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### ANALYZING THE LONG-TERM IMPACTS OF THE 2010 SUPER FLOODS ON LOCAL COMMUNITIES OF KANDH KOT, SINDH

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#### ABSTRACT

The floods of 2010 declared as super floods because its results were more dangerous from the previous ones which resulted the damages of infrastructure, affected the human lives, become a cause of displacement for the local communities and many more. It was the first time in the history that country's GDP highly affected due to the floods based natural disaster. Besides, it had profound impacts on the health based issues like malaria, diarrhea, water borne diseases etc. On the other hand, it directly damaged the infrastructure like homes, education sector, hospitals, bridges and roads which showed the lack of transport facilitation and convenience had remained quit for the local community. There were majority of people who faced psychological issues because the helpless factor had emerged among them in the form of poor rescue and relief at that time. The floods were among the worst in the country's history which wreaking havoc in numerous provinces, including Sindh. The socio-economic impacts of the super floods of 2010 on district Kandh kot, Sindh are the main subject of this article. The area was heavily affected and the indigenous people became more vulnerable because of its geographic location and they had deprived from the clean water and sanitation, shelter, and loss of agricultural areas. Besides, the business setup of Kandh kot was also badly affected due to the floods and the stock of wheat and rice in flour mills completely washed away. The study looks the impacts on the infrastructure, economy, agriculture and the basic needs based thing of the indigenous people. The study shows major disruptions in livelihood, displacement of every individual of that area, and deterioration of public health and education system respectively. However, the long recovery process was also caused by the floods exacerbation of pre-existing vulnerabilities, such as poverty and limited access to essential services. The results emphasize the need for infrastructural resilience, catastrophic preparedness in flood prone areas.

**Keywords:** Floods of 2010, socio-economic impacts, displacement, geographical importance of Kandh kot, Sindh

#### Introduction

Flood has remained a common phenomenon from the previous long-lasting history of Pakistan. It became a cause behind the displacement of local population, made destructions in a way of living, damages the infrastructure based things and heavily affected the socio-economic conditions of the country as well as every individual too. The main causes of flooding are two in number, the one is high water which is related to the cyclone and resulted in coastal flooding as well. The other one is tidal wave which means the several-foot-high wall of water which also becomes a cause of flooding occurs and flows over the 40 to 100 miles (65 to 160 Kilometers) of coastline. As concerns of the impacts of flooding, the flood waters threaten lives and become a cause behind the inundation of property as well as business, destroy relationships, damage infrastructure and make it impossible to easily access the public services which are essential for every human being. It directly affects the socio-economic conditions of the people of rural areas due to the highly increase in unemployment, bad public health and the damage of the ecosystem as well (Manzoor, 2022).

In Pakistan, there were millions of people affected due to the super floods of 2010. Besides, the Sindh province was one the most affected area because the horrible type of disaster had occurred in that region. However, the Kandh kot was also badly affected. A large area of agriculture went under the water, along with the devastation of houses, businesses and farmland. Moreover, the devastation of crops and cattle's along with the displacement of thousands of residents were also affected and it resulted in a negative impact on the economy. The super floods of 2010 also brought the vulnerability to natural disasters and stressed the need to control flood water in a good way and to formulate the disaster response mechanism respectively (Ibid.1).

The history of Kandhkot, Sindh belongs to the time period of 'Talpur Dynasty' who ruled on that area from 1783-1843. Basically, 'Talpurs' are from the Baloch tribe who settled in Sindh and some areas of Punjab as well. His ancestor was 'Mir Talah Khan and after the invasion 'Nadir Shah' he came into Sindh, they were settled in northern Sindh and spoke the Sindhi language as well. At that time, the ally was formed by their ancestors and who had the confederation as well against the Kalhora Dynasty. Subsequently, they had mutual relations with the Kalhora and dynasty and they played a pivotal role to establish a turbulent Balochis who were living in Sindh. The war of Halani which was fought in 1783 after that the Talpurs came into power through defeated the Kalhora Dynasty. While they achieved a milestone at the time of Mughal Emperor Akbar Shah second who formed the 'Mir Fateh Ali Khan' as the Nawab of Sindh and issued a firman (Royal Decree) from the Talpur Dynasty in 1783 and the consensus was also developed between the two tribes. However, as Talpur Dynasty defeated the Kalhora Dynasty then in a minimum time the Britishers East India

Company overthrew him in 1843 under the command of General Charles James Napier (Nawaz, 2018).

Kandh kot is geographically significant in a way that it is an important transit hub that facilitates the trade and transportation between the two provinces namely Balochistan and Sindh. It is situated near the border of that region. The Kandhkot is ideal in a way because it connects with the Indus River which helps the local economy by irrigating crops and supporting agricultural based things. Moreover, the Kandhkot is very close to the Indus highways and it is really important because it helps to foster business ventures and market accessibility. Due to the important location it is also a crossroads of different cultures which brings a variety of customs and practices to the area. (Ibid.1) There are numerous researchers and scholars who have already analyzed the floods on national and provincial bases only. Hence, the one kind of study which is focused on the district Kandhkot and its rural areas like (villages), and Union Councils (UC's). In this article the perception of indigenous people and individuals has been investigated along with the primary data. Also, the secondary data has been analyzed from the reports, books, and articles to easily examine the long term effects of the 2010 flood on the local community of Kandh kot, Sindh.

Further, this article has not been only focused on the impacts based damages (like damages of livelihood, infrastructure) but also it has been focused on the displacement which emerged after the super floods of 2010. Moreover, the actual fact is that the loopholes in the management and they do not have a long term strategy which is the main reason behind their poor infrastructural development which cannot be easily denied. On the other hand, the factor of unconsciousness also has been investigated which is still emerging among the individuals.

## Literature Review

The super floods of 2010 had not only affected the indigenous people alone it also destroyed the infrastructure and livelihood based things due to the every individual of Kandhkot had already faced a deprivation and its effects had remained for the long term among the individuals. Meanwhile, the main reason behind the reviewing of literature is to find out the loopholes in the area of interest and easily examines the long-term socio-economic impacts of the super floods of 2010 on Kandh kot and also its aftermath challenges. Hence, the literature has been reviewed from different points of views.

In the article titled *"Floods and Flood Management and its Socio-Economic Impact on Pakistan: A Review of the Empirical Literature,"* writer Zaira Manzoor elaborates on the idea that socio-economic impacts were the main reason behind the whole inundation, such as human and ecological destruction. Moreover, she also defines the struggle of public and private institutions during the flood kind natural havoc. While, it is estimated that the whole nature of Pakistan's administration has relied on colonialism and a lack of judicial argumentation and it's also very helpful to get the full advantage from the mismanagement of policymakers, which is totally bad for the well-being of the people. Therefore, regarding the area of interest the basic reasons behind the impacts of the super floods of 2010 have been mentioned (Manzoor, 2022).

A report titled *"District Disaster Management Plan, District Kashmore "*, is issued by the district government and the writer of this report is 'Mr. Falak Nawaz' in this report she gave the plan to easily cope with the problems which are related to the natural disasters. Besides, she analyzes the all demographic and infrastructure measurement in this plan and defines the situation due to the indigenous people of district Kashmore, Sindh are still facing those kinds of problems. Moreover, in this plan the reasons have been elaborated which are becoming a hurdle behind the factors in the way of mitigation and rehabilitation process including the factor of unconsciousness have been also defined along with the facts and figures respectively (Nawaz, 2018).

'Daanish Mustafa' in his article titled *"Indus Basin Floods of 2010: Souring of a Faustian Bargain?"* He elaborates the floods in a way of decisions based which were taken for the flood management. Beside, his focus on the development which was taken under the Indus basin development program (IBDP) which was introduced in 1970's and then experimented in 1973 floods for first time. However, the developments which have been taken after independence became a part of this study. In Pakistan, the dilemma of the natural disaster related problems in a way floods rehabilitation process and its management system has remained unique in different contexts because the pressure on national as well as local institutions is the main reason behind it (Mustafa D, 2011).

Another strength of the article titled *"Climate change Impact Assessment, Flood Management, and Mitigation Strategies in Pakistan for Sustainable Future"*. In this research article, the writer 'Imran Khan' explores the post-flood situation in Pakistan along with the analyzing of socio-economic impacts on human beings. Because the super floods of 2010 have been counted as the worst floods ever due to the fact that every individual is still facing the socio-economic problem. He also explains the plans and its implementations which are under the state. However, the vulnerability which emerge after the flooding has still remained a very challengeable for the institutions as well that's why they trying to rehabilitate those victims as soon as possible but from this article it is observed that there is no kind of long-term strategy have to our institutions which from they get benefit easily (Imran Khan, 2011).

In the Journal titled *"Rehabilitating Agriculture and Promoting Food Security After the 2010 Pakistan Flood: Insights from the South Asian Experience"*, the writer 'Paul Dorosh' summarizes his journal in a way that shows how the population and livelihood based things have been affected due to the super floods of 2010 in Pakistan. As well as, he also emphasized on the recovery pattern on market level and suggested the needs of a strong institutional framework with the help of "the Pakistan Poverty Alleviation Fund (PPAF) and "Benazir Income Support Program" (Dorosh, 2010).

The report titled *"Pakistan 2010 Flood: Causes and Lessons Learned"* by Oxfam. The writer, Syed Sajidin Hussain, defined his study in a way to estimate the causes and lessons that have been learned from the 2010 super flood. Because damages due to the super floods of 2010 have surpassed all the previous records that were associated with different catastrophic disasters in Pakistan, There are almost all the small farmers and agricultural laborers who were mostly affected, including most of them suffering due to the highest level of poverty and some extent of insecurity among all the provinces of Pakistan (Punjab, Sindh, Khyber-Pakhtunkhwa, and Balochistan). Moreover, the middle class has also been affected by the status of food insecurity, and women's vulnerabilities were also increased due to the devastating flood disaster, and they largely became dependent on men. However, different kinds of sources have been highlighted, such as the basic way of source related to livelihood, like goods, services, and tolls, which have already perished (Hussain S. S., 2015).

In the book *"Adaptive Governance of Disasters: Droughts and Floods in Rural Areas"*, the writer Margot A. Hulbert' proceeds his study in such a way that the intensity and measurement of climate change are changing, and the future road map of precipitation should be highly affected because the high temperature has occurred at an extreme level in the minimum time. Therefore, the average flood, which was estimated in this book by the writer, is actually a never-ending phenomenon, and it is not only harmful for society but also a huge disaster in terms of economic as well as

political measurement. Moreover, he further estimated that the losses to the economy as well as the social disorder have changed and have become harmful in the form of natural disasters (Hurlbert, 2018).

### **Research Question**

1. What are the long-lasting socio-economic and environmental impacts of the 2010 super floods on the local community of Kandh kot, Sindh?

### **Research Objective**

1. To analyze the long-lasting socio-economic impacts of the 2010 floods on the local community of Kandhkot kot, Sindh.

### **Research Methodology**

This study has been specified on Kandh kot Sindh. There are various academic literatures like reports, articles, and books which made a part of the discourse in this research. Besides, the socio-economic impacts of the super floods of 2010 and its aftermath challenges have been analyzed. The method of this study is exploratory in nature to acknowledge the questions and objectives in a good way.

### **Causes of Floods in Pakistan**

The main causes of flooding are two in number, the one is high water which is related to the cyclone and resulted in coastal flooding as well. The tidal wave means the several-foot-high wall of water which becomes a cause of flooding occurs and flows over the 40 to 100 miles (65 to 160 Kilometers) of coastline.

Moreover, the tsunami is another example due to the floods kind of natural disaster occurred. It is the most common type of wave, which from the wind should be easily driven that, is called wind waves. While, the wind waves generate at a large by using a stationary storm system which participates equally in the natural based disasters, and it also has a great potential due to the chances of increase in flooding becoming high along with the tidal wave.

As concerns of the impacts of flooding, the flood waters threaten lives and become a cause behind the inundation of property as well as business, destroy relationships, damage infrastructure and make it impossible to easily access the public services which are essential for every human being. It directly affects the socio-economic conditions of the people of rural areas due to the highly increase in unemployment, bad public health and the damage of the ecosystem as well (Manzoor, 2022).

### **Flood Management System in Pakistan**

Pakistan as a developing country has two approaches in a flood management system. From its independence, a country had faced different kinds of challenges till 1973 which was known as the time period of acknowledging the risks along with the specific limitations. On the other hand, the 1973 and onwards is also called the management of flooding physically. Moreover, the measurements which have been taken regarding

the floods along with the irrigation system and delve around the Indus River from the prehistoric time period. Besides, the overall system is based on the original networking of the irrigation canal which was developed under colonial rule and it starts from the canal which is known as Upper Bari Dab Canal in 1859 of the British time period.

Meanwhile, the colonial approach to flood management depended on the networks of *Bunds* (the linear levees along rivers and ring levees along cities), which the army could strategically breach when water approached flood stages. During periods of high water, barrages and cities with bunds were protected, but massive flooding would occur in breached areas and regions without protection from bunds. The general public had little influence on flood management, though public opinion in affected areas fell decidedly against risk acceptance. The bund system of flood management was carried forward after independence. (Mustafa D, 2011).

### **Ecological Environment of Kandh kot, Sindh**

The climate of Kandh kot which was recorded is 47 Celsius and 17 Celsius individually. There are three seasons which happen in Kandh kot, Sindh on annual bases. As a consequence, the month of January being the coldest month due to the quick falls in temperature all over the year. As far as rain, the season of rain starts from the month of December until the lasting period of three months. On the other hand, the month of March till May is a start of the spring season along with the thunderstorms and rain drops widely resulting in falling summer. Moreover, the largest season regarding the time duration consists of a four month season which starts from June and it ends in October as well. In this season, the chances of precipitation are high in an irregular manner along with the thunderstorms that result in the damages of infrastructure and livelihood as well (Mustafa D, 2011).

The livelihood of the indigenous people of Kandh kot, Sindh is based on agriculture with the help of farmers. Mostly, 54% of the population is dependent on agriculture and it is the main source of livelihood. Thereafter, the income of local people of that area is also based on the crop yielding and production as well. The overall agriculturist area of Kandh kot, Sindh is 261, 000 hectares which from the 107,000 area is cultivated. It means the overall cropped area is 131,000 hectares of land which results in 53,000 hectares of land covered one time in a year (Ibid.1).

### **The Long-Term Socio-Economic Impacts of 2010 Super Floods on Kandhkot, Sindh**

The super floods of 2010 in Sindh occurred because the country had experienced the unexpected heavy rains in the monsoon season which starts every year in the month of July till August. There are socio-economic conditions which were mostly impacted due to the super flood of 2010, here is the term 'socio' is refers to the societal based things like loss of precious lives, bad health facilities, issue of public transports, worst

communication system etc. while, the term 'economy' means the things which are related to the loss which was occurred regarding the economic based things such as, the infrastructural damages, the loss of precious lives, agricultural loss and many more (Imran Khan, 2011).

On the other hand, the erosion on the upper areas and poor construction of drainage systems was the part of the flood kind natural disasters. Its effects were more challenging for the country as well because of the recent earthquake of 2005 which took the precious lives of 3.5 million people. While, if it is compared to the international based disasters the 'Nargis Cyclone', which occurred in May, 2008, it was one of them due to the 2.3 million people lost their precious lives. Moreover, the super floods of 2010 became a cause of considerable economic loss. This carries the loss of non-agricultural business of about (\$0.3 billion) along with the loss of housing is (\$3.6 billion) and damages to the agricultural as well in the both rural and urban areas (Ibid.1).

At the time of super floods of 2010, the national as well as provincial institutions played a pivotal role with the help of UN agencies and Pakistan Army along with the national and provincial sectors to easily facilitate the victims. Approximately, there were different kinds of rescue operations taking place with the help of 20,000 troops and medical teams of Pakistan Army through using helicopters, boats and aircrafts respectively. Besides, the call services system was initiated in different regions for emergency calls. In different areas, there were engineers who were allocated on the embankments to easily handle the flood, measure the pressure of water and to help out the restore the barrier of communication and there was national authority that also played a vital role at the same time. According to the NDMA there were 1.4 million people rescued and distributed blankets of about 1.1 million along with the 180,035 tons of food related items. While the concept of 'Wattan Card' was developed at that time with the help of NADRA, the main aim of 'Witan Card' was to distribute the money to the needy people and 977,570 were distributed at that time (Ibid.2).

It was one kind of biggest challenge for the civil society and private sectors to respond quickly. Although, the response from the different international as well as national institutions was to rehabilitate those affected community as much as possible and it was also substantial. At some stage, there were both international as well national donors along with the government who participated and made efforts to rehabilitate those who were the real victims of the 2010 super floods. Moreover, the unit for basic care was established and the relief that was provided which contained kits of water purification, clean water, tents for shelters, items of kitchen and supply of medical based things. Besides, friendly based platforms were established by NGOs for females and children to easily interact with them (Ibid.3).



It is experienced that the natural kind of disasters had indulged and mostly affected the economic and social related factors as well. It also resulted in the heavily affected infrastructure, disturbed the precious lives and daily routine regarding health care. Flood was remained disruptive in a sense because there were many lives which were affected due to the super floods of 2010 alone. In the 20<sup>th</sup> century, it was one kind of natural disaster with 6.8 million deaths which broke all the previous records. However, after the super floods of 2010, the Asia was the most affected region in the previous 25 years (Ibid.4).

The super floods of 2010 were one of the most devastating floods in the history of Pakistan. (Chang, 2013). However, the Tory embankment, which is located Kandh kot, Sindh along with the Ghouspur embankment which was set off due to the bad disaster surrounding the large area in Northern Sindh, which also furnished many hundreds and thousands of shelters. (Stephaini, 2013). Approximately twenty million people were affected in the form of a loss of source of livelihood, and they were entered into a traumatic experience. That's why the flood of 2010 and its challenges were miserable for the people of rural areas of Kandhkot, Sindh. The reasons for the unfolding situation where the poor management, bad response from the policymakers, poor construction of embankments, and also the illegal migration on those embankments; this resulted in a heavy flood in 2010. After the super floods of 2010, local and national institutions faced different kinds of challenges to rehabilitate the local masses. There are different public and private institutions whose concern is to only rehabilitate the affected peoples and also to apply some kinds of tools to mitigate and easily highlight the evaluation of risk management. It is also a big deal due to the policymakers facing many difficulties in the way of mitigation of natural disasters on national as well as local level.

Furthermore, the policymakers of public and private institutions must have focused on the mitigation and it became helpful to strengthen the institutions for flood preparedness in the light of changing climate vulnerability. It was necessary for Pakistan to get help from the UN in the form of a relief and recovery process. However, the country required approximately \$1 billion for relief and recovery for the rehabilitation of the affected people. Besides, the super floods of 2010 had directly affected the GDP of a country which was 5.8 percent of total loss in the economy (Stephaini, 2013).

It has been estimated from the above study that the efforts which were taken by the concerned authorities in the form of rehabilitation process and mitigation was not enough. It also needs to take an approach on a multi-sect oral level for further developments. Because the super floods of 2010 not only affected the education of

that area but it also affected the agricultural and infrastructural based things as well. (Dorosh, 2023).

### **Conclusion**

The super floods of 2010 had profound and extensive impacts on district Kashmore@ Kandhkot, Sindh. It affected the socioeconomic structure of the region along with the damaged of infrastructure as well as environment. In district Kashmore@ Kandhkot, the socioeconomic fabric was severely disrupted by the super floods of 2010. Besides, the most destruction in crops caused enormous losses in agricultural area which also turned a sharp decline in household earnings. The quality of life was further worsened by infrastructure damage, which included the demolition of residences, places of worship, and medical institutions. Moreover, the floods had made unemployment and worsen poverty which put the indigenous people in long-term financial difficulties. The destruction inclined towards the vulnerabilities and urgent need of preparedness, implementation of the quick response through disclosing the fast recovery of vigorous infrastructure, well-organized strategy for emergency and feasible work for mitigation. Furthermore, the floods focused on the ability to the recovery process and make the local community remained resilient, but it also emphasized on the essential requirement of the national and local institutions to intervene in the mitigation process for the future risks. In order to safeguard vulnerable areas for the future natural disasters, the disaster was made clear and the indigenous people of the region had experienced all the worst conditions of floods, especially the super floods of 2010 which gave a way to how important it is to be prepared as well as the necessity of sustainable development techniques.

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