making elevated houses from the ground level as they work as first line of defense against floods. Houses that are on plain ground cannot sustain high level of water results in more damages. Making shelters that are above ground level helps in survival as water cannot damage it easily (Manzoor et al., 2022). People of the locale have their houses above ground level and their walls are well within the boundary of these high ground. It helps them when water comes and stands around their houses. This strategy is of no use in areas where houses are on grounds level as heavy rains sometime cause problems for them.

In modern societies life jackets used as tool to avoid drowning in water. Authorities give people life jackets during their evacuation from flood hit areas. This is most likely method to save human life. This method is expensive and people need a little training to use lifesaving equipment. Countries like Pakistan cannot offer this to their flood affected population due to minimum resources (Rehman et al., 2015). People who live near the river and in areas where floods comes in intervals they know how to swim and survive in water. Societies learn these practices when they face certain situations. You cannot expect from a person to know swimming when he never enters in water. Swimming help people during floods as it is a tool of travelling in floods (Saddique at al., 2022).

People that have roof access are more likely to survive floods and even high level flooding. Level of floods vary from low to high and when level is high people need shelter in places that can save from high level of water. Floods wash out everything that comes in their way. People need places where water cannot reach (Shah et al., 2023). People living in areas that are not flood prone do not have this facility but this should be available in places that regularly affected by floods. People here have roof access and they use it when need as sometime water enters their house and they need to shift their belongings on the roof.

Drinking water is basic human need but when flood comes though it is water yet people face difficulties in finding clean drinking water. Flood water makes can change the taste of drinking water. Change in odor and color lead to different diseases and animals drinking water from flood also become vulnerable to different diseases (Shah et al., 2018). People who have hand pump in their house are least affected. Problem is for

people that do not have access to hand pump. Flood water is not suitable for human and to bring fresh water is difficult task as water create hurdle in easy movement (Waseem & Rana, 2023). This is the case in locale people use hand pumps and their animals drink from flood water. They say they do not have other choice as it is impossible for them to give water to all animals from water pump. They use water from pump and flood water is for Livestock.

Ample amount of literature is present about the floods but little is presented to highlight the difficulties of people during floods. This problem of flood is prevailing in areas near rivers, dams and lakes. It is easy to find the effects of hazards and how it is destroying infrastructure and other things yet little to know about the people how they are surviving these issues and what strategies they made to fight for their lives, property and livestock (Sultana, 2011). This the point researcher is raising in this study how people pull through these tough times and specially the people who are living in their houses even during floods. Their strategies provide us the account of problems faced by communities that are small and sustain themselves without foreign aid either of government or private agencies (Bhutta et al., 2022).

Plans that make life easy for people are not easily possible. Natural disaster comes suddenly and even if it is happening in sequence still it is very hard to prepare for a disaster. When water comes it kills your social network that you need most in social survival. Next step is it displaces people from their homes and makes them vulnerable to things like disease, homelessness and poverty (Khan et al., 2023). People have mostly no idea what to do in this situation and they just collapse in their mind and cannot do anything to save their homes and families (Shaw, 1989). In Basti Mehrmani people face same problem every year and they are mostly know the level of floods but still they face a lot of problems like clean drinking water, fodder of livestock and unable to travel. Their plus point is since they are facing this issue for decades they somehow manage to live while surrounded by water for days.

Dealing with floods for government is big issue and their all policies are not stopping it. What they can do is to make policies by the consultation of local people that actually live there. Government needs to see how they live in floods when many people save their

lives by running away and how they eat, sleep and work when everywhere water is there (Munawar et al., 2022). People need to understand that local administration that is helping them after floods can help better if they cooperate and participate in plans that are made to save their lives and to rehabilitate them. Sometimes only thing missing in a good policy is ground level work and flood victims can provide this ground work for their own betterment (Ochani et al., 2022). If people entry is not possible at least a survey should be conducted in flood prone areas to see how population in these areas are living and what changes they made in their life style during floods.

Strategies vary with location and climate of people. In European countries farmers use insurance as their survival tool then it is not necessarily set example for farmers in other parts of the world. South Asian farmers for example in Bangladesh very small amount of people linked with agricultural economy are choosing insurance as their plan to deal with disasters (Noureen et al., 2022). Reason is simple as they do not have resources to pay for these future benefits. Method they choose is easily applicable that is making scheme for survival they can implement (Hossain et al., 2022). So a village that you cannot find on map and its population with minimum resources cannot make long term plans. They use their income on crops and their livestock to get maximum benefit in limited time period.

Flood events are unique in their own surroundings and people require different strategies but key to survival is adaptability. People should learn from different societies and their plans to see which suits them and their environment. In this way their main purpose that is minimum loss of property and crops can be served. Interesting is how official authorities can learn from these strategies as they are the main source to spread this information (Petrucci, 2022). Strategy they find best and can be used by other people that face threat of flood water should be shared with them so they can use it to save their lives. Strategies that can be generalized on large population are needed as migration and taking refuge put people under further social and economic pressure.

2.3 Economic Survival Strategies

In flood affected areas people also need activities that safeguard their economy. This includes their house, crops and livestock. When water comes first thing it destroys is crop and then it moves to houses of community and what tactics they make to survive.

People in small scale societies use barter system when their economy is small but in modern world even small scale societies and remote villages do not use this system. They are related with agriculture and this makes large part of their income. So their income generating means first destroyed by natural disaster and they have little choice to do something. Water friendly crops are not the solution as there is nothing that can stand against heavy flooding (Shehzad, 2023). There are only two to three crops that can stand against water if its level remains below their house base as very high level of water wipes out crops.

Floods can kill the animals of people living near rivers. Livestock is another important part of their life. They cannot sell it as market price of livestock falls before and after the floods due to high level of diseases. They need strategies to safeguard them and their survival depends on food. People can collect food for themselves since they know they can eat limited according to situation but animals lack this ability (Nandhita et al., 2023). They can live on small quantity of food but due to this their health can deteriorate and milk production can reduce. Less milk production means further economic pressure as people drink and sell this milk. People under study priorities the health of their animals as they know their livestock help them to deal with floods as they sell them and their byproduct milk (SIMONOVIC, 2018).

Agricultural activities put on halt by floods and communities that are dependent on this face difficulty in their life. Flood drowns most of the crops and farmers need alternatives to deal with this issue. Farmers of different countries raise their crops beds to deal with water problem. This needs more money and time. It is helpful in areas where flood come rarely and flood prone areas this technique is not useful as water erosion takes away raised crops bed and every time you need to make them again and again (Qasim et al., 2015). In this case it is not helpful for economic survival rather it will become a burden and impossible for farmers to use this technique. People use this strategy when water level is low and stop water sway from crops to get enough time to save their crops yet this is not possible in sudden and heavy floods.

Farmers rotate crops to fight against climate change and different crops give soil enough time to get back its health. Floods sometime make soil filled with minerals and sometime

it washes away all the power of soil and this result in low crop yield. Farmers also use crops that need small period of time to get ready for harvesting. This strategy helps them to get enough income they can use in floods (Adhomah & Olay, 2017).

Emergency harvesting can be used but in this technique crops is only of the use of animals and human cannot take any benefit from it. Further early harvesting need money and human resource that is not easily available before floods. When you know your effort is not resulting in good for you then it is not possible that you will put effort in it. People of locale do not use this strategy as they take chance that may be water will not come out of river and their crops get full time to grow. They think early harvesting is of no use (Ao et al., 2020).

Seed storage is basic part of their future survival as flood affected people know that seeds are necessary for future. Once water will dried up they need seeds for crops and market prices become so high that farmers cannot buy them. So people in worst economic conditions know that they need to store seed and environmental conditions are other hurdle in saving seeds. People fight on different fronts as they need to safeguard their homes and at the same time they plan for future as they are dependent on their agricultural income (Das & Samanta, 2022). People under study also save seeds for future needs and they have their own plans to keep them safe from rain and other problems.

Moving livestock to the safe area is good plan during floods as their food is biggest problem in this condition. Further they can get different water borne diseases as they need dry sitting place and during rains it is not easily possible for people to take care of livestock needs. Moving them away from home need at least one or two person for their care (Faruk & Maharjan, 2022). Livestock need a lot of food and water and without human care it is not possible for animals to survive. It is easy for people to migrate their livestock then gathering a lot of fodder for them and then keeping it safe from changing environment. In research locale this technique is useful for some people and some people think they can take care of their animals in floods plus they give them income from their milk and they also use milk as their food (Ha et al., 2022).

Community support programs with help of local authorities and private agencies are helpful in rehabilitation as government assistance for those who lost their houses due to water need money to rebuild their houses. Social support is important factor as people need their own society to stand for them. Rich and wealthy people of community support the poor and assist them in coming back to their home. People need support and this method allows them to build back better. This helps them to become a climate resilient society and it can deal with any problem with community help. More climate resistant communities help to save human life and livestock (Hewawasm & Matsui, 2022).

Saving farm and agricultural equipment should be the part of survival plan as farmer needs them in near future. Little techniques that can save a lot of things and this is helpful for people that need support in floods. Soil erosion, crops destruction and isolation are big issues that people face and these techniques are helpful in their future needs as they are saving thing for tomorrow (Irawan, 2022). During floods people only think about water and sometimes they ignore the most basic thing that what will they do after flood water vanishes. They need to save things for days after floods.

After flood they people need to see their reaming crops that can be used either for human or animals. After harvesting it they can set free their livestock to walk in plains affected by flood. Rehabilitation process is slow as soil need time to become ready for next crops. Livestock need time to get back to their full milk production and after this survey agents visit the area and make their report about the situation. Loss of crops and livestock with property damage noted and they can see if population needs emergency support or not. Combating floods need preparedness and in remote communities this preparedness cannot come until they live in areas that face flood every year (Kamardin et al., 2022). Other communities need foreign help to make them prepare for disasters and how to deal with them. People cannot learn things that they have not faced in their lives. So expecting from a society that is first time a victim of heavy rains to survive without any assistance is not a wise thing. People have the unique ability to adapt to different situations but this ability needs a motivating force that can give direction. How much they need to adapt as you cannot say them to become swimmers in a week or month. They need proper time

and effort to establish them in a changing environment. Remember they need to change for a short period of time as flood water is not staying here forever (Kellens et al., 2012).

Economic plan should be according to people need and it design to mitigate their problems like lack of money and resources for their belongings. A policy is successful when it is serving the purpose for which it is made. If it is saving people life and every time decreasing the loss compared to last disaster then it is well and good otherwise plans need to change and assess what they are lacking (Lechowska, 2021). A policy that is successful in other areas may not suit remote villages for example insurance of crops. Strategies should be made by people or with the input of people that are under the natural disaster. Ground level knowledge is important as it allows the indigenous point of view to become part of a strategy.

Making a generalized strategy is not an easy task. Human needs can vary even when they are facing same circumstances. Being a flood victim does not mean that all people have same issues and solving problems in one place can save all societies. House damage is only thing that every flood victim faces but other issues like agricultural damages, road damages and loss of livestock is limited to location of people. Flash flooding can destroy cities but dealing with flash floods is different than helping communities that lives in flood water for days and weeks (Pangali et al., 2022).

2.4 Perception about Flood

People perception about a disaster is directly associated with their preparedness. If people take it serious threat then they have plans to deal with it. On the other hand if people consider it as normal issue it is likely that they can be in big problem if disaster become severe they will be not ready. People consider religion as source of perception especially about natural disaster. Studies result shows that religion is not source of risk perception (Qasim et al., 2015) There are two famous methods to describe risk perception, first is psychometric method and second is cultural theory method. One is used for gender, demography and race risk perception and other is for acceptance that disaster perception is found in cultural norms. People reaction to the floods influenced by their culture, norms and demographic location (Ansari et al., 2022).

If we know people perception about floods it can help in communication with them. Understanding how people think about a natural disaster will ultimately result in better policies for a particular area since we know how dangerous a flood can be and how much awareness a community has about this threat. Most of the studies take risk perception based on previous knowledge and experience. People under research thinks flash flooding is not a threat to their economy and life as they can stop it and change its direction if they want to (Avand et al., 2022). High level of floods is dangerous for them as they submerge their crops and isolate them from the outside world. Electricity is the first thing that is taken off by authorities to avoid and damage.

Houses should be away from the river and during flood season livestock should not send near river. Similarly crops should not be sown in areas that are near river because small scale floods can destroy these crops. If it is not possible then there should be crops that can stand in water and they should be grow well before flood season so that they can grow and become large enough to resist and stand in water for long period of time (Azad et al., 2022).

People need to diverse their source of income. If you live in flood prone areas you cannot only rely on agricultural income. Once the flood water comes then this income will be stopped for months and what will you do. To avoid inconvenience people should look for other options like selling of services. This can save them from selling their animals. More income generating sources means little or no pressure during floods on your household and at the same time you can help your neighbors and other people if you want to help(Haque et al., 2022). People of research locale have different options to generate income as they sell milk during floods and take care of animals of people that send their animals to the other side of river before floods. They take care of them by providing food for these animals.

People from areas that are not near natural water ways have little or no idea about the damages causes by floods. That is why past researcher takes experience as key in perception building. If someone have not faced a threat it will be not possible for him to fight and survive against that particular threat (Islam et al., 2022). Previous knowledge helps to avoid future problems and make people more prepared for what is coming either

it is natural disaster or something due to human activities. To understand this perception we need to understand the background of people. It is important to note that how they live and how they faced problems in their life. Floods are becoming great problem for villages in Punjab and specifically villages that are near the flood plains. People living near rivers and mountains knows that even high rains can cause floods as during monsoon season water level increases in river and rainy season raise it further. So to avoid difficulties they know that this is the time when flood can happen and they do their preparation to overcome this issue (Karunaratne & Gress, 2022).

Factors that can determine perception of people include distance from flood source, crops and house ownership in flood prone area. People living in cities do not think flood as threat because they never face it. Considering flood as threat does not solve the problem rather preparedness is necessary for survival. Another important thing is your past experience about floods that make your perception. If your experience is bad about floods you will be better prepare and if your experience about flood is ordinary then you will not take it seriously (Kuang & Liao, 2022).

Many studies have done on perception that thinks perception is based on religious ideas and these ideas already instill in the human mind by society. That is not true as a person who never face flood cannot tell you that how destructive a flood can be (Langkulsen et al., 2022). Religious stories are not enough to build a perception that is strong enough to make you prepare for future problems. Changing climate demands that every person should have idea about heavy rains and changing environment. Perception needs experience as a human we cannot develop idea about a thing that we have not seen or experienced (Moises & Kunguma, 2022). By experiencing researcher is not saying that everybody should face floods rather it is saying idea about aftermath of floods. What happen when a disaster occurs and how it affects a society and its perception about it? You will find two contrasting point of view if you study a community before and after facing a hazard (Mucherera & Spegel, 2021).

Selling the goats, sheep and cows is a form of economic strategy used by people during floods. They need money and best source in this situation is selling livestock. People usually avoid this as they know they will not get their desired price because in the market

purchaser knows they have no choice but to sell their animals on whatever price they can get (Nakasu et al., 2022). To avoid this they need preparation before the floods and it is not easily possible as most of the do not believe flood is coming until it is there and then they have no choice but to use these strategies that are not beneficial in long terms for them. On lower price they can sell their animals but after floods when their crops harvested they buy same animal on high prices (Panman et al., 2021).

There is different point of views on why floods happen. There are many reasons to say like poor management of water resources, no timely silt removal from lakes, encroachment of natural water ways, no construction of new dams, deforestation in the name of construction and weak levees to stop river water. Why floods happen are not the solution but it can sometime lead to one step closer to the answer that what we need to do and how people can take it. People of the Basti Mehrmani become aware of the level of flood by listen the news and alerts from authorities. They say that authorities may told that how much water is coming in the river but how much of it will come out of river is determined by their past experience. In 2010 floods when authorities said it is coming they know that this time water is going to be harsh because soil erosion started when water level was low but its speed was very high (Putiamini et al, 2022).

Perception is not restricted to only how much quantity of water is coming and how to stop it. It is beyond crops and livestock protection. It can be about what people do after the floods and how they deal with health and educational issues. To add more how they survive time period that lands take to dry up and fully become ready for next crop. Water erosion can lead to decrease in productivity of crops because due to water soil loses its important minerals and as a result total production decreases. These are things that people should know that flood not only destroy their material wealth but it can also affect their lands. To conclude the importance of perception in flood related studies it noticed that strong perception build after you interact with a phenomenon and then you can deal with it more easily than dealing with an idea that is alien to you (Sarker et al., 2022). People point of view tells that how much they know about threats to their life and society and on what level they are taking them seriously. To survive in disaster people need support and if it comes from their community it is best for them. Their perception tells them what

should be appropriate response to a hazard. Use of social network to share information is also based on perception. When people think that this time level of flood will be high then they transfer this information to one another. In this way they are using their social network for survival. Perception is also related with social status in society. If your status is high and you can afford to avoid flood destruction by migration or keeping your property at safe place then your idea will be different from a person that cannot save his belongings from the water.

People with low risk perception spread information that is contrary to information provided by officials of government. This will create a situation where people do not make firm decisions. To avoid this officials include local communities and their elders and share information with them. In this way they avoid spread of misinformation. It is interesting to note that in remote societies people believe in information that suits their cultural norms. There is no use of social media when it comes to information that really matters. People only listen to those they think they are telling truth (Varea et al., 2022).

In remote areas people do not rely on social media and there are two factors. One is small scale societies are traditional and they only use technology that is very important for their survival and to say is electricity. People avoid use of phones and believing something that is coming from a thing you do not like to use is difficulty. People under study also avoid the use of phones and only one or two members of the family have phones and since this topic is not included in my research so the researcher avoid gathering information about this regard and stay focused on topic related information Auster et al., 2022).

Information provided about flood warning should be from a reliable source. People often do not believe in authorities as they are missing from ground level. So they look for other means of information but authorities warning create a sense of caution in them. So they look for a source that is from their village or family. Further they decide after right information that what they can do to reduce the losses. In this scenario self efficiency plays an important part as every individual is responsible for his work that is going to save him and his property from damages. People under study said that they listen to the warnings of local authorities but they rely more on their experience as they can tell whether this time water will come out of river or not. If it comes out is there a threat of

severe flood or water will remain low. Little water cannot destroy crops even if it stays for days (Haque et al., 2022).

In this review of literature different techniques used for social and economic survival but they cannot be generalized to all population around the world. Different people face different issues while dealing with floods. For example, people living near rivers have other issues when floods happen and people facing flash floods due to water coming from mountain due to heavy rains have other problems. Their problem is same that is flood but due to difference in geographical locations their response cannot be same. It may have similarities but expecting that identical behavior could produce same result is not realistic. Further it is described that perception of people based on their experience and their stories about floods and religious beliefs cannot taken as perception. Perception is related to their life stories that in past how they faced the disaster of flood and what strategies they made to deal with flood related problems. This perception is closely linked to their response. If people consider a phenomenon serious problem then they will deal with it on this level. It is also explained that how this literature is related with research locale and what plans and ideas local people have about floods and its effects on their community.

3 RESEARCH SETTING AND RESEARCH METHODOLOGY

This chapter includes the area profile of research locale Basti Mehrmani, a village of DG Khan near Indus River. This includes social and geographical settings of the area and then I have discussed cultural patterns and trends with weather and environment of the area. What is the livelihood of people and their major source of income. Further in this chapter I have discussed the research methods used for data collection like individual in depth semi structured interviews, focused group discussion. I have also discussed the sampling method used to get target population.

3.1 Locale of Study

Researcher has conducted research in Basti Mehrmani, a small village in District Dera Ghazi Khan abbreviated as DG Khan near Indus River. DG Khan is an administrative division of Punjab province, Pakistan. DG Khan consists of 4 districts and 14 tehsils. Its location is end of South- Western area of Punjab. On the north is Dera Ismail Khan and on west is Barkhan and Musa Khel of Balochistan. On the south is Rajanpur and on east is Muzaffargarh and Layyah. It covers around 20% area of total Punjab province. It includes D.G. Khan, Ranajanpur, Muzaffargarh and Layyah. Its area is 38,780 sq km with population around 11.013 million according to the 2017 census. It is 19th largest city of Pakistan with respect to population and it is main headquarters of district and division DG Khan (District Profile, 2023).

3.2 Geography and Climate

Dera Ghazi Khan is located at 30°03' North and 70°38' East. Overall climate of city remains dry and very little rainfall over the year. Winters are normal but in summer people experience extreme hot weather. Wind direction mostly remains at North-South. Nearest mountain range is Koh e Suleiman due to which barren and sandy lands are abundant and dust storms are very common. Fort Munro the hill station of city have mild and cool weather during summer and scattered snow fall has been reported many times at hill station (Final Results of 2017 Census, 2017).

3.3 Demography of City

Majority of the population is Sunni Muslims and ruled by powerful Bloch Chieftains that play a significant role in national politics as people vote on caste base. Feudalist use title of Sardar for themselves. Khosa, Leghari and Buzdar families are few notable ones in politics and bureaucracy. Population of the city is 399,064 (Final Results of 2017 Census, 2017).

3.4 History

DG Khan is near western bank of Indus River. It was founded in the end of 15th century and it is named on a famous Block tribal chief Ghazi Khan Mirrani son of Haji Khan Merani who announced independence from Langah's Dynasty of Multan. Around 15 generations of Mirrani ruled DG Khan. In those days DG Khan was consist of green fields due to Kastori Canal of Indus River and famously known as "Dera Phoola Da Sehra". Mirrani civilization was overwhelmed by Indus Valley civilization. Present city is built just 18 kilometers from the old one. Old city was built like a round shape pattern with open spaces for gatherings and wide roads and streets. Unfortunately and coincidentally old town was wiped out by a devastating flood in 1909-10. It was an important trade route for Afghan Powers in 8th century and for Shikarpur Hindu traders of the area. Due to its strategic location it was not the route of invaders but as it was near Indus River traders use this route. Due to tribal and traditionalism of area individuals and self-glorification is more important (District Profile, 2023).

3.5 Anthropological Significance of City

DG Khan was an integral part of Indus Valley civilization and also other nations like Dravidians and Arians also left their footprints. This was the route between Central Asia and North Indian traders. Early hindu historians mistook Indus as part of Arabian Sea and called it Sind Sagar. During the reign of Akbar this route was used to reach Multan and Mangoes of Multan were sent to court of Akbar in six days. This route was also used by Alexander when he was going back to Macedonia and people of southern Punjab showed stiff resistance to his armies. Suleiman Range has many passes that were used by invaders and traders but passes of Sakhi Sarwar and Sanghar are most important ones. For example, King Babar used Sakhi Sarwar in 1505 and Dara Sheikhoh also used this

path to run away from the hands of Aurangzeb. New archeological excavations have found monuments found between 18th to 15th centuries. Tomb of Harrand is most important one and some other are found at Mehaan Kot, Tunsar Sharif and Kot Pir Adil (District Profile, 2023).

In 18th century British formed an army named “Indus Army” with help of Ranjit Singh a Sikh ruler of that time to remove Dost Muhammad Khan of Afghanistan but at time of attack Ranjit Singh withdrew his pledge to support British and Indus Army. British met a humiliating defeat and then they know the importance of South Punjab that was under the rule of Sikhs at that time. Even in present time China has linked DG Khan with Gawader in CPEC. So a backward area is going to be a part of international trade route and hub of economic activities due to its strategic location (District Profile, 2023).

3.6 Selecting Basti Mehrmani

Basti Mehrmani suits my research question as I want to see how people survive without the outside help in floods. When floods come people leave their houses and move to safe place but in this village people stay in the water until water dried out. People of Basti Mehrmani told me how they survive in floods and why they do not leave their houses.

3.6.1 Basti Mehrmani

Basti Mehrmani is my research area and it is near Indus around 40 kilometres away from main Dera Ghazi Khan City. Basti Mehrmani is small village that resides between the Indus and levee protecting city from the floods. Most of the population there is Chandio and Khetran. They are associated with farming and raising livestock for domestic and commercial use. One side of village is covered by Indus and sometimes when water changes its direction two sides of village collide with water. Due to river land is very fertile and suitable for any crop. Crops there easily grew on small quantity of water as level of underground water is high. People told me that when they dig a pit only after 7 to 8 feet water comes out of ground.

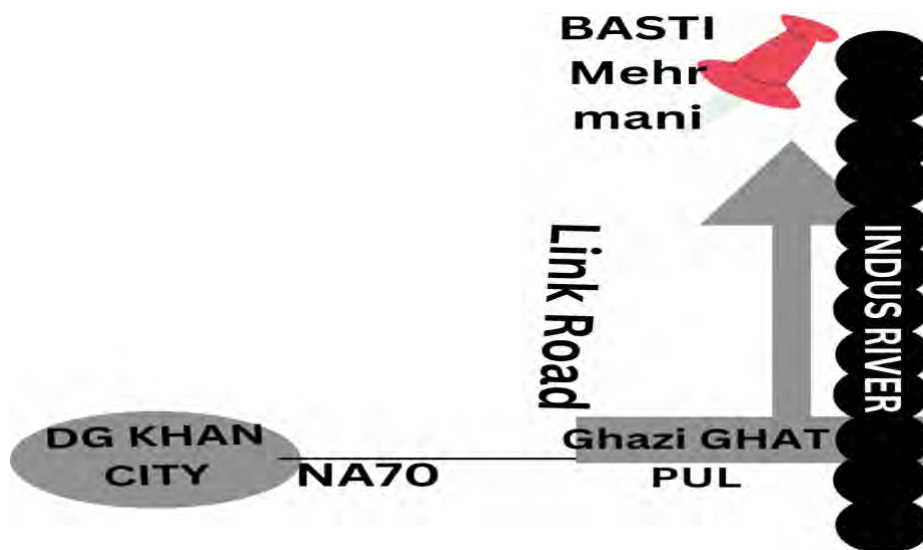


Figure 1: Map of Basti Mehrmani

3.7 Culture of the People

To understand culture of the people we need to understand their cultural background and how things panout in their area regarding cultural practices.

3.7.1 Family and Caste

Since DG Khan is a traditional and tribal area their family pattern is joint one. Even the families that are very wealthy and not living in DG Khan during most part of their life have strong affiliation with their land and tradition. Their elders stay in the city and younger ones go to perform their duties and chores. Some of the famous castes that are also tribal chiefs are

3.7.2 Khitran Tribe

An important tribe that lives near Taunsa. Qaisarni and Buzdar tribes are neighbouring tribes of Khitran. Some historians think Khitran are not pure Bloch rather they are from Pashtoon tribes. Their famous language is mix of Sindhi and Hindi that is Khitranski (District Profile, 2023).

3.7.3 Khosa Tribe

Historically Khosa tribe first handshake with Sikhs and then they were supporting British. In politics Khosa and Mazari family are powerful but Sardar Zulfiqar Khosa made a political truce with Mazari's. Khosa tribe has a Chief Minister and Chief Justice of Pakistan (District Profile, 2023).

3.7.4 Lund Tribe

Commonly known as lund tribe and historically they stood against Sori tribe of Pashtoon belt. Area under their possession is sori and they know as Sori Lund (District Profile, 2023).

3.7.5 Leghari Tribe

Leghari tribe settled here since 16th century but latter they were migrated towards Sindh valley when they supported Humayaun against Sher Shah Sori. Chieftain who supported Humayaun was known as Chakr Khan. In 1772 Leghari tribe with alliance of Talpur tribe fought against Kalhora Dynasty. During Sikh rule they fought against Sikhs but later they also shake hands with them. Most notable personality of Pakistani politics is Farooq Khan Leghari who was president of Pakistan (District Profile, 2023).

3.7.6 Festivals

Sangh Mela is famous festival celebrated in Sakhi Sarwar during the Visakhi in month of March. Urs of Hazrat Sakhi Sarwar is another famous festival that is attended by many people every year. It is important to mention that urs is not only attended by Muslims but also by non-Muslims as well to show interfaith harmony (District Profile, 2023).

3.7.7 Dress Patterns

Traditional Blochi dress pattern for men include Qameez (Shirt) and Shalwar (long baggy trouser). The Qameez is also loose with long sleeves and similar to Pashtoon style. Female dress consists of head scarf (dupatta/chadar) and long shirt and trouser. These dresses have 118 different styles and variety. Men also wear Turban and Dastar on their head. Traditional shoes include Kheeri and Tilla shoes (District Profile, 2023).

3.7.8 Marriage Patterns

Traditional people follow endogamy and DG Khan is no exception to this. They follow the pattern of marriage within family and their caste. People here follow the traditional marriage where family of bride and groom decide the date of marriage. On the ceremony grooms family with relatives reach the decided place and ceremony begins. Traditional music plays during the event and folk dances performed by people (District Profile, 2023).

3.7.9 Cuisine

Famous cuisine includes Khuddi Kabab made by thighs of mutton. Sijji of mutton where whole lamb or goat is put under the clay oven for hours and when it becomes ready mutton become as soft as ice cream and too delicious that you cannot wait to eat it. Another famous dish is Sohbat (painda) that is made by mutton and after cooking served on roti (bread) (District Profile, 2023).

3.8 Famous Places of City

3.8.1 Tomb of Hazrat Sakhi Sarwar

Tomb is last resting place of famous Sufi Saint Hazrat Sakhi Sarwar. Hazrat Sakhi Sarwar was famous for spreading Islam and its message in south west India. He spread the message of brotherhood, peace and harmony among different faiths and message of Prophet of Islam. Tomb is pilgrimage place for many muslims. It is also famous for its architectural work that is beautiful Indo Persian style that is very common for last century famous monuments.

3.8.2 Tomb of Ghazi Khan

This tomb is very famous place to visit in DG Khan as this is the burial place of ruler and warrior of this city and under whom rule DG Khan got independence from Multan. Ghazi Khan was true son of soil and famous for his bravery and valor. Design of tomb is also inspired by Indo Persian style and its tile work is very neat and unique. It is also a famous tourist destination.

3.8.3 Ghazi Ghat Bridge

Ghazi Ghat bridge is famous for its engineering design and connects city with surrounding areas. Bridge is equally used by people of city and other people that use DG Khan as shortcut to reach other provinces. This bridge is a good tourist attraction due to its construction style.

3.8.4 Fort Munro

This is a famous hill station named after a British officer Captain Munro and located 6470 feet above sea level. Fort Munro is very famous among tourists and known as Muree of South Punjab. Fort Munro Steel Bridge is also famous tourist attraction and connects Munro with other places and used by tourists to reach hill station.

3.8.5 Industry

Most famous industry of DG Khan is DG Khan Cement established in 1978 and later owned by Nishat Group in 1992. It has four units and two of them are in DG Khan. Other industries include 50 cotton industries and 25 small units of oil extraction. It brings 2% of the total GDP of country in form of foreign revenues. DG Khan is mainly agricultural land and most of the population is associated with this sector and due to increasing use of pesticides in major crops there also industries of pesticides (District Profile, 2023).

3.9 Research Methods

The aim of this study is to find how people survive during natural disasters like floods. When they have nothing to eat, no access to hospital, electricity and schools at this time how they survive. Most of the time people become aware of the flood by TV and other forms of news. How they tackle this without the help of external factors and what policies they make to survive on minimal resources. To understand this researcher's focus was on social and economic strategies made by individuals and community as a whole. For this purpose methods should be clear. This allows us to generate a mechanism to reach our goal of data gathering and helps us to find a right direction to formulate our research question so our target audience can easily become accessible and data provided by them become reliable. Selecting a research method is one of important part of a research questioning as this the path that will lead us to our destination.

During the interaction with people the main point of questions was how they have done it. What plans they made to make their survival possible. Different methods used to get the desired results such as direct observation, collection of their life stories and their experience about the floods. Old people were talking it as very normal aspect of their life but the young people were more concerned about their future as they were thinking to end this problem.

3.9.1 Sampling

This research is qualitative and based on people lived experience that they share with me. Main focus was to find people that can provide reliable data. Objectives of the study was to see the how their agricultural lands and livestock was doing during this time so researcher have to find families that have both land and livestock or least one of them so they can give me relevant and maximum information at one point in time.

The first step you take in research method is which type of sampling method best suits my topic. For this purpose researcher choose sampling techniques from non-probability sampling as it includes wide range of methods that suits your research design and make it easy for researcher to select a method that he thinks will be more helpful in collecting data. Population under study is flood affected people and in flood victims researcher has studied people who do not leave their houses as study was designed to see how they have cope with severe weather conditions. To avoid any kind of difficulty in finding target population researcher used purposive sampling. It was not difficult to find the community hit by flood but it was more difficult to find people who were willing to share their strategies and hardships faced by them during floods. Sample size of the study is 30 people.

3.9.2 Purposive Sampling

Purposive sampling is a kind of judgment sampling where you cannot get data from everyone you see at your locale of research. It is different from random sampling and selects only those that can give you required data.

So researcher use the information provided by my guide and key informant and also selected the area by help of him as he was local and knows more about where the high

level floods have hit hard. He introduced me with people of local area and tells them I am working on project that will help to mitigate the effect of floods and their problems.

3.9.3 Selecting Purposive Sampling

This technique was used because researcher need respondents that serves the purpose of study. This means people required for this study has experienced floods and know how to survive in harsh climatic conditions. Some basic points while selecting people were they must live in floods, do not migrate and keeps their animals. People with these qualities fit in this research design. Purposive sampling fits best to select people with certain backgrounds, experience and characteristics so this technique was used in sampling as study demand people with plans to survive socially and economically under harsh weather conditions.

3.9.4 Rapport Building

This is an important part as this will make a bond of trust between researcher and respondents. Rapport building allows us to get information that is true and clear as it is human nature that they share their true version with people whom they trust. To build this trust and familiarity I had spent a lot of time with them to feel them comfortable with me. Once I feel that they remain normal in doing their chores and my presence does not make them uneasy or extra conscious then I started asking them question.

First step for this purpose was to identify suitable and easily accessible cases so I can start my research interviews. Key informant introduced me with people and I build good relation with them thanks to our same language that is Saraiki. This makes them more comfortable and they consider me a part of their culture. This allows me save time as within days they become familiar with me and when I was walking in the area there were a lot of Hello and Hi.

My key informant introduced me with some elders of the area and they were happy to know that I am also Bloch. They call me “*Goda*” and its meaning is friend in their area. Their frankness and our same language make it easy for me to get the data and rapport building was much easier than I thought.

3.9.5 Probing Techniques

These techniques are helpful in qualitative interviews to extract more data and encourage your respondents to answer your questions easily. Probing techniques used in this research are

3.9.6 Echo Method

This is repeating the answer or lines told by respondents as it gives them confidence to speak more and open up (Bernard, 2006). In this method I repeated the last words of information provided by respondents to get a nod that this is what they are saying and by this making them comfortable to answer. For example, when a respondent says they gather animal fodder before floods then we take this line and repeat you gather food for animals because and then respondent further adds a bit of information. This technique helps respondents to assume that you understand what they are saying and it gives them strength to add more information.

3.9.7 Baiting Technique

Implying that you know something and even your information is incorrect it gives interviewee words to speak and correct you or add more information (Bernard, 2006). In this technique as a researcher I acted as if I know something and when I tell them they feel comfortable and adds either this information is correct or wrong. This makes them open up during interview as when they correct you they think they have more things to tell you as you know nothing. For example, when I asked a respondent you guys leave with your animals during floods? He replied hurriedly no; we stay in our houses from the time of my grandfather.

3.9.8 Uh-huh Technique

In this method research gives the nod to information provided as it gives respondent idea that what he is telling is the right information required for study (Bernard, 2006). When a respondent gives me information then I added the words “right”, “yes yes” and “I see”. This is a kind of affirmation that whatever you are talking I’m getting your point and you can add more information. This technique is more useful than nodding your head in silence.

3.9.9 In Depth Semi- Structured Interviews

Semi structured in depth interviews method was selected as it best serves the purpose of study as it allows the researcher to ask any question regarding the and research topic and at same time semi structured nature keep the respondent on actual topic and saves from getting unnecessary information. Pre-determined questions helps to remain focused on research question. People were selected on the basis of best fit to research problem. Those who were facing floods for decades and know how to survive disaster without leaving their houses were interviewed. They explained their techniques used during heavy floods to safeguard themselves and their livestock.

Semi structured interviews are very useful in situations where your respondents are not experienced in giving interviews. There are predetermined questions but questions can be changed with the ease of respondents. Their answers can lead to the new questions that were not taken into account when making questions guide. In depth interviews allows you to extract information that can be very easy to understand as you can ask to elaborate the meaning of their stories and words that you are not familiar with to make it easy for your readers as indigenous words and stories about socio-economic strategies for survival can be interesting to read.

Researcher has conducted 30 interviews and mostly the respondents were of old age as they were head of their families and living there from the time of their forefathers. Some respondents were relatively young but one thing was make sure before the questions that they were living in the area since their childhood. They have experienced these harsh conditions in their life many times and know how to survive in the natural disaster like flood.

Interviews helped to understand what strategies are important to adapt during heavy rains. What they do before the floods when there is monsoon about to come and what they do after to make their living. Interview were scheduled and done according to the ease of respondents when they were easily available. Questions were made to cover all the objectives mentioned in this research.

3.10 Observation

Observation is a tool to verify data that you are collecting from your field work. For example, when we are getting information from respondents we can see how true or factually correct the information by observation is. If someone is saying they are using preserved meat and their livestock is using green food it is easy for the interviewer to observe that how correct is the information. Further by this technique we judge the behavior of people towards their family and their community. How they think and feel about their future in the community and how satisfied they are with their life.

This method used to verify the information provided by participants. For example, a participant told that he travel in wok during floods and wok is present in their house. Researcher observed that this was true as a really big wok that used to make Jaggery was present in their house. Further it was noticed that their houses were minimum 5 to 7 feet high from the ground level. Most of the people have cows and buffaloes.

Observation helps to find balance between the life stories of people and reality. In my field guide notes I wrote the everyday observation of people behavior and their stories with comparison to their actual life. It helps me to draw an idea that how much different life can be from words in reality. Even people sometimes lack words intentionally or unintentionally to describe their stories and struggles.

3.11 Focused Group Discussions (FDGs)

Focused Group Discussions were conducted to understand the issue of floods and survival on detailed level and observe the similarity between individual statement and group statement. FDGs provide researcher to note number of different opinions in one time. The role of the researcher is to mediate and note that discussion should be revolving around the main topic that in my case was floods and their stories. Idea to maintain discussion around pre-determined agenda is to get what is required and avoid information that is not useful. FDGs help to understand how a community can make a social strategy with different ideas and people.

Researcher asked 6 questions and keeps them simple. All the questions were probing questions and added when participants stopped talking except the first one. Questions

were designed to extract maximum information. For example, why you do not leave your houses? It is impossible to survive in water.

2 FDGs were conducted to understand the research question deeply. In both FDGs numbers of participants were 8 and 12 respectively excluding the researcher. Both FDGs were continued for 50 to 70 minutes. On average we can say that both discussions continued for 60 minutes. Participants were selected on the base of their age and experience to live in floods as all the participants were more than 40 years old.

FDGs were conducted to record the people perspective on their problems created by heavy rains and flood like situation. What they think is the way to alleviate this issue and how to deal with it to minimize the economic and social loss of people. What are factors making them to form a plan and how they are implementing their own ideas and how effective they are in their own environment so it can be used by other people if they are successful to minimize the problems?

FDGs were most difficult data collecting technique for researcher as different people were available at different times and it takes a big effort from researcher to conduct 2 FDGs. In one FDG 12 people were present and in second 8 people participated. These two meetings were important part of my research as they provide ample amount of data that my participants share with one another. All members were involved in making policies for their own houses and property.

3.12 Informal Discussions

Informal discussion was used to build familiarity and rapport with participants of research. This method easy to apply and participants take it as normal conversation and do not hesitate to answer as they were in one on one interview. Informal discussions were conducted with all respondents before the formal interview and it make easy to get data from them.

That was the best part of my research as every night people gather at someone's house and they share their everyday routine and how things are going during floods. They share their problems and funny stories with everyone. This is where they get different ideas from others to deal with their issues. Mostly the topics were about livestock problems and

some talk about their crops and land is under water as they were looking for crops that are water friendly. These discussions help me to understand how people give respect to each other and which families have stronger influence on community.

In the beginning of the discussions the scenario was that my respondents were asking me questions about my life and why I am doing this and what is the benefit of this exercise. Once I am done with their questions by giving them satisfactory answers then I turn the debate to the floods and what they are doing, what they are eating, drinking, how is their livestock and they are meeting their daily basic needs.

3.13 Key Informants

They were the people who introduced me with the area and local culture. They told me about the places that could be best for my research and I visited them with their help and support and selected Basti Mehrmani. My key informants were only 3 people. Allah Dad faous as “AD” who introduced me with local people and second was Muhammad Siddiq from the Basti area and third was Muhammad Arif the person who introduced me with DG Khan as I visited famous places with him and also the flood affected and river areas.

1. Allah Dad known as AD. His age is 48 years. He is a driver in Food Department Dera Ghazi Khan. He is from the village Basti Mehrmani and introduced me with my first respondent. His family has land two Acres of land but he told me that they migrate on the other side of levee before the floods.
2. Muhammad Siddiq was my first respondent in the village. He is 58 years old. Siddiq and his family do not own their land rather they work on leased land. They have 12 animals including 3 goats, 5 cows and 4 buffaloes. Siddiq is very good swimmer and he was a wrestler in his young age.
3. Muhammad Arif was the person who introduced me with Dera Ghazi Khan. He is 45 year old and Food Inspector in Food Department. It was my very first visit to Dera Ghazi Khan so we visited famous places like Tomb of Sakhi Sarwar. Arif and his family live in the Dera Ghazi Khan city.

3.14 Data Analysis

Once the data is collected the next step is to analyze this information and it is very important part of research as whole research is based on data analysis. To analyze the data that is collected from interviews, Focused Group Discussions and observation thematic analysis used.

3.14.1 Thematic Analysis

This research is based on case studies of different people with similar experiences about a social problem. Thematic Analysis is used to analyze data. This analysis is used because life experiences of people in same situation were similar and researcher can easily draw codes and pattern within data. Data collected through interviews, observations and Focused Group Discussions. Data collected in large proportions and this method allows to categories data and makes themes from it by dividing it in small proportions. It provides information as a whole instead of in fragments that we later connect and then analyze.

3.15 Problems Encountered

My first night at Bast Mehrmani was sleepless as there were a lot of mosquitoes and it was a new place so my mind was not ready to accept this. Major problem faced by researcher was at the beginning of the study people were none cooperating. During interviews they were reluctant to give information and provide basic information like they stay in the village because their forefathers do that. To overcome this issue researcher try to build friendly relation so they feel normal and no pressure on them. Respondent feel hesitated when researcher starts to note down or record their interviews as they were not used to of this.

3.16 Limitations of the Study

Data collection for this research was done when flood water was dried and people were sowing next crops in their fields. Due to floods it was not possible for the researcher to reach the area and move freely. Further this research is conducted in an area that is between the levee and river where mostly people do not leave their houses during floods.

So this study was focused on people that survive with their own resources socially and economically. This research cannot be generalized on areas that affected by breaking of dams and levees as these people may have different problems from the people of Basti Mehrmani. The element of male bias is present in this research as no woman was interviewed in this research due to cultural restrictions of the area and as result female voice and their problems along their household survival strategies is missing.

3.17 Ethical Considerations

This is the guideline for researcher to what he needs to know what is out of its subject. At what level he can join people and what kind of information he needs to know and what is outside of its domain. Ethical considerations is what makes a difference between a journalist and a researcher as one needs only information without thinking about the repercussions and other is very much interested in outcomes of the information published and what affect it can bring on the life of informants. There is not any sensitive information that informants have issue to be shared but still I get their consent to write their names and data.

4 SOCIAL SURVIVAL STRATEGIES

When researcher started the field work he realized that people were not aware of terms like socio-economic and survival plans though many of them were making these strategies for years. People were aware the fact that government makes “*Band*” (levee) and issues alert on TV about floods. Civic administration announcing that people living near river should vacate their homes and travel to safe areas or government relief camps. Fish catching and grazing of animals near river is prohibited when heavy rains expected during monsoon season. People admit that these are cautions they know to avoid any human or property loss. Another important aspect was they were not heavily rely on civil authorities and electronic news to know about the floods instead they told me that they know when floods will be heavy and when water will come out from river but just to “*Waheera*” (land that is adjacent to river boundaries).

It is interesting to know that social phenomenon like socio-economic plans made by all households and some techniques were formed on community level but that were so common and normal business for them that they were not aware that actually what they had done for their safeguard was their survival strategies. For example, all the houses were above 7 to 10 feet from ground level. It was a routine work for them so did not notice actually this is one of their future plans to fight floods. So to make them comfortable researcher avoid using the term socio-economic strategies and ask them to just tell what they do when they know about floods.

Now researcher has divided these activities into two groups. One is consisting of government activities in area before the floods and second is people’s effort to survive. Government activities were general and not area or people specific. They do demographic surveys and irrigation department officials visit levee sites and then make them more strong and high to stand between river water and city in extreme floods. People activities were different and some activities were unique to particular households but many activities were made by people as group.

At this point we can say people did not notice their routine life as plan of something they just do it for the sake of doing. It is like two fish talking in sea to each other and one say

look how clear and the beautiful the water is and other replies what is water. However it has a positive effect on people as they do not take stress of making plans and that what will happen if we fail to make plans. They just do it as a piece of cake. On the basis of people information their survival activities are divided into different categories like before, during and after the floods.

A respondent named Muhammad Siddiq, age 54 and he is living in Basti Mehrmani since his childhood and he said he faced all the major floods because their family stays in the water during floods. He shared his survival story of how during the 2022 floods their village survived and they helped other people. They have agricultural land and they grow different vegetables on it. When it was evident that floods were coming they announced that people could take vegetables for their needs. People of the village come and take vegetables like Pumpkins, Chilli, Coli flowers, and Tomatoes. They share it because floods destroy these crops and sharing helps their society to survive in harsh weather conditions. They also share milk with their neighbors. People linked with milk selling sell milk and do not share it during floods because this is their source of income. They share milk because their neighbor was sick and gave milk to them so they could give medicine to their ill person. During floods, doctors were not available and people cured their patients with homemade medicine. If he gets healthy then they apply this remedy to other members with the same symptoms. If a person does not get healthy then they take it to the quack and he said he took his neighbors to the quack in a wok and this way he helps them to survive. Another interviewee informed me that they survive by exchanging household things during floods. Muhammad Abbas aged 60, was living in Basti Mehrmani for 25 years, and he said that they survived by sharing things like flour, wood, and dung of their animals. If wood in a house ends during floods then we help them to survive by giving them wood. He said they also take wood and flour when needed and they use the dung of their animals to make '*thapi*' and share it. '*Thapi*' is used for cooking food as we mix it in wood and this saves our resources plus it makes the wood last longer than normal. They share them with other people and sometimes they take them from people to use during floods.

4.1 Social Survival Activities before Floods

4.1.1 Flood Resistant Construction by Society

Usually floods happen in this area due to heavy rains and water released by India in Indus and Chenab in the monsoon season. People are well aware of cautions they need to take. They make plans start with making their walls and base of house strong. Normally houses are very high from ground level and this is their strategy because flood water usually comes at the height of 4 to 5 feet on average level. A person named Qaiser Bloch shared his story that what he does when there is chances of floods and heavy rains. He said first thing is to raise the level of over houses from ground. Normally their houses were 5 to 7 feet above ground level but there is side they used as their house gate to move in and outside of their house. That side of the house is not very high from ground level. He said before floods they raise that side and “*dewaran ko wal gara maleendy hn ta k pari jhal ghinin*” (use mud on our walls to make them strong and can stay in water if water touches their base). “*Chatta pakiya lareendy hn*” (repair our roofs). We raise our room’s plinth. These may seem very common things but people will not implement them until they are certain about floods. People only start their relief strategies when floods are inevitable.

4.1.2 Preserving and Drying Foods a Survival Strategy

During floods people those remain in the area not possible to cook the meal every time. So they use preserved and dry items. They use this during floods and share with other people and their neighbours. Some of the families were rich that they have rice and heat for whole year either flood is coming or not. Others do not have that many resources. People store these foods in polythene bags or “*Kalhoti*” (a store house made of steel usually 6 to 7 feet high). On the other hand to store oil, water and other foods items they use mud and plastic pots. The place where these things stored is higher than the normal floor. Answerer named Azam shares that before floods they gather their food before the rains start. “*Asa chirra, murri, gur, biscuit, cheeni, achar, dali, namak dy tail katha kr ghin dy hn*” (we gather foods like Achar, Sugar, Pulses, Roti made of Maida, Salt and Oil for flood season).

4.1.3 Help By Relatives During Floods

People those are very poor or old and have nothing to eat as they do not have resources to store for future. For such people their relatives were helpful and some benevolent people also give them food during floods. Farid Bloch told was a “*Pallay Dar*” (one who transfers heavy food bags from one place to another on their shoulder) for 30 years and now he is very old to lift heavy weights. So now he remains in his house and his relatives that his brother’s family gives him food. Everyone call him Chacha Farid so Chacha Farid was very fond of cigarette and was angry with government for taxing the tobacco products. Chacha said three cups of tea and a pack of Capstan cigarette is enough for him in 24 hours. His younger brother Ashiq said he is a “*too chain*” (chain smoker) and can live without food but cannot live cigarettes. Farid has become a patient of lungs and sometimes feel pain during inhaling of air. Doctors told him to quit smoking or he would die eventually but Chacha said “*30 saal ich ne moya da hun v ne mrda*” (in 30 years I have not died so now I would not die in this age). Chacha Farid moves to his brother house before the floods and remain there until the water gets vanished by time. Relatives become so helpful in hard times. We can see this more in village societies as they have strong social bonding and traditions following families.

4.1.4 Social Survival Strategy Activities before Floods

So with the stories of people there were some visible similarities what people do before the floods.

- Repairing the walls and roofs of houses
- Raising them further from ground level
- Higher plinth of rooms
- Storing food that can stay for long time

Above mentioned are responses from the people about their household strategies before the floods and now researcher will discuss the responses of people when they were inquired about their lands and crops.

Crops Saving Strategy sowing higher than Normal Before

People made seedbed when heavy rains expected and sow their seeds in high places. Normally if they plough the land 6 to 8 inches but before the monsoon season they just dig the land just 1 to 2 inches while seeding the fields. They call it a formality just to keep crops in serial lines. They cultivate crops that are rapid growing and take less time. They turn towards green leaves vegetables like cabbage and pumpkin. Vegetables takes very little time than seasonal crops so farmers can cultivate them early before the heavy rains falls and floods. This is not profitable as cash crops like cotton however it is helpful for them during flood days. An interviewee brief that “*ada sabzi asa jldi cut ghindy hn, kappa rha k da wal selab ich bhul wono*” (brother we cultivate vegetables before the floods and if we sow cotton then there is no chance that we get back our money). These are the problems and solutions people adopt before the flood to deal with it. Next part is moving to what happen when the flood is there to stop the life of people. What they do to meet their daily needs and other things.

4.2 Social Survival Activities during Floods

4.2.1 Fishing in Floods

Fishing and boating is not allowed on the river as local authorities sell the license to a person and then you need to get permission from them to catch fish. Boating is also possible by permission but during floods there is no need of permission because fish and water come to your house and now it is upto you whatever you will do. People do catch fish but they do not have proper equipment and use their desi methods as a result they can catch just one or two fish after many tries. An informer Muhammad Siddiq appries fishing and boating is not allowed on river even during normal days. There is man whose name is Kora and he has the license for fishing and boating. He used his boat only for crossing the river and people pay him when they want to cross the river on boat. Kora is also the sailor or the boat. During floods they do fishing because with water fishes also come in village. “*Asa machi e pkraindy hain k danda cha k panri ich mara dy hilaya miti kalo machi sa ne ghin skdi da wal panri kalo bahr a weendi hy dy asa sota rakh k mareendy hn dy machi mar k tar aandi hy ya oonda cheeta ral gya dy asa oko pkr gidda*” (They catch fish by using a stick and put it in water to make it muddy. Due to mud fish have to come out to take breath and then they hit it with stick and fish loses his mind and they catch it easily). He said other easy way to catch fish is to pay Kora and then you can

catch fish from river but it takes time and you need fish catching equipment. These methods are useful in floods when you need resources to survive and these natural resources are very helpful.

4.2.2 Swim to get Medicines

Swimming is not allowed in river and people use boat of Kora to cross river and to see their relatives that lives on the other side of river. People told me that they can swim but they do not swim to go far areas until necessary because swimming is very tough and secondly direction of water will take you away with it and your distance that you need to cover in minutes can take hours. So they do not swim to cross the river. Swimming used during floods to reach the levee because government authorities take away the boat of Kora during floods for patrolling the area. People swim to levee and get emergency help or buy important things like medicines for city.

4.2.3 Police Protect lives on Levee

During floods police stationed on levee because people from city and other areas come to see flood and try to swim in water. A replier Tahir briefs that police use force and beat people when they do not listen to them. He said police also beat them and stops them from going into water because they think we will drown in water and then we tell them that our house is in water and we swim from there to levee for some reason. Now we have to go back to our house because our family is waiting for us. Sometime police allows them and sometimes they do not and then they have to walk away and find a place where police is not stationed and then take a long turn to come back to home. He said they only leave their houses if have to. For example, for funeral of someone and otherwise they stay in their homes.

4.2.4 Ceremonies during Floods

People do participate in social gatherings during floods but they avoid fixing any ceremony during flood season. They take part in events of their relatives that are living outside the levee. Death is an unfortunate event that nobody can fix or postpone. So when this type of unfortunate event happens they shift the family of deceased to the levee where they offer funeral prayer. Khadim Bloch apprise me that they stay in their house during floods but unfortunately in 2010 when his brother Fidda Hussain was died they

leave their houses and funeral prayer was offered on the levee. All their relatives participated in this funeral. He said some people come for swimming and then they attend the funeral. It was very difficult time for their family because they leave their house and they were living in their relative's house and people were coming for mourning. He said it is only time when someone from their village dies during floods and so unfortunate that it was his own brother. People of Bast Mehrmani avoid fixing events but they do not excuse from taking part in others' ceremonies and they must participate with minimum one person compulsion at any event.

4.2.4 Warning of leaving House

Authorities give warning of leaving the houses before and during floods. It is not possible for civic agencies to help families stuck in floods so they ordered them to vacate their houses. During floods Army comes in boats and ask them to leave their houses because flood has come. A respondent said they force people and beat them but people do not leave their houses and they say one thing that if they leave their houses where will they go. He said to make people afraid they come and collect their name and say next time police will come and arrest you and your family if you do not leave your house. They do this because they are doing their duty and they think it is not safe to live in water when there is no electricity and water level is increasing day by day. He said people start singing when they see army and then they think what kind of people they are singing in floods and leaving their house.

4.3 Government Survey for Damages

Government performs a survey of the area after floods and get detail of people with fully or partially destroyed houses. Patwari of tehsil office come and collect data and write the name and ID numbers of people. If Tehsildar verify the data then people will get amount of 50 to 60 thousand rupee and if he do not verify then they will get nothing for their houses. A respondent Azam briefs people do not build their walls for sometime in hope to get money from government. He said people wait for sometime and if they do not get registered in survey or get money after the survey then they build their house with their own help.

4.4 Blocking Entry Gates of House as Survival Strategy

During the floods people focus more on their safety. Village houses have no door at their main entrance. Adult people know swimming and it is no issue for them. Kids need special treatment because flood water makes them curious and they try to enter water. They take it as fun and not aware of the threats. Most of the people that are in their 20s know how to swim as they go to river and face a major flood of 2010 yet young ones do not know how to swim due to their age. So parents need to take care of them. A respondent Shakeel updates me that he has 3 children and all are 6 year of age. In their routine they are free to move in their village as most people living their know each other or are relatives. He said during flood time they become more conscious about the safety of their children as they are very young to understand the threat and they do not know how to swim. “ *bal Jery veely wehry ich kheed din asa ya wadeera wadeeei icho koe khatra dr dy sat k bahndy hin*”(When their children play in the courtyard either he or his parents sit with them to take care and keep them away from water).

4.5 Avoid Rains and Slippery Places

During monsoon season weather remains hot despite the rains as the humidity level remains high. People do not take bath in rains as they do not have solid or marbled area and during rain their courtyard become slippery. People believe that during the month of July and August if they break their bone or get injury it will not heal easily because weather makes it difficult for body to regenerate cells and repair quickly. A respondent named Shafi Bloch informs “*lala sawanr da maheena hondy barisha ich, sawan ich sandh kachy thy waday hondin dy zri ik dhk nal hadi hil veendi hy dy wal jurna mushkil thi weendy*” (Brother it is the month of “*Sawan*” (Sharavan 5th month of Indian calendar that starts in July and end in August) and during this month human joints become vulnerable and little damage can dislocate them and damage happen in this month will not easily recovered. During the month of July-August they take care of themselves and children and do not expose themselves to rains very often.

4.6 Smoke keeps away Mosquitoes

During the evening time due to water that is standing in the surroundings there are a lot of mosquitoes and they can cause malaria and other diseases to avoid this they set fire and the on the burring coal they put the green leafs it causes smoke and keep away the

mosquitoes from their home. This remedy is quite effective and save them from many diseases like malaria, dengue and yellow fever.

4.7 Make Elevated Houses

In my study area people call it Basti Mahry. People living there were associated with agriculture as it is very common in village communities. People living there were aware of the fact that floods will come so their first step was their own survival. To make sure this they have built houses that are very high from ground level. When I asked a respondent why every house is so high from the ground level? Some of the houses were so high that where a mango tree ends the ground of the house start from that level. They do not have staircases to enter their houses rather they build inclined planes outside their houses. One respondent named Muhammad Bakhsh shares that *“a charhai da koe masla he kay ne sady wasty,asa desi bndy hn dy pori zindagi asa wai beji kiti hy poriya kalo hatho a sahi hondy bnda aram nal lah chrh ghindy”*(this is not an issue as their house is not very high that they need stairways as they are hardworking people and their whole life consist of doing agricultural work that is laborious).

Another interviewee named Ali, everybody in village call him Ban. So he informs me that our houses are high because sometime heavy rains or river erosion causes river over flow that cause mild flood. *“halky phulky pari da da sako pta v ne lagda bs sako zameena ko badhra poondy ta k fasl ko msla na thiway baqi thora panri da zameen easi hy na sadi ratli mitti pari pe waindi hy. Jitni mrzi barish away baye dhiwwar pari kay ne honda rastiya dy”* (Small flooding does not affect them as houses are high only concern for them during this time is to save their crops and they do it by making small bands around their fields. Their land is sandy clay so heavy rain water cannot stand more than a day and next day all paths are clear and dry). High houses provide protection from high flood water. He said in 2010 flood he was very young so does not remember many things but in recent flooding of 2022 he saw how their houses were safe from water due to their design. They listen the news of other areas on radio how water washed away communities that came in its way. People lost their animals and houses and in some areas where flood comes at night many people lost their life. So they are very lucky that their parents made the houses in this way that they are safe from sudden flooding. They

monitor the water level in river and with monsoon rains as the water level increases and they hear the news that more water is coming from India and heavy rains stay there for weeks then they realized this time water is coming and they start their preparations for coming days. Everyone stock food for at least 2 to 3 weeks for them and make their walls and roofs strong with clay and bricks.

4.8 Making Roofs Strong

They make their roof strong by making a layer of mortar on it and then put a spout on one side of roof. It is normal routine for people as their house is the safest place during floods so they make it safer by working on it. Before monsoon season it a common practice to use mortar on walls and roof to avoid any leaking and fall of walls. Another respondent aspires when they know that inevitable is happening soon they start making their houses strong. “*Asa itta cha k dy gara lo k dewara pkiya kareendy hn ghr dy bahro mitti pa k bani braindy hn ta k pari seelab ich dewar ko na lgy yakka, wal asa chatta ko limbaindy hn q k pari khra rahndy dy chatta was pondin, parnala leendy hn ta k pari nikl wony*” (they use clay and bricks to make walls and then use clay to make a boundary around their walls so water cannot touch it. Collecting food is first step to kick start preparations for floods. People divide there preparation into three categories that are for heavy rains, for low level flood and high level flood.

4.9 Collecting Woods

When people know that this is a flood season their main focus is on collecting wood for their home. Woods are important because even after the floods woods remain precious because the remains of crops catch a lot of mud and are of no use. Due to mud they do not catch fire. A respondent named Azam Bloch told me “*barisha kalo pahly bs lakr da bndo bast krna hondy ta k sako bha balar ich msla na theway barisha ich Q k lakr wal pus waindy hy dy bal di ne sahi dy ghr aaly haye haye kareendin*” (before the rainy season we just collect woods as in rain they become wet and hard to burn and our family members complains). Another respondent named Bilal told me “*barisha ich rasty dy sabzi da koe masla ne theenda q k daryae ilaqa hy sweery barish a way dy sham ko rasta saaf honda a*” (during rains there is no issue of vegetables and our movement as area near river has sandy land). Heavy rains do not disturb their life as they have sandy area and

this helps to grow their vegetables faster and work as natural pesticide and remove any harmful pests. Their crops does not affect by these rains as they are water friendly.

4.10 Low level Flood

4.10.1 Panri Badhran (Stopping Water)

In this type of flood, river over flows due to heavy rains but not much water comes out of river. So fields near the river need to be protected by small levee around the field and in local language they call it “*zameen badhra*”. This helps in low level floods and farmer is able to stop or divert water. They get time to collect their crops or animal fodder. A respondent named Lalo Kheet briefs “*waheera ich panri a wany da fasla ko masla theendy jeeri drya dy neery ho win asa wal mitti di banni bra deendy hn ta k sabziya ko nuqsan na thi way*” (Area near river is vulnerable to water and if water enters into vegetable crops it can harm their yield badly).

4.11 Heavy Flood

Heavy floods are not as common as heavy rains and low level floods in the area. This the time when people use their socio-economic survival activities as people and their economy face severe conditions. Their strategies were so fascinating and some of them were new for me.

4.12 Planning helps Survival

This is the most difficult phase of floods as normal level of water remains 5 feet from ground level. Surviving heavy floods demand proper planning and implementation of these plans. A respondent named Faiz Rasool age 64 informs that heavy floods affected them badly and after 2010 floods they were easy with their life but this 2022 flood force them to make plans for their survival. He further added that in 1992 floods they were forced to leave their village as that time flood was so heavy and high that it touches the road on the band. Villages near band were also vacated by government authorities as it was possible that flood can break the safety band and enter into city. Their houses were destroyed in 1992 floods and they take their all belongings with them. They take their livestock and move away from the water. All their crops were destroyed as water was so high that crops like sugarcane cannot sustain it. They moved towards their relatives that were living other side of the band. They live there for fifteen days and their relatives

provide them with food and other things. Wheat was the main source they have when they move from their house and the second was their livestock.

Once the water is gone people survey their houses and there is nothing but remains of outer walls of their houses. How a house that is made with mortar and bricks can stay in water for two weeks? All crops were destroyed as they cannot breathe in water. Survivors need to build our houses once again. That is the very horror part flood. This time flood was high but not that much of 1992 people compare. So they just take few measures to make sure that water cannot affect their life a lot. This time water was touching their “*thala*” (base of house). Due to flood they build their houses on high place. They made a base of 7 to 8 feet high from ground level and then build their houses on it. So their houses seem a fort built on high place to safe guard its residents from natural threats. This is their survival technique as house built on ground level cannot sustain low level of floods. So when full fledged floods come what will happen to these houses if built on ground. When levee or dam break due to water communities living near swept away and they do not have time to react or make plans as nothing can stay in the path of water. They build their houses on ground because it is very rare that water break a band or overflow the band but here in their village water once in decade it is possible that heavy floods will come so their preparations are natural and easily understandable. High houses and other activities that I will mention in upcoming sections are necessary for their survival. These techniques that are very common in their society when floods and heavy rains are expected and people plan different ideas according to their situation and needs.

4.13 Timings of Flood Start

People have different opinion about the timings off flood but they all were agree that flood comes during monsoon and in the month of July and start of August. Floods timing also determines the ideas people need to survive. If floods happen in winter then we need different solutions. Respondent Muhammad Arif who is also a Primary School Head Master shares that normally floods come from 15 July to 15 August and it will be a heavy flood. From 15 to 30 August usually low level flood comes. Their village is near river and only over flow of water cause flooding. Their houses are very high and they are ready for little hiccups. Flood damages people more when a levee is damaged by water

and houses there are on ground level. People have no choice but to leave their houses and precious belongings to save their lives.

4.14 Water Stands for Days

How long water remains around their houses after floods people have different opinions. Some people said 1990s flood was most devastating and water remains for more than 3 weeks. 2010 floods were also severe and water remains from 10 to 15 weeks in areas that are below the “*Marhn*” (boundary of river). This time water remains only a week and after that land sucked the water. Muhammad Sabir one of my respondents informed me that this time flood water stands for a week and after that it vanished in 1 or 2 days. “*e dafa pari hafta khry dy kafty bad hik do de ich zameen pari pe gye hy hik dafa pari darya icho lah wony wal zameen foran sotar waindi hy ilaqa da pari*”(once water stops coming from river then water in the village goes down very quickly). So water standing time is short but whenever water stands it is dangerous for crops and people. It makes travelling difficult and communication among community stops during this time. Diseases become common and mosquitoes are everywhere during this time. Schools are closed often this time but when flood water enters into villages that are not prepared for this devastation then these schools used as refugees’ camp. So vacation gets and their children need to find alternative way to stay in touch with studies. Similar is the case with health care centers. They get closed with floods and people need to find indigenous methods of cure.

Floods water standing timing as told by different people was different but one thing was clear from their opinion that flood water does not remain long here. Their houses especially their boundary walls were made of bricks and mortar and they cannot stand long against water, though they have high base of clay and sand that stands guard against water but after a few time soil erosion starts and it can damage their houses if water remains for long time. In this one week of water they have very little interaction with people as everybody is limited to their houses and easy movement is possible.

4.15 Food Items used in Floods

4.15.1 Saving Wheat and Flour

Before the heavy floods people gather different food items that help them to survive during this time. They use these food items as token of their security. People gather a lot

of food and wheat is the most stored item. In floods people cannot move with wheat so they grind a lot of wheat and save it. A respondent Muhammad Siddiq shaare before floods they store their basic needs. “ *Karank, gha, aata, gheo khand, gur ty sabziya sadi apriya hin bs seelab do phly ata piwah gidida dy gheo kahd gidida kheer icho gur dy khand kathi kr gididi dy lrkiya mar gididiya changiya sariya dy wal unha ko dhari tally wla ditte ta k mee jhar kalo lkri poussin na*” (wheat, grass, flour, oil, sugar, jaggery and vegetables are things they have so they store them according to their needs and they cut woods before rains and store them under the shad to keep them dry). Food Items they need are flour and other thing is woods. These two things are most basic for their survival. Flour need special care because weather is moist and flour can perish in high humidity.

4.15.2 Sharing of Vegetables

Storing vegetables is another important plan because as they are rich in nutrients. People have a lot of vegetables and they share them with other people before floods but these cannot store for long. A person named Qaisar told me that their lands are river lands and very fertile for vegetables and crops that need more water. Green Chilli, Pumpkin, Eggplant, Coli flower are common vegetables of river land. During floods they use them and share with other people. People who have vegetable fields harvest them before the floods and then they share it with people as they have a lot to share.

4.15.3 Onions as Desi Dish

Sharing food with community is a type of social survival strategy to deal with food scarcity in floods. One thing to remember there is that this type of flood is not that we usually watch on television. These people are facing it from the time of their forefathers. They are very well equipped to deal with these problems. Other thing that goes in their favor is water there stands only for few days and dries up quickly. Another person named Abbas aged 67 briefs that everybody is not that lucky to have their own fields and store food for floods. “ *Sabzi jeendy kol ka ne hondi o v the roti khawri hondi hy na achar hondy sady kol q k ambliya da mosam saal phly aaya haye taho asa wasal gididi cha seelab do phly dy selab ich roti pkae dy piyaz nal khadi asa wasal roti dy rakha dy muk mar k pha ditte dy kha gya*”(people who do not have vegetables to store they also eat food during the floods. They have onions to eat during flood with bread. They take an

onion and put it into the bread and hammer it with their fist and then they eat it). This is not because they are poor but this is because “*roti wasal*” (Bread Onion) is their traditional dish that is very famous among people that are in their 50s. Young people also knew about this but they do not use it except during floods. He further stated that people who have ample amount of crops and he knew that these crops will not survive in floods so after harvesting them he distribute it among its neighbors so they can also utilize them during floods.

4.16 Traveling Methods in Floods

This was an important question of my research and the answer from people was very fascinating. I thought that they will move on boats but this was not the case. Their modes of travelling were different from what was expected. A respondent named Nasir shares that they move around during floods by swimming but this method is not safe and most people do not use it due to their age and energy required for this purpose. “*asa tr k weendy hn agr wonra howay kahin ja da flood ich*”. As we know that my study area is near river and this was the only point for people where they spend their leisure time. Children were also good swimmer as during the most of the year river water remains very low and slow due to water blockage from India. Nasir told me that once there was a time when only excellent swimmer can enter into river water and level of water remains very high during the whole year. It was he time when 90s catastrophic floods occur. Now water level goes down and most of the year it remains as low as we can walk into it for 100 of feet them water level rises. During the monsoon season water level remains high as rains and water coming from mountains make water level rise. When water level is 5 to 6 feet they can walk into water. They use this method only when they to travel very short distance and can easily come back if needed.

4.16.1 Swimming with Kuppa (Bottle)

Normally people were very good swimmers in the area but when they have to travel long distances they do not only rely on their skills rather they take a “*Kuppa*” bottle under their belly and then start swimming. This bottle work as life jacket and they can swim long distances without any danger as if they get tired during swimming they can stay in water without putting their weight on their body. Muhammad Siddiq told me that during flood he and his friend Rabnawaz were going to band and their house was far away so

they cover around a distance of kilometer and he started feeling a cramp in his leg and his leg stop working so to avoid drowning he grabbed a tree and take some rest. After a while they again started their journey so he was saying bottle help people to avoid any problems and save your energy.

4.16.2 Using Wok as Boat

Karha (Wok) is used for making jaggery during normal days but this pot turns into boat during floods. This is an easy and safer mode than swimming in water. People do not have actual boats and no other facility is available so they make their own modes to survive. A respondent named Mashooq Khan adds that they travel on big frying pot which they use for making jaggery. He said they use it as boat but only two people can travel in it. *“wada karha jaindy which asa gur barindy hn seelab ich o karha ko kahin ja wonra howay da pari ich pa k bnda ondy which bah gya dy lamba bance pkr k safar kitta”*(A big wok used for making jaggery is used as boat for traveling during floods). Muhammad Siddiq informs me that he visit his relatives during floods by this big wok. He and his wife sit in the wok and he uses a large stick as oar to steer the boat into water. He said he is very experienced in rowing this type of boat. They spend all day with their relatives and before evening they travel back to their home as they believe that travelling is not safe during night as snakes are biggest threat during nights. This wok is used as transport to share different things.

People who need to participate in their relatives ceremonies like marriage and death of someone these woks are their fastest mode of travel. They sit in the wok one by one and reach to the levee where road and transportation is available. During floods people of Basti Mehrmani postpone their marriages and other ceremonies but they have to participate if these are held by their relatives. Life move on as floods in one area cannot halt the life in other parts. So these people fight with their problems at their own and work with other people to show that how strong they are.

4.16.3 Using Wok as Ambulance

People discover their own methods to survive and using a big frying pan to travel is a good idea when you are low on resources. This shows their will to live under harsh conditions. One may feel that they are habitual but it is not that flood remains there for

whole year rather it comes for two to three weeks and they are still dealing with it as they are accustomed to it. Muhammad Siddiq updates that they used “*Karha*” (Wok) as a mode to reach different places during floods. Once his late father Nasir Ahmad was ill he they both travel on this wok. *“Hik dafa baba baho bemar thi gya seelab ich phly asa dawa kiti pr baba theek na thiya wal mn baby ko karha ich bilha k mamy haqo kol ghin gya o ny slwat v rakhi baby ko dy dawa v diti jeri baba kha k theek thi gya”* (Once his late father named Nasir Ahmad was ill during floods first they medicate him at their home but his health could not recover so he travelled in wok alongside his father to a person named Haqo who was a quack and religious person. He first prayed for his father and then gave him medicine that helped his father to recover from illness). People use these woks as their boats and there were 3 woks which I saw during my research. They are so big that you can easily sleep in them and they are the size of bed.

4.16.4 Wok Travels faster than Swimming

Muhammad Siddiq informed me that during floods when they travel in wok their time of travel depends on the direction of flow of water. He said when he was going with his father to the Mama Haqo’s house it took them about half an hour as water was flowing in that direction and when they were coming back it took them more than an hour as they were travelling against the water flow. Same is the case when they come back from band as going to band is going with water flow but coming back to their houses take a lot of effort as they use straight sticks as rows. Water flow is helpful in travelling but one thing to remember they use wok for long travel when it is necessary.

4.17 Transportation for Survival

For example, transportation becomes impossible after floods so they use wok as boats. Many villages came under water and there are not many woks as their primary source of income is agricultural and not jaggery making. So people decide that they use woks to move around and people of young age will move them around and bring emergency facilities to village if needed. They bring medicine, vegetables and other things to people when needed. People use these woks to visit one another and their relatives. Most the people were good swimmer but they avoid swimming in flood water as water brings snakes with it and water can be infectious so they do not take risk as health facilities were not easily accessible.

4.18 Threat of Snakes and Social Survival Strategies

Monsoon season is known as “*Sawan Bhado*” in local language. People of the village inform me that flood brings many difficulties with it and snakes are one of them. According to them “*Sawan Badho*” is a season of mating for snakes and they come out from their houses before the dusk and stay all night in open places till morning. “*Swanr ich naga da masti da mosam hondy dy a sham do phly nikldin dy pori raat bahr waday rahndin dy sweery lok waandin*”.

During monsoon snakes are very abundant in their fields and sometimes they come in their way. When floods comes houses of snakes fill with water and they have no choice but to come out from their den and look for dry places that are homes of people. An interviewee adds “*itna sanp hondy poray poray darkhta sy sap hondin, di ko sanp away the asa mar daindy hn lekin raat ko bnda charpai do lah ne skda k matr dang ghinin lat da hondi kay ne towako pty seelab ich wal andhary ich na juti da pta na sap da*” (there are a lot of snakes during flood season and some trees are full of snakes and we kill snakes that come to our house during day time but when night comes we do not come down from our “*charpai*” (bedstead) as at night there is no difference between a snake and shoe). It was interesting to know that people were habitual of snakes during this season and it was no surprise for them so their presence does not bother them as much as I expected. Snakes are no friend to human so threat is their they can bite them.

4.19 Light keeps Snake Away

Snakes stay away from people during day time but they can move into the house during night time because they are looking for a safe shelter. People safeguard themselves by avoiding leaving their bed at night as snake can be there. Muhammad Siddiq told me that once he was travelling with his wife in “*Karha*” and his wife was pregnant and expecting their second child. There was a snake with them in “*Karha*” and they did not aware of it. When they reached their sisters house then they told them that a snake is sitting with them and thanks God he did not bite them. “*jery vely a gal asa ghr aliya ko dasi the mama haqo ne sako aakha k sanp o orat ko ne dangy da jaindy dhaydh ich bal howay dy howay v putr taho tedi zaal da putr jam c jery vely time aaya sady ghr putr he jama*” (When we informed our family about the incident our elder Haqo told me that when a snake do not bite a lady who is pregnant and have a male child so your wife will give

birth to a boy. He said when the time of delivery comes he was blessed with a baby boy). So it was prophecy that becomes true. So people attached different stories with threats they face during floods.

4.20 Curing Snake Venom with Manka (Pearl)

During monsoon and floods snakes are everywhere so what will happen if they bite someone how people cure it as hospitals are also under the water and village level health care centers are equipped to deal with such issues. City hospital is far away and travelling in flood with critical patient is not a wise choice. So only solution is their own medicines that are if not anti-venom but can provide extra time by slowing down or stopping venom flow into blood. Wazir Bloch who is a farmer and a religious man informs me that it is very rare that of snake bite someone but it can happen in monsoon and floods. “ *Hik dafa sady hamsaye ko sap lr gya seelab ich gha krn weenda piya hayee o ghr da a gya pr wal dha gya oondy ghr aaliya ne dhar jo hkli mn sunr k bhja dy pta lga k kiya rola hy mn ne bndy ko khtry dy bhila k “Aak” da bota patwaya jeeta thly dy dewara nal aapy ug aandy dy wal mn ne ooko bhan k oonda kher zakhm dy masaag kita wla ghnty bad bnda hosh ich a gya*”(once snake bite our neighbor when he was going to cut grass for animals he came back to his house and fell down. His family members make noise and I went to see what happened and then I asked for “Aak” plant and by breaking its leaf milk like solution came out and I massaged his leg and then after an hour he becomes conscious). Muhammad Siddiq also informs me that when snake bite a person we went straight to Mama Haqo who is not a doctor but he is good and famous pious man. Mama Haqo makes a small cut on the place where snake has bitten and then makes a “Salwat” (A Prayer) and person starts healing. They are getting cured by these steps and maybe we find them very strange and unbelievable but this is the way things work in that social setting. The most astounding thing researcher saw there was the cure of scorpion venom. Their stories and methods may seem strange but they are effective and helping them since decades.

4.20.1 Curing Scorpio Bite with Water

People of Bast Mehrmani are away from hospitals but they have their alternatives. Different methods of cure are helpful in taking off the burden of patients from hospital. If you find an effective alternative method then one should try it. An interviewee Muhammad Amir briefs during floods a scorpion bite his wife and she was in severe

pain. So she need to go to Mama Haqo but this was not the case as patient do not need to travel to the doctor instead doctor can heal her from distance. Amir told me that he went to the Mama Haqo with another guy who can row the wok. Mama Haqo asked him to sit down and then he took a glass of water and prayed “*Slawat*” and then he puff into the water and asked me to drink it as it will heal your wife. So I drink and then he said go to your home and beware of snake and scorpions as water forces them to intrude to human territory. When Amir reached home his wife was out of pain and there was no sign of scorpion bite. These stories show the how social survival works in villages and flood hit areas where doctors and other health facilities are not easily accessible and people like Haqo helped their community to survive. “*Sawan*” and “*Badho*” season brings rains and humidity and extra pressure for people as already flood was covering their houses. So people help each other to deal with these issues as Wazir was another person that was helping people and woks were there source of travel in flood hit areas and this was purely think and used by them as I think there should be some kind of boats and similar things that they used for boats but wok can travel long distance and for long periods it was a new thing for me. Social survival strategies are very different and easy from what I initially thought how they would be and it was fun and knowledge how people were doing things in fascinating way.

When I asked how a cut can take out venom from the blood? A few people said Mama Haqo has Jin as he is very religious man and other people said he has “*Naag Mani*” (a snake stone people believe work as anti-venom) and he put this stone on the place where snake has bitten the person and this stone suck out the venom and ultimately person become healthy. “*Mama Haqo ko jin hin ada, pr koe a v aadhy k mamy haqo ko jin ne oondy kol nag mani hy jeri zahr kadh ghindi hy*”(Mama Haqo is under the possession of paranormal things but some people say no he has a snake stone that has the ability to absorb the venom of snake).

4.20.2 Futher Activies during Floods

First thing they do during flood is taking shelter to protect themselves and their movable assets. People told me that their efforts depend on the intensity of floods. If there is only heavy rains then it is normal for them and taking shelter with their animals is enough as

their crops are water friendly and heavy rains cannot affect them easily. One old person Shafi adds that “*ganna they dhanj pari ich khry rahdin,dy zor da mee kujh ne aadha inna ko*”(sugarcane and rice crops are water friendly and stand in high water for long time). So they just keep safe their animals and their houses. Second type of activity is based on when heavy rains result in over flow of river water or soil erosion that result in small scale flooding and only hit the land that is near to river. When this type of flood comes they only protect their land and crops in this area by making 1 to 2 feet high band around their land that is enough to keep water away from their crops. If they do not do that than their crop will be submerged under water and if water stands for only 7 to 14 days that will be enough to kill the small plants under water? Third type of protective action takes place when heavy floods come once in a decade. There is so much water during heavy floods that people have no choice but to leave their houses and move to the other side of protective band. They just take their livestock and few basic things like cloths and wheat. Most of the people move from their houses during floods and take shelter in the house of their relatives.

Last year when it was the start of flood and water was coming from rain and mountains in river. With every passing hour water level in river was rising and they have no other choice but to leave their house. People told their relatives that they are coming to live with them as there is no escape from flood this time. “*Asa saman badhy they gindiya dy khtry cha k bala ko phly bheej dity, wal mn ty medy do putra ne dhandhy dhor haklin dy asa tur pay han*”(we packed our bed sheets and other things and first we send our family to the relatives and after that we take our livestock and my two sons were with me). They further describe that they live with them till the flood water stays. They have their wheat with them and their ladies work in field to cut grass for their animals. Male members stay at home and after every 3 days they visit their house that is in the middle of flood.

4.20.3 Not Leaving House

Leaving the house is very rare case and very few respondents experienced this. It only happens when you do not have supplies or water level is so high that you have to vacate the house with your live stock. When people left their house they only take the very basic things like charpai, bistry and wheat with them. All other belongings left in their

house like steel box, extra charpai and other things that are not easy to move. A respondent Azam adds “*jeery velay baho ocha seelab away asa sahi jeway tawa, bartan, bistry otay badh weendy hn charpai ko chat dy rakh k waindy hn*”(when flood water is very high we tie things like pot and pan at high places). It is visible that things that were not very expensive and of common use they left behind as they get these things from their relatives and other members of their community. If they need something they come back and take it from their house.

4.20.4 Dry Foods used in Floods

During floods people store and use dry foods like Jaggery, Sweet Dry Bread and Chori. A respondent name Juanid age 22, everyone called him Junni. So Junni shared his experience that they do not leave their houses. **asa bhai jan ghr he rhndy hn jery veely zyada seelab away asa chat dy manji bistrs cha k tur pony hn, roti pari da bandobast phly kr ghindy hn. Chori, mithry, panjeeri they suka gosht istamal kreendy hn*”(brother we do not left our houses and when flood is very high we move to the roofs of our house and we use Chori, Panjeeri and sweet bread with preserved dry meat). So it is common for people to use dry foods as they last longer and external environment cannot exploit them. They make these foods when they know that this time flood is going to submerge all roads and field of their village.

When people know that this time flood is severe and they cannot move without boats so they start saving foods their children and animals. An informant Tariq adds “*bala wasty achar, khand, chori dy suka gosht changa sara bra k rakh ghindy hn dy jnawara ko asa sawa gha da dy ne skdy pr una wasty tori dy chokar changa ghin k rakh ghindy hn*” (they use acahr, sugar and chori for their family and for livestock they gather tori and chokar). By this they can easily spend their hard time during flood and wait for water to sink in land.

People face problems with strategies they already made and this turns a small scale society into climate resilient society. It is possible that you can do this without huge budget and media coverages because paractical solutions are more powerful than theories of no use. An interviewee named Ghafoor Khan shares that “*seelan gawa dy bhaid bakriya wasty masla kreendy lekin gawa di mooj lag weendi hy, grmi hondi hy dy a tar*

ghindin taho pora di pari ich piya rahndin dy door darya ich won k gha v kha aandin”(flood Time is difficult for Cows, goats and sheep while buffaloes enjoy this as weather become hot during this season and buffaloes like water and they are good swimmers so the whole day they stand in water and travel far in river to get the green food). When flood come it can make many new ways for river and some ground level become visible in river and within few days it become greener like an oasis in the middle of desert so buffaloes enjoy this food and they need very little from their owner. In this way they help their masters during hard time as they do not need as much care as other animals.

Before floods collection of different necessary things is very common. People store them and use during floods and they share the with other people. During flood people stay in their homes and they gather a lot of woods that will be enough for them. They use them while cooking food and they share with other people as well. They also gather woods and sticks that come with flood water and they put them in their courtyard and used them when they become dry. Bringing the woods from other villages cost them more money and in this time they have very few resources so they avoid buying woods. A respondent adds *“mee kalo lkri pus won in da asa wal ganda tail sat k bha la daindy hn wal sini suki lakr bul waindi hy*”(if their woods become wet with rain they use kerosene oil to flame them and use mix of dry and wet woods). So action taken by people before floods helps them to survive in wet and hot conditions. Similarly another respondent age not known but people say he is 80 or 90 years old named Duli. He was more interested to tell me about how land can be divided when river change its path. *“Jery vely darya rasta badlaidy seelab to bad wal kujh wasti di zameen darya andr wla weendy dy kahin weely darya zameen wdha weendy*”(during floods sometime river encroach the land of farmers and sometime it gives more fertile land to farmers as river changes its path). Farmers use this land if it is adjacent to their fields and can be easily harvest able. As this land take more time than others to become suitable for crop cultivation.

Leave their homes during floods bring different difficult things like food and water for people who left behind. When they were leaving their houses people ask them to bring their different things from the house of their far living relatives. When they visit back their house to see everything is fine they bring things for people those stuck in floods. A

respondent Nasir aprises “ *asa inna kalo aata mangwaya peetha hoa dy ganda tail, a do cheeza sab to zyada istemal theendin*” (we ask them to bring flour as wheat cannot be used without turning into flour and kerosene oil these two things demand by most of the people). In this way people help each other as they bring supply for others that are living in the floods. This is a type of social survival as people rely on their society members to bring basic things for them to survive in harsh weather conditions.

5 ECONOMIC SURVIVAL ACTIVITIES

This study is designed to see how people survive socially and economically with their own efforts. Many studies have been conducted on how they survive on foreign aid like in government camps and on NGOs support. However these studies can be mostly applicable on people that are nomads or people that living away from water ways and face flood problems due to extreme weather conditions or some government department's negligence. For example, breakage of levee that cause flood to area where people living on ground level. My focus was on people that were living in an area where floods or flash floods happen every second year and heavy floods once in every decade due to their location.

5.1 Economic Survival Strategies during Floods

To understand economic plans we should get overview of crops that people here grows. Strategies of people of Basti Mehrmani to safe guard their economic interest was related with survival of their crops and livestock. In first place we will see how floods impacted their agricultural activities and how they dealt with economic losses caused by severe flooding. There strategies help us to understand how locally planned ideas can help people to survive. It is very important to know that why they are cultivating crops if you know that floods are coming. There things that we cannot see from outside as sometime common sense is not the solution for small things. What we need is practical knowledge and implementation. Let's see how physical efforts are helping in survival.

This is the list of crops that can survive different levels of floods.

5.1.1 Crops

People of Basti Mehrmani informs me that their land is river land and very fertile and ideal for vegetables cultivation. Their fields need less water than lands that are on the other side of the levee. So what are crops they normally sow and is there any difference in crops when floods are expected? This detail is important to understand their survival strategies as some of their crops help them in flood season.

5.1.2 Makai (Maize)

Maize is used as cash crop and for their animals and its sowing season is from June to August and it is ready to harvest in 80 to 120 days depending on their seed variety and safeguard from pesticides. Maize cannot stand in high water but heavy rains help them to grow faster and reduce chances of pesticides attack.

5.1.3 Juwar (Sorghum) Survive in Floods

Sorghum is purely uses for animals and monsoon is its sowing season. This crop can sustain in low level flooding and heavy rains. Farmers sell it as animal fodder.

5.1.4 Bajra (Millet) Stand in Floods

Millet is very similar to sorghum and ordinary people cannot differentiate between them. The small heavy flooding disturbs its yield.

5.1.5 Kamand (Sugarcane) Survive Floods

This is a cash crop and its water friendly nature help farmers in economic survival. Sugarcane is a time taking crop and need high quantity of water most of its life period. River areas are sugarcane friendly areas and it can sustain high level of flooding and a average and low level water of flood does not bother this crop.

5.1.6 Jhinjhar Survive in Floods

Jhinjhar is also a crop used for animals and its plant grows rapidly and within few weeks it can grow 6 to 8 feet in height. Due to its height crop can stand in high water and water cannot choke it. So this crop is very useful for survival of livestock during flood as it is the only source of green fodder for them.

5.1.7 Kappa (Cotton)

Cotton is a cash crop but average flooding can destroy it easily and remains of plants used as woods used for cooking. Due to this vulnerability when people sure this time flood is coming they do not sow it.

5.1.8 Dhanj (Rice) Survive Low level Floods

Rice is also cultivated for economical purposes and low level flooding increase its yield as this crop sowed and stands in water during most of its life cycle. High level flooding wash away they whole crop.

5.1.9 Vegetables

River lands are best for vegetable cultivation and farmers sell them in market. Sandy land helps them to grow easily. People here rarely buy vegetables from markets as everyone has their own field of vegetables. Only things they bought were garlic and ginger from shops. Some of the important vegetable are Lady Finger, Hardal (Mustard), Pumpkin, Ridge Gourd, Green Chilli local and hybrid and till.

5.1.10 Saving Seeds

Beside food people were savings seeds for crops as they know that when flood water finishes the prices of seeds skyrocketing in market. Mostly they preserve the seed for Rabi season as wheat is basic crop that they need all year to eat. They normally preserve their seeds in big mud vessels that remain dry and are water resistant and they call them “Gola”. It is like the “Daig” (a metallic vessel with wide mouth. People who do not have seeds to store for future, during floods they give food and other thing to people who have seeds for cultivation and after the floods they take seeds from them as a token of their services. Village society is very simple society that based on cooperation of people with one another. They show unity during hard times and solidarity when they are living normal life. In a village mostly people are associated with agriculture so seed preservation is most and basic step of their survival strategy.

5.1.11 Sowing Water Friendly Crops

When they sow their crops they are aware of the fact that before harvesting season comes floods can enter into their fields and damage their crops to overcome this issue farmers make their own plans. Thinking about future in based on their past experiences as they faced crop destruction multiple times. They sow water friendly crops like Sugarcane and Rice. Their next step to safeguard their economy is sowing crops that gain height in 3 months by this they save their crops because water only destroy crops that submerged under water as they cannot breathe and take sun light. Anything that is drowned perishes easily. Resident of the village named Wazir Khan reveals that mostly heavy rains caused by monsoon. Every year flood like situation caused by these rains and after every 10 to 15 years a heavy flood comes and that force them to leave their houses and move to the other side of levee. He shared that before the monsoon “*asa ganna, dhanj they soya raheindy hn q k a pari mangdy v hin dy jhlandy v hin*” (we cultivate sugarcane, rice and

soyabean as they need more water and can stand in water when extra water come into the fields due to heavy rains).

A respondent named Muhammad Khadim aged 49, was living in the village from the time of their grandfather. He said they planned to save their crops with other farmers. First, they made a strategy to safeguard their existing crops. During low levels of floods, they save their crops by making a boundary around them and by stopping water at a distance when their crops are ready to be harvested. Two to three farmers use trolleys of sand to make a levee that stops water from moving in a direction where crops are ready and harvesting continues. In another method when floods are high they plant crops like sugarcane, sorghum, and maize. These crops are sowed in April and floods normally occur from June to August so these crops get enough time to get a height of more than 5 feet. Before the floods, people decided that this year there was a threat of water so they planted crops that got height. When flood water dried up they cut their crop of sugarcane and washed it in a tube well because due to floods a huge amount of dirt stuck with it. People from their families and neighbors gather on the tube well and help to wash sugarcane. People can take sugarcane if they want to and the same is the case with sorghum and maize. People help each other and take the quantity of crops they need for themselves or their animals.

Due to floods, people face the problem of running their daily economy and to boost it they sell their animals and give them to other people on a sharing basis. Muhammed Azam, aged 38 and a permanent resident of Basti Mahermani shared that during floods they give their animals to their relatives on a sharing base they call 'Sanjhi'. He said that during floods it is difficult to feed animals, especially for people with a small number of animals like goats. People with large numbers of livestock can afford animal fodder because they sell their milk during floods. People like me give their animals to their relatives and they take care of them during floods. They are safe and remain healthy during floods. He said that once a goat of their relatives became ill and when he visited their house he found that it was due to an infection in the Mammary Gland and he cured it. Animals get infections in Mammary Gland due to moisture in the place they sit.

Massaging the place where the animal is infected and using fresh clean water to wash it is the cure for this disease.

5.1.12 Stopping low level Floods

There are levels of floods due to which people make their strategies according to the levels of floods. They have different plan when water level is as low as 1 foot from ground level.

Wazir further informs that when there is low flooding due to heavy rains and river bank erosion the water only reach the area near the river and we call this area “*Waheera*”. When water is about to reach this area they made band around their fields as water is not above or one or half feet. When I ask Wazir Khan that what they do when there is heavy floods like this time. He said that in nineties he and his family were moved to their relatives and they remain there for more than a month. They moved to the people that were living on the other side of levee. They normally stay 5 to 7 days in the house of a relative and after that they move to the other house. They take their livestock with them and people give them grass for animals. His words were “*wasajib the gaal hy bndy bndiya ko labh pondin*” (it a matter of their village family to help each other and people help other people in difficult times). These moves made by people only in floods that are so high that roof of the house get submerged in water. Their society is very active regarding living in floods.

5.1.13 Planting Fast Growing Crops

People before heavy rains and mild floods sow the rapid growing paddy and green leaves vegetables that are water resistant. As we know land near the river is very suitable for agricultural crops. Interviewee informs that they grow Chilli as it is a crop that grows rapidly and gives back cash within two months. Since there is not much investment in chilli crop so if heavy rain damage the crop farmer still can bear the loss.

5.1.14 Sowing Tall Crops

Another respondent told me that crops like “*ganna, juwar jhinjhar qad kran aali fasal hy inna ko koe msla ne theenda hlky flood ich masla theem micha, kado, tamotor dy biya*”

sabziya ko”(sugarcane, Juwar, Jhinhjar are crops that become tall and low level flood cannot affect them rather it make green chilli and pumpkin as their plants are very small so little water can destroy their crop). It is clear that heavy rains and low level flood cannot affect their life as they have natural and local remedies for the situation. For example, in heavy rains they just need dry woods and in low level floods they need protection to crops of vegetables. Nature is with them during this situation as their land is water thirsty though very fertile and need little water for crops.

5.1.15 Storing Vegetable Seed

Most of the seed these people get from their own crops. They left some of the vegetables to grow large and do not harvest them and with time they become so large and full of seeds. Then they cut them make their seeds dry and save them for next season. Khadim Hussain told me that “*asa kado tori da beej fasl icho he kadh ghindy hn achy danry asa chor ditty jery vely o waddy thy k pak gy wal asa una ko kadh k suka gidda dy agli wari wal unna naal fasal tyar kitti*” (Pumpkin and Ridge Gourd seed obtained from their crops as we left the pieces that are big and healthy and when they start getting old we cut them and dry them for future use).

5.1.16 Panri Badhran (Stopping Water)

This technique is used for saving crops and is only successful in low level flooding and can only buy time in high level floods. Muhammad Tahir the respondent aspires that “*panri badhran hondy k 4 bndiya ya zyada bndiya ki zameen jeery passy howay dy darya pahly utho nikl poway da asa wal sary won k panri ko badh daindy hn yani asa jeeri zameen jhiki hy utha bnd badh daindy hn dy panri ruk weendy*” (Stopping water is when few have land in same area where river is overflowed first then thses people come together and make a band around land where water is gathering and water stopped here). Tahir told me that when this time flood was coming he has a reserve of chaff so he need to remove it before water reaches so he stopped water by making band and shifted his chaff. He said when the last Tractor Trolley was shifting his chaff their name shift band was destroyed and they barely escaped.

5.1.17 Sowing Height Gaining Crops

People with their experience that which crops are flood resistant. They just need to be sowed on right time then they can survive due their heights and friendly nature. Only “*kamand*” (sugarcane) can survive floods when its level is high. Other crops like millet and maize when submerged under water becomes of no use. Sugarcane survives due to height of its plant. Vegetables and other crops perish under the water. Question here arises what they do to safeguard their crops and do they harvest their crops that are ready? The respondent Muhammad Siddique shares that “*sabji da asa chur ghin dy hn pr baho zyada hondi hy baqi loka ko aadhy hn k chur ghino pr zyada tr loka di apri zameena hin jeri sabzi rah veendi hy or wal seelab na lurh veendi hy janwara ko asa sabzi khwa ne skdy Q k aadi ne hondy dy sabzi bo mar veendi hy sleeb ich jldi*” (we harvest vegetables and announce in village that other people can take them if they want but most of the people have their own vegetables crops so most of the vegetables washed away with water and animals cannot eat all vegetables because it is not healthy for them as their stomach is not use too of it and vegetables becomes smelly in days so they cannot store them).

5.1.18 Harvesting Crops at the Last Moment

Crops need a lot of effort and hard work to grow so when it is known that floods are coming farmers wait till the last moment that floods may stop or change their direction. When its not happen then a farmer went into loss. Interviewee Shabir briefs we wait for until flood reached the village. First we hope for little of mild flood but when water is keep coming from river then we start cutting vegetables and before we think about anything else water starts restricting our movement. “*Water he itna itna thi veendy time he nhi milda bnda sabzi tarkari chunr ghiny ya fasal ko kap ghiny dy biya ko v kapanr day way*” (When it is evident that high level flood is coming then there is not much time left that they can harvest their crops or announce that people can take them).

These crops help them to survive economically and during floods when their all other crops destroyed only sugarcane survive and it is helpful after the floods. They sell their remaining crops after floods and income generated from this selling help them in rehabilitation.

5.1.19 Livestock

Their livestock help also help them to survive economically. They use their milk to survive during floods and sell it after floods to revive their economic condition. They use their dung as source of fuel. This all can take place once their animals survive floods. So it is important to see their strategies to protect their animals from water.

5.2 Survival Strategies for Livestock

5.2.1 Bhoo (Chaff) as Food

Chaff is main source of food during floods and it is famous food for animals. Farmers usually mixed it with silage and other green food. Muhammad Siddiq told me that “*bho hondy jeera fasal da hissa baqi bach dy jeeway karnk k sitty talo aala hissa o ko thrasher ich la k bho banr dy*” (husk of wheat and other seeds obtained by threshing). A lot of Chaff has shifted to house before the floods and during these days animals eat this bho as their major source of food.

5.2.2 Cotton Seed Cake (Khal Binola)

This is another important food which increases milk production level and keep the animal healthy when it is not moving. This is used as complete feed and that is rich in protein and powerful and helps to get full milk production when green fodder for animals is not available. They use it in daily routine but in floods this is their only food.

5.2.3 Chokar (Wheat Bran Flour)

Chokar is obtained by grinding of outer shell of wheat seed. It is used with chaff as both mixed together. Small animals like sheep and goats are fond of eating chaff so when mixed with “*choker*” they can eat it easily.

5.2.4 Buying Grass for Animals

People feed their animals with grass that they get from their relatives and sometimes they buy it from other people. Grass in their area was sold on the basis of Marla and two Marla are enough to feed their animals for 24 hours. There was no issue of water once they moved to the other side of village as water there is very abundant and fresh. People call it “*metha pari*” (sweet water) due to its freshness and taste.

5.2.5 Nalka (Water Pump)

Some people use water of pump for animals as they think flood water is not safe to use for animals while many other use flood water for their animals. Respondent Muhammad Arif shares that actually it is more dependent on the number of animals you have. People with 2 to 4 animals can afford to pump water for these animals but when people have animals in dozens it is not possible for them to give them water by pumping as it takes a lot of effort and time.

5.2.6 Ground of Sand

People use sand as standing area for animals as sand absorb rain water quickly and save animals from different diseases.

5.2.7 Animals and Swimming

People informed me that only buffaloes can swim for hours and other animals like cows, goats and sheep do not like to swim. They can swim if they have to but for very short period of time as they are not natural swimmers. Khadim Bloch aprises me “*Manjha maal sab to bhari hondy lekin aram nal tar veendy chahy seelab ich ghota kha wony bud da ne wapis tr aandy biya mal bhed bkriya ty gawa agr ghota kha wonin da khtm*” (Buffaloes are heaviest yet they are excellent swimmers on the other hand cows, goats and sheep cannot swim in fast water and can be drowned). Animals drown in floods when they get caught in sudden flood or walking in area that has deep water and they did not realize and suddenly fall into it.

5.2.8 Jhinjhar as Green Food

Plant of “*jhanjhar*” survives in floods and people cut their top branches and use them as food for goats and sheep. This food is enough for small size animals.

During normal days they do not take their animals to grass plains instead their owners have their fields of their fodder but once flood arrived their food become scare and they heavily rely on dry husk. Respondent Tariq adds during floods their animals eat bho as they have it in abundant quantity. “*Janwar bho khandy hin sawa gha da hy kay na flood ich lurh gy. Bakriya ko zra masla theendy lekin bho dy ilawa bae sha hondi kay ne. Sirf bho nal dhandha kamzoor thi weedy dy wazn ghta k kher v ght kr dainda hy*” (Our animals eat husk as green crops destroyed by floods and goats are habitual of eating bho

so it is a difficult time for them and further chaff make animals thin and weak. Their milk production decreases with eating only chaff as food). A respondent informs that cows are happy when flood is there as they do not like to swim. *“Bheeda bakriya panri kalo dr din q k a tr ne skdy biya gawa mal panri kalo chldy baqi manjha maal panri naal bra khush theendy pora dein panri ich khra rhndy seelab dy panri ich sham ko hakl k kadhra pony”* (Sheep and goats cannot swim and afraid from water and cows also do not like to stay in water but buffaloes are water friendly animals and they stay in water for hours without any issue). There is natural ability in some animals that help them to survive in difficult situations.

5.2.9 Grazing of Livestock

A respondent Mujahid told me that he and his nephew have 2 Begha land and this is their major source of income. Mujahid worked in Multan city in canteen and his nephew look after the land and livestock. They have 20 goats and 3 cows and 7 Sheep total of 30 animals. Mujahid told me that when his father was alive they had a very large heard of animals and they had animals from different villages as *“Sanjha Maal”* (share on the basis of half half). People give them their animals so they graze and raise them and when they sell them or goats give birth to babies they divide them equally and if first owner wants he can take back his animals with 50% share. Now have only 30 animals with little land that produce annually wheat for them. They store seeds for their land before the flood season. He said they can spend a season without their agricultural income due to their livestock and income from canteen but they need seeds after the water of flood goes down and land is ready for next crop. Seeds become expensive in market as the demand increases after floods and families with small income cannot afford them.

5.2.10 Selling Animals

Villagers try to protect their income, crops and houses and livestock during the floods but when it becomes evident that they cannot keep them during hard times and their assets can turn into liability they try to sell them before the floods. People in their community cannot buy their property due to social pressure and threat of climate conditions as it becomes expensive for them to feed their animals 2 times a day when resources for human are not easily accessible. One respondent informs me that during floods animal diseases are common. Insufficient fodder and if animals stay at one place all day then this

increases the chances of sickness. Similarly when people move their buffaloes, cows, goats and sheep to new place they are affected by stress of new place. All factors leads to weak animals with low milk production. Consuming contaminated water and wet fodder can result in parasitic diseases. People know there will be no income for them during floods so they forced to sell their livestock to middlemen at a huge loss. When I asked a person why they sell animals on low prices he replied” *ya da roti ghin dewo bala ko ya wal bhuky bah k bala nal jnawar rakh ghino*” (either we can feed our children by selling them or starve our children to keep our animals tell me what should we do).

5.2.11 Protecting Livestock from Snakes

Snakes can be dangerous for animals and they usually avoid them but during floods snakes have lost their houses and they are angry and desperate. Floods takeover the area and snakes need shelter so people become more cautious and they put light near animals and keep their dogs open at night. A respondent named Muhammad Sabir shares that when flood brings snake with it they need to safeguard their animals. Normally snakes do not bite livestock as they have dogs to protect them from snakes. “*Raat ko masla theendy janwra ko q k naag nazr ne aanda aram nal lekin sap dhandhiya klo door rhndy hin q k una ko pty khushki e ho ghr hin*” (during night snakes can create difficulty for animals as they cannot see them easily but snakes stay away from animals as they know that these houses are only refuge for them to stay away from water). Snakes normally went to trees as they are good swimmers but they cannot stay long in water so trees and houses are obvious places to go for them.

5.2.12 Walk in Flood for Animals Fodder

” *Jhinjhar*” crop is used green fodder for animals. Muhammad Azam adds during floods “*jitha tk mn tur skda panri ich turda wal tar k gya ty jhanjhar ko oto otto kappi aaya dy a k bakriya ko pa ditte fasal naal hondi hy taho bnda kap aandy dor howay ta wal ne weendy*” (When I need green for animals I can walk in water till possible and then swim and cut the” *Jhinjhar*” that is outside of water. It is possible to cut grass in water when it is near your house). Beside this they use chaff as major food for cow and buffaloes as these animals eat it in normal routine.

5.2.13 Milk Selling in Floods

Milk sale does not stop in floods. Milkman comes in flood and takes milk from us. They use bottle and wok to travel and gather milk. Khadim Bloch shares that “*doodi ban do kupoay nal tar k aandy hayee dy wal dod dy dool Kathy kr k karha ich ghin weendy ap v tar da rahndy dy karha ko pkr k dhiki gya*” (Milkman take a bottle and a wok with him. He then push wok and swim with help of bottle and reach each home from he buy milk and then go back to levee in thin way). This is the way they sell their milk and this is very helpful in their economic survival.

5.2.14 Gobar (Dung) of livestock

During floods people use dung as source of eendhan and it helps in saving woods. “*thapiya/pothiya bha balnr dy kam aandin lakr da mint ich sr k sowa thi weendi hy wal seelab ich itni lkri kitho ghin k aon thapiya foran ne sar diya dy tame lag dy inna ko taho assa inna ko lkr ich mix kr k leendy hn wal bha zyada der bldi hy dy lkr di v bacht aandi hy*” (They use dung as fuel and woods fire end in minutes and during floods woods become rare so they use dung as it is long lasting when used with woods for fire).

A respondent name Tariq updates that they usedung as bed for animals. “*barsha dy mosam ich asa gobbar dy raitly mitti ko zameen ty pa k utty dhandhy bandh dity a wal barish dy mosam ich zameen ko gara ne thiwanr deendy dy janwar skoon nal hrkt kreendy na dy philnr na lat torut weendy hy janwra di*” (During rainy season we mix dung and sandy clay and use it as bed for animals as it resist mortar and save animals from breaking their legs).

Sohail aspires that gobbar help them to fight against mosquitoes. “*asa sham ko thapiya bhakha k rakh daindy hn wal a pori raat dukhdiya rahn din dy dhowa chorandin dho kalo machr door rahndy dy bnda raat ko sum ghin dy na dy panri dy itna machr hondy k bnda sum na sgy*” (during the evening go thapiya set on fire and they work as anti-mosquito as their smoke keep away the mosquitoes and we can easily sleep otherwise people cannot sleep in water area filled with mosquito).

Different uses of one thing make life easier during difficult times as in the case of dung people using them as fuel, anti-mosquito and land dryer. Multi-tasking with one resource is key in social survival.

6 Perception of People about Floods

This chapter deals with the one of objectives of my study to explore perception of people about floods and how they take it? In their idea what is flood and how it is beneficial for them or it is just a phenomenon that brings problems with it. People of Basti Mehrmani have different ideas about floods. Some people think floods come due to negligence of government authorities and at the same time other thinks it is a due natural process and healthy for their land and crops. They think it may cause difficulty for some time but in long term it is beneficial for them. There are people who think floods happen due to heavy rains or when dams get full and authorities release extra water to save dam then water level in river rises and floods occur. In their idea what is flood and how it is beneficial for them or it is just a phenomenon that brings problems with it. People of Basti Mehrmani have different ideas about floods. Some people think floods come due to negligence of government authorities and at the same time other thinks it is a due natural process and healthy for their land and crops. They think it may cause difficulty for some time but in long term it is beneficial for them. There are people who think floods happen due to heavy rains or when dams get full and authorities release extra water to save dam then water level in river rises and floods occur. Experience tells you how to react in a certain situation. When people know that flood is coming and it is not a sudden thing then their plans to deal with floods are better and effective than people who face flash and sudden floods due to destruction of water infrastructure. People of research locale know that flood will only damage their crops and it can isolate them for sometime. Their risk perception that how dangerous a flood can be is dependent on level of water. In levels only high level of floods destroys and the crops and farmers face economic problems. People developed strategies that have minimized the effect of remaining two levels of floods, low and medium. They stockpile foods and sow crops that are high in their length. People establish these strategies by their experience and floods perception. People preserve their food and develop methods like drying and storing in boxes to keep them safe for longer period of time. Further we will examine what other ideas of people are about floods.

6.1 Perception about Reasons of Floods

People ideas about floods vary from person to person in a same society. Some consider it as wrath of god and other thinks it is happening due to a cultural folk and some call it a natural process.

6.1.1 Floods as Blessing of God

People have different ideas about floods. Few take it as a blessing of God to raise level of ground water. Other see it as problem that destroy their crops. So different people have their opinions with respect to their un derstanding of the idea. A respondent Muhammad Arif who is head master in the primary school informs me floods come when government releases water from dams. Another reason he told was due to heavy rains water from mountains come in rivers and their level increases and it can cause floods. *“government panri chor deendi hy dama da dy wal saday kol selab aandy sindh darya taray lakh the reela jhalendy dy wal panri bahr kadha setaindy itna panri Allah da bnda barish naal ne aanda a dama icho he chorendin”* (When government release water from dams it cause floods because Sindh River overflow when it gets more than three lac cusecs of water and this amount of water cannot produced by rains only). Khadim father of headmaster informed me that floods can happen due to rains. He said in 1992 and 2010 floods he remembers that rains very so heavy that they did not stop for a month. *“ Meko yad hy barisha itni zyada han 92 dy 10 seleab ich k maheens poriya rukiya na han mtlb kinr minr da theendi haye pr koe veela kasa ka na aaya hayee k mee na theenda piya howay 92 ich itna panri hayee k sadi jaein kalo otay wal giya hayee sirf wazeer dy ghr aaly bethy rah gy han baqi sary sman darakhta dy badh k chly gy han o seelab barish kalo aaya hayee na maheena darya bahr rah gya hayee”* (I remember the floods of 1992 and 2010 how it was raining for a month without any stop. Rain becomes slight drizzle but it was not stopped and in 1992 flood water was so high that everyone leaves the village only Wazeer Khan and his family remained there in water. People tied their household stuff on top of tree and migrate). He further said 2022 flood was similar to the flood of 2010 in terms of intensity. This time the rains were heavy and water from mountains also raise the level of river.

6.1.2 Floods as Wrath of God

There were some people who think flood was necessary to come as there was no heavy flood since 2010 and water level of ground was decreasing. It is interesting as these people lives on the edge of river and they were complaining about ground level water. A respondent Muhammad Siddiq told me water level decreases because level of river was so low in 2021 that they can walk in it for quite a distance. *“Panri darya itna jhikka thi gya haye k bnda paidal chnga bhla pandh kr wony dy kashti da aslo na chldi hayee jab tk malah dikh k door tak na chik wony”* (It was impossible to boating until sailor drag it long way inside the river). So it was evident that water level was decreasing as their average production of crops was also decreased.

Another respond Azam told me that water level was decreased so it was important that heavy rains come but instead it was flood. *“aam tor dy zameen icho panri 5 do 7 foot ich nikl aandy diryayee ilaqy ich pr hunr 8 foot kady ich v panri bahr ne aanda”* (In riverine if we dig 5 to 7 feet then water comes out but in last year water was not coming out even at 8 feet below the ground level). Flood comes to raise the underground water level and they think it will increase their crops production.

People thinks that even though flood water destroyed their crops and they are facing economic crisis but their next crop that is wheat for most people will produce more average and they will get benefit from it and this extra production will solve their economic loss.

People of Basti Mehrmani also think that different level of flood makes them more cautious. For example, they say if monsoon rain spell is not heavy then they know this time floods are not coming and they do not prepare for floods. Their experience with climate informs them how much rains will result in floods. They can tell with rains that what will be the level of flood that is coming. If rains are not heavy yet they can pour for hours and time and again. Then they will sense that this time low level floods are coming and they need to stop water from entering into their fields. Muhammad Tahir a respondent briefs that when water level is low they can stop water for some time so that they can harvest crops like Chili as its market price is very high they sell it once it dries up and becomes red then its price increases 2 to 3 times than green chili. They grow the

hybrid chili whose demand is very high because of its taste. You cannot eat hybrid chili and if you do then you need a lot of water because eating hybrid chili feels like flaming your taste buds and your tongue. “Hola seelab anady na Jeendy which panri drya do bahr zri ek aaya dy naal naal di zameena ich ruk gya asa wal gy jeendi zameen ich aanda piya howay o wal mitti wala k panri rok ghindy ta k picho zameen icho fasl churenj wony” (When level of flood is low and water only damages lands that are near river bank then the owner of land go and make a artificial blockage to get more time so they can harvest their crop).

6.1.3 Floods as Negligence of Authorities

People were of the view that government need to do more then they can solve this issue and they are not making new dams this is one of the reasons. Now what they do when they know that this time floods will be heavy like the recent flood of 2022 then they collects their entire barn for animals they stored in fields. Then people who sowed vegetables in their fields they announce that people can collect vegetables if they want to. A respondent Abbas told me that people mostly not collect vegetables because they are not ready to eat during flood season and secondly they cannot stored to use for animals because they get perished within two to three days due to heavy rains and then they cause smell that becomes bigger problem than floods for the people and animals itself.

More rains mean they need to save their houses as most of the house and specially the outer walls of all houses are made of clay and during rain these walls may fall and then they need to rebuild it. So when they know that heavy rains are inevitable then they make their walls strong. They do it in every one or two years. A respondent Muhammad Tariq told me that people use mud bricks to build their outer walls because when floods happen water during heavy floods come to the level of these outer walls and water stands there for days or weeks. If the wall falls then they made it a new one after the flood. Mud bricks wall is easy to build and they make their own bricks by mud of flood. If they make wall that is made of concrete it cost them more money and when it will fall in flood water then making it again will be impossible for them because flood leaves them in economic crisis.

Heavy floods need better preparations from people of Basti Mehrmani as it can stay for long period of time and they need resources that they save before the floods. If they do not prepare then they will not survive. So their experience and perception level tells them what level of preparation they need. How much supply of food they need for their animals and they need woods to cook for them. They always collect extra from their needs because they know that their idea can get wrong and water can stay for longer period of time than they expect.

Perception of people about floods helps them to understand what are the benefits and disadvantages of the floods. Few consider it as good in long terms and other takes it as a problem they need to face after every two to three years. It helps them to know the level of flood and they make their survival strategies based on their experience with past floods. So there is importance of perception in flood affected people and you need to understand it then you can understand the interaction of people and floods.

6.1.4 Perception of Floods as Natural Process

Some people were of the view that flood is natural process and it happens due to the order of nature and it is not possible to avoid floods and we can only make strategies to save our village from destruction and stopping floods cannot happen as it is like day and night, winter and summer. This is inevitable process and it helps to fulfill natural cycle with little harm to our society. Muhammad Sabir aged 46, had been living in the village from the time of his father. He thought that floods were natural phenomena and no one could stop them. He said it like the day and night, summer and winter. These are natural processes and no one can stop them so we should not think about them and how to stop them. They are part of the natural cycle and water comes out of the river there is a reason and different people have different opinions. Some people say it is here to destroy us and we should worry about saving our crops and some say it is because of the breakage of river boundary. These are people's ideas and they cannot stop water because it is not possible to stop Mother Nature. Floods will keep coming every few years and we should focus on the efforts after floods to take more production out of the land.

6.1.5 Perception of Floods and Folkloristic Interpretation

People's perception about floods vary within a traditional society as some people called it wrath of God and other understand it a negligence from government side but there were some people who thinks that floods happen because water comes to their village after every few years to pay homage to shrine of Baba Tibba Peir that is near the levee. High level of water reach near the walls of shrine and this is reason a major flood comes after few years. Floods happen because water wants to visit the Shrine of Tiba Peer a respondent named Muhammed Fareed aged 63 updated me. He said this is not the anger of god or negligence of the authorities. There was a religious old person who lived near the river. He was so pious and helpful to poor people that people thought he was an angel. When he died people buried him near the levee and his grave became a shrine. People believe that floods happen because water wants to meet him and because his shrine is at a high place so water comes and destroys our crops. He said people think our land is so fertile because of the shrine and water never enters the shrine. It just came out of the river and paid homage to the walls of the shrine by touching them. Water does not destroy our houses it is all because of the shrine. Whatever these authorities do flood water will come out of the river and visit the shrine every few years it is not harmful because water is only for crops that are not expensive like vegetables and it provides an opportunity for lands to take long breaths. After floods, people leave their land for more than a month to get its minerals back.

Flooding is an overflowing of water onto land that is normally dry. Floods can happen during heavy rains, when ocean waves come on shore, when snow melts quickly, or when dams or levees break. Damaging flooding may happen with only a few inches of water, or it may cover a house to the rooftop. Floods can occur within minutes or over a long period, and may last days, weeks, or longer. Floods are the most common and widespread of all weather-related natural disasters. Flash floods are the most dangerous kind of floods, because they combine the destructive power of a flood with incredible speed. Flash floods occur when heavy rainfall exceeds the ability of the ground to absorb it. They also occur when water fills normally dry creeks or streams or enough water accumulates for streams to overtop their banks, causing rapid rises of water in a short amount of time. They can happen within minutes of the causative rainfall, limiting the

time available to warn and protect the public. persons and distribute food in poor and needy.

There were some people who think flood was necessary to come as there was no heavy flood since 2010 and water level of ground was decreasing. It is interesting as these people lives on the edge of river and they were complaining about ground level water. A respondent Muhammad Siddiq told me water level decreases because level of river was so low in 2021 that they can walk in it for quite a distance. *“Panri darya itna jhikka thi gya haye k bnda paidal chnga bhla pandh kr wony dy kashti da aslo na chldi hayee jab tk malah dikh k door tak na chik wony”* (It was impossible to boating until sailor drag it long way inside the river). So it was evident that water level was decreasing as their average production of crops was also decreased.

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People reflects that even though flood water destroyed their crops and they are facing economic crisis but their next crop that is wheat for most people will produce more average and they will get benefit from it and this extra production will solve their economic loss.

People of Basti Mehrmani also reason that different level of flood makes them more cautious. For example, they say if monsoon rain spell is not heavy then they know this time floods are not coming and they do not prepare for floods. Their experience with climate informs them how much rains will result in floods. They can tell with rains that what will be the level of flood that is coming. If rains are not heavy yet they can pour for hours and time and again. Then they will sense that this time low level floods are coming and they need to stop water from entering into their fields. Muhammad Tahir a respondent briefs that when water level is low they can stop water for some time so that

they can harvest crops like Chili as its market price is very high they sell it once it dries up and becomes red then its price increases 2 to 3 times than green chili. They grow the hybrid chili whose demand is very high because of its taste. You cannot eat hybrid chili and if you do then you need a lot of water because eating hybrid chili feels like flaming your taste buds and your tongue. “Hola seelab anady na Jeendy which panri drya do bahr zri ek aaya dy naal naal di zameena ich ruk gya asa wal gy jeendi zameen ich aanda piya howay o wal mitti wala k panri rok ghindy ta k picho zameen icho fasl churenj wony” (When level of flood is low and water only damages lands that are near river bank then the owner of land go and make a artificial blockage to get more time so they can harvest their crop).

7 SUMMARY AND CONCLUSION

This thesis is about study of floods and how these floods affect the life of people. Study is focused on a village that is near Indus River. There are many researches have been conducted on flood victims that survive and rehabilitate with the help of government and non-government agencies. This research is designed to study the people that do not rely on these donor agencies and they survive socially and economically with their own help and past experience. The purpose of the study is to introduce strategies that other flood survives can use to protect themselves if they face flood like situation again. Facing flood is a difficult thing yet it is easy to live in refugees’ camp and live on foreign aid than to face floods and survive with your own plans. It will make tough and ready to deal better with same problem.

This research is qualitative study of flood victims and first objective of the study is to see people who lives between river and levee and do not leave their houses during floods how they survive and what strategies they made individually and socially that helps them during this natural disaster. Second objective is to examine how these people survive economically when their crops that are their main source of income submerged under water. Third objective is to see how they perceive floods and how they interpret it. Either they consider it a disaster or they take it as something that will benefit them in the long run. Then there is review of previous studies and tries to find gaps in their research methods and how this research is filling these gaps and adding something new to research world.

Next part is about the area in which this research has conducted and information about the population and cultural patterns of the research locale. Then there is reason to selecting the Basti Mehrmani as this location suits my objectives because people of the area do not leave their homes and animals due to floods. In the next part research methodology discussed and how sample size was selected and used purposive sampling used to select respondents. How data was collected and what methods like Focused Group Discussions, Obsevarion, In-depth semi-structured interviews and case study were used to gather information from the people of locale. Further in this part is information about the data analysis and how data was analyzed by using method of thematic analysis to extract right themes and details from it. Problems faced by researcher are also described and limitations of the study are also mentioned to inform the readers about what is lacking in this research.

Then the discussion of people that is divided into three parts according to the research objectives. People shared their life experiences and how they face floods, how they eat in water and how their animals survive when floods have wipe out the livestock of many. How they are dealing with economic problems when their crops were under water and what are the crops that can survive floods and how they protect them from water. How they prepare for floods and how they know the level of flood that is coming and what the plans for their future survival are. Why they do not leave their houses and lives safely in refugee camps. Things that other people learn from them and adapt to save themselves

from becoming internally displaced and homeless. How people can protect their animals that they lost in floods and other strategies that people can use in protecting their homes. Crops like sugarcane survive in floods due to their height and animals like buffaloes cannot drown in water because they are natural swimmers.

Further is stated their strategies that how they survive. What is difference between them and people that are living on the other side of the levee. Floods are of different type as floods caused by rains in areas that are near mountains are different from floods come due to breakage of levee. So the challenges were different for people living near river. They have their houses very high from ground level even houses in cities is not that high? They know every year from 1st July to 30th August floods can come. They make their arrangements every year floods comes or not does not change this. They deal with low, average and high level of floods with their own plans. Government agencies just come to warn them and then during flood they come to offer them migration.

They made their survival possible by being the fittest one in this kind of environment. They make the use of sand and clay easy and this is their first line of defense. Then they are ready to share their crops with other people before the floods to make social survival easy. In terms of economic stability they sell their remaining crops after the floods and their animals graze in the flooded lands for weeks. Their strategies are purely based on their needs either it is leaving the house with animals or staying at home during floods. They are very simple people with sharp mind.

Survival strategies of people of Basti Mehrmani during floods are lesson for other people and policy makers to learn from. Floods destroy houses of people and people under study overcome are point by raising the base of their houses. The courtyard of the houses in 7 to 10 feet above the actual ground level and by doing this they have saved their houses from destruction of flood water and at same time they saved their livestock from being drowned in water. Water may isolate them for some time but they have reserves of food to eat and woods to set fire and cook for them. They make sand and clay bed for animals to save them from disease like Bovine Mastitis, a disease that is caused by moisture in air and result in inflammation of mammary gland. They may not able to save their crops that are submerged under water but they are able to store seeds for crops of next season after

floods. Crops like Sugarcane and Jhunjhar survive during floods because their height is above water level. Sugarcane survives if it is cultivated in spring plantation that is from middle of February to end of March. Jhunjhar survive if is cultivated 40 to 60 days before floods and only that part of plant survive that is not under the water. Sorghum (Jowar) also survives in water that is cultivated in March and has a height above 6 feet that is the normal height of Sorghum plant. So this take is for policy makers if possible then they need to encourage cultivation of Sugarcane, Sorghum and Jhunjhar in flood prone areas to minimize agricultural loss. After floods when land gets dried farmers plough their lands and leave it till the next sowing season because they say floods take away the minerals from land and sun will give back the minerals to land and it will result in more production of crops. They made their outer walls of house two to three feet inside the base of their house that is already above from ground. They say that water will come to the level of base of the house and if the make the walls on the boundary then floods will destroy them.

It is concluded that due to no support from outside they make strategies that are affordable and easy to execute. In minimum resources they manage their business like seed storing, food gathering for animals and themselves. Roles are very simple during floods as women do all household work and male perform tasks like taking care of animals. Social gatherings are not possible during floods and people know what to do during floods. Everyone confined themselves to their homes and wait for the water level to become zero. Their wait for the land to become dry comes with ease as they do not have to provide food to their animals. They graze on the remains of the flood damaged crops and others if any survive the water. Sugarcane cultivation after floods gives them economic stability as they get important economic support by selling their only crop that survive flood due to its height.

7.1 Recommendations

This study has explored how life people of Basti Mehrmani affected with floods and their plans to survive. We can learn from their successful strategies. First thing is they are making elevated houses that protect them from floods and government authorities can see if this approach is applicable in other areas. This will save a lot of government money

that spend on establishing tent cities for refuges. This will save people from becoming homeless and displaced. This protects the livestock of people and authorities can save thousands of animals by this method. Further their agriculture related strategy that crops like Sugarcane and Sorghum can survive in high level floods. Policy makers can examine how they encourage sowing of these crops in flood prone areas before the flood season.

This study is conducted after the floods when water was dried up. Civic authorities can conduct a research during floods and can get more information about their struggles and strategies to make policies. For academic purposes, this research is limited to the people who do not leave their houses during floods so we can look into broader strategies if we compare it with people living in refuges camp. This study is missing the female perspective so due to traditions of the area so any female researcher can look into this matter and get the information about female survival strategies in house. This research provides cost benefit and efficient ideas to authorities that can help in mitigating social, economical, agricultural and livestock loss of country.

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9 Annexures

Glossry

Band	Levee
Bhoo	Animal Fodder made remains of wheat crop
Chokar	Barn
Dhanj	Rice
Dodi	Milkman
Gawa Mall	Cow
Juwar	Sotghum
Jhinjhar	A Plant
Kalhoti	A large vessel for storing wheat
Kuppa	Bottle
Karha	A large frying pan used to make jaggery
Manri / Manka	A pearl with healing power
Makai	Maze
Manjha Mall	Buffalo
Mana	Big Bread
Pallay Dar	One who transfer heavy material
Sanjha	Term used for animals ownership
Tara	Good Swimmer
Thala	A large court area
Tarna	Swimming
Too Chain	Something that never stops
Thapi	Fuel made of cow's dung
Waheera	Area near river

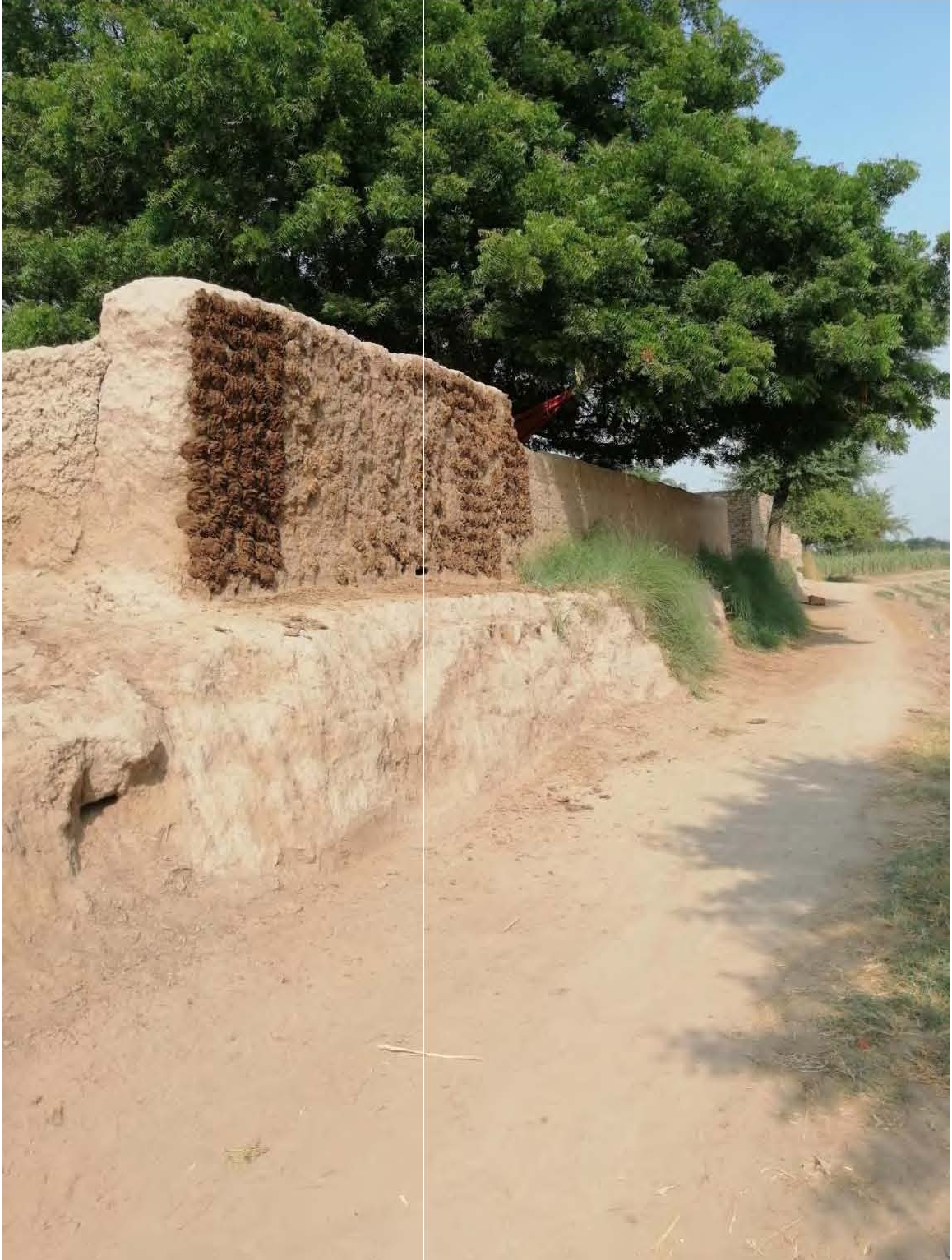
10 Gallery



There houses are so high from ground level ; a tool of survival



Each house is 8 to 12 feet higher from ground level.



Higher houses results safety.



Meter to check water level.



Boat a source of transportation in floods.

Socio-economic Survival Strategies of Flood affected
Community (A Case Study of Basti Mehrmani, DG Khan)

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