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Socio-Economic Impacts Of Flood 2022 In Pakistan: A Case Study District Mianwali

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Abstract

This study highlights the socio-economic impacts of flood 2022 in Pakistan and case study district MianwaliUnprecedented monsoon rains and glacial melt caused Pakistan's 2022 floods, which devastated the entire nation and had serious socioeconomic effects. District Mianwali, the subject of this case study, sustained significant harm to its local economy, livelihoods, and infrastructure. Using primary and secondary data sources, such as field surveys, official reports, and interviews with locals, the study seeks to evaluate the immediate and long-term socioeconomic effects on the impacted population. The district's socioe-conomic stability was significantly hampered by agricultural losses, community displacement, the destruction of educational and medical facilities, and the disruption of transportation networks, according to key findings. Particularly at risk were daily wage jobs and agricultural-based livelihoods, which exacerbated poverty, food insecurity, and social dislocation.The catastrophe also revealed the shortcomings of regional systems for disaster response and preparation. To reduce the risks of future climate-induced disasters in vulnerable areas like Mianwali, this study emphasizes the critical need for integrated disaster management, climate-resilient infrastructure, and focused rehabilitation policies.

Specifically focusing on the Mianwali district, the article "Socio-economic Impacts of Flood 2022 in Pakistan: A Case Study of District Mianwali" explores the devastating effects of the devastating floods that occurred in Pakistan in 2022. In order to evaluate the short-term and long-term socioeconomic effects of the floods, the study uses a mixed-methods approach that includes both quantitative data and qualitative interviews.

According to research, the floods severely damaged livelihoods, agriculture, andinfrastructure, making poverty in the impacted areas worse. Family relocation, decreased agricultural productivity, and elevated health risks from waterborne illnesses are some of the main socioeconomic effects. The study emphasizes how susceptible the local population is to climate-related disasters, underscoring the necessity of efficient disaster management plans and recovery support networks. The study ends with suggestions for legislative measures like better infrastructure, community education initiatives, and sustainable farming methods that are meant to increase the district's resilience. The socioeconomic problems caused by climate change in Pakistan are better understood thanks to this case study, which also highlights the pressing need for all-encompassing solutions to lessen the effects of future floods.

Keywords: Climate Change**,** Factors, Socio-Economic, Vulnerability, Disaster, Flood, affects, District Mianwali, Resilience, (Pressure & Release (PAR) Model, Pakistan

Introduction

Among the disasters of a natural kind, the flood may be defined as the abnormal increase of the water level to such an extent that the previously dry land becomes flooded. The triggering factors may be flooded rivers, rainstorms, high surges and dam breaking among others. The epic magnitude and viciousness of floodwaters present a really high risk to buildings, houses, and farms, and many that are in floodplains are the ones that are most susceptible. Likewise, they pose significant risks to human lives, often leading to displacement, injuries, and even fatalities. Floods are one of the most harming and disastrous events as the new floods genuinely affect Pakistan. Floods generally cause an enormous loss of living souls, properties, cattle. It destroys the streets and other actual resources. Floods are one of the significant wellsprings of anthropological and natural annihilation. It influences financial circumstances, demolishes general well-being, creates joblessness, harms the biological system, and so on (Allaire, 2018; Parida, 2020). Right now, public, and confidential foundations are attempting to figure out and assess risk the board and change methodologies, including flood frameworks avoidance and advance alarms by urbanization examples and land use arranging viable directly following flood.

A significant explanation is land settlement and organization arrangement of our country Pakistan is pioneer in nature and shortages in judicial augmentation giving the chance or opportunity for flawed urbanization (Shafi et al., 2022). Be that as it may, policymakers face significant interruptions in the relief of cataclysmic events' consequences worldwide. Nations

having stable financial designs and static organizations have revealed lesser deaths and financial harms when contrasted or compared with agricultural nations (Anbarci et al., 2005; Kahn, 2005).

Disasters present serious dangers to the climate and advancement. The recurrence of cataclysmic events has enhanced during the world with the sum of catastrophes and impacted individuals having multiplied from 1990 to 2000 (UN-ESCAP, 2006). A significant causing component is environmental change which has made human and normal frameworks more defenceless against calamities because of its effects on these frameworks (Bernai, 2013, 2014a). One of the essential environmental limits is expanded precipitation and glacial mass softening impacted by ozone-depleting substances (GHGs) which brings about metropolitan and provincial flooding (Seneviratne et al., 2012; IPCC, 2014). The effects of these outrageous occasions are not similarly appropriated universally (Cardona et al., 2012). Emerging nations especially those in Asia are in danger of environmental change, and subsequently generally defenceless against flood debacles (Cruz, et al., 2007; Hijioka et al., 2014), essentially because of an absence of assets to adjust (socially, mechanically, and monetarily) to such calamities (Mirza, 2003; UNFCCC, 2007).

The most common natural disaster in the world is flooding. One country where it is an eternal strangeness is Pakistan. In any case, floods have become continuous and serious during the most recent decade because of climatic and non-climatic reasons. In 2009, Pakistan positioned 12th among nations generally defenceless against the effects of environmental change (IUCN, 2009), yet expected to be in 3rd position inside the next four years attributable to ceaseless floods in the advanced years (Kreft and Eckstein, 2013), which impacted enormous part of the unfortunate populace living in low flood fields. These disasters took many lives, obliterated many houses, harmed a large number of hectares of standing harvests, and caused immense populace removal (UN-OCHA, 2014). The area of Punjab has been hugely impacted in these years because of the absence of readiness, incapable early admonition framework, and belief that institutional limits should survey weakness.

Literature Review

The case study of Mianwali was chosen after the literature was reviewed to highlight all the socioeconomic factors that contributed to the flood in Pakistan in 2022. These consist of published and unpublished MPhil, PhD thesis, research papers, library books, and articles.

Loss of livelihoods is one of the most direct socioeconomic effects of flooding, particularly in rural communities like those in Mianwali. Degradation of soil, loss of livestock, and crop destruction plague the agricultural sector, which employs a sizable portion of the population. Floods have caused agricultural productivity to drop precipitously, forcing rural households to adopt unsustainable livelihood strategies and increasing their long-term economic vulnerability (Ali and Khan (2014).

Floods had a significant impact on the economy, revealed that crop fields in Mianwali were submerged, resulting in estimated agricultural losses of billions of rupees. Furthermore, local economies were disrupted by housing and road damage, which compelled many people to look for alternate sources of income (Ali and Babar, 2023).

During the 2022 floods, Pakistan was affected by monsoon rains that were amplified by climate change, and that poor infrastructure led to flooding flowing over its banks. About 33 million people in Pakistan were affected by the flooding and Mianwali was affected by heavy rain and flooding (Khan et al, 2023)

Displacement of communities was one of the floods' immediate socioeconomic effects. Showed that more than 100,000 people had been displaced in District Mianwali, resulting in the establishment of makeshift camps. The livelihoods of both the host and displaced communities were impacted, and local resources were put under stress (Rahman and Iqbal, (2023)

Families are frequently forced to relocate in search of safer living conditions after floods, which frequently cause widespread displacement. Research discovered that major flood events in Mianwali caused thousands of families to be displaced, resulting in overcrowded living conditions, heightened poverty, and a burden on urban infrastructure as displaced people move to cities in pursuit of employment (Ibrahim et al. 2018).

Health crises brought on by waterborne illnesses and mental health conditions resulting from trauma and displacement are exacerbated by flooding.Cholera and malaria are on the rise in flood-affected areas, which is made worse by inadequate sanitation and restricted access to medical care. The loss of life and property has also been linked to psychological effects in survivors, such as anxiety and depression (Qureshi et al. (2016).

Government play a vital role in recovery of flood affected areas, community’s demonstrated resilience in spite of the difficulties highlighted how government assistance and neighbourhood

organizations play a part in community recovery initiatives. Social media played a crucial role in helping, demonstrating the value of teamwork in disaster relief (Malik, 2023).

Flood severely affected the different Socio-economic impacts and after flood restoring socioeconomic stability requires long-term recovery plans to .talked about the need for Mianwali to adopt sustainable development methods in order to increase climate resilience. The authors promoted better disaster preparedness, modernized land-use planning, and infrastructure upgrades (Tariq et al. 2023)

In majority of rural areas, floods cause disruptions to educational services. Families may put short-term financial survival ahead of long-term educational objectives, and schools may sustain damage or be destroyed. In study writer claim that during floods, schools in Mianwali suffered severe infrastructure damage, which resulted in prolonged closures and a drop-in student enrolment and retention rates unable to recover without outside assistance (Malik (2019).

As per the study data analysis revealed about the economic resilience of Mianwali residents. Flooding has a cumulative economic impact that includes higher debt, lower household income, and a greater need for aid and remittances. Following floods, families frequently fell into poverty as a result of losing their assets and being unable to recover without outside assistance(Karro and Rahman's, 2017)

Pakistan government has put in place a number of disaster management plans, such as creating early warning systems and establishing the NDMA in 2007. Nonetheless, a number of studies, such as this one, point to difficulties in implementing disaster preparedness effectively, a lack of funding, and insufficient community participation (Sharif et al. (2021) and Anwar et al. 2020).

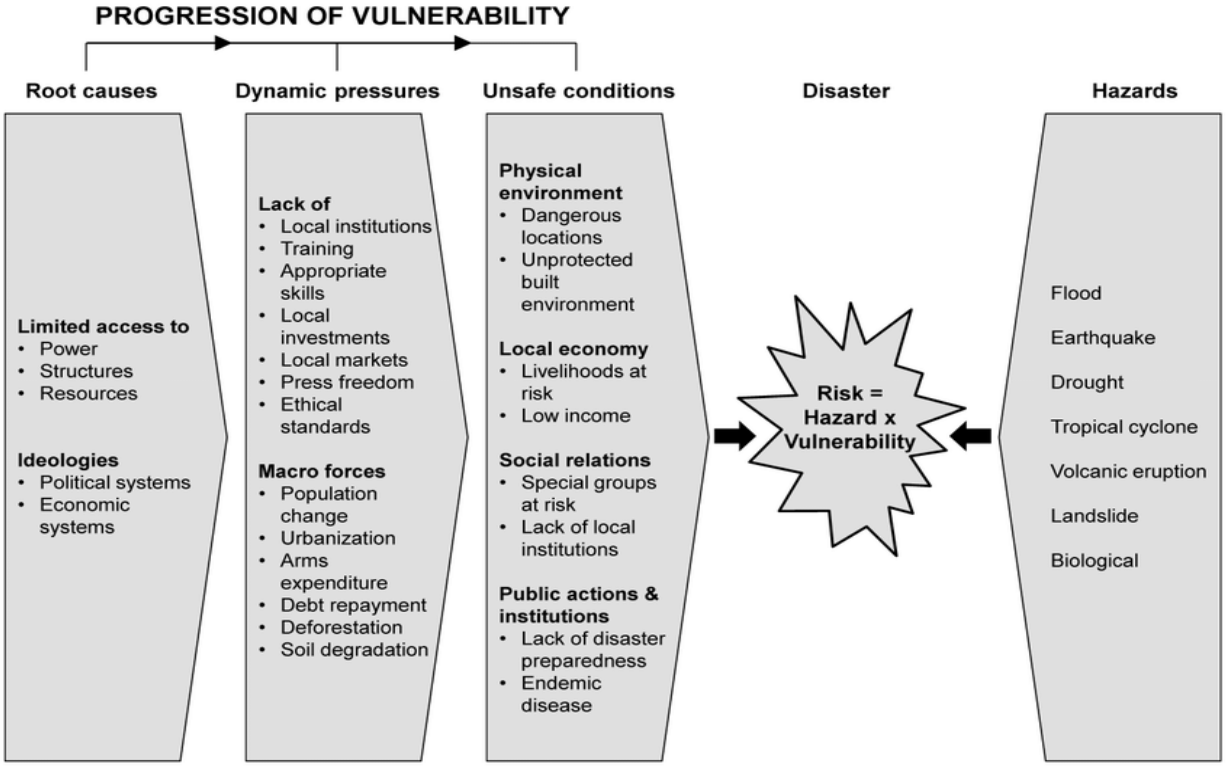
The significance of measures incorporating disaster risk reduction into developmental planning is emphasized in the more study and resource allocation is needed in Mianwali for localized adaptation like the creation of crops resistant to flooding. Numerous measures to improve climate resilience have been put forth to counteract the socioeconomic effects of flooding (Government of Pakistan &National Climate Change Policy, 2012).

Community-based initiatives have become essential for recovery and resilience. NGO interventions have demonstrated promise in supporting post-flooding recovery, including capacity building and the adoption of sustainable farming practices. Taking part in community-led programs promotes empowerment and a sense of ownership, which speeds up recovery (Khan et al., 2020).

Health facilities are severely damaged and increases in waterborne epidemics as noted, floods frequently result in health emergencies. Malnutrition brought on by food insecurity, mental health problems, and waterborne illnesses all increased in Mianwali. Public health issues were exacerbated by the inadequate health care infrastructure's inability to meet the rising demand (Zafar et al. 2023).

The Pressure and Release (PAR) Model

The Pressure and Release model, or PAR for short, helps us figure out why some places are more vulnerable to disasters and how we can reduce that risk. Basically, it says a disaster happens when two things collide: regular dangers and weak systems. Take the floods in Mianwali from 2022 as an example. There, the real exposure to risk and social stress came together, which is what led to the disaster. The PAR model has three main parts: underlying drivers, dynamic tensions, and dangerous conditions. The drivers focus on things like location and temporary issues, while dynamic tensions are about factors that make people more vulnerable. Risky conditions can be things like where you work or live, your financial situation, lack of preparedness, or dangerous jobs. This model highlights how vulnerability moves around, showing that disasters strike when lots of vulnerable folks face significant harm or disruption in their daily lives.



Source: Disaster Pressure and Release Model (adapted from Blaikie et al. 1994)

Social vulnerability framework

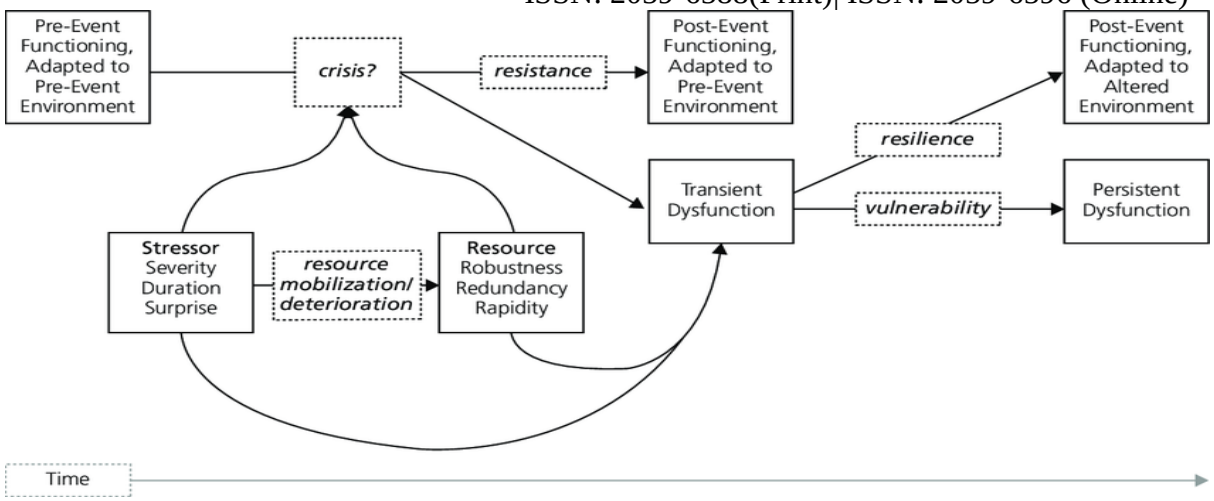
Vulnerability theory, a Latin term meaning "at risk to be injured," is used to understand various situations such as food uncertainty, disasters, destitution, and environmental change. It emphasizes the importance of vulnerability and the failure to manage changes caused by environmental change. In northern Pakistan, vulnerability is particularly relevant due to issues like neediness, political instability, and lack of political representation to address risks. The weakness hypothesis is used to break down social, monetary, and logical weaknesses caused by risk, such as medical conditions, food insecurity, and lack of adequate shelter. It also examines the degree of weakness and the impact of local flexibility on individuals. The theory is particularly relevant in this context, as many people are still struggling two years after a flood.

Community resilience framework

The study examines the impact of a catastrophic event on social and monetary systems, as well as among people, groups, and networks. Local community resilience is applied to understand the struggle of flood casualties to resist the repercussions of the flood and change in their lives. Local community resilience refers to the ability of a local area to absorb an unsettling influence while maintaining its fundamental capabilities. The study uses the local area resilience hypothesis to examine the cycles of transformation in a suitable manner. It explains the wellbeing and flexible limit of the impacted population based on balance, with four essential arrangements: flexible limits, financial turn of events, social capital, data and communication, and local area skill. These four arrangements are crucial in the examination

of experimental sections.

The model of local area resilience helps to analyze the pre-emergency circumstances and working of the impacted population, as well as the stressors, term, severity, and shock caused by the flood. It also examines individuals' responses and reactions towards the disaster regarding asset preparation, and the networks' underlying reaction to the emergency. Local area resilience is examined from various perspectives, including family and local context. The model also considers the interaction between social capital and weakness, as strength relies on the assets that show the increase or decline in weaknesses within groups. Networks or groups relying on deficient assets are more averse to environmental change due to their linkages, positions, and legitimate capabilities



Source: Norris et al. (2008)

In the third part, the model examines flood survivors' arrangements to modify their jobs, the on-going efforts to manage the damage, and the role of public and global assistance in rebuilding the network's foundation.

Research Method

The research method is based on both primary and secondary sources, such as books,articles, MPhil, PhD thesis, magazines, newspapers, journals, and the internet.

RESEARCH METHODOLOGY

In this research work quantitative method was used.

Quantitative Method

Primary data was collected through a structure questionnaire for analysed the socio-economic impacts of 2022 flood in Pakistan and case study would be selected district Mianwali.

Secondary Data

The secondary data were collected from books, research articles, newspapers, reports, M.Phil. &Ph.D. thesis, and electronic sources related socio-economic impacts of flood 2022 in Pakistan and case study was elected district Mianwali.

Universe and Sampling Frame

This study focuses on the District of Mianwali, which has a total population of 1,798,268 registered three tehsils. These tehsils are Mianwali, Piplan and Isa Khel. The population size for each tehsil is 879,289, 462,944 & 456,035 respectively. The information about the population

size and sampling frame can be found in Table 1 which shows information on the tehsils included in the study and the total population size of the sampling frame.

Table 1 Population of included Tehsils.

S. No.	Name of Tehsil	Population Size
1	Tehsil Mianwali City (N1)	879,289
2	Tehsil Piplan (N2)	462,944
3	Tehsil Isa Khel (N3)	456.035
4	**Total (N=n1+n2+n3)**	1, 798,268

Sample Size

Table 1 provides data indicated the overall population size in the sampling frame is $1,798,268$. To determine the appropriate sample size for the study, the Yamane Formula (1967) was used, with a confidence level of 95% and a margin of error of 5% (0.05) which is as under.

SIMPLIFIED FORMULA FOR PROPORTIONS: (TARO YAMANE)

Sample proportions have been used in the Taro Yamane formula. Yamane (1967:886) presents a simplified formulation to compute sample dimensions.

$$\mathrm{n} = \frac{N}{1 + N(e)^2}$$

where,

'n' is the sample size which has been calculated.

'N' is the population size which is $1,798,268$.

'e' is the sample marginal error which is 0.05.

$$n = \frac{1,798,268}{1 + 1{,}798{,}268(0.05)2}$$

$$n = \frac{1{,}798{,}268}{1 + 1{,}798{,}268(0.0025)}$$

$$n = \frac{1{,}798{,}268}{1 + 4496.67}$$

$$n = \frac{1{,}798{,}268}{4497.67}$$

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$$n = 399.82 \text{ Or } 400$$

Sampling Procedure

To select a representative sample from each tehsil mentioned in Table 2, proportional allocation formula was utilized.

Table 2 Detail of Sample Size

S. No	Name of Tehsil	Population Size	Proportionate Formula $n_i = \frac{N1}{N_i} \times n_i$	Sample Size in Rounded Values	Proportionate Sample Size
1.	Tehsil Mianwali (N_1)	879,289	$\frac{879,289}{1,798,268} x400 = 196.24$	196	n_1=196
2.	Tehsil Piplan (N_2)	462,944	$\frac{462,944}{1,798,268} x400 = 102.97$	102	n_2= 102
3.	Tehsil Isa Khel (N_3)	456,035	$\frac{456,035}{1,798,268} x400 = 101.43$	101	n_3= 101
Total (*N=n_1+n_2+n_3*)				400	

Thus, a total of 400 households were taken from the three tehsils of District Mianwali.

Socio-Economic Impacts of Flood 2022

Flooding can have disastrous results, including fatalities; population displacement, infrastructure destruction, and adverse economic effects. Communities all across the world have been known to experience major socioeconomic effects from floods. The death toll and injuries sustained during a flood event are among the most obvious effects of floods. Drowning's and other fatalities may result from people being carried away by the swiftly flowing waters. Injuries may also happen when people are trapped in their homes or cars or attempt to flee the floodwaters (Adebimpe Babajide Ogun, et al., 2019.

Because homes and communities are destroyed or made uninhabitable, floods also frequently cause population displacement. Numerous issues may result from this, such as shelter overcrowding, limited access to essentials, and mental health disorders brought on by the trauma of losing one's home. Roads, bridges, buildings, utilities, and other infrastructure can all sustain damage from flooding (Barry E. Hokanson, 2017). In addition to interrupting services and upsetting transportation networks, this may necessitate expensive repairs and reconstruction. Floods can have significant effects on the economy. Companies may be compelled to shut down either permanently or temporarily, which would result in job and income losses. It can have a serious impact on agriculture, killing livestock and destroying crops. Reduced productivity and

higher recovery-related expenses can have a negative impact on a region's economy as a whole (Ioan Fazey, 2010).

Table 3. Responses about the socio-economic impacts of flood 2022 in Pakistan &variable of the total respondents (n=400)

Table-3 Floods-2022 Effects on Infrastructure

S.No	Flood-2022 damaged	Frequency	Percentage
1	**Toilet Facilities**	245	61.25
2	**Sanitation Facilities**	315	78.75
3	**Main Road**		
a	Severely damaged	191	47.75
b	Partly damaged	147	36.75
c	Not damaged	62	15.5
Total		400	100
4	**Electricity**		
a	Severely damaged	325	81 .25
b	Partly damaged	65	16.25
c	Not damaged	10	2.5
Total		400	100
5	**Water supply**		
a	Severely damaged	175	43.75
b	Partly damaged	174	43.5
c	Not damaged	51	12.75
Total		400	100
6	**Streets**		
a	Severely damaged	117	29.25
b	Partly damaged	210	52 .5
c	Not damaged	73	18.75
Total		400	100
7	**Schools**		
a	Severely damaged	98	24.5
b	Partly damaged	177	44.5
c	Not damaged	125	31.25
Total		400	100
8	**Health centres**		
a	Severely damaged	37	9.25
b	Partly damaged	137	34.25
c	Not damaged	149	37.25
d	Don’t know	77	19.25
Total		400	100
8	**Business**		
a	Severely damaged	42	10.5
b	Partly damaged	199	49.75

c	Not damaged	159	39.75
Total		400	100
9	**Mosques**		
a	Severely damaged	99	24.75
b	Partly damaged	179	47.25
c	Not damaged	122	30.5
Total		400	100
10	**Farmland**		
a	Severely damaged	161	40.25
b	Partly damaged	138	34.5
c	Not damaged	101	25.25
Total		400	100

Source: Survey, 2025

Explanation with respect to Toilet Facilities

According to data analysis revealed that toilet facilities suffered severe damage during the 2022 floods; 245 cases of damage were reported, or 61.25% of all cases.

Explanation with respect to Sanitation Facilities

During the 2022 floods, 315 sanitation facilities or 78.75% of the impacted infrastructure in the surveyed area were damaged.

Explanation with respect to Main Road

The information about the state of the main road after the flood of 2022 shows that 191 (47.75%) of 400 respondents said the main road was extremely damaged, 147 respondents (36.75%) said it was partially damaged, and, lastly 62 respondents (15.5%) said the main road was definitely not damaged. The data shows that a large percentage of the infrastructure was damaged at any level, including extreme.

Explanation with respect to Electricity

According to data analysis out of the 400 cases, electricity infrastructure was severely damaged in 325 (81.25% of total cases). It was partly damaged in 65 cases (16.25%) and in 10 (2.5%) the electricity system had no damage.

Explanation with respect to water supply

Among the 400 respondents, 175 (43.75%) indicated that the flooding caused the water supply to be critically damaged. Another 174 individuals (43.5%) indicated that the water supply was partially damaged. Meanwhile, 51 respondents (12.75%) indicated that the water supply was not damaged.

Explanation with respect to streets

Data shows that of the 400 respondents, 29.25% (117 respondents) reported the streets were severely damaged by the floods, 52.5% (210 respondents) reported the streets were partly damaged, and only 18.75% (73 respondents) reported that the streets were not damaged at all.

Explanation with respect to schools

Data indicated that out of the 400 schools that were evaluated, 98 (24.5%) were determined to have significant damage. While 125 schools (31.25%) were not impacted by the damage, a greater percentage, 177 schools (44.5%), were partially damaged.

Explanation with respect to Health centres

Among 400 health centres, 37 (9.25%) were reported as severely damaged, and 137 (34.25%) were reported as partly damaged. In total, 149 health centres (37.25%) reported no damage and respondents reported they were unsure on the condition of 77 health centres, which was equal to 19.25% of the total.

Explanation with respect to Business

The data analysis tell us that Forty-two (10.5%) of the 400 businesses that were surveyed were said to be seriously damaged. 199 businesses, or 49.75 percent of the total, suffered partial damage. In contrast, 159 companies (39.75%) suffered no damage at all.

Explanation with respect to Mosques

Regarding information 99 mosques (24.75%) out of the 400 mosques evaluated suffered significant damage as a result of the calamity. A higher percentage of mosques 179 or 47.25% were partially damaged. In the meantime, 122 mosques (30.5%) were unharmed.

Explanation with respect to Farmland

The damage evaluation of the farmland indicates that, from a total of 400 cases, there were 161 farmlands severely damaged (40.25% of the total), 138 farmlands partly damaged (34.5%), and 101 farmlands undamaged (25.25%).

AgricultureDamaged

In Table 3total sampled households, 90%, which is 360 households, reported suffering damage to their agriculture, while the other 10%, totalling 40 households, also reported some form of agricultural damage.

Table 4AgricultureDamaged

S.No	Agriculture Damaged to Sampled HHs	Number	Frequency
1	Yes	360	90%
2	Yes	40	10%

Source: Survey, 2025

Crop Damaged

As shown by the table, the breakdown of crops is based on the frequencies for each type. Out of a 400 total entries, vegetables constitute 95 entries, which is 23.75% of the total. Wheat is cultivated in 37 cases, making 9.25% of the total. Fodder crops form 55 entries or 13.75% of the total. Cash crops have a greater proportion than the rest, with 101 entries making up 25.25%. The "Other crop" category has most entries with 112 crops which represents 28% of the total. All these add up to 100% showing how our data is well-rounded with crop types.

Table 5Crop Damaged

Type	Number	Frequency
Vegetables	95	23.75%
Wheat	37	9.25%
Fodder	55	13.75%
Cash Crop	101	25.25%
Other Crop	112	28%
Total	400	100%

Source: Survey, 2025

Livestock Sector Damaged

According to data revealed that out of 400 livestock cases evaluated, 156 cases (39%) were for damage to poultry alone. Damage to multiple cow, buffalo, goat, and poultry was noted in 124 cases (31%). Cow, buffalo, and goat damage was present in 48 instances (12%), and damage to cow and buffalo alone was seen in 60 cases (15%). Interestingly, 12 cases (3%) registered no damage to livestock.

Table 6 Livestock Sector Damaged

S.No	Livestock type Damaged	Number	Frequency
1	Cow & Buffalo	60	15%
2	Cow, Buffalo & Goat	48	12%
3	Cow, Buffalo Goat & Poultry	124	31%
4	Poultry	156	39%
5	No Damage	12	3%
Total		400	100%

Source: Survey, 2025

After the flood, 400 individuals reported a decline in income. The majority, 207 individuals (50.9%), reported a decline in income of 400,000 to 600,000. Fewer, 135 individuals (33.9%), reported a decline in income of 800,000 to 1,000,000. Moreover, 35 individuals (8.7%) reported a decline in income of 1,200,000 to 1,400,000, and 23 individuals (5.75%) reported the maximum impact, i.e., income decrease of 1,600,000 to 1,800,000.

Table 7 Net Yearly Income Before & After Flood

		Frequency	Percentage	Decrease income afterFlood
Valid	400000-600000	207	50.9	200000
	800000-1000000	135	33.9	400000
	1200000-1400000	35	8.7	800000
	1600000-1800000	23	5.75	1200000
	Total	400	100	

Source: Survey, 2025

Spreading of Epidemics after floods-2022

Floods always bring diseases or epidemics in the affected area. The common diseases associated with floods are diarrhea, scabies, malaria and cough. The responses to the survey indicate that communities that have experienced flooding have undergone a variety of different epidemics, of the 400 respondents, 282 (70.5%) reported suffering from diarrhea, and 305 (76.25%) coughing-related illness (such as cold, flu, etc). Malaria was the most common, with 325 individuals

identified with malaria (81.25%). Moreover, 113 (28.25%) had measles, and 298 (74.5%) had scabies. Obviously, there was a major outbreak of diverse health problems following the disaster.

Table No.8 **Spreading of Epidemics after floods-2022**

S.No	Epidemics faced	Frequency	Percentage
1	Diarrhea	282	70.5
2	Cough	305	76 .25
3	Malaria	325	81.25
4	Measles	113	28.25
5	Scabies	298	74.5

Source: Survey, 2025

Effects of floods-2022 to Agriculture land

The reports regarding the impact of the floods of 2022 on agricultural land had a range of responses for the respondents, of the total number of 356 respondents, only 3 respondents (0.84%) reported an increase in land under agricultural crops; in contrast, 135 respondents (37.92%) reported a reduction in the area under agricultural crops, while 218 respondents (61.23%) reported no effect on the agricultural land.In terms of the reason for the change in farmland area, the majority, 108 respondents (77.14%), pointed to flooding as a reason. 24 respondents (17.14%) cited flooding and soil erosion as the reason for the change; 8 respondents (5.71%) pointed to erosion and deforestation as an explanation.

Table No 9 **Effects of floods-2022 to Agriculture land**

S.No		Frequency	Percentage
1	Land under agriculture crops after floods-2022		
a	Increased	3	.84
b	Decreased	135	37.92
c	No effect	218	61.23
	Total	356	100
2	Causes of increase/decrease to farms-land in the area?		
a	Flooding	108	77.14
b	Flooding and soil erosion	24	17.14
c	Erosion and deforestation	8	5.71

Source: Survey, 2025

Effects on livelihood

The data indicated that many respondents 296 in total or 72.75% indicated that the floods in 2022 affected their livelihood pretty severely. Of these, 147 respondents (36.75%) indicated damage to their sources of livelihood was complete, while 235 respondents (58.75%) indicated damage to their sources of livelihood was partial. Only 109 respondents (27.25%) were able to believe that they had the capability of rebuilding their sources of livelihood, and even fewer, 87 respondents (24.25%) were able to believe they had the capability of doing so alone. It is interesting that only 71 respondents (17.75%) indicated that any assistance had been provided to them from credit agencies. 158 respondents (39.5%) felt that their current situation is better than before the floods. However, a majority of 285 respondents (71.25%) felt they could not rebuild their sources of livelihood without any assistance whatsoever. Nearly all the respondents expressed a need for new sources of livelihoods (305 respondents (76.25%)), indicating that this disaster has had a long term impact on their capacity to recover economically.

Table No 10 Effects on livelihood

S.No		Frequency	Percentage
I	Floods-2022 has severely affected your livelihood	296	72.75
2	Your livelihood sources are completely damaged	147	36.75
3	Your livelihood sources are damaged partly	235	58.75
4	You have enough resources to rebuild your livelihood	109	27.25
5	You have capabilities to rebuilt livelihood sources	87	24.25
6	You got help from credit agencies	71	17.75
7	Do you feel better than the position of pre-floods-2022	158	39.5
8	Livelihood sources cannot be rebuilt without external	285	71.25
9	You need new livelihood sources	305	76.25

Source: Survey, 2025

Fundamental Causes of Floods Vulnerability

The data discloses various limiting factors that lead to the flood vulnerability of respondents. From the total of 400 respondents surveyed, 16 (4%) reported living in a flood prone area, which posed a concern for their vulnerability. The largest segment of respondents, 160 in total (40%) stated that reliance on agriculture, which is a common livelihood choice and prone to flooding, contributed to their vulnerability. Poverty was clearly identified by 44 respondents (11%) of

flood vulnerable individuals. Additionally, 60 respondents (15%) reported being close to the Indus River, which increases flood risk while another 60 individuals (15%) reported having no secondary occupation, increasing their vulnerability. A total of 60 respondents (15%) noted both poverty, and absence alternative occupation or revenue source as a contributing factor. These results suggest that reliance of agriculture, and lack of diversified economic sustenance increases flood vulnerability.

Table 11**Fundamental Causes of Floods Vulnerability**

S,No	Causes of Flood Vulnerability	Number	Percentage
1	Living in Prone Area	16	4%
2	Relying on Agriculture	160	40%
3	Poverty	44	11%
4	Nearness to Indus River	60	15%
5	No Secondary Occupation	60	15%
6	Poverty and NoAlternative Occupation	60	15%
Total		400	100%

Source: Survey, 2025

Conclusion

In conclusion, the District ofMianwali in Pakistan suffered greatly from the socioeconomic effects of the 2022 floods. The local economy has been severely disrupted as a result of the extensive damage to livelihoods, agriculture, and infrastructure. The community's pre-existing vulnerabilities have been made worse by the fact that many families experienced income loss, displacement, and reduced access to necessary services. Furthermore, it is impossible to overstate the psychological toll that such a disaster takes on people and families, who struggle with the trauma of loss and future uncertainty.In order to lessen the effects of future flooding, better disaster preparedness and resilient infrastructure are essential, as demonstrated by the response to this crisis.

To increase the region's resilience, investments in sustainable agricultural methods, early warningsystems and community education are crucial. In order for impacted populations to rebuild their lives and regain a sense of stability, government policies and assistance must also be directed toward rehabilitation and recovery initiatives. All things considered, the socioeconomic effects of the floods in Mianwali in 2022 highlight the complex connection

between environmental problems and socioeconomic stability, urging a thorough approach to disaster management that puts the welfare of impacted communities first.

The results showed that floods are a growing and quickly expanding field of study. Extreme flooding in 2010 and, more recently, the 2022 monsoon flooding have spurred more research on flooding in Pakistan and research area District Mianwali. The 2022 flood affected the socio-economic impacts like income, **Employment and Occupation, Housing & living condition, health**, education, infrastructure, agriculture, cattle

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