INTERNATIONAL JOURNAL OF SOCIAL SCIENCES BULLETIN
ISSN: (E) 3007-1917 (P) 3007-1909
Volume 3, Issue 9, 2025

EFFECTS OF FLOOD ON FOOD SECURITY AND LIVILIHOOD OF RURAL COMMUNITIES: A STUDY OF TEHSIL TAUNSA PAKISTAN

Sidra Hussain[1], Gulshan Ara[*2], Madieha Akram[3]

[1,*2]*Lecturer, Department of Sociology, The Women University Multan*
[3]*Assistant Professor, Department of Sociology, The Women University Multan*

[1]sidrakhan93@yahoo.com, [*2]gulshan.ara@wum.edu.pk

Corresponding Author: *
Gulshan Ara
DOI: https://doi.org/10.5281/zenodo.18385876

Received	Accepted	Published
28 July 2025	14 September 2025	27 September 2025

ABSTRACT

Pakistan met severe and enormous floods with overwhelming consequences for the country particularly in 2022. Tehsil Tounsa in District Dera Ghazi Khan is one of the chief flood-affected areas. The current study intended to comprehend how the flood has affected the food safety and livings of the rural residents. Researcher selected 384 individuals from flood-affected villages in Tehsil Tounsa. To collect data interview schedule was used. Data were analysed by using SPSS. Research findings emphasized the consequences of the flood on numerous aspects, including food safety and livings. Furthermore, the study stated that agriculture was an important income source for the area, but floods harshly impacted the natural possessions, such as land, orchards, livestock and irrigation, leading the population to depend on sanitization materials, especially for water. The disaster meaningfully set back the farmer's affluence, distressing their livelihoods for numerous years. To address the trials faced by rural societies in the outcome of floods, the study suggested integrating efforts between the public and private sectors, NGOs, and national and international funding agencies.

Keywords: *Flood, Food Security, Livelihood, Rural Community, Tehsil Taunsa, Pakistan*

INTRODUCTION

Floods, famines, cyclones and tornados are some main disasters . These natural tragedies are mainly influenced by adoptions of lifestyle, geographical places and risk contact. The world has confronted severe human mortalities and financial costs (Abbas et al 2017).

In the approaching age of 2050, human death is likely to assessed at double due to these accepted disasters. Worldwide, disasters are perceived to have one of the greatest overwhelming effects on financial development, livings, agriculture, and wellbeing, social and human life (Awudu & Wallace, 2007). Tragedies are said to be unexpected, accidental event that reasons numerous deaths and damages. Floods usually are the important reason of dead among humans and mostly the source of financial and social risks. Many accepted disasters in the ecosphere today result in important lost of live and possessions (Ahmad & Afzal, 2019).

These natural tragedies include floods, storms and storms, earthquakes and tornadoes. Tsunamis, wildfires, volcanic outbreaks and landslides are amongst the other usual forces that occasionally cause disasters. However, not all tragedies are produced by the natural forces (Devereux 2007). Flood is defined as an excess amount of water that overwhelms the terrestrial. When a bank is

dominated, the water feasts over the plain and generally develops a hazard to civilization leading to a great amount of damages and damage of lives (Ahmad, Afzal and Rauf, 2019). It is dangerous atmospheric event which can happen in areas restrained by a high degree of development or rural reserves (Week & Wizor 2020).

Floods are seeming as one of the highest tests to climate prediction by climate experts. Natural disasters like floods posture serious dangers to the nutrition security and way of lifespan of rural inhabitants all over the biosphere (Atanga & Tankpa, 2021). A significant worry for those with susceptibilities is the influence of floods on agricultural, food production, and obtainability to nutrient-rich nourishment due to the penalties of weather change, which are producing greater occurrence and concentration of extreme climate events (Garin & Cosby, 2015).

Floods are amongst the most critical natural tragedies in the modern era, outstanding other natural or human-induced dangers in terms of human wounded and property injury. As a result, weather scientists reflect floods to be a main obstacle to climate forecasting (Hossain, Rahman & Islam, 2016). Flood dangers are extreme one amongst metrological proceedings that generally happen in the areas branded by high degree of rural reserves or development. Inefficient and useless responses of adopted strategies and inadequate non-structural and mechanical measures are major reasons of loss of possessions and lives mainly due to flood proceedings (Bashir, Schilizzi & Pandit, 2013)

Climate change and dangerous weather events have terrible penalties on food supplies, imports, and financial factors (Ashraf, Iftikhar, Shahbaz, Khan & Luqman, 2013). Food security matters are mainly developing in the present era due to plain effects of flood dangers which often occur due to successive climate change. Insufficient supply of food, lack of admission and buying power of food all relate to food uncertainty phenomena (Khan, 2013).

Pakistan has been graded as the 5th most exaggerated country by weather change-related natural tragedies. Factors such as unpredictable rainfall, altering monsoon designs, and glacial tender have contributed to consecutive floods in unified rivers (NDMA, 2011). Between 1950 and 2014, Pakistan has experienced twenty-two important flood dangers. The 2010 flood tragedy was the most unadorned, touching 24 million people, abolishing two million acres of harvests, and causation projected increasing cost of $10 billion (Osbahr, Twyman, Adger, Thomas ,2010). Rural societies in many parts of the ecosphere face important difficulties curtailing from political variability, market instability, and climate change (Hashmi, 2023).

The area of Punjab was chiefly hard hit by this disaster. Hence, current study was directed in Southern Punjab, in Tehsil Taunsa. This area of study was selected due to its important exposure to the flood.

Objective of the Study

1. To find out the demographic characteristics of the respondents
2. To know the effects of floods on the livelihoods
3. To find out the relationship between flood and food security
4. To give recommendations in the light of study results for improvements of food security in rural areas

Research Questions:

1) How does flood effect on food security?
2) What are the effects of the flood on Livelihood?
3) What is the relationship between flood and food security?
4) How to solve food crisis in Pakistan?

Literature Review

Natural disasters have been increased in terms of prevalence and severity in recent years that is attributed to unstable climate patterns. Globally, Natural hazards have significant impact on human costs and intensify the economic losses for developing societies.(Shah et al,2022.Among all natural disasters, the floods are most impactful and prevalent causes of morbidity, mortality, consequences on property, infrastructure, livelihood, livestock, human lives, human health, the environment, cultural heritage, and economic activity. and substantial economic and social

threats to humans life .(Kreft et al,2021)The increasing frequency and intensity of floods in the developing countries had pose significant impact on agricultural production, food security, livelihoods, and the overall well-being of populations. To addressing these challenges at Global and national level a comprehensive strategies required that address the socio-economic factors and specific impacts of floods on multiple dimensions of food security. (WHO, 2018).In Pakistan, flood mainly affected Southern Punjab region due to low socio economic status. This region experiences severe flood disasters and challenges related to poverty, hunger and poor health. The farmers experienced losses in terms of wealth and food over the years. The researcher highlight the urgent need for intervention policies and emergency control initiatives to mitigate future risks interlinked with high levels of food insecurity due to regular floods in region. They concluded that family structure have significant impact on food security in the context of Pakistan society (Ahmed et al., 2022). Researches shown that Pakistan is a flood prone country in history that widespread flooding resulting in loss of lives, land, damage to property and infrastructure, agricultural crops loss. A study highlights the opportunities for implementing resilience in the context of natural disasters and identifies the barrier that creates hindrance in implementation to build resilience among people. The researcher highlight the importance of community engagement, proactive measures, social work , and policy measures in strengthening resilience to natural disasters in Pakistan(Ashraf,2021). In Pakistan, recurrent floods are resulting in damaging infrastructure, loss of life, and monetary harm. Researcher highlights the Current flood management practices for effective preparedness and disaster mitigation. Their study suggested the importance of collaboration among different organizations, government agencies, community and stakeholders to mitigate the influence of floods on people well being to enhance resilience.(Aslam,2018). Other study revealed that cost-benefit analysis are often applied to mitigation planning because of insufficient empirical evidence on impact of floods. Many Government and non-governmental sectors are transferring their all resources from production to rehabilitation practices and restoration which slow down the growth of Gross Domestic Product and Human Development Index.(Isik et al., 2019).Another study by Sardar et al,2016 studied the different threats to property destruction , harmless community consequences, floods, death, , and measures the impact of these disasters on country GDP growth for duration 1972–2013. The results of their study showed that GDP development and emergency prevention strategies reduce severity of flood hazards linked with it. Flood intensity in Pakistan indicates a lack of understanding previous flood experience concerning the flood economic growth connection and their analysis indicate that flood related threats pose a significant negative effect on the GDP performance. Due to Floods people face many challenges that is Property loss of people affects the healthcare system like it can damage the access of people to pure drinkable water by thus increasing the spread of waterborne diseases. The researcher highlight that health concerns are direct and indirect. The direct affects arising from deep water, flooding penetration resulting in hypothermia, environmental pollution, deaths and debris injury while Indirect effects are threats relevant to water disruption to natural environment that cause reproductive diseases, communicable diseases and obesity.(Manzoor et al;2022).In flood-affected areas of Pakistan region, the access to drugs and medical care is a central concern in the reformation of community health facilities. According to the WHO report flood in 2010s affected more than 20 million people well being who were homeless and minimum 8 million people urgent required humanitarian aid. The report showed that approximately 3000 clinics and almost 400 hospitals in flood areas had been affected and closed. Therefore it restricts the availability of daily healthcare for people. People face challenges in the availability of clean drinking water and standards of health were severely affected the risks of spread of waterborne diseases among children and old age people. Further, Specific health issues like skin diseases, tuberculosis, respiratory diseases starvation were utmost concern among people.(WHO, 2010). Natural disasters disrupt the normal routines of

people in everyday life and affects the different groups. These vulnerabilities encompass affects on multiple facets of society including social order, social structure, demographic scenario, cultural system, social processes, good governance, socialization, and women's empowerment.(Anwar,2008). Social impacts due to flood affects well-being of individuals, society and communities. It directly affects the literacy, basic human rights, justice system, education levels, information structures, safety, harmony, effective governance, social norms, responsibilities and structural approaches.

Research Design

Research methodology is the science of methods and techniques that provide road map and entire plan for conducting research and discuss different steps of scientific research(Sarantokas,1993).The study applied quantitative research design for evaluating and collecting data.

Population

The target population of this research was individuals residing in the rural regions of Tounsa Shareef.

Sampling Method

The researcher applied convenient sampling technique to collect data from the respondent in the rural areas of Tounsa Shareef .A total 384 respondent wereselected from easily accessible eight rural communities of taunsa shareef including Mohrotha, Kot Qaisarni, Toba Imam,Sokar, Tibi, Qaisarni, Retara, JaluWali,and Nutkani.

Method of Data Collection

To achieve the research objectives interviews was conducted by using interview schedule. The researcher evaluated the schedule by supervisor and experts before collecting the data. A pilot study was conducted on 37 respondents to determine the effectiveness of data collection tool.

Statistical Methods for Data Analysis

A Comprehensive descriptive analysis has been conducted for statistical analysis by using the SPSS v-20 version which is a widely used statistical tool in social sciences. Descriptive statistical analyses was carried out including the tabulated and frequency distribution of the data.

Data Analysis and Results

For Current study, researcher apply descriptive analysis done by SPSS in order to fulfil research objectives. Data was pre tested and researcher made necessary modifications in questionnaire.

IEER
Institute for Excellence in Education & Research

Results

Table 1 depicts the demographic profile of respondents.

Demographic Profile of respondents (n=384)

Variables	**Frequencies** (%)
Sex	
Man	69.0
Women	31.0
Age	
20-24year	20.3
25-30year	30.2
31-35year	40.4
More than 35year	9.1
Type of Family	
Nuclear family	42.2
joint family	57.8
Level of Education	
Illiterate	45

Primary	20
Middle	19
Metric/College	16
Father's Occupation	
Job	15.3
Business	25.8
Farmer	58.9

Table 1 represents that 265(69 %) were male while 119 (31 %) were female in the study. Further more, 78(20.3%) belongs to age group 20-24 while 116(30.2 %) belongs to age group 25-30, 115(40.4 %) were between 31-35 years of age and 35(9.1 %) were from age group more than 35 years. Findings confirmed that 162(42.2 %) live apart as nuclear family while 222(57.8 %) live in joint family system. 174(45 %) were illiterate, 78(20 %) primary pass, 73(19 %) middle and only 58(16 %) were those who did matric or attend college. Findings show that father's occupation of respondent were job holder 59(15.3 %), business man 99(25.8), Farmer 226(58.9).

Table 2: Descriptive analysis of flood and its consequences faced by respondents (n=384)

Sr No.	Flood related experience	Frequency	Percentage (%)
1	**Major cause of flooding in your area?**		
	Heavy Rainfall	145	37.8
	overflowing Rivers	131	34.1
	Climate change	76	19.8
	all of the above	32	8.3
2	**Who is responsible for protecting you from flood?**		
	Federal &Provincial Governments	150	39.1
	Village Committee Head Citizens	116	30.2
	Myself	83	21.6
	All of the above	35	9.1
3	**Do you face any property loss due to flood?**		
	Yes	206	53.6
	No	178	46.4
4	**Type of Financial loss due to flood?**		
	Cash payments	176	45.8
	Animal loss	158	41.1
	House brakeage	50	13.0
5	**Social Asset loss due to flood?**		
	Child Health	154	40.1
	children education	144	37.5
	Business loss	64	16.7
	any other	22	5.7
6	**Source of funding available in case of emergency?**		
	ER Funding (Emergency Relief Funding)	182	47.4

	FEMA (Federal Emergency Managements Agency)	118	30.7
	Other(s), specify:	84	21.9
7	**Major damage to natural assets in flood?**		
	Soil moisture retaining	158	41.1
	Soil water holding capacity	115	29.9
	Overall productivity	110	28.6
	Effects on food security due to flood?		
8	Infrastructure	148	38.5
	Croplands	175	45.6
	Livestock	61	15.9
09	**Environmental damage caused by floods?**		
	Soil and bank erosion	95	24.7
	Siltation or landslides	125	32.6
	Vegetation and pollutants	117	30.5
	All of the above	47	12.2

Above table (2) describes the experience of flood affected population in terms of financial, Social and natural losses.

According to the findings (37.8%) respondents describe the main cause of flood was Heavy Rainfall, (34.1%), of respondent's report overflowing River's while (19.8%) claim Climate change and only (8.3%) considered that all the factors mentioned above are the causes of flood.

Respondents were asked to mark who is responsible for their protection from flood? According to (39.1%) respondents Federal & Provincial Governments, while (30.2%) respondents Village Committee Head Citizens and only (21.6%) answered that they are responsible for protection. and 9.1% all of them are responsible for protection.

(53.6%) respondents mention that they face issues in property due to flood, while (46.4%) of respondent face no issue in their property due to flood.

(45.8%) respondents reported Cash payments loss, (87.0%) Animal loss and (13.0%0 were House brakeage. So, majority of respondents suffer from the Cash payments loss dure to flood.

Moreover, in terms of social assert loos (40.1%) respondents loss Child Health (37.5%) of loss education of their children, (16.7%) faced loss in Business and (5.7%) faced loss of any other type. So, majority of respondents observe major factor produced by flood was child health.

(47.4%) respondents answered that ER Funding (Emergency Relief Funding) was available in case of emergency while, (30.7%) rate FEMA (Federal Emergency Managements Agency) and (21.9%) were other type of funds. So, most of the of respondents argue that major source of funding is ER Funding (Emergency Relief Funding).

According to the table cited above, Major damage of natural assert in flood was (41.1%) Soil moisture retaining, (29.9%) Soil water and (28.6%) were Overall productivity. So, Soil moisture retaining was the major factor effected by flood.

(38.5%) of food security effects infrastructure, (45.6%) croplands, and (15.9%) livestock. So, majority of defendants perceive major factor affect were cropland.

Environmental damage caused by flood were (24.7%) Soil and bank erosion, (32.6%) siltation/landslides, (30.5%) vegetation and contaminants, and (2.2%) all the factors were responsible.

CONCLUSION

The current study focused on investigative the effects of floods on food security and livelihoods in rural communities in Tehsil Taunsa, Pakistan.

The study designates that floods have a overwhelming impact on the economic well-being of pastoral communities, impairing poverty and compromising food security. Floods have directed to the destruction of both financial as well as natural resources, that are crucial for upholding sustainable livelihoods. It is obvious that relying exclusively on their own activities will not be enough to achieve the resilience. Consequently, the participation of public and private sectors along with foreign investors has become crucial for applying long-term strategies. Current study also aimed to comprehend community base specific challenges and suggest recommendations for enhancing their resilience. Current quantitative approach permitted the research to grasp the effects of floods on food security and livelihoods. Policy involvements should prioritize supporting maintainable agricultural practices, improving infrastructure, and endorsing reasonable access to resources, especially for the most vulnerable groups. By doing so, it is possible to lessen the hostile effects of floods on rural communities' well-being and enhance their capacity to withstand future challenges.

Recommendation

Following recommendations were made to overcome the issue;

- Involvement of public and private sectors as well as foreign stockholders for enduring recovery actions.
- Compose context-specific policies to alleviate flood impacts, directing on education, social wealth, and land possession.
- Endorse education to improve resilience and effective use of existing resources.
- Reinforce land ownership rights to allow vulnerable groups and advance disaster preparedness.
- Spread income bases beyond agriculture to improve resilience against flood-related revenue loss.

References

Abbas, G., Ahmad, S., Ahmad, A., Nasim, W., Fatima, Z., Hussain, S., ... & Hoogenboom, G. (2017). Quantification the impacts of climate change and crop management on phenology of maize-based cropping system in Punjab, Pakistan. *Agricultural and Forest Meteorology*, *247*, 42-55.

Ahmad D, Afzal M (2019) Household vulnerability and resilience in flood hazards from disaster-prone areas of Punjab, Pakistan. Nat Hazards 99(1):337–354

Ahmad D, Afzal M, Rauf A (2019) Analysis of wheat farmers' risk perceptions and attitudes: evidence from Punjab, Pakistan. Nat Hazards 95(3):845–861

Ahmad, D., Shah, S. Z. A., & Afzal, M. (2022). Flood hazards vulnerability and risk of food security in Bait community flood-prone areas of Punjab Pakistan: In SDGs achievement threat. Environmental Science and Pollution Research, 29(59), 88663–88680.

Ashraf, S., Iftikhar, M., Shahbaz, B., Khan, G. A., & Luqman, M. (2013). IMPACTS OF FLOOD ON LIVELIHOODS AND FOOD SECURITY OF RURAL COMMUNITIES: A CASE STUDY OF SOUTHERN PUNJAB, PAKISTAN. *Pakistan Journal of Agricultural Sciences*, *50*(4).

Atanga, R. A., & Tankpa, V. (2021). Climate change, flood disaster risk and food security nexus in Northern Ghana. *Frontiers in Sustainable Food Systems*, *5*, 706721.

Awudu, A.; Wallace, H. Structural adjustment and economic efficiency of rice farmers in northern Ghana. *Econ. Dev Cult. Herit.* 2007, *48*, 503–520.

Bashir, M. K., Schilizzi, S., & Pandit, R. (2013). Impact of socio-economic characteristics of rural households on food security: The case of the Punjab, Pakistan. *Journal of Animal and Plant Sciences*, *23*(2), 611–618.

Devereux, S. (2007). The impact of droughts and floods on food security and policy options to alleviate negative effects. *Agricultural Economics*, *37*, 47-58.

Garin, E. & Cosby, J. (2015). The Impact of climate change on children: UNICEF, New York, Pp29.31.

Hashmi, R. S. (2023). Climate Change and Climate Induced Migration in Pakistan: A Threat to Human Security (The Study of RajanPur and Taunsa Sharif after Flood 2022). *Annals of Human and Social Sciences*, *4*(4), 378-394.

Hossain, M. N., Rahman, M. M., & Islam, K. (2016). Vulnerability of Agricultural Production due to Natural Disaster at MonglaUpazila (Sub District) in Bangladesh. *British Journal of Applied Science & Technology*,*16*(1).

Işık, C., Sirakaya-Turk, E., & Ongan, S. (2019). Testing the efficacy of the economic policy uncertainty index on tourism demand in USMCA: Theory and evidence. Tourism Economics, 26(8), 1344–1357. https://doi.org/10.1177/1354816619888346

Khan AN (2013) Analysis of 2010-flood causes, nature and magnitude in the Khyber Pakhtunkhwa. Pakistan Natural hazards 66(2):887–904

Kreft, C., Huber, R., Wuepper, D., & Finger, R. (2021). The role of non-cognitive skills in farmers' adoption of climate change mitigation measures. Ecological Economics, 189, 107169. https://doi.org/10.1016/j.ecolecon.2021.107169

Manzoor, Z., Ehsan, M., Khan, M. B., Manzoor, A., Akhter, M. M., Sohail, M. T., ... & Abioui, M. (2022). Floods and flood management and its socio-economic impact on Pakistan: A review of the empirical literature. Frontiers in Environmental Science, 10, 1021862. https://doi.org/10.3389/fenvs.2022.1021862

NDMA (2011) Annual Report 2010. National Disaster Management Authority, Islamabad

Osbahr H, Twyman C, Adger W, Thomas D (2010) Evaluating successful livelihood adaptation to climate variability and change in southern Africa. Ecol Soc 15(2):1–20

Sardar, A., Javed, S. A., & Amir-ud-Din, R. (2016). Natural disasters and economic growth in Pakistan: An enquiry into the floods related hazards' triad. Islamabad: Pakistan Institute of Development Economics.

Shah, A. A., Ajiang, C., Gong, Z., Khan, N. A., Ali, M., Ahmad, M., ... & Shahid, A. (2022). Reconnoitering school children vulnerability and its determinants: Evidence from flood disaster-hit rural communities of Pakistan. International Journal of Disaster Risk Reduction, 70, 102735. https://doi.org/10.1016/j.ijdrr.2021.102735

Usman, M., Ali, A., Baig, S. A., Radulescu, M., Abbas, A., & Akram, R. (2025). Food security in Punjab, Pakistan: rural views on climate disasters and their impacts. *Environment, Development and Sustainability*, 1-23.

Week, D. A., & Wizor, C. H. (2020). Effects of flood on food security, livelihood and socio-economic characteristics in the flood-prone areas of the core Niger Delta, Nigeria. *Asian Journal of Geographical Research*, *3*(1), 1-17.

World Health Organization. (2010). Pakistan: The health impact of the floods. Retrieved September 2010