

**Post Flood 2010 Recovery and Development Analysis of
District Rajanpur, Punjab**



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DEDICATION

To My beloved Parents and my loving Grandmother

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ABSTRACT

The present study was conducted under the title “Post Flood 2010 Recovery and Development Analysis of District Rajanpur, Punjab. The flood 2010 was the severest flood in the history of Pakistan, Rajanpur was most affected area by the flood of Indus river and hill torrent from koh-e-Suleiman. The main objective of the research was to know about the recovery and development process and the role of different institutions in post flood recovery and reconstruction process. Research conducted from both the affected and non affected communities of Rajanpur district. The research conducted based on qualitative research wherein face-to-face interview, participant observation and key informants interview methods were applied. For collecting data 20 most affected union councils and two non affected UC were selected. After the flood of 2010, almost 10 years has been passed, the recovery process is still in needs to be done in many affected sectors. The only education sector which is almost recovered after the flood. Health , agriculture and other infrastructure were also badly damaged by flood and till now these sectors are not developed. The involvement of political in the recovery process may creates many hurdles, and corruption factor also slow downs the recovery process. The community is less satisfied with the development activities done by the government. While non government institutions may satisfied the local affected community with their recovery and development process. The study recommend that the government and other institutions should construct small dams to store hill torrents water which damage crop every year. Government should plan with the involvement of local community leaders in planning process.

LIST OF ACRONYMS

BHU	Basic Health Unit
CRED	Centre for Research on Epidemiology of Disasters
DDMA	District Disaster Management Authority
FDGs	Focus Group Discussion
FFC	Federal Flood Commission
GFDRR	Global Facility on Disaster Risk Reduction
IFRC	International Federation of Red Cross and Red Crescent Societies
NDMA	National Disaster Management Authority
MNA	Member of National Assembly
MPA	Member of Provincial Assembly
NGOs	Non-Government Organizations
INGOs	International Non-Government Organizations
PDMA	Provincial Disaster Management Authority
PKR	Pakistani Rupee
RHU	Rural Health Units
THQ	Tehsil Headquarter Hospital
UC	Union Council

UN	United Nations
UNISDR	United Nations International Strategy for Disaster Risk Reduction
UNOCHA	United Nations Office for Human Assistance
WB	World Bank
WC	Wattan Card

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CHAPTER 1

INTRODUCTION

1.1 Background of the Study

Natural events like floods, earthquakes, cyclones, or droughts occur within the various processes of nature. However, these events become more disasterous when they affect human lives and livelihoods. In recent years, natural disasters have changed the characteristics and the risk of being affected by natural disasters have been significantly increased especially in developing countries. The number of major events increased dramatically from the 1960s, and in the 1990s when the number almost doubled from the previous decades (Data Book 2002).

Flooding has been reported as the most important natural disaster in Pakistan, the number of events, economic losses and the extent of affected people since 1947. These natural events cover 75% of economic losses and 89% of the people affected by natural disasters. The flood 2010 was one of the biggest flood in Pakistan and ranked as the first among the top 10 natural disasters in terms of economic loss since 1947. The monsoon season of July– August 2010 brought the most devastating floods in the living memory of people of Pakistan. Flooding submerged an area of 100,000 km² (including more than 20,000 km² of cultivated lands) and 78 districts out of a total of 141 districts in Pakistan for more than four weeks. Twenty-nine districts were severely affected¹ (See Appendix ‘A’). According to the National Disaster Management Authority (NDMA) of Pakistan, the disastrous flooding was larger than the combination of five

¹ https://www.who.int/hac/crises/pak/pakistan_early_recovery_plan_12february2011.pdf?ua=1

giant disasters of the last decade i.e., Indian Tsunami (December 2004)², Katrina USA (August 2005)³, Earthquake in Pakistan (October 2005)⁴, Nargis Cyclone Myanmar (May 2008)⁵, and Haiti Earthquake (January 2010)⁶ when number of affected people, area and household damages are taken into consideration (Asgary, Anjum, & Azimi , 2012).

Development plans that fully consider and address disaster risk are a crucial element of sustainable development. While public policies strategically guide public management on specific issues, development plans broadly determine what needs to be achieved in a country over a certain time period. These plans provide an overarching strategic framework, where long-term goals for the country are established, and the objectives, strategies and targets to move the country towards those goals are detailed. The role of the practitioner in integrating DRM into development planning is never done. There will always be a need to keep disaster risk on the agenda – and also to ensure that development plans are based on the latest available disaster risk info, including likely long-term trends(ADPC, 2013).

The 2010 floods in Pakistan, which began in the northern part of the country in late July, gradually spread south along the Indus River basin in August, had devastated the country in the loss of life and other damages. As of early September 2010, the 1,677 flood-related deaths had occurred and by one estimate \$6.5 billion worth of damage to crops, housing, other buildings, roads, and irrigation infrastructure had been estimated [OCHA (2010)].

Disaster management comprises of four important phases that are Rescue, relief, recovery, and rehabilitation. These four factors are implemented in stages right after the disaster.

² Indian Ocean tsunamis killed an estimated 227,898 people in 14 countries.

³ Katrina USA 2005 killed at least 1,836 people.

⁴ Pakistan Earthquake 2005 killed stood at 87,350 people.

⁵ Nargis Cyclone Myanmar 2008 killed 80,000 people and 53,800 went missing.

⁶ Haiti Earthquake 2010 killed 230,000 people

Rescue is to be carried out within 3 days of the disaster and relief operations are carried out until a week after the disaster. Recovery and rehabilitation processes carried on until five to ten years after the disaster relief process complete (Herrmann, 2007). According to review of article about recovery phase of disaster, it is to be known that the least attention is paid to the recovery phase in process of disaster management. Similarly, in case of Pakistan a least attention is given in the long term recovery and reconstruction phase. Talking about the developed nations like the US started giving importance to the post-recovery and reconstruction by 1980, after three decades, researchers begun to study disaster recovery (Rubin, 1991).

1.2 Literature Gap

In South Asia region and especially in Pakistan there is no study examining the long term reconstruction and recovery process of disaster is found. The priority is given to the first two phases of disaster management, there is no discussion of recovery and developmental reconstruction phase. The aim of this study is to identify the various weaknesses and gaps in the existing flood recovery and sustainable (long term) development process, and to know whether the community is satisfied with the recovery program initiated by the government and different organizations.

1.3 Problem Statement

The study area is District Rajanpur which is an agricultural area where the majority of its population is connected with lands. As the water which flows from river Sindh and waterfall from Koh-e- Suleiman mostly affects the lands of this area. The purpose of this study is to analyze the post-disaster effects of floods 2010 caused by the river and mountain streamlines.

Due to the proximity of the River Sindh and the hill torrent of Koh-e-Suleiman the area is prone to flooding mostly from June to September. This phenomenon is further exacerbated by the monsoon season. These floods have social economic and health implications. Besides the loss of life being a major problem along with infrastructural losses. The research is to analyze the process of recovery and rehabilitation after one decade of flood. The main issue of the community, after the floods is not only the immediate relief process but also the reconstruction and rehabilitation. Since the communities economic activities are linked with agriculture production as the majority of the population comprised of small farmers.

The study focuses on the flood 2010, which has been one of the severest flood in which 20 million people were displaced, more than 1600 people were died and huge infrastructure losses worth of \$6.5 billion was reported (FFC, 2010).

1.4 Objectives of the Study

- i. To analyse the status of recovery and development process after the flood 2010 in District Rajanpur.
- ii. To find out the level of satisfaction of community with post disaster development, especially the performance in education, health and agricultural sectors.
- iii. To assess the role of institutions i.e. NGOs, INGOs, and NDMA in reconstruction process after flood.

1.5 Organization of the Study

In organization of the study, Chapter 1 is focusing on the background of the study, problem statement, objectives of the study and organization of study. Chapter 2 reviews relevant literature for research conducted on global and national level. Chapter 3 is confined to data and

methodology. Chapter 4 introduces the locale of the study including population and sample of the area. Chapter 5 presents data analysis and discussion. Chapter 6 deals with the conclusions and recommendations related to policies. And the end of the thesis bibliography and interview guidelines are mentioned.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

Natural disasters, every year shatter community by loss of lives and damaged houses, infrastructure and livelihood options. The climate change projections suggest that storms and floods are going to be more powerful in many of the regions in the future. The increasing trend of urbanization and development though enhances quality of life of the communities, at the same time encourages 'disaster risk' due to poor adoption of preparedness and mitigation measures. The flood occurred recently in the Rajanpur district presented another instance of a volatile disaster which has challenged the developments made so far. In light of these trends, the need to improve disaster recovery and long-term flood resilience planning are mandated (Agarwal et al.2014).

The Centre for Research on the Epidemiology of Disasters (CRED, 2013) defines natural disaster as:

“A situation or event which overwhelms the local capacity, necessitating a request to a national or international level for external assistance; an unforeseen and often sudden event that causes great damage, destruction, and human suffering”.

As indicated by United Nations International Strategy for Disaster Reduction (UNISDR) there is nothing called 'natural' disasters, just natural hazards. Disasters constantly follow natural hazards

depending upon the choices and actions taken today that make us more vulnerable and helpless to disasters occurs in future (UNISDR 2013).

Disasters, particularly those that caused by the natural hazards are the greatest threat to the communities or humans existing in the disaster prone zones. Hardly seismic tremors (earthquake) have killed many thousands, and once in a while floods, epidemics have taken a huge number of lives at any given moment. Regardless of all these we cannot neglect the millions who are not murdered in such occasions, but instead who by face grave threats. A lot more lives are lost in conflicts and to the preventable result of diseases and hunger (St. Cyr, 2005).

The mixtures of human and financial losses, in addition to the extra expenses of mitigation, recovery, and reconstruction, make disasters not just financial but humanitarian issue as well. Disaster risks, in this manner, deserve serious consideration for sustainable development (Dilley et al, 2005).

Like other South Asian nations, Pakistan keeps on experiencing an abundance of natural and mankind initiated risks that undermine to influence the lives and the source of income of its resident, disastrous events including floods, drought, hurricanes, earthquake to human driven disasters, for example sudden fires, terrorism and civil war, refugees by different risks and internally displaced people, pandemic, industrial coincidences and transport casualties and many others. The impact of natural disaster in Pakistan is estimated by the facts that more than 6,037 were killed and 8,989,631 people affected during the period of 1993 to 2002 (World Disaster Report 2003).

Pakistan faces more threat to flood as it is the most flood prone area in the South Asia region (WB and GFDRR, 2012). According to Center for Research on Epidemiology of Disasters (CRED), from 1978 to 2010 the nine are floods out of top 10 natural disaster in Pakistan (CRED, 2013). As per CRED report the number of causality by flood events are less than the death ratio by other disaster events like earthquake. But when we compared with the number of affected people by floods is much greater than the number of people affected by earthquake. The largest flood of 2010 affect more than 20,359,496 individuals which is four time greater than the earthquake of 2005 which affect around 5,128, 309 individuals (CRED, 2013).

So far Pakistan has faced more than 20 large and medium scale flood expect that many small seasonal flood. From 1954 to 2010 Pakistan have been faced 34 flood in altogether. The two major provinces Punjab and Sindh are more prone to river related floods. While the Northern areas are more prone to hill torrents because of the mountainous range. The seasonal monsoon affect almost all parts of Pakistan (FFC, 2010).

Natural disasters disrupt development pace. The communities often have low capacity to recovery from any such unplanned incident. Floods are the most common and widespread among the natural disasters.

2.2 History of Flood's in Pakistan

Pakistan has tackled extreme floods in 1950, 1956, 1957, 1973, 1976, 1978, 1988, and 1992 and now in 2010. These floods influenced the basins in Punjab and Sindh. In Khyber Pakhtunkhwa (KPK), Federally Administrated Tribal Areas (FATA), Baluchistan, Azad Jammu and Kashmir(AJK), Gilgit Baltistan(G-B), and in a few territories of Punjab, damages are caused

for because of flash floods and hill torrents. Pakistan has experienced the most exceedingly terrible flood of its history in rainy season period of 2010 (Hashmi et al, 2012).

Pakistan experienced unprecedented monsoon rains in the months of July which pass on till September 2010. The outcome from that become the flood that influence the whole length of the nation. This floods evaluated as one of the most extraordinarily flood since 1929. National Disaster Management Authority (NDMA) reported that this flood affect more than 20 million people. Moreover, landslides and flash floods not only affect lives but also huge infrastructure damages in the affected area. Even then the whole settled areas and urban centred have been flooded away, hundreds of agricultural land damaged with crops (Juren, 2010).

In the ongoing flooding, near about 1800 people died and \$10 billion financial damages were record. As indicated by authorized statistics, around 8000 individuals lost their lives and conservative misfortunes added up to roughly 10 billion dollar from 1947 to 2010 flooding (Baig, 2008).

The main reason behind these flooding are the nature of geography. As Indus plain is one the devastating due to plan terrains, economically development and thickly populated. In flooding flash flood are the second most destructive type of flood. Incredibly high floods have additionally happened because of the breaking of a portion of the little dams, for example the Shadi Kor dam in Pasni, which broken on February 11, 2005, stream away in excess of 135 individuals (IFRC, 2005; Javed and Baig, 2005).

The management of flood in Pakistan needs to require huge resources and in-depth understanding of the flood problems. The nature of floods differs radically throughout the country due to distinct physiographic, demographic, climatic and socio-economic factors. The

current approach for flood management includes both structural and non-structural actions, so far their inter-linkage and combined effectiveness still need to be enhanced. The efficiency of any projected amount should be assessed for its integration into standing measures to achieve effective and economically viable results (Tariq and van de Giesen, 2010).

The wide range flood pushed 15, 50,000 people to move in a safe areas. The flood affected people moved to their relatives and friends where there was no flood range and many of them stay in government institutions in schools, colleges and campus provided by the international organization under the open sky (UNISDR, 2011).

Historical flood damages in Pakistan.

Year	Direct losses (US\$ million) @ 1US\$=PKR 86	Lost lives (No)	Affected villages (No)	Flooded area (Sq-km)
1950	488.05	2190	10000	17920
1955	378.4	679	6945	20480
1956	318.2	160	11609	74406
1957	301	83	4498	16003
1959	234.35	88	3902	10424
1973	5134.2	474	9719	41472
1975	683.7	126	8628	34931
1976	3485.15	425	18390	81920
1977	337.55	848	2185	4657
1978	2227.4	393	9199	30597
1981	298.85	82	2071	4191
1983	135.45	39	643	1882
1984	75.25	42	251	1093
1988	857.85	508	100	6144
1992	3010	1008	13208	38758
1994	842.8	431	1622	5568
1995	376.25	591	6852	16686
2010	10000	1985	17553	160000
Total	29184.45	10152	127375	567132

Source: FFC.

2.3 NDMA and its Role

In the national or federal level Pakistan have national disaster management authority and then later on it decentralized into sub institutional level in each province and districts. On international level every country has disaster management authority like Disaster management in Malaysia has three levels and every committee in every level has its own responsibility. In level I, the committee ensures coordinated actions, with sufficient asset and human resources, in relation to the media. Level II, must provide to the District assistance such as financial aid, assets and human resources. For the third level, the committee must determine the national disaster management policy, finance, assets and human resources (Khalid, Bin, & Shafiai, 2015).

Likewise Pakistan have also the mechanism of disaster management authority from top to bottom level in which national level to local level. The vision of the National Disaster Management Authority (NDMA) is to accomplish sustainable economic, social and environmental development in Pakistan through reducing risks and vulnerabilities, mainly for those of marginalized groups and poor sector of the community and by effectually responding to and recovering from all sorts of disasters measures.

To manage the disaster activities the need to be adopted disaster risk reduction mechanism in all the level planning phase, and enhance the institutional capacity for all disaster phase from preparedness to recovery.

Considering the need of the time, National Disaster Management Authority has decentralized and (PDMA) Provincial Disaster Management Authority are created at provincial level. While PDMA is headed by the chairman of national level head and after these two authorities at national and provincial level, the district level authority created District Disaster

Management Authority (DDMA). The first time in Pakistan's history a comprehensive National Disaster Risk Reduction Policy for ten years (2012-2022) has been introduced as National Disaster Management Plan (NDMP). Even the bodies at national, provincial and local level have been formed, but due to limited resources these bodies do not tackle a disaster. In the flood of 2010 the national disaster management authority was just initiated as an institution and was not fully functional to tackle this huge flood in its first year.

NDMA, PDMA's and DDMA's assumed a powerful job to give the help to flood unfortunate casualties to a possible degree. Nevertheless the size of 2010 flood was large to the point that it could have compelled administration of any nation. The real execution of the plans by this organization will be judge in the future, when they are in a better position to cop up on time. District Disaster Management Authority (DDMA) of each area is dependable to complete the emergency situation, and if the disaster is more dangerous than complete the relief and rehabilitation process the event is categorized as disaster by the state authorities. The districts disaster management authority is responsible to keep the record of the disaster hit communities and also after the relief and rehabilitation process done in that area. This management authority works under the supervision of District Coordinating Officer (DCO) of the area. The district authorities work as per the instructions given by the provincial disaster management authorities. At each district level there has a Disaster Response Force (DRF) that can be actively work in emergency situation. This disaster response force is a collective actions of many government and non-government agencies for example civil defense, rescue, health and police department of the district. All of these actors are always be prepared at any time emergency situation. In flood of 2010 the job of National Disaster Management Authority was to manage all the delivery process of the flood relief allotted by the different organization like Pakistan Army,

neighborhood and worldwide offices and United Nations. By the supervision of national authority, the Provincial and district authority were responsible to execute the relief projects at provincial and district level (Arai, 2012).

2.4 Disaster Development and Reconstruction

The effect of disasters on development has been perceived, the unpredictable connection among disaster and development has not been completely predicted by researchers of disaster management and financial development. Disasters and their outcomes may deliver serious negative consequences for financial and social development of communities and interrupt planned development objectives and strategies. On the other hand, disaster management, particularly disaster recovery, may likewise give chances to policymakers and community heads to re-examine their policy priorities and utilize valuable resources for sustainable economics development. The connection among disaster and development is a dynamic one and its implementation, positive or negative ones, relies upon the one of a kind social and cultural of local communities and the marginalized capacity of their disaster and development (Kapucu and liou, 2014).

According to Pakistan economic survey 2011-2012, estimated damaged and cost of reconstruction, the flood in 2010 in different sectors are given in the table:

Sectors	Damages (₹ Millions)	Reconstruction Cost (₹ Millions)
Irrigation and flood management	4,763	9,526
Housing	85,465	91,510
Agriculture, livestock and Fisheries	160,107	26,590
Transport and communication	26,468	33,902
Energy	1,240	292
Social and gender	44	65
Financial, private sector	27,254	8,178
Education	12,014	22,589
Health	1,258	864
Water supply and sanitation	1,204	1,900
Governance	1,953	4,768
Environment	2,763	2,874
Disaster risk management	—	1,827
Social protection	—	34,126
Total	324,533	239,011

Source: Pakistan Economic Survey (2011–12, p. 248).

In order to make progress in the development stages of disaster reduction, interdisciplinary studies must occur to develop better risk reduction strategies and until policies reflect this need, communities will potentially remain vulnerable and weak (Alabaster 2011; Collins 2009; Paterson 2006). It is important to create a participatory processes, allowing civil society to engage in and take responsibility in disaster risk management. This point is in regard to disaster policy stating that eventually, “law’s contribution will be in terms of providing and guaranteeing the processes by which a wide range of actors (state, private sector, and civil society) interact in both the technical and policy aspects of disaster risk management” (Paterson, 2006).

As the reconstruction period is that in which all the damaged buildings and infrastructure as well as renewal of all the services and recovery of all the economic activities of the disaster affected area. But in case of France and other developed countries all the money given for the purpose of reconstruction and restoration are not just enough for the complete restoration of damages, these were only just effective restoration. The recovery period after post disaster in

which the damaged area is restored to the standards and societal disparities reduced, thus promote elasticity and inventions because these provides a new platform between the different stakeholder working in the recovery process and long term development of the territory (Moatty, 2015). “The success of the reconstruction phase requires the process to be centred around the needs and safety of the victims, facilitating, as much as possible, the preservation of the links between the affected people and their local area” (Vinet, 2007).

2.5 Conclusion of Literature Review

Natural events destroy communities in terms of lives as well as a huge amount of infrastructure damages. The climate change projections suggest that flood events are expected to be more and more powerful every year in many countries. The reason behind these unpredictable change in the climate is urbanization and unplanned development processes, without the adoption of risk mitigation measures. The flood 2010 in Pakistan destroyed almost all the sector’s from health, education, agriculture , infrastructure, water supply, sanitation and transport communications others as well. A huge spending has been invest in the flood relief and recovery process. In management of disaster, an in-depth understanding of the problems needs to solve at ground level. Literature suggest that in the world like USA, France Malaysia, India and other countries, disaster management authorities works from state level to local level from planning mitigation, response to till recovery and development process. The same process followed by Pakistan as well. In 2010 NDMA was a newly born institution which could not play its effective role in such a large scale flood. National disaster management authority NDMA and then decentralized to PDMA at provincial and DDMA and district level. The relationship between development and disaster has not been studied sufficiently. These disaster always slow down the process of development in affected area as well as having the negative affect in the overall

country financial and social sector. For making progress in disaster risk reduction, an interdisciplinary studies need to be developed. In France and other developed and developing nations, still the reconstruction phase of disaster management is limited due to financial constraints.

CHAPTER 3

DATA AND METHODOLOGY

This chapter contains the detailed discussion of the data and research methodology adopted for this study. This chapter comprises a brief discussion of study area, population of the study area, research design, sample selection, sampling techniques, data collection methods, indicators for data collection, descriptive research design, interview of the respondents, key informant, participating observation and focus group discussion methodology used for the analysis of data.

3.1 Methodology

A research methodology is a way of studying the procedure of carrying out research. The way by which the researchers are doing their work of describing, explaining and predicting phenomena is known as a research methodology (Kumar, 2011).

The methodology is the techniques and methods used in the research process. It is an organized way to solve research problems. It includes data analysis, data collection, and research design. It is a systematic analysis to find solutions and answers to the research questions (Kielmann et al. 2012).

3.2 Study Area

Rajanpur is the Southern-most district of Punjab Province. It has a total population of 1,995,958 in which number of households are 262,490 and is comprised of three tehsils: Jampur, Rajanpur, and Rojahn. Also, a tribal area (the so-called “de-excluded area”) lies in the Suleman range.

Being close to the river bed, the eastern part of the district (Katcha zone) is frequently hit by flooding from the Indus River due to heavy monsoon rains in July/August and snow melt in the Himalayas. This riverine flooding inundates a large part of the low lying areas along the river belt in all three Tehsils (sub-districts), namely Jampur, Rajanpur and Rojhan. The western part of the district (locally called Parched) is frequently affected by flash floods which develop in the Suleiman mountain ranges. Both these hazards bring heavy losses in the two areas that cover roughly about 80% of the area and about 60% of the population, damaging houses made of mud, land and crops, livestock and other property.

3.3 Population

The study focuses on the process of post-disaster recovery and development of flood 2010, the communities affected by the flood will be the population of the study. According to a recent population survey, the total population of District Rajanpur is 1,995,958. The study will be limited to the district and within the district 20, most flood-affected villages/UC's will be selected purposively from the total, focusing on the damage extent caused by the flood. Moreover, 2 villages/UC's which are least affected or not affected by the flood will be selected to check out the spillover effect.

3.4 Sampling Technique

The sampling technique is used to collect data because of time and resources constraints. For this study a stratified random sampling technique has been used for data collection from the unit of analysis. As stratified random sampling has been used and the population was divided into sub groups because the population sharing the same characteristic or population was homogeneous in nature. Two strata were considered for the data collection.

(a). Affected Community

(b). Non-affected community.

The two main strata were also then divided into subgroups for collection of data, in these subgroups, the agriculture-related respondent, education and health-related respondent from the local community. For the collection of data, out of 69 Union councils in the district, the 20 most-affected union councils were selected. Besides this, the two non-affected UCs were also interviewed to check out the spillover effect.

3.5 Data Collection Methods

The study has been conducted by using a qualitative approach for data collection. An unstructured and semi-structured interview guideline was developed to collect the information from the community of both flood affected and non-affected in the study district. Focus group discussion was used to conducted by the community members dig out more information which could not be attained by individual interview. Primary data was be collected through interviews, participant observations, and key informants. Secondary data has been collected from official sources for example books, research articles, documents, reports thesis websites. To meet the first objective, an interview guideline was developed for both the affected and non-affected community individuals as well as focused grouped interview. To meet the second objective, the Likert scale questions were added in the interview guideline to assess the indicators of education, health, and agriculture recovery process.

3.6 Indicator For Data Collection

For the collection of primary data the below indicators has used:

Education: Physical Infrastructure, Enrolment ratio of the Student before and after flood, Environment of the Study etc.

Health: Health Facility, Availability of Medicines, Infrastructure and Machinery Improvement after damaged etc.

Agriculture: Subsidies, Packages including seeds and fertilizer provision etc.

Infrastructure: Roads , Buildings, Houses etc.

3.7 Descriptive Research Design

The research process contains identifying a problem; translating that problem into a research problem; and collecting, analyzing, and reporting the information stated in the research problem (Kervin, 2004). The descriptive research design has used to provide a clear picture of a current situation as it naturally happens. The research design adopted by the researcher in this thesis is descriptive research design. The objective of the research is to discuss with groups and individuals about the process of recovery and development process. The descriptive approach in qualitative research gives the ability to collect precise data of a phenomenon (Mouton & Marais 1996). This research design is used to obtain answers about the different research variables and views of the local community about the recovery process after the flood 2010 in district Rajanpur.

3.8 Interviewing of Respondents

Respondents were personally interviewed and the attempt was made to interview the persons who were worst affected by the flood as well as those not affected by flood but to check out the spillover effect. In this context, the researcher traveled to the tent houses/ temporary Kachi Abadi where the people are still in refuges after beings 9 years from their homes because of flood stream. The medium of the interview was in “Saraiki” as well as in Urdu (local language) for the collection of accurate data.

3.9 Key Informant

According to Bernard (2006), key informant techniques are most useful for the related study and the researcher should identify the relevant people with the study area and whom the researcher can talk easily and get the required relevant information about the study area and understand if the informants lie in some cases. Data collected from Government officials, Local NGO's, Flood affected the community, community aged people, union councilor and Local political persons.

3.10 Participant Observation

Participant observation in the fieldwork is another main technique of collecting data in the study area the researcher has to be closer to the respondent of the study area so that to observes and record information about their lives and changes in the lifestyle before and after the flood. In this case, the researcher belongs to that district and the people of the area may feel more comfortable to share information. In the case of the flood-affected study area, the closer to the community people the more chance of accurate data can be collected.

3.11 Focus Group Discussion (FGDs)

Focus group discussion was conducted in selected villages or union council of the affected area of District Rajanpur. FDGs were conducted to dig out the information from the community which was not be covered in the individual base interview by the community member. The reason for conducting focus group discussion is to get the mixed information from different groups of people which was not be attained through the questionnaire. Discussion

CHAPTER 4

DATA ANALYSIS AND DISCUSSION

In this chapter the primary data which was collected from both the affected and non-affected community in the district Rajanpur being analysis and interpret. As discussed in the methodology that for primary an interview guide was developed in which and unstructured questions were asked by the respondent of the area. Moreover the secondary data also helped in discussion.

4.1 Affected and Non Affected community

The majority of the Union council was affected by flood in 2010. It was severely affected by the western range as it was hit by both water flow from riverine water and water flow from the Koh -e- Suleman range. While on the east side of the union council, there was no destruction and damages done by the flood 2010. As research is to collect the data from both the affected and non-affected community to find out either the development process stated in the non-affected area or not.

The question is asked, from the community about their source of income, both the affected and non-affected source of income is related to agriculture/land production before the flood. During and after the flood there was a crisis situation as their main source of income was fully destroyed and they have lost everything. Not only their source of income was destroyed but also their houses and the infrastructure in their land area were completely washed away with the floodwater.

The area in the path of water flow is fully damaged either agriculture land or houses, buildings, schools, mosque, roads all were completely damaged. The area which was not affected by the flood 2010 was also partially damaged. It's because of the surface area of the water as it affects not directly but within the land surface which damages the buildings partially.

After the flood, the whole scenario changed in the whole district either affected community or non-affected community. Even during the flood the poor sector of the community take shelter in the government camps and on the bank side of the roads near their places which were damaged. Among these affected community people migrate to the places where they start a new hope for life and start earning. Many of these people remain helpless even after all the water ends because they don't have any sources to reconstruct their homes. A couple of family members (male) moved towards big cities of Pakistan as well as Saudi Arabia and United Arab Emirate (UAE) to support their family.

4.1.1 Source of income

The source of the income of the small farmers collapses, as the small farmers in the whole districts grow their productions based on loans given in the form of pesticide, diesel oil and seeds. And they return these loans when they sold out their crop, as their production of the crop (cotton) flooded away. The flood hit and all the mechanisms of the income activity in the whole region destroy. Not only the small farmer but also the business community (like diesel oil, seeds, and pesticides, fertilizer products) were badly affected by flood 2010. So both the farmer as well as the business community suffer a lot during the flood and till the recovery period.

Sr. No.	Respondent source of income before 2010	Source of income after 2010
1	Agriculture productivity	Shifted toward daily wages
2	Agriculture	Migrated towards foreign (Dubai & Saudi Arabia)
3	Business (Agriculture / pesticide's products)	Shifted from agriculture productivity towards new sources of business
4	Agricultural production (land owner)	Sustain with this field as they have no other way to earn But they sell few of their land to fulfil the immediate needs
5	Government job holders	Their dependency remains same before and after flood.
6	Private job firms	Shifted from and other private firm after the crises time of the previous firm and few sustain till the recovery process.

The community member who was dependent on the agriculture production shifted towards other daily wage activity within the district or outside the district to earn some money and support their families. While the small farmer sale out their piece of land and the tenants left the land farming and migrated towards Saudi Arabi, Dubai, and other countries for income generation. Many of the business community related to agricultural products in the district either shift towards other business and some of them stop their business because all of their investment

was given loan to the former and after the flood, they didn't receive back their money because the production of the flood was washed away with the flood. Many of the landowners in the district sustained with their land and farming activities as they have no other way to earn money neither they have any other skills. To fulfill the immediate need they sold out some of their land product and other things like the gold of their women etc. The job holder community member was affected as well but their resource of income didn't affect and their dependency remained same before and after the flood. The private job firms employee were affected as the firm was facing crises as well because either the firms were completely closed up or temporarily closed because of flood effects. So the worker ultimately affect more by the firms closed and they shifted to other firms and some of them sustain with the firms even in the crises situation and didn't receive their salaries for months till the recovery of the firms.

4.2 Basic education facilities

4.2.1 Personal observation

During the visit, it was to be found the majority of primary schools in the area were damaged by the flood 2010. While the middle and higher secondary schools were also damaged but the number of primary school ratio were higher. This was because the primary school has constructed at the village level and these were in the way of floodwater. While the middle school and higher secondary schools are mostly in the upper end; while the flow of water moving in the lower end.

4.2.2 Local community perspective

So the initial army cops were repaired the partially damaged buildings in three months. But the army only repaired those where they settled during the flood time for relief and early

recovery process. Later on, in the two years, the different NGO's and INGO's worked for the recovery process.

4.2.3 Departmental information

During the interview of the school management of different schools in the flood affected areas to know the previous and current status of the school. To know either the school damaged and what type of development activities done by the government and different national and international organizations for it. Some of the school were fully damaged by flood and their staff member said that the school remained closed for 6 months and they opened it even there were no classroom buildings and not even boundary wall was constructed. And later on, the different NGO's/INGO's constructed the boundary walls of the school and provide some classroom chairs for students. But all these development is done with time and done by the different organization by completing their survey first. Even in some areas, these organizations have reconstructed the damaged school in 2018. Whereas new classrooms and other infrastructure improved, this was not only for one school but many other damaged primary schools were repaired and painted by different NGO's. while after the flood recovery process the environment of the school also improved by proper toilet system in village areas and new plants were grown which improved the beauty if the school. But all these development takes more than years. While talking about the government in the education sector the principal and the other faculty staff said that the government didn't provide anything form the purpose of the development of flood. They constructed school building parts by annual school funds. The development recovery and reconstruction sector improved after the flood with the help of the different organizations. When the question asked about the extra reconstruction of room, many of the schools found to reconstruct the same rooms as already that before the flood, but many of the schools build some

new extra classrooms by school funds, not by the recovery of the flood. During the flood, the community took shelter in the school which was not damaged or partially damaged. But during the recovery phase, no extra rooms or shelter be construct in case of any disaster hits in the future.

When the question asked about the enrolment of the student in the pre and post-disaster period. The school officials said that before the flood the enrolment of the school was higher as compared to the next year of the disaster. The major reason was that many people of the community migrate to other places and many of the families just stop sending their children to school and send their children to learns other skills so that they can start earning and support their families. While after now the ratio is going to increases now because the school is fully recovered and functional.

4.3 Health facilities Status

4.3.1 Personal observation

During the visit of affected area, there found some old buildings of Dispensaries in some villages and some villages didn't find any type of health facilities. So the researcher found only a few villages where the hospitals (BHU/RHU) didn't even present, and in some villages, these are found not properly functional no doctor and supporting staff found there at any of the BHU/RHU and dispensary. Some of the building was damaged and not reconstruct and recover after the flood.

4.3.2 Local community perspective

When the question asked by the affected and non-affected community about the hospital damaged and health facility at the village level. They said there was no proper hospital and clinic

in the areas. In some villages, some respondents said that before flood 2010 buildings were constructed for clinical purposes while after flood those buildings were damaged without there functional until now those damaged buildings didn't even reconstruct/recovered back to the original conditioned.

The community respondent said that during the flood relief process the health relief camp was installed on the roadside of the affected community or where the community was settled in camps but these facilities were just for few months. Even after the ten years of post-flood 2010, no proper and functional BHU and RHU is constructed, repaired and functional in the rural areas of the whole district Rajanpur, regardless they have affected area by flood or not.

According to the information by the teacher of the local community that in their union council (UC#9) a BHU was constructed in 2013 until now no doctor has been appointed. The supporting staff occasionally visit there, and the medicine was found to be expired.

When the questions asked about the provision of medicine to the community, they said that during the flood emergency medicine will be given from health camp relief and for the more serious matter they refer to the other city for a proper check-up as Tehsil headquarter hospital was full of floodwater and all the machinery were damaged by water.

4.3.3 Departmental information

During the interviewed from the Tehsil headquarter hospital senior official person. The information was given that the hospital was fully damaged by the water even all the machinery were damaged by water as all the hospital were full of water. The district hospital provides emergency relief machinery during the relief period. After that no compensation and recovery of machinery and new machinery grants given to the hospital. The government didn't allocate any

funds for reconstruction. The spokesperson said that even that they have sent many applications for the development, reconstruction and new machinery requirement to provincial government but till now no grant for the hospital has been approved yet. These applications even sent before the flood and after the flood, new applications send too but no approval has been done yet.

When the question asked about the recovery of the damaged part of the hospital, he answered that it takes few months just to operate it and years to recover and fully functional as the hospital was fully damaged by water and water remains in hospital in almost months. When the water complete swipe away from the hospital and it cleaned up and it becomes complete functional takes more than 6 months. Till now the building is not repaired fully although the yearly development fund helps to build a new building and by that fund, the environment of the hospital improved.

4.4 Major Recovery Projects

4.4.1 Wattan Card (WC)

The government didn't provide any direct or indirect assistance for reconstruction. Government of Pakistan launched Wattan Card (ATM) within the few days of the flood to help the victims of the flood. Initially PKR. 20,000 were sent to these WC ATM as financial assistance to the affected community. But this amount was given only to those who have a valid NADRA ID card and belongs to the affected area. So the first installment was given to almost the whole district but the later on the Board of Revenue Punjab Relief and Crises Management department revised the list the affected area and then for the second installment and de-notify 85 villages of non-affected areas which were excluded. This list was revised by the help of local Patwari, who identifies the area under affected by the flood. The first installment was given to improve the lifestyle at the moment of the flood. While a few months later the second installment

was provided for the recovery process. Even then people have spent those as a daily routine work because in PKR. 20,000 they might not recover their damaged homes. For those who were affected and didn't receive WC, a new cell was provided where they registered their CNIC by the authority and then received the cash assistance.

4.4.2 Agriculture Subsidies

While at the time of flood 2010 there was cotton production season and almost washed away with the floodwater. The farmer was in trouble as well as business activates were also disturbed even though the country's GDP also goes down during the year 2010-2011 and its effect was long-lasting on the economy. Against this loss of production, the government of Punjab provides agriculture assistance/package to the farmer. The agriculture land package was given to almost all the farmers of district Rajanpur. The package includes fertilizer and seeds for the next wheat crop as well as vegetable seeds. The drawback of this package was that all these products were given to the landowner and the ones who take the land as rented by the owner, received nothing. Although the rented person grow production while it was washed away with the flood, all the losses go on his end and the owner received the assistant. The landowner received this package just only for the season of the wheat crop as compensation of the damaged cropped of cotton.

In the year 2010, there was a shortage of cotton crop as the 80 percent of the crops in the crop production region just washed away with the floodwater. While in the area where cotton left were sold out at maximum price level. So ultimately benefit went to the people (farmers) who have saved their land by improving the level of the band around their land, and also the land remained saved where the level of land was higher than the flow of water. And later on in 2011 when the wheat crop ready government give a subsidy to buy that wheat production at a good

price. And most interestingly that the crop per average was even double after that flood. The combination of all these subsidies and an increase in the production relief for the affected farmers.

4.4.3 Govt./NGO's/INGO's role at small construction

When the question asked by the respondent that after flood weather the government provided any compensation to reconstruct their houses? The majority of the respondent in the affected community did not receive any compensation for the reconstruction of the houses or any other material by the government institutions. But they said that different NGO's work on the reconstruction process. These NGO's didn't provide any cash assistance to any of the affected people. But rather they provided labor and the construction material (bricks, steel girders, and beams). Many of the community members said that these NGO's constructed one room in one family. Many of the community respondents complained that some of these NGOs took snaps of their homes and ensured that they will build one room for them as well but they didn't build. But they build the nearby houses even they were partially damaged. Besides these one-room constructions some of the NGO's constructed toilets with tiles as well in the area where affected people stay or near their houses.

Some NGOs also provided general store products to the shopkeepers who lost shops and products in the flood. But it was done on the bases of the survey by the NGOs from 2010 to 2012. But this compensation was provided in one or two union councils. Besides this when the same question asked by the other shopkeepers of the same union council was they received any shop products, but they said they didn't receive any time of compensation like that. Even they those who received any of these types of assistance, they got it by their references in the higher authorities.

For the recovery process of income generation, some of the NGOs worked after the disaster in affected areas of District Rajanpur. These NGOs provide Sewing machines to females so that they should be stable by starting earing using their skills. Even though many other NGOs provide cattle to females. One goat is given to two females as a 50/50 partnership. But these things were provided only a few of the affected areas while the rest of the affected areas were neglected.

4.4.4 Model villages

In the long recovery phase where the major project was the construction of model villages. There 4 model villages were constructed in the district Rajanpur funded by the Turkish people donation by the instruction of the Prime Minister of that time Recep Tayyip Erdoğan. These 4 model villages are:

- i- Mouza Rakh Fazilpur
- ii- Rakh Azmat wala
- iii- Mouza Karya
- iv- Safdarabad, Umer Kot

Although these housing societies were the best alternatives for those whose houses were washed away with floodwater. Rather than merit base allotment of the houses the local politician's involvement in the process of distribution of houses and allocate these houses to those who were not affected by the flood. The local politicians declared their community as affected and allocate these houses to their own people. This illegal allocation of houses was done in all the 4 model villages. After that there is no check and balance, and all the facilities

provided in the village were not properly managed, roads and other infrastructure are damaged now.

4.4.5 Roads and buildings

While on the field visit researcher found the majority of the link roads are still in the damaged condition by the flood. Even on the village side, not even a single road was being constructed. While moving towards some populated area a few new roads were reconstructed and repaired after the flood. Bunds and bridges were damaged and in a few places, politicians broke the bunds to save their lands. And later on, the government approved funds to expand the drainage canals and the bypass which were damaged. The funds were allocated to the MNA's and MPA's and they have given the contract to those who provide some share to them as well. Although the funds were enough to expand and increase the length as well as to put carpeted roads on it, the funds ended it in the half of the project completion. And later on in the next tenure, the new fund was allocated and it might be completed with the same process. According to the respondent of the community, the same thing happened in the case with the drainage canals to expand more so that in the future if any disaster hit it these might not overflow but the required expansion was not done. Even these projects were not completed on the date.

The damaged buildings of the government are being repaired in the main populated areas but not reconstructed or repaired in the villages and small populated areas. The school building is the only damaged which was completed more than 90 percent in the whole district Rajanpur.

4.5 Political influence

The politicians created many hurdles while they influenced in the recovery and development process. They only facilitated those communities which were their voters initially

from the start of the flooding in 2010. To save the agriculture land and villages of the voters communities, the politicians used power and changed the direction of the water flows towards the already deprived community and saved land and villages of the voters. In the relief process, those local politicians (MNA, MPA) involvement distracted the relief process intent division and other relief materials. By their references, they have sent tents and relief material to the community where even no flood and they declared as the flood-affected areas.

4.6 Satisfaction level by the community by the process of recovery and reconstruction

When the question asked about the satisfaction of the recovery and development process by the community member, the majority of the community member was less satisfied with the development activities done by the government. Only one respondent said that he is fully satisfied with the government initiatives as well as NGOs ' efforts in the recovery and development process. Respondent himself said that some of their family members were developed in duty during the flood relief and recovery process, which helped them to get/avail all the grants during that period which increased their level of satisfaction of recovery and development process. While two to three respondents said that they are satisfied as what government and NGO's did for the development and recovery purpose was good initiatives and they spend a lot. The missing part in all the recovery process was that they didn't plan much and didn't involve community about their needs. While the 30 percent are those which said they are less satisfied because they didn't receive enough products and assistant from the government and NGOs. The rest of more than 60 percent of the people were not satisfied its because they didn't receive any type of grants like the construction of a single room by NGO's, Shop products, cattle's and all the other things which others received. They were even much disappointed as

those who were not even affected by flood, they received a lot of grants even they were not eligible.

CHAPTER 5

CONCLUSION AND POLICY RECOMMENDATION

5.1 Conclusion

The present study focused upon the analysis of flood 2010 recovery and development process in district Rajanpur. The study focused that the local community of the district Rajanpur faced multiple problems after flood destroys the infrastructure roads, houses, agriculture production, business health, and education sector. The study is based on the primary data where the respondents were a community member and other officials. The affected community was satisfied with the relief and rescue operations. Even though the non-affected community also benefited by the early relief process.

After passing ten years of flood 2010 the recovery and development process in the whole district is still in process and in many sectors still, need the attention to be completed. The recovery process in the education sector is almost done by the different national and international non-profit organization even at the village level. The local community and school administration were happy with the recovery development to activate in the education sector. The enrolment ratio which drops in the initial years of the flood 2010 is then going high with the recovery of schools.

While talking about the health sector the major hospitals (BHU, Village Dispensaries) where damaged and one THQ (Jampur) were fully destroyed by floodwater. According to the official person of the hospital, he said that the THQ become functional after 6 months of the flood but for the recovery of machines and building no fund was allocated by the provincial and

federal government. On the other hand, many of the BHU's and RHU's were not functional after the flood.

Agriculture is a key economy for Pakistan, but in flood 2010 more than 80 percent of the cotton crop washed away in the district. For early relief, NGOs provide the flour, bean other edible products to household on a monthly bases. For the relief in the agriculture sector, the government of Punjab provides a package for the next wheat crop. The provision of seeds and fertilizer to the farmer having on the bases of the land. A 50kg packet of wheat crop seed and 1 packet of fertilizer was given against one acre of land acquisition. Besides these, the seeds for vegetables were also given to the formers. But we found structural inequality in it as tenants received nothing and all these packages went to the landowner. The benefits were also given to those which were not affected by the flood.

When talking about the overall infrastructure and road reconstruction, the Bunds which were affected by floods were reconstructed and the major road links to the cities were reconstructed over time by the yearly development funds. The roads in the small villages wouldn't reconstruct even after 9 years of the flood.

The community and the village level political worker said the politicians (MNA's, MPA;'s) influenced were found in the recovery and development process. Like in model village allocation of houses, provision of agriculture assistance, reconstruction of roads and bunds, and also the corruption factor was in the reconstruction of roads and bunds sewerage system expansion.

5.2 Policy Recommendation

As the in-depth study conducted in the flood affected and non-affected community and the major findings of the research, the following policy recommendation are concluded for further improvements and policy formulation in the different institution which are directly and indirectly linked with the recovery, reconstruction, and development of the affected community.

- Like many of the institutions, the government and non-profit organizations take part in the relief and recovery process. Their coordination was not appropriate and at the same time, two different institutions were working on the same activities in the relief process as well as recovery. NMDA/PDMA/DDMA needs to have a proper plan regarding the role and responsibility of different organization so that there will be no hurdle face if in case any disaster hit in the future. So coordination should be done before time.
- The district hit by both the riverine and hill torrent flood. The hill torrent hit each year and damage the crop. The land under the path of the hill torrent is crop only once in a year. According to the local community suggestion, the government and other institutions should construct small dams and storages so that they should crop twice a year.
- According to the majority of the respondent suggestions, instead of Wattan Card distribution. the government should compensate in the reconstruction of their home might be more helpful to them. In this case, the government should plan with the help of local community leaders to be a part of the planning process. Sometimes the higher authority is not well aware of the local dynamics of the area and they don't know the actual needs of the community.
- There was no infrastructure package introduced by the government in the recovery of damaged roads and buildings. And still in many rural areas flood-damaged roads were

not reconstructed after 9 years of post-flood. The government should allocate infrastructure funds for disaster-affected areas in the future so that the recovery process may be done right after the disaster-hit in any area.

- According to the community and experts of the districts that there was no transparent system in the recovery process of flood 2010. The influence of the political persons may affect the overall recovery process in the district in each damaged recovery sector. So the government and other transparency institution insure that the recovery and development activities are done on merit base and proper check-in the corruption factor.
- NDMA and the relevant institutions make software about flood and flood and other disaster and make it to the ground level like NDRA and BISP had, and update the record timely.
- Align each UC's record with the BISP data and update it. In this record, the source of income of the community member children and the land record should be mention. This record might be more helpful in relief and recovery activities in case any disaster hit in the area.
- The government should strictly ensure to follow up on the safety codes for reconstruction in the area where floods hit frequently.
- At village and union council level community participation has been properly institutionalized under the umbrella of National Disaster Management Authority but yet it has not been properly interpreted and internalized on the ground. The government should implement the policy in letter and spirit to ensure pre and post-disaster management activities on the grass-root level.

- The developed world is now moving towards mitigation and preparedness instead of spending a huge amount after the disaster. Even though NDMA is planning to do so, but only baselines and identification of site are done and no mitigatory measure are taken e.g. diverge the flow of hill torrent water from agricultural land and populated areas to the proper canals and then into the river, not even working to make small storage dams in the hilly areas, etc.

REFERENCES

1. ADPC. (2013). Integrating Disaster Risk Management into the Development Process. Disaster Risk Management Practitioner's Handbook Series. Bangkok.
2. Agarwal, S., Fulzele, T. U., & Aggarwal, G. (2014). Flood Recovery Management in Jammu And Kashmir: A Tool for Resilience, 6(3), 215–229.
3. Alabaster, O. (2011) Earthquake response plan vital: U.N. disaster risk expert. The Daily Star, October 24.
4. Arai, T. (2012). Rebuilding Pakistan in the Aftermath of the Floods: Disaster Relief as Conflict Prevention. *Journal of Peacebuilding and Development*, 7 (1).
5. Asgary, A., Anjum, M. I., & Azimi, N. (2012). Disaster recovery and business continuity after the 2010 flood in Pakistan: Case of small businesses. *International Journal of Disaster Risk Reduction*, 2(1), 46–56.
6. Baig, M.A., 2008. Floods and flood plains in Pakistan. In: 20th International Congress on Irrigation and Drainage, Lahore, Pakistan.
7. Bernard, H. R. (2006). *Research Methods in Anthropology: Qualitative and Quantitative Approaches*. Rowman Altamira, 2006 (Vol. 4).
8. Centre for Research on the Epidemiology of Disasters. (2013). Annual Disaster Statistical Review 2013, 1–50.
9. Data Book 2002. Data Book on Asian Natural Disasters in the 20th Century, Natural Disasters in India. Kobe: Asian Disaster Reduction Center.

10. Dilley, M., Chen, R. S., Deichmann, U., Lerner-Lam, A. L., Arnold, M., Agwe, J., Yetman, G. (2005). Natural Disaster Hotspots A Global Risk Analysis. The International Bank for Reconstruction and Development (Vol. 26).
11. FFC. (2010). Annual flood report 2010. Retrieved March 23, 2012,
12. Hashmi, H. N., Tallat, Q., Siddiqui, M., Ghumman, A. R., Kamal, A., & Mughal, R. (2012). A critical analysis of 2010 floods in Pakistan, 7(7), 1054–1067.
13. Herrmann, J., Red, A., & He, C. (2007). Disaster Response Planning & Preparedness:, 11–14.
14. IFRC, 2005. Pakistan: Floods. International Federation of Red Cross and Red Crescent Societies, Islamabad
15. Juren, G., & Khan, M. I. (2010). Preliminary Damage and Needs Assessment.
16. Kapucu, N., Liou, K. T. (2014). Disaster & development : Examining global issues and cases Chapter 1 Disasters and Development : Investigating an Integrated Framework.
17. Kervin, J, B (2004) Methods of Business Research, New York, Harper Collins Publisher Inc.
18. Khalid, M. S. Bin, & Shafiai, S. B. (2015). Flood Disaster Management in Malaysia: An Evaluation of the Effectiveness Flood Delivery System. International Journal of Social Science and Humanity, 5(4), 398–402.
19. Kielmann, K., Cataldo, F., & Seeley, J. (2012). Introduction to Qualitative Research Methodology: A Training Manual, produced with the support of the Department for International Development (DfiD), UK, under the Evidence for Action Research Programme Consortium on HIV Treatment and Care (2006-2011).

20. Kumar, R. (2011) *Research Methodology A Step-by-Step Guide for Beginners*. 3rd Edition. Sage, New Delhi.
21. Mouton, J. & Marais, H.C. (1996). *Basic concepts in the methodology of the social sciences*. Revised edition – fifth impression. Pretoria: HSRC.
22. Moatty A. (2015). *Pour une Géographie des reconstructions post-catastrophe : Risques, Sociétés et Territoires*, Paul Valéry University, University Montpellier.
23. OCHA (Office for the Coordination of Humanitarian Affairs) (2010) *Pakistan Floods Emergency Response Plan—Revision*.
24. Paterson, J. (2006). A note on georisk, sustainable development and law. *AIP Conference Proceedings*, 825(1), 67–78.
25. *Redefining Development- Summary and Main Findings*. Retrieved March 19, 2012,
26. Rubin, C. (1991) *Recovery from Disaster*. In T. Drabek and G. Hoetmer (eds.) *Emergency Management: Principles and Practices for Local Government*. International City Management Association, Washington, D.C
27. St. Cyr, J. F. (2005). *At Risk: Natural Hazards, People’s Vulnerability, and Disasters*. *Journal of Homeland Security and Emergency Management*, 2(2).
28. Tariq, M. A. U. R., & Van de Giesen, N. (2012). *Floods and flood management in Pakistan*. *Physics and Chemistry of the Earth*, 47–48(December 2012), 11–20.
29. UNISDR, 2013. *What is Disaster Risk Reduction*
30. UNISDR. (2011). *2011 Global Assessment report on Disaster Reduction Revealing: Risk*,

31. Vinet F. (2007). Approche institutionnelle et contraintes locales de la gestion du risque. Recherches sur le risque inondation en Languedoc-Roussillon, HDR, Paul-Valéry University, Montpellier.
32. WB, & GFDRR. (2012). Disaster risk management in South Asia: A regional overview. Retrieved October 6, 2013,
33. World Disasters Report (2003), International Federation of Red Cross and Red Crescent Societies, Geneva.

APPENDIX A

Districts Severely affected by flood 2010 (Rajanpur was hit by both hill torrent and Indus river water)

Sindh	Punjab	Khyber-Pakhtunkhwa	Balochistan
Jacobabad	Muzaffargarh	Nowshera	Jaffarabad
Kashmore	DG Khan	Charsada	Nasirabad
Gotki	Rahim Yar Khan	Swat	Sibi
Qambar Shahdad Kot	Layyah	Kohistan	
Shikarpur	Rajanpur	Shangla	
Jamshoro	Bhakkar		
Thatta	Mianwali		
Dadu			

Maximum discharges of hill torrents during flood season (2010) D.G. Khan – Rajanpur area

S/N	Date	Hill Torrents	Max discharge (Cusecs)
1	22-7-2010	KAHA	80,000
2	22-7-2010	CHACHAR	35,000
3	05-8-2010	SANGHAR	76,500
4	05-8-2010	VIDOR	97,000
5	05-8-2010	SORI LUND	51,640
6	08-8-2010	VEHOWA	1,10,500
7	08-8-2010	KAURA	67,200
8	08-8-2010	MITHAWAN	61,900
	08-8-2010	Cumulative potential	2,39,600

Source; FFC.

INTERVIEW GUIDELINE

“ Affected Community”

- Was the area affected by the flood of 2010?
 - *Yes / No*
- What was your source of income before flood?
- Was flood affect your source of income ?
 - *What kind of damage caused by the flood to your business/ agriculture/house?*
 - i) *Partial , ii) half , iii) full , iv) no damage*
- What changes occur after flood?
 - *When house , and source of income damage*
- After flood government provide any compensation to reconstruct at your own place?
 - *If yes then how much amount if directly paid ? or any other material?*
- Any other institutions like NGO's and INGO's provided any assistance ?
 - *If yes then directly paid cash or any other supportive material ?*
- Have you received any wattan (ATM) card by Government?
 - *If yes then how much money you received total ?*
 - *How many times you received money ? the duration of the instalment you revived ?*
 - *For what purpose the amount was given ?*
 - *Have you spend that amount for reconstruction purpose or you spend that amount for other livelihood needs ?*
- Have you received any Agricultural assistant/package/subsidy ?
 - *If yes then how much assistance you received?*

- *For how many times you received that ?*
- *Is there subsidy given in pastises and crop rates and how many times ?*
- Is there any school and hospital damage by flood in your area ?
 - *Yes / No*
 - *Is yes then is there any reconstruction done by government ?*
- Are you satisfied by the process of recovery and reconstruction in the affected area?
 - i) *Non Satisfied , ii) Less Satisfied , iii) Satisfied, iv) Fully Satisfied*
- Recommendation by the community members (about reconstruction and development process).

“Non affected Community”

- Was the flood 2010 hit by this area?
 - *Yes / No*
- Is there any assistance given by the government in terms of flood recovery and development.
 - *If yes then how much like*
 - *Wattan card ? how many times they received instalment?*
 - *Agriculture relief in terms of pesticides and crop rates ?*
- Is there any hospital and school damage?
 - *Yes / No*
 - *Is yes then is there any reconstruction done by government ?*
- Was there any impact of flood 2010 in their business and daily life style ?
 - *Affect on their business ? if yes than what was that impact ?*
 - *Agriculture , health and education sector.*

- *What govt. and other institution done for these sector recovery and sustainability?*
- Are you satisfied by the process of recovery by the government and other institutions?
 - i) Non Satisfied , ii) Less Satisfied , iii) Satisfied, iv) Fully Satisfied*

“Education”

- Was flood damage the school building and other infrastructure ?
 - *i) Partial , ii) half , iii) full , iv) no damage*
- Was government allocate any fund for the reconstruction of damaged of infrastructure ?
 - *How many times/years government fund for reconstruction ?*
 - *Reconstruction completed ? or still damage part not complete yet ?*
 - *Any NGO's and INGO's provide any type of funding for reconstruction regarding infrastructure and environment of the school ?*
- How many years it takes to fully recovery of the school damages infrastructure ?
- Is there any new reconstruction done in school for future disaster related activities ?
 - *Extra Rooms construction for the shelter of community in case disaster hit in future ?*
- The enrolment of the student pre and post disaster?

“Health”

- Was the hospital damaged by flood 2010?
 - *Yes / No*
 - *What type of damage was caused by the flood 2010*
 - i) Partial , ii) half , iii) full , iv) no damage*

- How much government allocate funds for reconstruction?
- How much times it takes to provide for the full recovery of the damaged part of the hospital?
- The recovery status of the machinery damaged in flood 2010?
 - i) Partial recover , ii) full recovered, iii) Replace with new machinery , iv) no damage*
- Availability of the medicine after flood 2010?
- Government fulfil the provision of medicine after flood?
- Is there any other institutions provide any type of assistance in improvement of infrastructure and medicine provision ?
 - i) Directly give assistance ii) Indirect help*

“Agriculture”

- Was government provided any subsidies for agricultural damages ?
 - *Crop purchase rates?*
 - *Seeds at lower price for next crop?*
 - *Electricity prices for farmers ?*
- Was there any other intuitions provide any type of direct or indirect assistance for recovery process ?
- Packages provision by the government and how many times they provide ?
 - *Provision of free Pesticides to the farmers*

“Politicians”

- The hurdle they faced during the period of recovery and reconstruction

- How you can be improved the or mitigate these hurdle in reconstruction process?
- What you have learn from the flood 2010 recovery process ?
- What will you do in case of any disaster hit in future ?