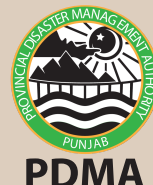




District Disaster Management Plan District Muzaffargarh

(July 2018 - June 2023)



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Authors:

Mr. Falak Nawaz and Muhammad Asif; Network of Disaster Management Practitioners (NDMP), Pvt. Ltd. Islamabad.

Supervised by:

Mr. Naeem Iqbal; United Nations Development Programme (UNDP), Islamabad.

Reviewed by:

NDMA, PDMA Punjab and BDRP Members (FAO, WFP, UNDP and Concern Worldwide led Consortium).

District Focal Persons:

Mr. Muhammad Saif Anwar Jappa, Deputy Commissioner, District Muzaffargarh.

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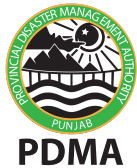
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Message

Since establishment, the Provincial Disaster Management Authority (PDMA) Punjab, has been making all efforts to bring changes in people's mindset towards disaster management from event triggered reactive mode to proactive preparedness based approach. One leap forward in this context is PDMA Punjab's efforts towards disaster risk reduction to bring into its fold the financial institutions, United Nations and I/NGOs to ultimately build culture of mitigation and preparedness besides building effective emergency response capacity of all related stakeholders.

It is quite heartening to know that District Disaster Management Plan for Muzaffargarh has been prepared under "Building Disaster Resilience in Pakistan (BDRP) programme with the financial assistance of UK-DFID through UNDP Pakistan. At this point, I would like to congratulate and appreciate the good efforts of District Government Muzaffargarh who has taken lead in developing much needed District Disaster Management Plan (DDMP). I understand that this DDMP has been developed based on detailed and thorough consultations and validation with both District and Tehsil level Government and Non-Government stakeholders. Credit needs to be given to all those who took part in plan preparation process and gave away their very active and positive inputs. I would like to add here that the Government of Punjab is committed fully in the promotion of culture of resilience, safety and security of its citizens. I am certain that this plan will surely contribute very effectively in the noble pursuit of achieving resilience at the level of District Muzaffargarh and shall always be taken as the first pioneering step towards District Muzaffargarh resilience building.

Mr. Muddasir Waheed Malik

Director General,
Provincial Disaster Management Authority, Punjab
Government of Punjab

Message

With the promulgation of the National Disaster Management Act 2010 in the country, like other Districts, the Disaster Management Authority (DDMA) has been established in District Muzaffargarh. To fully strengthen and functionalize the DDMA and disaster management system in the District, a District level disaster management plan was required to provide strategic direction to the District Government for pooling the resources and joining coordinated efforts to enable DDMA to prepare for any type of imminent threat.

In this regards, it is of immense pleasure to present the District Disaster Management Plan (DDMP) which has prepared after eight months of thorough meetings, consultations and validation with number of stakeholders including federal, Provincial Government Departments, District administration, UN, I/NGOs and civil society organizations working at community level. The extensive participation of all stakeholders is well appreciated and thus makes this plan a useful document for future course of action. I must acknowledge and appreciate the efforts of all those officers who put their sincere efforts, fully participated in all meetings and workshops and gave their valuable input during the development process of the DDMP.

I am very grateful to Mr. Naeem Iqbal, United Nations Development Programme (UNDP) for providing us the much-needed technical support and steering the process of development of the plan. I am confident that all the stakeholders at the District level would follow the strategic document, which will lead towards achieving the overall objective of making communities more resilient against future disasters and putting the country on the path of integrating disaster risk reduction into development plans, ensuring sustainable development.

Mr. Muhammad Saif Anwar Jappa

Deputy Commissioner,
District Muzaffargarh, Government of Punjab

List of Acronyms

AC	Assistant Commissioner	ADC	Additional Deputy Commissioner
BHU	Basic Health Unit	BDRP	Building Disaster Resilience Pakistan
CBOs	Community Based Organizations	CBDRM	Community Based Disaster Risk Management
CHW	Community Health Worker	CSOs	Civil Society Organizations
DC	Deputy Commissioner	DFID	Department For International Development
DDMA	District Disaster Management Authority	DDMP	District Disaster Management Plan
DDMO	District Disaster Management Officer	DEOC	District Emergency Operation Centre
DRM	Disaster Risk Management	DRR	Disaster Risk Reduction
EWS	Early Warning System	FAO	Food and Agriculture Organization
FGD	Focus Group Discussion	MC	Municipal Committee
KII	Key Informant Interview	MHVRA	Multi-Hazard, Vulnerability and Risk Assessment
M&E	Monitoring and Evaluation	NDM Act	National Disaster Management Act
NDMA	National Disaster Management Authority	NGOs	Non-Government Organizations
NEOC	National Emergency Operation Centre	NDRMF	National Disaster Risk Management Framework
NDMP	National Disaster Management Plan	NDMP	National Disaster Management Plan
PDMA	Provincial Disaster Management Authority	PDMC	Provincial Disaster Management Commission
PMD	Pakistan Meteorological Department	PHED	Public Health Engineering Department
PEOC	Provincial Emergency Operation Centre	PWD	Person With Disabilities
PRCS	Pakistan Red Crescent Society	PTC	Parent Teacher Council/Committee
THQ	Tehsil Health Quarter	SOPs	Standard Operating Procedures
TDMP	Tehsil Disaster Management Plan	TDMC	Tehsil Disaster Management Committee
UC	Union Council	TMO	Tehsil Municipal Officer
UCDMC	Union Council Disaster Management Committee	UNDP	United Nations Development Programme
UNISDR	United Nations International Strategy for Disaster Reduction	VDMC	Village Disaster Management Committee

Chapter - 1

Profile of District Muzaffargarh



1.1. Geographical Features

District Muzaffargarh is situated in the southern part of Punjab Province and spread over an area of 8,249¹ sq.km. The District is located between 28o57' to 30o46' north latitude and 70o30' to 71o47' east longitude.

Geographically, District D.G. Khan and Rajanpur are located on east, District Multan, Bahawalpur and Rahim Yar Khan on West, District Layyah and Rahim Yar Khan are located in the north and south of the district respectively (Figure 1.1)².

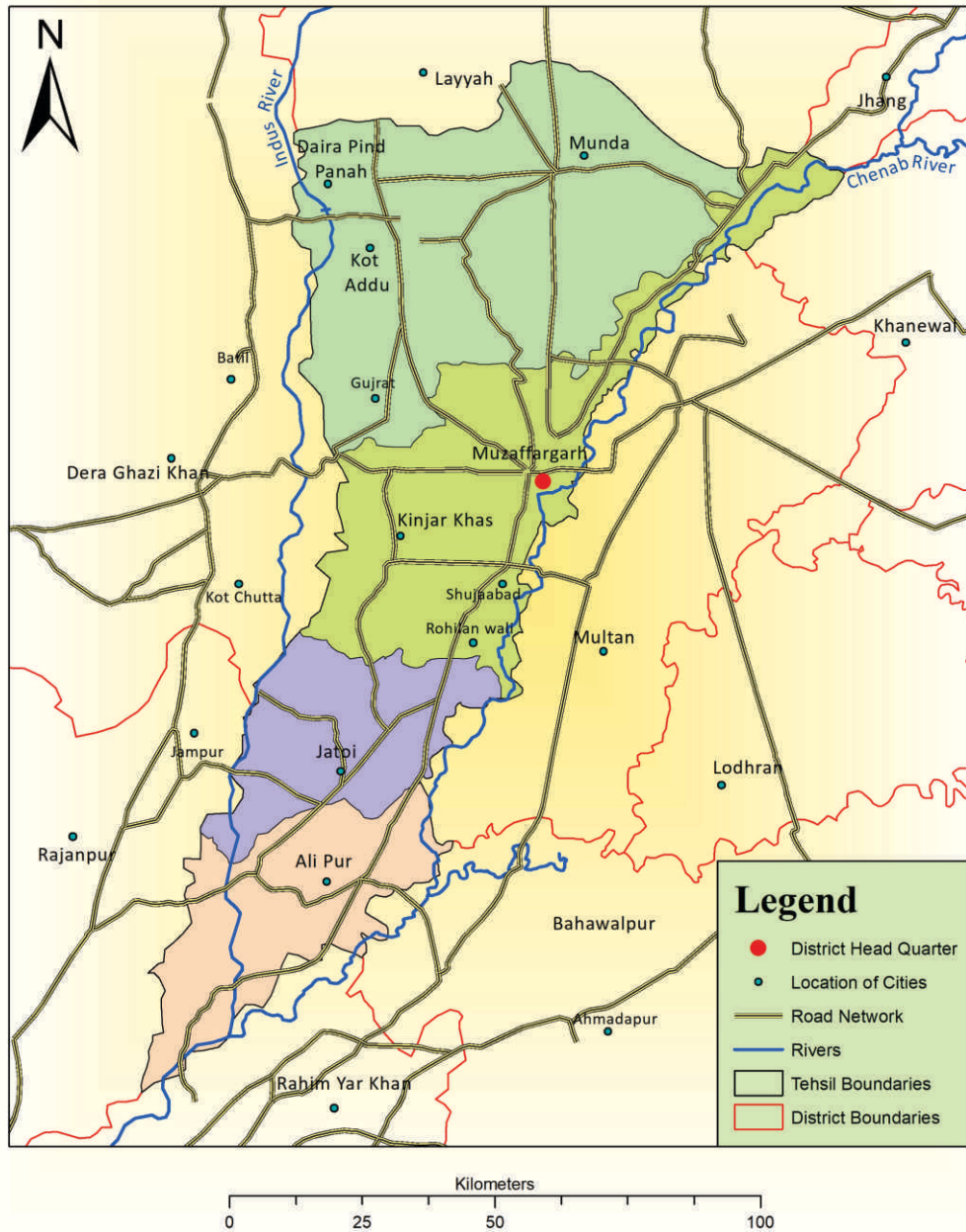


Figure 1.1: Geographical Map of District Muzaffargarh

1. Dubai Care, and Idara-e-Taleem-o-Aagahi (ITA); "Baseline Assessment Study Report, District Muzaffargarh"; Page: 4; viewed on 07 December 2017
2. National Disaster Management Authority; "District Disaster Risk Management Plan, 2009"; available at <http://www.ndma.gov.pk/plans/District%20DRM%20Plan%20Muzaffargarh.pdf>; Page: 16-17. (Accessed 07 December 2017)

The District is located in the form of a strip between two major rivers i.e. Chenab and Indus flowing on its eastern and western side of the district respectively. River Chenab flows for about 125 miles along the eastern side of the district. River is narrow in shape and less swift compare to River Indus. The Indus flows along the western boundary of the district. In the cold weather, it is about 2 miles wide. In the rainy season of monsoon, the river overflows from its banks largely and as a result, the river's width reach generally more than 10KM at some places³. The eastern portion of the district is consists of Thal desert, while small portion of the district has a forest cover lying along the river Indus. The district is linked with all major cities through network of major roads.

District Muzaffargarh consists of four tehsils namely Muzaffargarh, Kot Addu, Jatoi and Ali Pur, while these tehsils are divided into 111 union councils and 986 Mouza's respectively (Figure 1.2). The District has 09 municipal committees including Muzaffar Garh, Kot Addu, Daira Din Panah, Shehr Sultan, Sinawan, Jatoi,

Khan Garh, Ali Pur and Chowk Sarwar Shaheed Municipal Committees⁴.

1.2. Climate and Weather

Much of the area of Muzaffargarh is dry or arid and consists of sand dunes and barren lands known as Thal area while other parts of the area whether flooded from the river or irrigated by inundation canals is less dry. The temperature prevails hot during May to September but mild cool breeze starts during mid-August before midnight thus brings temperature down. The months of December and January are cold with severe frost falls during night causing serious injury to cotton, mango, sugarcane and vegetables⁵.

District receives plenty of rainfall during month of July to September when monsoon winds bring heavy cloud. The average rainfall receive during these months are in a range of 45, 32 and 11 mm respectively. Dust storms are a common occurrence within the district in the same months.

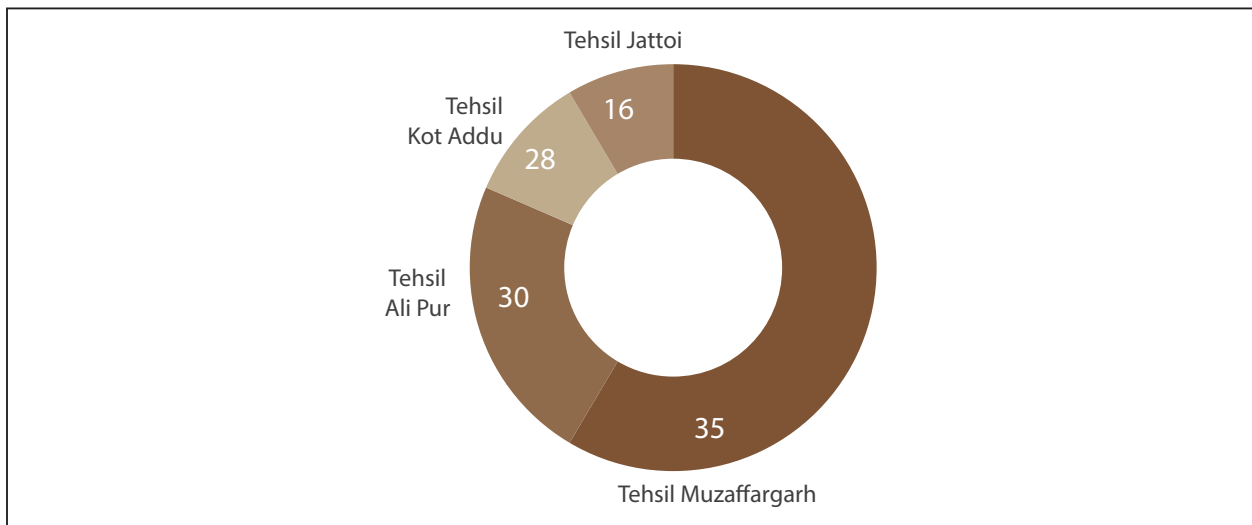


Figure 1.2: Tehsil wise number of Union Councils in District Muzaffargarh

1.3. Population Distribution

According to the provisional statistics of Pakistan Bureau of Statistics 2017, the total population of

District Muzaffargarh is 4,325,483 including 3,627,984 rural and 697,499 urban population, while there are total of 2,218,744 male and 2,103,132 female population in the district⁶ (Figure 1.4). The population

3. Population Census Ogranization; "District census report Muzaffargarh, 1998"; Page: 3-5; Viewed on 11 December 2017

4. Muzaffargarh District UC List, MNA MPA Seats Detail available at www.politicpk.com/muzaffargarh-district-uc-list-mna-mpa-seats-detail

5. Climate-data.org <https://en.climate-data.org/location/3082/>; Viewed on 13 December 2017

6. Pakistan Bureau of Statistics; "District and Tehsil level population summary with region breakup 2017"; available at http://www.pbscensus.gov.pk/sites/default/files/bwpsr/punjab/MUZAFFARGARH_SUMMARY.pdf; (Accessed: 05 Jan 2018)

density of the district is 521 person/sq.km while tehsil-wise population density shows that Jatoi with 697 and

Muzaffargarh with 688 perons/sq.km are densely populated Tehsil.

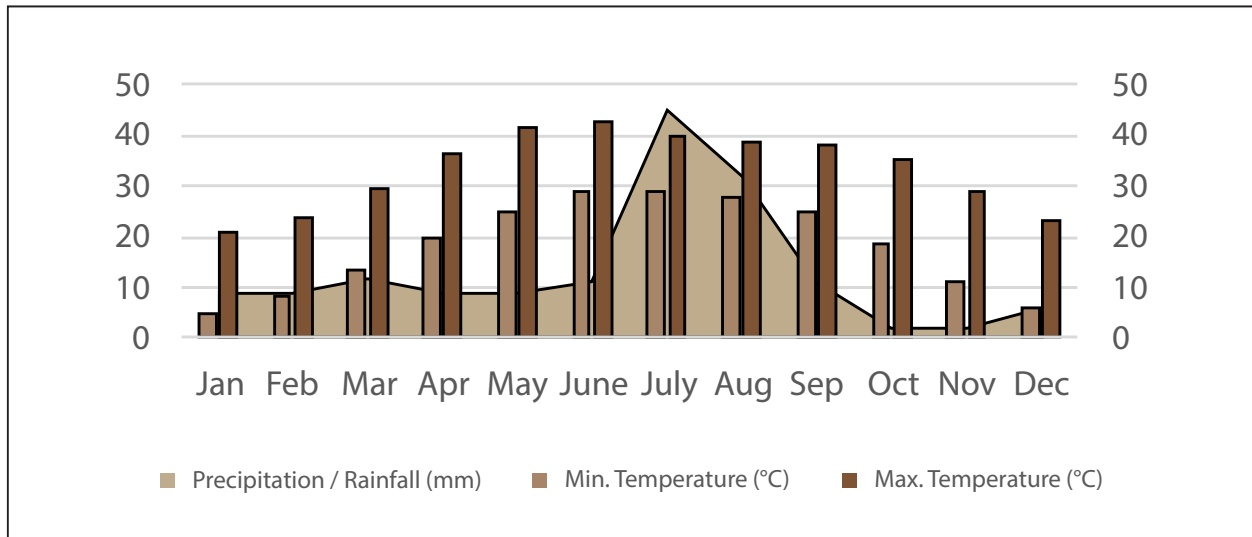


Figure 1.3: Annual Mean Maximum/Minimum Temperature and Average Rainfall of Muzaffargarh at Three Different Stations in Surrounding District Muzaffargarh

1.4. Housing and Living Conditions

According to 2017 population census provisional statistics, the total number of households in District Muzaffargarh are 668,204 with 38% and 31% houses

are situated in two tehsils i.e. Muzaffargarh and Jatoi respectively (Figure 1.5). Majority of houses have access to clean drinking water and improved sanitation (Figure 1.6)⁷.

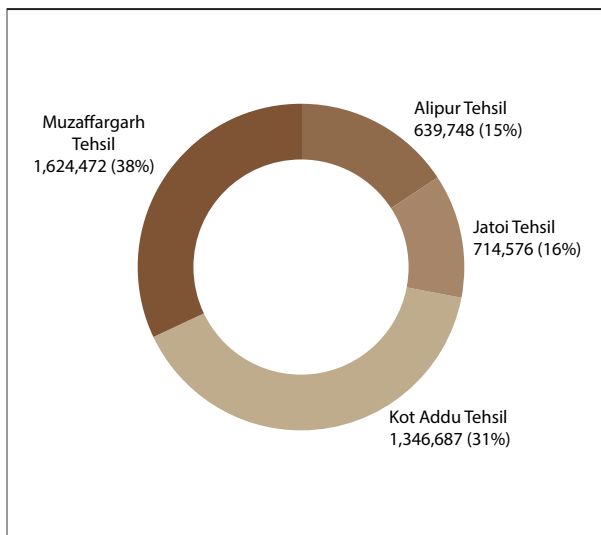


Figure 1.4: Population Distribution of District Muzaffargarh (2017)

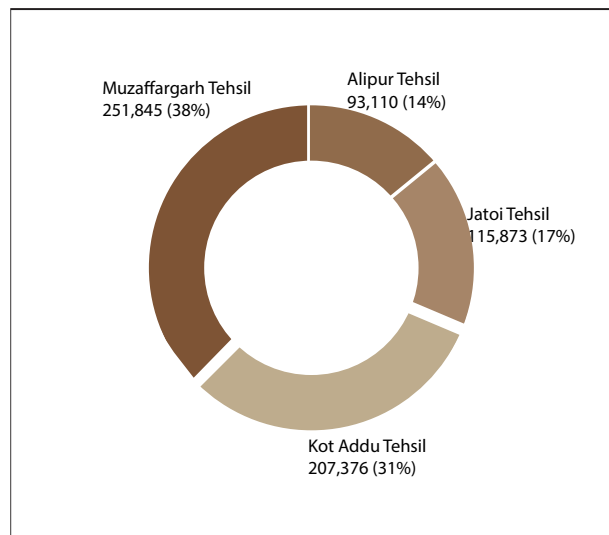


Figure 1.5: Tehsil-wise Household Distribution in District Muzaffargarh (2017)

7. Bureau of Statistics, Planning and Development Department, Government of the Punjab; "Punjab Development Statistics, 2016"; available at http://aidsdatahub.org/sites/default/files/publication/Punjab_Development_Statistics_2016.pdf; Page: 256; (Accessed: 28 April 2018)

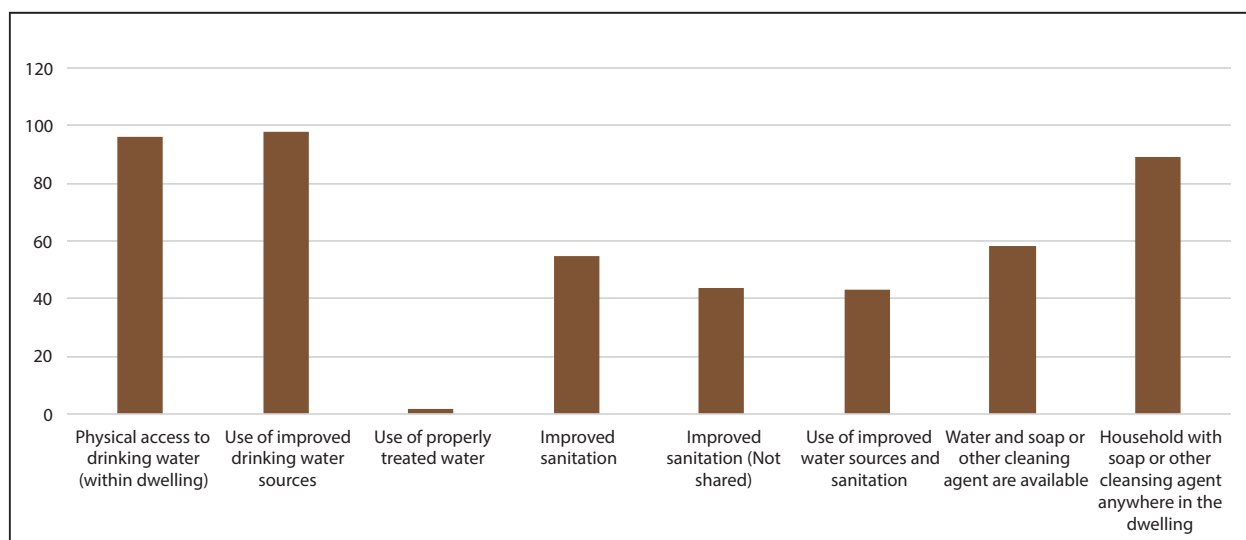


Figure 1.6: Distribution of Housing condition in District Muzaffargarh (2016)

1.5. Agriculture, Livestock and Irrigation

Muzaffargarh is an agriculture based district and famous for mangoes and date palms while other food crops include wheat, sugarcane, cotton and vegetables⁸ (Figure 1.7). As per Punjab Development

Statistics 2016 report, the total net sown area is 671,000 hectares including 33,000 hectares (4.9%) of un-irrigated land and 638,000 hectares (95.1%) is irrigated land. Detail about mode of irrigation is given in Figure 1.8 below⁹.

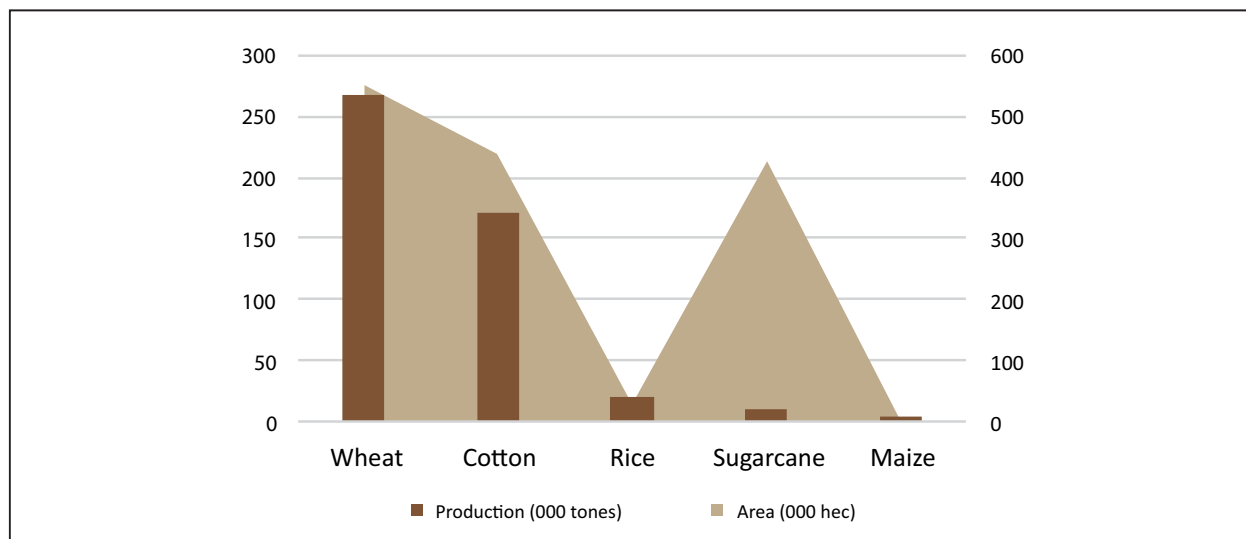


Figure 1.7: Important Crops by Area Production

8. Food and Agriculture Organization (FAO); "Agricultural Disaster Risk Management Operational Plan 2018"; Page: 11; Viewed on 4 May 2018

9. Bureau of Statistics, Planning and Development Department, Government of the Punjab; "Punjab Development Statistics, 2016"; available at http://aidsdatahub.org/sites/default/files/publication/Punjab_Development_Statistics_2016.pdf; Page: 75; (Accessed: 28 April 2018)

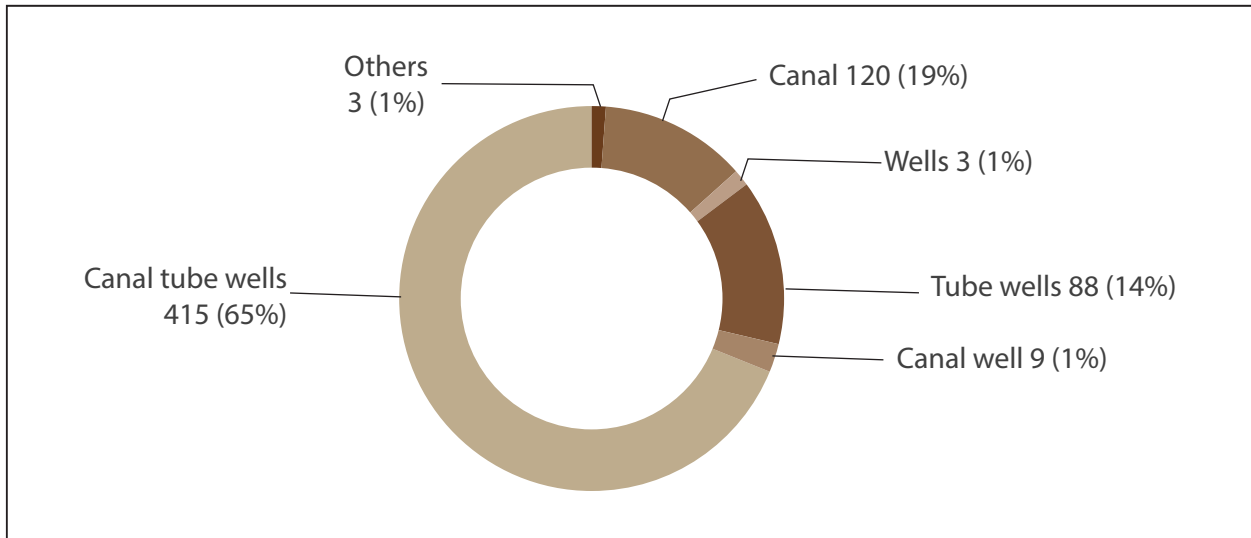


Figure 1.8: Mode of Irrigation in District Muzaffargarh (2014-15)

As per Bureau of Statistics, Planning and Development Department, the latest data is available for 2014 and is shown below in table 1.1. According to the same data

source, there are 89 veterinary dispensaries, 35 centers and 17 hospitals are available throughout the District (Figure 1.9).

Table 1.1: Distribution of Livestock Population

Bullock	Donkeys	Camel	Horses
19,916	20,288	3,192	2,475
Cattle	Mules	Goats	
1,100	1,091	1,058	
Buffaloes	Sheep	Cows	
689	346	106	

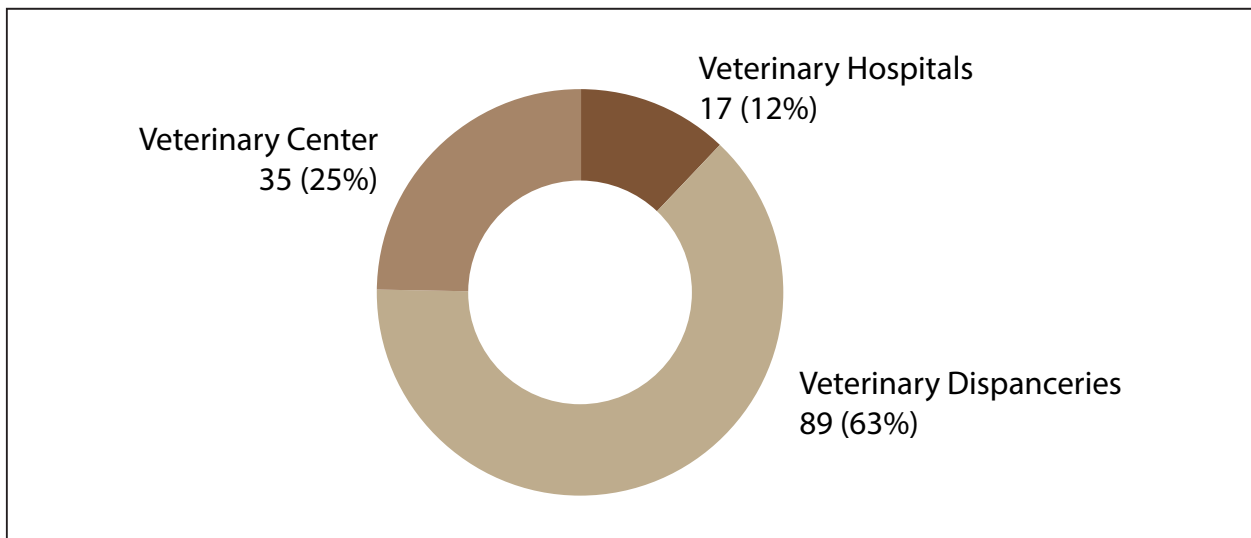


Figure 1.9: Number of Veterinary Facilities in District Muzaffargarh

1.6. Industry and Trade

Some of prominent and major industries/ factories in the district are cotton ginning and pressing, grinding, textile mills, flour mills, sugar mills and jute mills¹⁰. Large number of population are engaged in these industries earning their livelihoods. However, the people working in these industries are prone to various industrial hazards like fire, explosive short circuiting etc.

1.7. Health

The health care coverage of the district shows a big gap between service providers and population they supposed to serve. On the face of the rapid population growth, 4,325,483 heads has access to only one District Headquarter Hospital, 3 Tehsil Headquarter Hospitals, 13 Rural Health Centres and 72 Basic Health Units. The following figure 1.11 describes the existing health facilities in District Muzaffargarh¹¹.

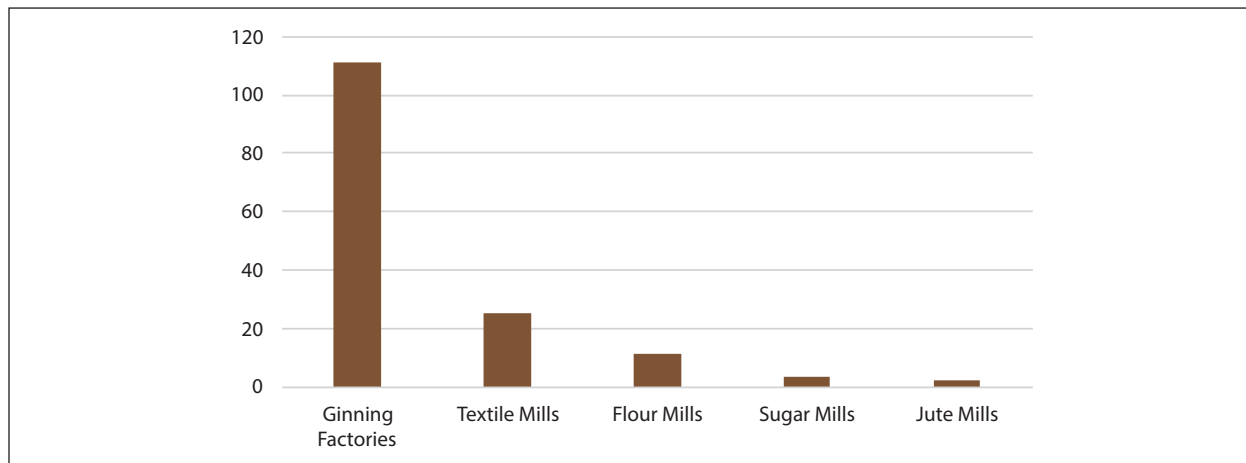


Figure 1.10: Number of Industrial Units in District Muzaffargarh

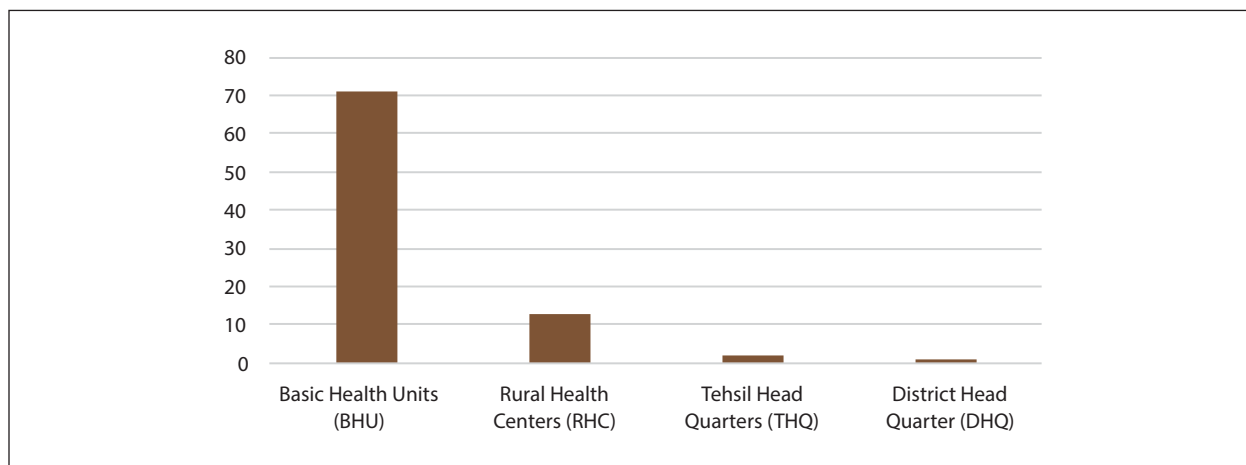


Figure.1.11: Distribution of Health Facilities in District Muzaffargarh (2017)

1.8. Education

The following three functioning units are in operation in education sector at the district level.

- ⊙ District officer Secondary Education
- ⊙ District Education officer (Male) Elementary Education
- ⊙ District Education officer (Female) Elementary Education

10. Food and Agriculture Organization (FAO); "Agricultural Disaster Risk Management Operational Plan 2018"; Page: 11; Viewed on 4 May 2018

11. District Health Authority; "Health Contingency Plan of District Muzaffargarh"; Viewed on 17 December 2017

Looking to the needs of local population, there are 22 intermediate, degree or post-graduate colleagues and 53 higher secondary schools for males and females.

Table 1.2 and Figure 1.12 shows the distribution of schools/colleges along with enrolment number and teachers available in these institutions.

Table.1.2: Education Facilities of District Muzaffargarh (2016)¹²

Level Wise School/colleges			Enrolment	Teachers
Level	Male Schools	Female Schools	Male and Female students	Male and Female Teachers
Intermediate, degree and post graduate colleges (both Govt & Private)	12	10	17,014	403
Higher Secondary (both Govt & Private)	31	22	11,793	634
High Schools (Govt)	88	42	77,201	2,400
Middle Schools (Govt)	114	105	60,984	2,019
Primary Schools (Govt)	733	840	194,933	4,065
Mosque Schools (Govt)	128	6	7,855	169
Total	1,106	1,025	369,780	9,690

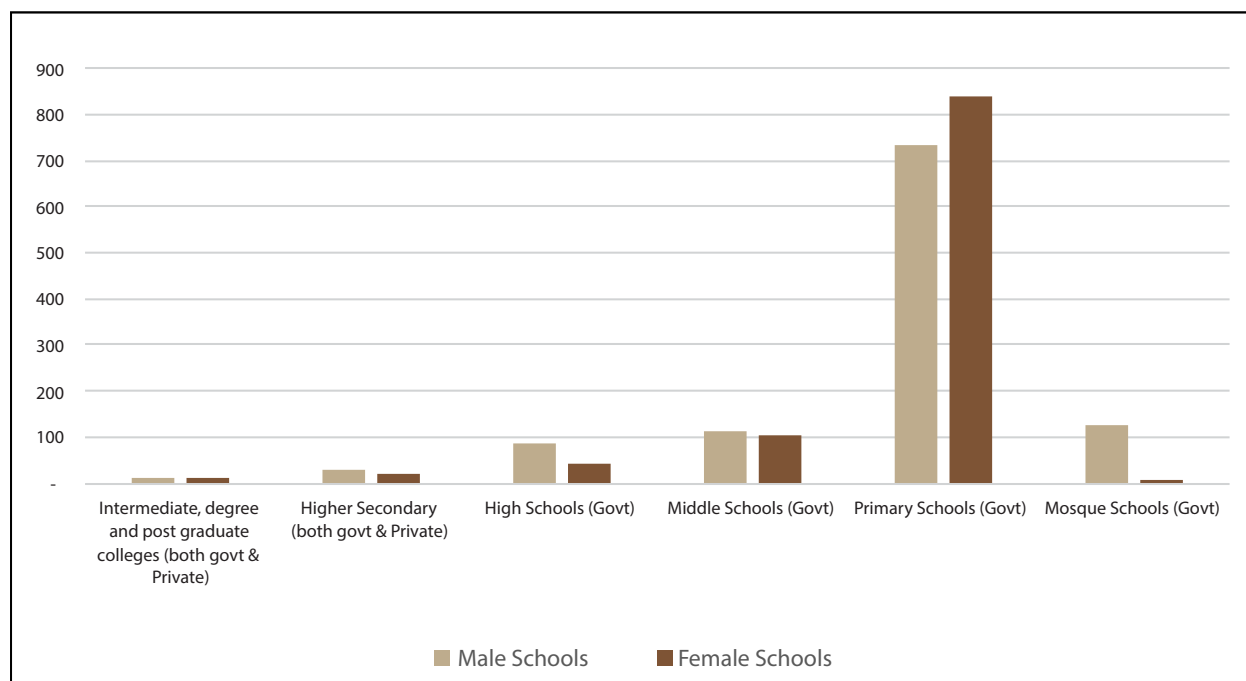
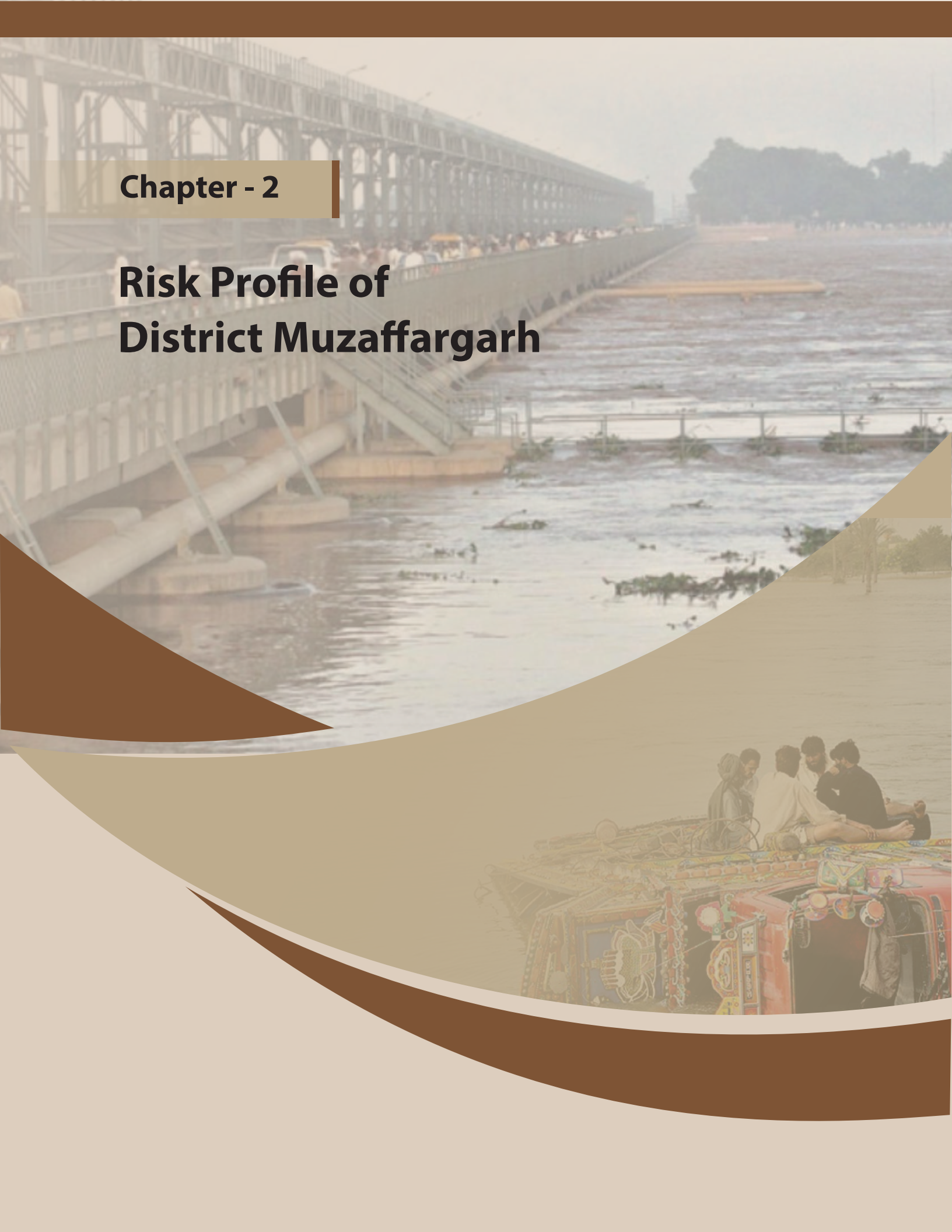


Figure 1.12: Distribution of Educational Institutions in District Muzaffargarh

12. Bureau of Statistics, Planning and Development Department, Government of the Punjab; "Punjab Development Statistics, 2016: available at http://aidsdatahub.org/sites/default/files/publication/Punjab_Development_Statistics_2016.pdf; page 152-159; (Accessed: 28 April 2018)

Chapter - 2

Risk Profile of District Muzaffargarh



2.1. Situation Analysis

District Muzaffargarh is susceptible to a range of hazards including river floods, heat strokes, drought, pest infestation, oil spills, road accidents and industrial hazards. Among these hazards, Riverine floods are more common and severely affecting the district causing substantial losses to life, infrastructure, property and livelihood of the people from time to time. As per NDMA's risk assessment carried out for developing the National Disaster Management Plan 2012-2022, District Muzaffargarh was among the 50 at risk Districts of Pakistan (Annex-ure III).

The District is located in the form of a strip between two major rivers i.e. Chenab and Indus flowing on its eastern and western side of the district respectively. History shows that although both rivers cause flood inundation in the district, however, River Indus is more violent in nature bringing frequent flood surges during monsoon seasons. During recent years, one can't forget the devastation of 2010 and 2012 severe floods which like other Districts of Punjab also badly affected District Muzaffargarh. Figure 2.1 shows the extents of 2010 and 2012 floods and affected union council can be seen from the inundated areas¹³.

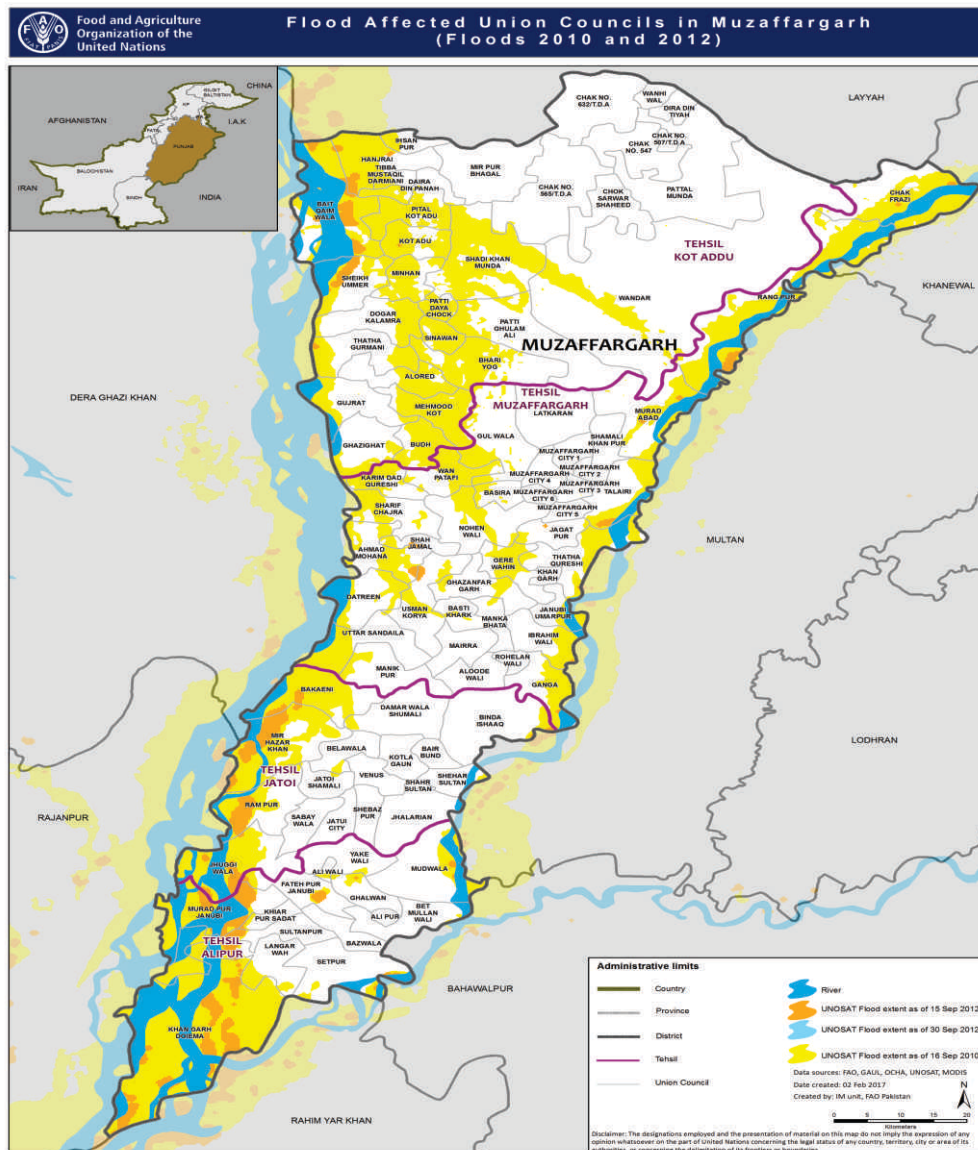


Figure 2.1: Map Showing the Extent of the Flood 2010 and 2012

13. Map prepared by Food and Agriculture Organization (FAO) Islamabad; 2017

With dominant reactive approach, the district has always suffered to severe riverine flooding and that is why, all development efforts become useless as frequent flood disasters in the district always disturb the infrastructure and all other heavy investment development projects. There is intense need for the district Government to carefully analyze the exposure and risk and prioritize areas susceptible to various hazard's risk. This is only possible to analyze through multi-hazard, vulnerability and risk assessment at macro and micro level.

To consider the importance of Multi-Hazard, Vulnerability and Risk Assessment (MHVRA), the district Government with the technical and financial support of UNDP under the "Building Disaster Resilience in Pakistan" took the initiative of developing District Disaster Management Plan where risk profile was analyzed for District Muzaffargarh. For this purpose, different consultation meetings were held with various Government and Non-Government stakeholders at the district and tehsil level. Besides, consultation workshops were also held at District and tehsil level with the Government and Non-Government officials including representatives from the local Government and union council level volunteers. Table 2.4 at the end of the chapter shows the list of union councils prone to various hazard's risk. The data is purely derived through secondary sources, however, there is intense need of carryout detail MHVRA at micro level to get complete database of at risk villages and union councils. In this regard, PDMA Punjab under technical and funding assistance from Asian Development Bank and World Bank is conducting detail MHVRA which is in process and soon be available for DRR and development planning and implementation.

2.2. Hazards Profile

District Muzaffargarh is susceptible to a range of hazards including riverine floods, heat strokes, drought, pest infestation, oil spills, road accidents and industrial hazards. However, as mentioned above that

the District is more at risk of riverine floods. The importance of conducting risk profile is to validate the hazard proneness and the exposure level of the locality to potentials threats, and further the results of the studies have been utilized for the disaster management planning. An attempt has been made below to highlight important hazard's risk threatening to District time to time.

2.2.1. Floods

The flood 2010 severely affected the cropping areas which is main source of livelihood for rural community of the district. According to district government statistics, around 69% of cultivated areas damaged in Tehsil Muzaffargarh, while 56% in Tehsil Kot Addu, 46% in Tehsil Alipur and 26% in Tehsil Jatoi cultivated area were badly affected by flood. The standing crops of Kharif have been affected such as rice, cotton, sugarcane, fodder and vegetables. It has been estimated that nearly one million tons of food and seed stocks destroyed during flood. In district, many on-farm water-courses and tube wells badly devastated. Flood also severely affected on the forthcoming Rabi crops of the season, which were not planted because of the stagnant water in many cultivated areas of the region and the following maps highlight the vulnerable settlements in Muzaffargarh¹⁴. Similarly, majority of the housing units especially in rural areas badly damaged in the same floods. There was an estimation that around 131,293 houses damaged completely while rest of the houses partially destroyed because of the excessive amount of water (Figure 2.2)¹⁵.

2.2.2. Heat Wave

Heat wave take place when low pressure develops due to severe hot temperature prolong for long period of time especially in urban areas due to high population, unplanned urbanization, paved roads and infrastructure. This phenomenon, if it remains for long time will keep the sky clear with hot sunny days. Normally, the temperature rises and remains above normal continuously causing sustained heat wave.

14. An Overview of Damages, Mitigation and Reduction Efforts in District Muzaffargarh, Pakistan after Flood 2010, Page: 102; Viewed on 19 December, 2017

15. International Research Journal of Environment Sciences; "An Overview of Damages, Mitigation and Reduction Efforts in District Muzaffargarh, Pakistan after Flood 2010" Vol. 3(12), 102-107, December (2014); Available online at: www.isca.in, www.isca.me Page: 102-103

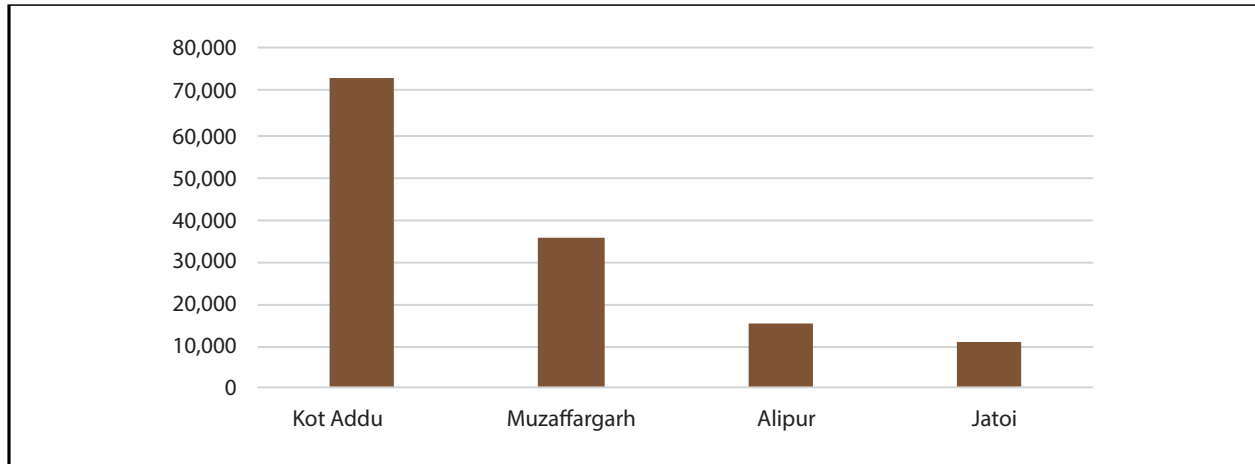


Figure 2.2: No of Household Damaged During 2010 Flood

Heat wave rises temperature up to 50C for prolonged period, causing cut off in breeze. This high pressure and clear skies make air warmer and stagnant over the region for many days¹⁶.

The death toll from heat stroke and other heat-related diseases was 13 person in District Muzaffargarh. According to one of a Health Officer, two people died of heatstroke in Jatoi and one each in Mehmood Kot and Daira Din Panah towns during 2017. While according to the DHQ Hospital, more than 250 patients of gastroenteritis, dehydration and other heat related diseases were treated during the past four days¹⁷.

2.2.3. Droughts

A large area of Muzaffargarh particularly on the south western side of the District is arid and dry. This area is vulnerable to drought conditions in case of long dry spell. So far no serious drought conditions have been recorded in the District of Muzaffargarh and that is the reason that no damages data is available related with drought or famine.

2.2.4. Epidemics

It is commonly observed that after the devastation of floods, the water remains in the street and field for longer period of time thus working as nurseries for Mosquitoes and other insects resulting outbreaks of

diseases and epidemics. These diseases spread through;

- ⊙ Drinking water e.g. diarrhea.
- ⊙ Aerial transmission e.g. influenza.
- ⊙ Through carrier / vector e.g. dengue and malaria etc.
- ⊙ Spread through several means / contact e.g. HIV AIDS, hepatitis etc.

Stagnant water is also likely to increase the risk of diseases till it dries up and goes back to rivers and nullahs. Layyah, Muzaffargarh, Nankana Sahib, Rajanpur and Dera Ghazi Khan were the most affected areas as over 21,000, 16,000 and 25,000 patients were being treated in these districts respectively (Figure 2.3).

2.3. Vulnerability Profile

With fertile soil and best irrigation system available in the district, the agriculture sector remained major sources of livelihood for the people of Muzaffargarh. However, due to frequent flooding by the two mighty rivers most of their livelihood are always at risk. On top of that quick urbanization, lack of social security, poor infrastructure, poverty and harsh climatic conditions are main causes of increasing the vulnerabilities of population. For risk assessment of identified hazard prone union councils, different PRA tools i.e. focus group discussion, key informant interview and group work were carried out during the consultation

16. Punjab Disaster Management Authority; "Punjab Disaster Response plan", Page: 28, Viewed on 20 April 2018

17. Heatwave death toll reaches 13 in Muzaffargarh-PAR, 2015; Viewed on 20 April 2018

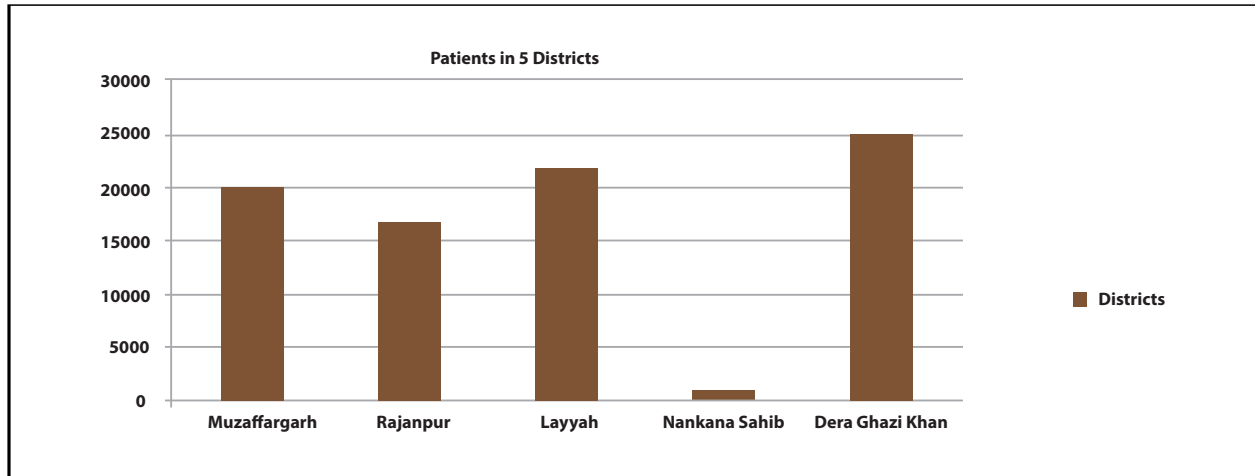


Figure 2.3: Number of Patients Affected by Disease After Spread of Epidemics in Five Districts of Punjab Province

meetings and workshops held at district and tehsil levels¹⁸. The results can be seen in below different tables. For this specific study, following sector like population, agriculture, livestock and essential facilities were considered:

2.3.1. Population Exposure

Table 2.1 below shows the level of vulnerabilities and exposure against some of the prominent hazards prevails in the district. It indicates that population under 15 years of age, aged, women with disabilities and population above than 60+ years are highly exposed to flood, drought and epidemic.

Table 2.1: Impacts of Various Hazards on Different Population Group

Population Group	Flood	Drought	Heavy Rainfall	Conflicts	Epidemics	Heat Stroke	Water logging and Salinity
Population under 15 years	High	Moderate	Moderate	Moderate	High	Low	High
Population between 15-40 years	Low	Low	Low	Low	Moderate	High	Low
Population between 41-60 years	Low	Low	Low	Low	Moderate	Moderate	Low
Population above than 60+ years	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
Children with disability	High	High	High	High	High	Low	High
Aged with disability	High	High	High	High	High	Low	High
Women with disability	High	Moderate	Moderate	High	High	Low	High
People with physical disability	Moderate	Moderate	High	Moderate	Moderate	Low	High
People with mental disability	High	Moderate	Moderate	High	Moderate	High	Moderate
People with hearing disability	Moderate	Low	Low	Moderate	Moderate	Moderate	Low

18. Derived from the Focus Group Discussions carried out during stakeholder's consultation workshop, 2018 with the District and Tehsil level government and non-government stakeholders.

2.3.2. Houses Exposure

The impact of flooding is very severe to housing and thus are very vulnerable especially in rural areas where majority of houses are katcha houses and are frequently affecting by the surge of flooding. Table 2.2

below shows the damages caused to houses during 2010 flooding. Total of 131,293 katcha/pacca houses damaged in the said flooding with majority of damages recorded in Kot Addu and Muzaffargarh Tehsil.

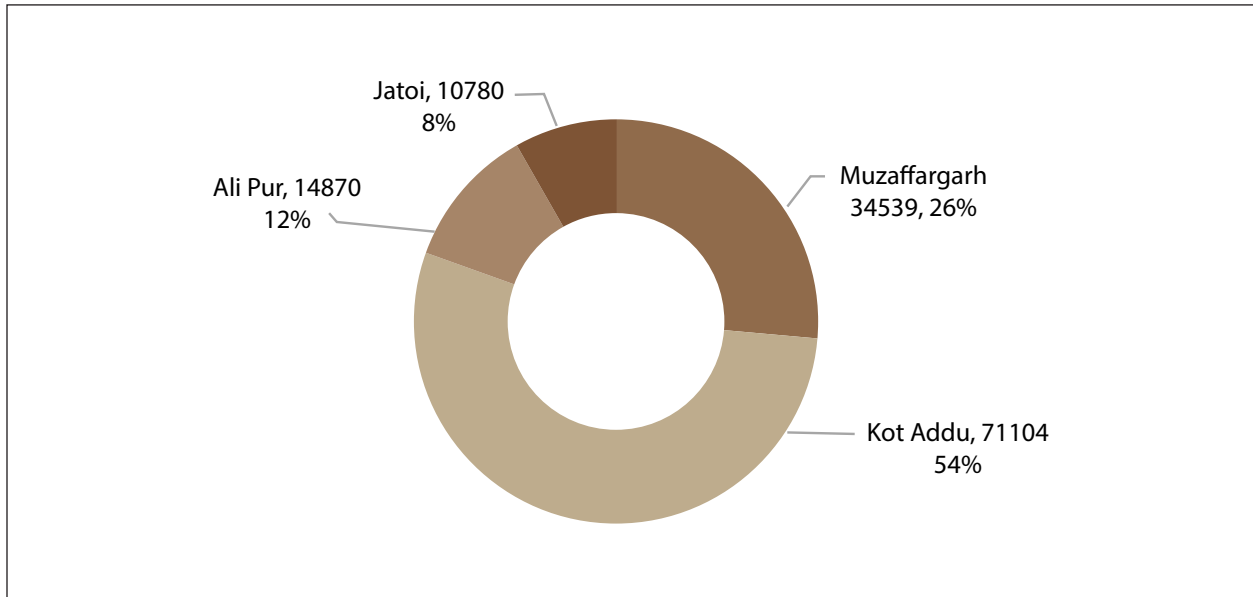


Figure 2.4: Number of Houses Damaged During 2010 Flooding

2.3.3. Crops Exposure

Besides impacts of various hazards on different population, the subsequent important component is agriculture sector, which is considered as the main source of livelihood for more than 60% of the population of District Muzaffargarh. The geographical location and climatic conditions make the agriculture production more vulnerable to various hazards. Table 2.3 shows the damages incurred to different crop production in tons in District Muzaffargarh during 2010 flooding.

The impact of various hazards on different crop production was also assessed during the consultation workshop through focus group discussions against the major crops including wheat, cotton, rice, maize, sugarcane, vegetables, grains, fruits, tobacco, fodder and other crops shown in the table 2.4. The table indicates that wheat, cotton, sugarcane, fruits, pulses and vegetables are highly exposed to floods, drought and water logging and salinity.

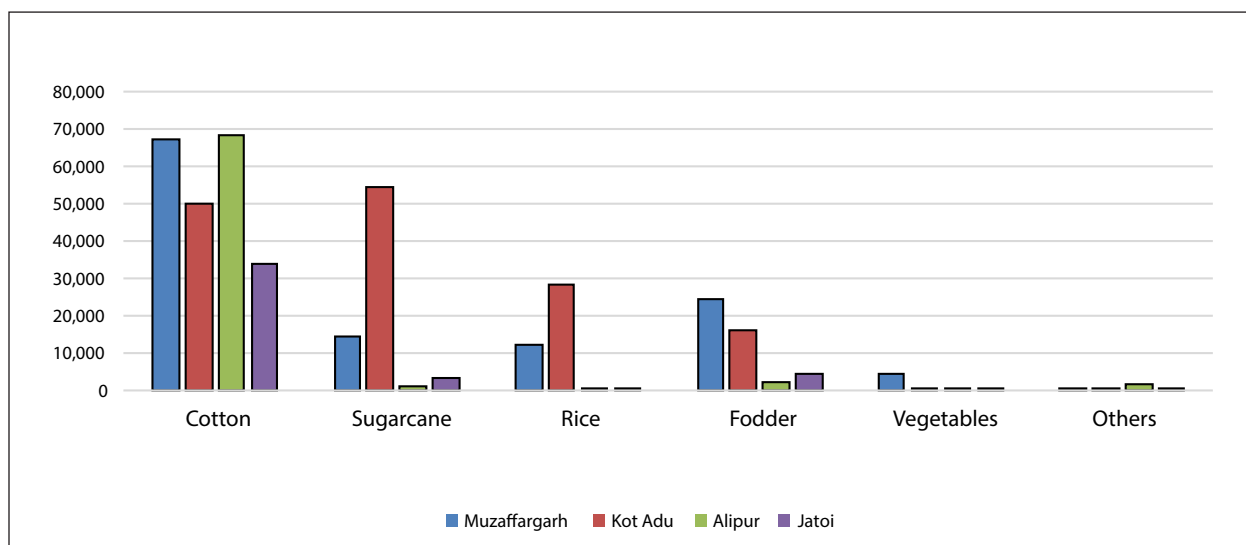


Figure 2.5: Devastations to Different Crops Production Area in District Muzaffargarh During 2010 Flood¹⁹

Table 2.4: Impacts of Hazards on Different Crop Types Growing in the District

Crops Type	Flood			Drought			Hail Storm			Diseases			Heavy Rainfall			Water Logging & Salinity		
	L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	L	M	H
Wheat			H		M		L					H		M		L		
Rice	L			L		H	L			L			L			L		
Maize	L	M				H		M			M			M		L		
Fodders			H			H	L				M					L		
Sugarcane	L		H			H			H		M		L			L		
Barley		M		L	M					L					H	L		
Pulses			H				L			L				M		L		
Dates	L				M				H		M		L					H
Fruits			H	L			L						L			L		
Vegetables			H					M		L				M		L		
Others	L			L				M		L				M		L		
Cotton			H			H	L				M		L				M	

H: High Risk (Red) M: Medium Risk (Yellow) L: Low Risk (Green)

2.3.4. Livestock Exposure

Livestock also considered as one of the main element at risk, as livestock is an important source of income for the people for fulfilling their household food and

nutrition needs. Significant losses in the livestock sector observed due to drought and flood in district from time to time. Figure 2.6 shows the impact of 2010 flooding on various livestock types.

19. International Research Journal of Environment Sciences; "An Overview of Damages, Mitigation and Reduction Efforts in District Muzaffargarh, Pakistan after Flood 2010"; by Safdar Qurratulain and Fatima Munazza, Department of Geography, The Islamia University Bahawalpur PAKISATN; Vol. 3(12), 102-107, December (2014); Pages 103-104.

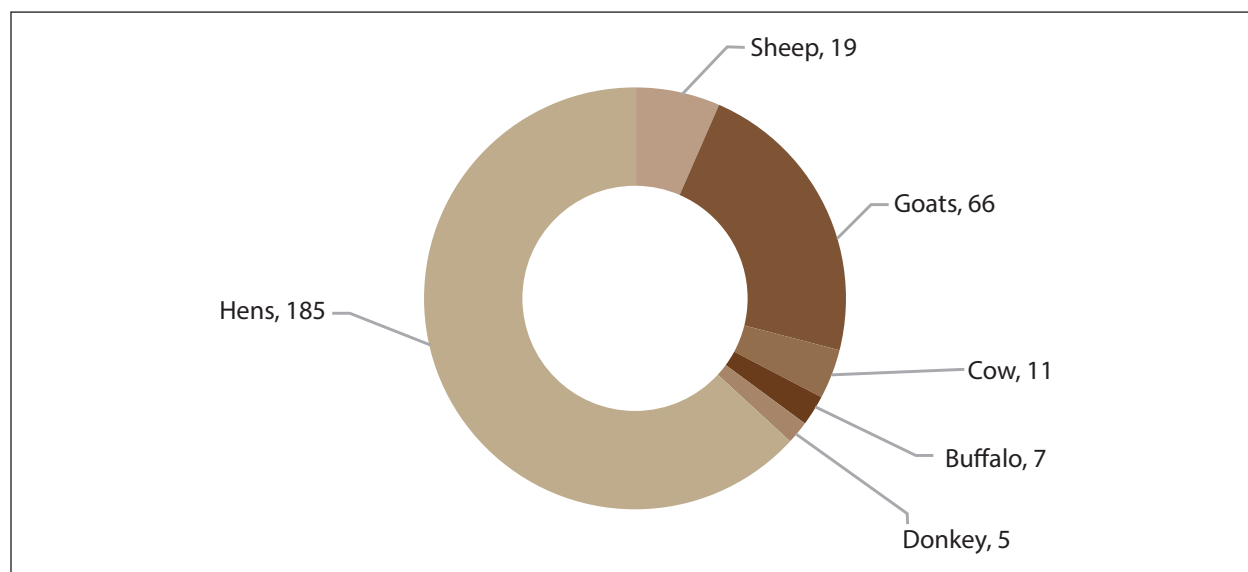


Figure 2.6: Number of Livestock Perished During 2010 Flood

2.3.5. Essential Facilities Exposure

The District Muzaffargarh susceptibility of vital/critical facilities was exposed by the 2010 devastating flood by affecting maximum union councils severely. The essential facilities include transportation facility, electricity, water and sanitation, communication channels, academic institutions, health facilities, police and public administration services. Having known the risk of the critical facilities of the district, special consideration can be given to these facilities when formulating disaster management plans.

2.4. Capacities/Resources Profile

A detail description of capacities and resources available with the district government has been

mentioned under chapter 5, section 5.3: resources for emergency response at page 71-74 of this plan.

2.5. Risk Profile

For risk profiling, group works were carried out in two different workshops held at Muzaffargarh and Alipur cities with the Government and Non-Government stakeholders both at District and tehsil level during January-Mar 2018. The participants enlisted the prioritized union councils as high, moderate and low at risk. During the exercise, participants ranked 14 union councils at high risk in below table 2.5.

Table 2.5: List of at Risk Union Councils Identified During The Consultation Workshop

S.No	Name of Union Council	Ranking			Tehsils
		High Risk	Moderate Risk	Low Risk	
1	Bait Qaim Wala	High Risk			Kot Addu
2	Sheikh Ummer	High Risk			Kot Addu
3	Dogar Kalamra	High Risk			Kot Addu
4	Thatha Gurmani	High Risk			Kot Addu
5	Chak Frazi	High Risk			Muzaffargarh
6	Rangpur	High Risk			Muzaffargarh
7	Talairi	High Risk			Muzaffargarh
8	Mir Hazar Khan	High Risk			Jatoi
9	Shehar Sultan	High Risk			Jatoi
10	Venus	High Risk			Jatoi
11	Rampur	High Risk			Jatoi

DISTRICT DISASTER MANAGEMENT PLAN DISTRICT MUZAFFARGARH (JULY 2018 - JUNE 2023)

S.No	Name of Union Council	Ranking			Tehsils
		High Risk	Moderate Risk	Low Risk	
12	Jhalarian	High Risk			Jatoi
13	Khan Garh Doiema	High Risk			Ali Pur
14	Langarwah	High Risk			Ali Pur
15	Patti Daya Chock		Moderate Risk		Kot Addu
16	Minhan		Moderate Risk		Kot Addu
17	Kot Addu		Moderate Risk		Kot Addu
18	Pital Kot Addu		Moderate Risk		Kot Addu
19	Daira Din Danah		Moderate Risk		Kot Addu
20	Mustaqil Darmiani		Moderate Risk		Kot Addu
21	Hinjrai		Moderate Risk		Kot Addu
22	Ihsan Pur Bhagel		Moderate Risk		Kot Addu
23	Shadi Khan		Moderate Risk		Kot Addu
24	Wandar		Moderate Risk		Kot Addu
25	Dira Din Tiyah		Moderate Risk		Kot Addu
26	Sharif Chajran		Moderate Risk		Muzaffargarh
27	Ahmad Mohana		Moderate Risk		Muzaffargarh
28	Shah Jamal		Moderate Risk		Muzaffargarh
29	Jagatpur		Moderate Risk		Muzaffargarh
30	Thatha Qureshi		Moderate Risk		Muzaffargarh
31	Khan Garh		Moderate Risk		Muzaffargarh
32	Ghazanfargarh		Moderate Risk		Muzaffargarh
33	Janubi Umerpur		Moderate Risk		Muzaffargarh
34	Uttar Sandalla		Moderate Risk		Muzaffargarh
35	Manik Pur		Moderate Risk		Muzaffargarh
36	Binda Ishaq		Moderate Risk		Jatoi
37	Bair Bund		Moderate Risk		Jatoi
38	Sabay Wala		Moderate Risk		Jatoi
39	Shebaz Pur		Moderate Risk		Jatoi
40	Khair Pur Sadat		Moderate Risk		Ali Pur
41	Fateh Pur Janubi		Moderate Risk		Ali Pur
42	Yake Wali		Moderate Risk		Ali Pur
43	Ghalwan		Moderate Risk		Ali Pur
44	Mudwala		Moderate Risk		Ali Pur
45	Bhari Yog			Low Risk	Kot Addu
46	Sinawan			Low Risk	Kot Addu
47	Karim Dad Qureshi			Low Risk	Muzaffargarh
48	Nohenwali			Low Risk	Muzaffargarh
49	Gere Wahin			Low Risk	Muzaffargarh
50	Manka Bhata			Low Risk	Muzaffargarh
51	Ibrahim Walt			Low Risk	Muzaffargarh
52	Rohelan Wali			Low Risk	Muzaffargarh
53	Ganga			Low Risk	Muzaffargarh
54	Aioode Wall			Low Risk	Muzaffargarh
55	Bakaeni			Low Risk	Jatoi
56	Damarwala Shumali			Low Risk	Jatoi
57	Bela Wala			Low Risk	Jatoi
58	Kotla Gaun			Low Risk	Jatoi
59	Jatoi Shaumali			Low Risk	Jatoi

S.No	Name of Union Council	Ranking			Tehsils
		High Risk	Moderate Risk	Low Risk	
60	Jatoi City			Low Risk	Jatoi
61	Jhuggi Wala			Low Risk	Jatoi
62	Setpur			Low Risk	Ali Pur
63	Bazwala			Low Risk	Ali Pur
64	Sultanpur			Low Risk	Ali Pur
65	Murad Pur Janubi			Low Risk	Ali Pur
66	Ali Wali			Low Risk	Ali Pur
67	Alipur			Low Risk	Ali Pur
68	Bet Mullan Wali			Low Risk	Ali Pur

High Risk	Medium Risk	Low Risk
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Chapter - 3

Disaster Risk Management Institutional Framework



3.1. Disaster Risk Management Setup at District Level

3.1.1. District Disaster Management Authority (DDMA)

National Disaster Management Act promulgated in all over the country during 2010. The NDM Act under Chapter IV, Section 18 provides the basis for establishment of the District level Disaster Management Authority (DDMAs). In this regards, the Provincial Government has notified DDMA in all the Districts of the Punjab Province already. Various efforts are in process to fully capacitate DDMA with all the necessary facilities and capacities to decentralize the DRM system at Province and District level.

As per NDM Act 2010, the DDMA will work as a coordinating body of all government departments and non-Government organizations operating in the District and be responsible as a focal authority in the conduct and implementation of plans and actions on disaster management. The Act has proposed the following organizational structure for all District level DDMA²⁰;

- Head of the local council at the District level who shall be Chairperson, ex-officio;
- The Deputy Commissioner/District Coordination Officer;
- The District Police Officer, ex-officio;
- The Chief Executive Officer Health; and
- Such other District level officers, to be appointed by the District Government.

Due to frequent threat of various hazards particularly of river flooding in District Muzaffargarh, a strong coordination mechanism is always exists at various level while awareness level is remain very high and government as well as general public are well aware of their responsibilities to cope up with disaster situation. The district administration has strong coordination mechanism with other district government and non-government stakeholders to prepare for and respond to any emergency situation. Under the direction of Deputy Commissioner, a District Disaster Management Committee (DDMC) constituted comprising of various government and non-government stakeholders in the district. The committee has been formed under office order number 102-90, dated 30/4/2012 and has the following members in the DDMC (Table 3.1)²¹;

Table 3.1: Composition of District Disaster Management Committee at District level

Sr #	Name	Designation on DDMC
1	District Coordination Officer/Deputy Commissioner	Chairman
2	District Police Officer	Member
3	ADC (Finance)	Member
4	ADC (R)	Member
5	CEO District Health Authority	Member
6	EXN PHED	Member
7	Deputy Director Agriculture	Member
8	CEO District Education Authority	Member
9	ADC (G)	Member
10	All Assistant Commissioners in the district	Member
11	Secretary, District Regional Transport Authority	Member
12	Superintending Engineer Muzaffargarh Canal Circle Multan	Member
13	Superintending Engineer MEPCO	Member
14	District Officer Labor	Member
15	Deputy Director Agriculture (Extension)	Member
16	Additional Director Livestock	Member

20. National Disaster Management Authority 2018, "National Disaster Management Act 2010"; Chapter IV; Section 18; Page: 7407-741

21. Shared by the Doaba Foundation Muzaffargarh office, 2018

Sr #	Name	Designation on DDMC
17	District Officer Health	Member
18	Deputy Director Social Welfare	Member
19	Civil Defense Officer	Member
20	Deputy Director Planning and Development	Member
21	District Food Controller	Member
22	Assistant Director Local Government	Member
23	Deputy Director Local Government	Member
24	All Tehsil Municipal Officers	Member
25	Executive Engineer Provincial Highways	Member
26	Executive Engineer Punjnad Headworks	Member
27	Executive Engineer Taunsa Barrage Division	Member
28	Executive Engineer Muzaffargarh Canal Division	Member
29	Executive Engineer Kot Addu Canal Division	Member
30	Executive Engineer River Diversions Division	Member
31	Sub Divisional Officer 18 Hazari Sub Division	Member
32	Assistant Engineer Agriculture	Member
33	District Distribution Officer Sui Gas	Member
34	District Disaster Risk Management Coordinator	Member
35	Representative of Pakistan Army to be nominated by the Commander Headwork's Artillery, Armourd Division, Multan Cant	Member Member
36	Representative of Pakistan Railway to be nominated by the Divisional Superintendent, Pakistan Railway, Multan	Member Member
37	Representative of National Highway Authority to be nominated by the General manager National Highway Authority, Multan	Member
38	General Manager, Mehmood Textile Mills	
39	Mian Javed Aziz Qureshi R/O. KD Qureshi, Tehsil Muzaffargarh	Member
40	District Coordinator, Doaba Foundation	Member
41	Um-Kalsoom Sial Adar SYCOP	Member
42	Chairperson Chenab Forum	Member
43	President Markazi Anjuman Tajran	Member
44	President District Bar	Member
45	District Emergency Officer, Rescue1122	Member/Secretary

Besides above DDMC, there is also District Disaster Management Authority has been formed in exercise of the powers conferred under section 18(1) of National Disaster Management Act, 2010 (Act No XXIV of 2010), the District Government Muzaffargarh constitute the following structure of DDMA formed under a

notification number 149-2017/186/Admn-I, dated 22nd June 2017 from office of the SMBR/Relief Commissioner, Board of Revenue, Punjab Disaster Management Department/PDMA adopted to meet any disaster situation Table 3.2)²²;

22. Office of the SMBR/Relief Commissioner, Board of Revenue, Punjab Disaster Management Department/PDMA; Notification number 149-2017/186/Admn-I, dated 22nd June 2017

Table 3.2: Composition of District Disaster Management Authority at District level

Sr.#	Name of Department	Designation
1	Deputy Commissioner	Chairperson
2	District Emergency Officer, Rescue 1122	Secretary
3	Mayors of Metropolitan/ Municipal Corporations	Member
4	Chairman District Councils	Member
5	District Police Officer	Members
6	Two elected representatives to be nominated by the Chief Minister to each DDMA	Member
7	Two representatives of NGOs/ Civil Society to be nominated by the Chair	Members
8	CEO District Health Authority	Member
9	CEO District Education Authority	Member
10	Additional Director Livestock	Member
11	Deputy Director Agriculture (Extension)	Member
12	District Food Controller	Member
13	SP/ DSP Special Branch	Member
14	Executive Engineer, Irrigation	Member
15	Executive Engineer, Public Health	Member
16	Executive Engineer Highways	Member
17	Executive Engineer, Buildings	Member
18	Disaster Management Officer, Pakistan Red Crescent Society	Member
19	All Chief Officers of Municipal Corporation/Municipal Committees/ District Councils	Member
20	Federal Government Officers which the DDMA's decide to co-opt as per power delegated under section 20 & 22 of NDM Act 2010	Member

Proposed Functions of District Disaster Management Authority (DDMA)²³

Refer to the NDM Act 2010, the District Disaster Management Authority will be a district planning, coordinating and implementing body for disaster management and will guarantee to take all conceivable measures for the purposes of disaster management in the district in accordance with the guidelines laid down by the NDMA and the PDMA Punjab. Following powers and functions of DDMA have been defined in the National Disaster Management Plan 2012-2022:

- ⊙ Prepare a disaster management plan including district response plan for the district;
- ⊙ Coordinate and monitor the implementation of the National and Provincial DRR Policies, National, Provincial and District Disaster Management Plans;
- ⊙ Ensure that the areas in the district vulnerable to disasters are identified and measures for the prevention of disasters and the mitigation of their effects are undertaken by the departments of the government at the district level as well as by the local authorities;
- ⊙ Ensure that the guidelines for prevention, mitigation, preparedness and response measures as laid down by the National Authority and the Provincial Authority are followed by all departments of the government at the district level and the local authorities in the district;
- ⊙ Give directions to different authorities at the district level and local authorities to take such other measures for the prevention or mitigation of disasters as may be necessary;
- ⊙ Lay down guidelines for preparation of disaster management plans by the departments of the government at the district level and local authorities in the district;

23. National Disaster Management Authority 2018, "National Disaster Management Act 2010"; Chapter IV; Section 18; Page: 740-741

- ⊙ Monitor the implementation of disaster management plans prepared by the departments of the government at the district level;
- ⊙ Lay down guidelines to be followed by the departments of the government at the district level;
- ⊙ Organize and coordinate specialized training programs for different levels of officers, employees and voluntary rescue workers in the district;
- ⊙ Facilitate community training and awareness programs for prevention of disaster or mitigation with the support of local authorities, governmental and non-governmental organizations;
- ⊙ Set up, maintain, review and upgrade the mechanisms for early warnings and dissemination of proper information to the public;
- ⊙ Prepare, review and update district level response plans and guidelines;
- ⊙ Coordinate with, and give guidelines to, local authorities in the district to ensure that pre-disaster, during disaster and post-disaster management activities are carried out promptly and effectively;
- ⊙ Review development plans prepared by the departments of the government at the district level, statutory authorities or local authorities with a view to make necessary provisions therein for prevention or mitigation of disasters;
- ⊙ Identify buildings and places that could, in the event of a disaster situation, be used as relief centers or camps and make arrangements for water supply and sanitation in such buildings or places;
- ⊙ Establish stockpiles of relief and rescue materials and ensure preparedness to make such materials available on short notice;
- ⊙ Provide information to the Provincial Disaster Management Authority relating to the different aspects of disaster management;
- ⊙ Encourage the involvement of non-governmental organizations and voluntary social-welfare institutions working at the grassroots level in the district for disaster management;
- ⊙ Ensure communication systems are in order and disaster management drills are carried out periodically;
- ⊙ Perform such other functions as the provincial government or provincial authority may assign to it or deem necessary for disaster management in the district;

For knowing detail function, roles and responsibilities of the DDMA, it is suggested to refer to National Disaster Management Act 2010"; Chapter IV; Section 18; Page: 741-745 available at NDMA website under <http://www.ndma.gov.pk/plans/NDMA-Act.pdf>

3.1.2. Tehsil Disaster Management Committee (TDMC)²⁴

Assistant Commissioner or Administrative head of Tehsil shall be appointed as a Chairperson of TDMC and the Tehsil Municipal Officer (TMO) shall be the secretary with consultation of DDMA, working directly under DDMO and will provide support and give information of the union councils of the concerned Tehsil. TDMC will be a bridge between Government and the community in relation to disaster management.

Table 3.3: Proposed List of Members for the TDMC

Sr. #	Name of Department	Designation
1	Administrative Head of Tehsil	Chairperson TDMC
2	Tehsil Municipal Officer (TMO)	Secretary TDMC
3	Revenue Department representative at Tehsil level	Member
4	Representative from line Department at Tehsil level	Members
5	All elected members (Male and Female)	Members
6	UCDMC representatives (President from each committee)	Members
7	Representative of NGOs and LSOs	Member

24. The list of committees and possible members have been proposed by the consultant based on reviewing different disaster management plans at national and international level also refer to National Disaster Management Act 2010"; Chapter V; Section 25; Page: 745 available at NDMA website under <http://www.ndma.gov.pk/plans/NDMA-Act.pdf>; (Accessed: 24/4/2018)

The member/s can be added in the tehsil level structure as per ground realities and need by the Tehsil Administration in consultation with District Disaster Management Authority.

Proposed Functions of TDMC

The National Disaster Risk Management Framework Page 54 clearly elaborates tehsil administrations as the frontline of disaster management where disaster activities are actually implemented. As per NDM Act 2010²⁵ and subject to the directions of the DDMA, the TDMC shall;

- ⊙ Ensure that its officers and employees are trained for disaster management
- ⊙ Ensure that resources relating to disaster management are so maintained as to be really available for use in the event of any threatening disaster situations or disaster
- ⊙ Ensure that all construction projects under its or

within its jurisdiction conform to the standard and specifications laid down for prevention of disasters and mitigation by the NDMA, PDMA and DDMA.

- ⊙ Carryout relief, rehabilitation and reconstruction activities in the affected areas in accordance with the PDMA and DDMA plans
- ⊙ The TDMC may take such other measures as may be necessary for the disaster management

3.1.3. Union Council Disaster Management Committee (UCDMC)

Union councils were considered as the lowermost level in the government structure having elected representatives from the village and ward levels for these bodies. Union councils can play an important role in advocating demands of communities to the District and Tehsil Disaster Management Committees. The composition of the UCDMC is proposed to be as follows.

Table 3.4: Proposed List of Members for UCDMC²⁶

Sr.#	Name of Department	Designation
1	Union council Chairperson or local Council Administrator	Chairperson
2	Union Council Secretary	Secretary, UCDMC
3	All elected UC members (Male and Female)	Member
4	Halqa Patwari	Member
5	SHO Police/Representative	Member
6	Representative of RHC/BHU	Member
7	Representative of schools (selected Principal)	Member
8	Representative of local NGO	Member
9	Religious leader (selected Pesh Imam)	Member
10	Representative of VDMC (selected)	Member

The member/s can be added to the UC level structure as per ground realities and need by the UC Administration in consultation with Tehsil and District administration.

Proposed Functions of UCDMC

- ⊙ Compiling VDMC level maps and preparing MHVRA and social mapping at UC level;

- ⊙ Preparing UC level disaster management plan, including disaster/emergency response plan;
- ⊙ Identification, mobilization and disposal of required financial, technical and logistical resources for disaster management operations;
- ⊙ Mobilization of community for maintaining public ways, public streets, culverts, bridges and public buildings, de-silting of canals and other development activities;

25. Refer to National Disaster Management Act 2010²⁵; Chapter V; Section 25; Page: 745 available at NDMA website under <http://www.ndma.gov.pk/plans/NDMA-Act.pdf> (Accessed: 24 April 2018)

26. The list of committees and possible members have been proposed by the consultant based on reviewing different disaster management plan at national and international level.

- ⊙ Coordination with the village in case of emergency in order to get quick information about the severity and extent of a disaster impact and report it to the TDMC and DDMA;
- ⊙ Committee will make arrangements for acquiring necessary equipment/emergency response kits for disaster/emergency response management;
- ⊙ Committee will ensure and be actively involved in building the capacities of UCDMCs and VDMCs members;
- ⊙ Conducting search and rescue operations in coordination with the Civil Defence, PRCS and Police;
- ⊙ Providing assistance to other Government and non-Government stakeholders for effective disaster risk reduction and emergency response;
- ⊙ Monitoring NGO activities and provide necessary support to ensure community Participation by establishing coordination mechanisms among NGOs and local council.

3.1.4. Village Disaster Management Committee (VDMC)²⁷

Subsequent to the UCDMC, the next lower tier of the DM committee can be called as VDMC. As far as District Muzaffargarh is concerned, various non-government organizations are involved these days to support district government in strengthening the disaster risk management at grass root level. Under Building Disaster Resilience in Pakistan (BDRP), the district government has formed Village level Emergency Response Teams (VERTs) and Community Disaster Management Committees (CDMCs) in 75 villages with the technical support of Concern Worldwide, Welthungerhilfe (WHH), Doaba Foundation and Farmer Development Organization (FDO). These 75 CDMCs and VERTs are existing in seven union councils namely Hanjrani, Bait Qaim Wala, Sheikh Umer, Aziz Abad, Chack Farazi, Rangpur and Jarh²⁸. However there is need to mainstream these committees in the overall disaster management structure proposed here under this Plan for the purpose of uniformity in name of the committees and standardize their roles and

responsibilities. These VDMC will play a pivotal role as the committee members are at the forefront against disasters. Therefore, the stronger and organized committees are the more effective the response would be.

Proposed Functions of VDMC

- ⊙ VDMC will analyze the disaster risk and make efforts to reduce the risk of these disasters on village level;
- ⊙ VDMC will develop social, hazard and risk maps and will prepare a village disaster management plan;
- ⊙ The committee will conduct trainings for volunteers through UCDMC. For this purpose, committee will prepare the list of volunteers on village level;
- ⊙ To make the people aware about the natural disasters, and their management and safety from disasters through these volunteers on village level;
- ⊙ The committee will try for prevention of natural disasters through close coordination with UCDMC, TDMC and DDMA;
- ⊙ The committee will arrange and provide volunteer to cope with the disaster situation. They will also help Government Departments during natural and man-made disasters;
- ⊙ The committee will establish a uniform system of early warnings and disseminate the vertical flow of information;
- ⊙ The committee will identify safe evacuation routes and centers in the jurisdiction of concerned villages;
- ⊙ Committee will closely coordinate and will arrange regular meetings with UCDMC and will follow the instructions given by UCDMC and TDMC.

3.2. Roles and Responsibilities for Line Departments

National Disaster Management Authority has identified the following significant role of various

27. The list of committees and possible members have been proposed by the consultant based on reviewing different disaster management plans at national and international level.

28. Concern Worldwide led Consortium, Islamabad working in District Muzaffargarh, 2017-18

government and non-government stakeholders for disaster management and emergency response. The

list of functions given below is only a symptomatic one²⁹.

3.2.1. District Disaster Management Authority (DDMA)

Before Disaster	During Disaster	After Disaster
<ul style="list-style-type: none"> ⊙ Lay down guidelines for preparation of disaster management plans by the Government Departments at the district level and local authorities; ⊙ Monitor and ensure implementation of the DDMP; ⊙ Organize and coordinate specialized DRR related training programs for all stakeholders and volunteers; ⊙ Set up, maintain, review and upgrade the mechanism for multi-hazard early warnings, dissemination and education of proper information to public; ⊙ Co-ordinate with, and give guidelines to, local authorities in the district to ensure that post-DM activities are carried out promptly and effectively; ⊙ Review development plans prepared by the government departments, statutory or local authorities with a view that DRR has been integrated into the development activities and projects of the plan; ⊙ Identify buildings and places which could, in the event of a disaster situation, be used as relief centers or camps and make arrangements for water, sanitation and hygiene in such buildings or places; ⊙ Establish stockpiles of relief and rescue materials or ensure preparedness to make such materials available at a short notice during any emergency or disaster; 	<ul style="list-style-type: none"> ⊙ Activate the DEOC as early as possible after a disaster occurs; ⊙ Carryout rapid damage and needs assessment and develop a flash report for assistance and report to PDMA and other relevant stakeholders; ⊙ Close liaison with the Provincial Emergency Operation Centre (PEOC) and update with damage and needs; ⊙ Mobilize TDMC, UCDMCs, VDMCs, PRCS, non-government organizations and voluntary social-welfare institutions for effective response. Take extreme care to evacuate or take care of the highly vulnerable and socially excluded groups; ⊙ Provide shelter, food, drinking water and essential provisions, healthcare and services, and establish emergency communication systems in the affected area and at evacuation/shelter places established by the revenue department; ⊙ Control and restrict vehicular traffic to, from and within, the vulnerable or affected area; 	<ul style="list-style-type: none"> ⊙ Support PDMA Punjab for carrying out detail damage and needs assessment and develop the detail report; ⊙ Maintain close liaison with the PEOC Punjab and UN clusters for needs assessment and effective response; ⊙ Continue and monitor early recovery and rehabilitation activities with the support of I/NGOs, UN Clusters and other stakeholders; ⊙ Facilitate specialized and technical trainings of the Government stakeholders and I/NGOs for reconstruction and recovery process; ⊙ Build the capacities by providing trainings to masons, carpenters etc. for the reconstruction and recovery of the physical infrastructures;

29. National Disaster Management Authority; Extracted from the "National Disaster Management Plan 2012-2022", available at <http://www.ndma.gov.pk/plans/NDMP-Main%20Vol.pdf> Appendix – II; Page: A-II-1 to 37 (Accessed: 24 April 2018)

Before Disaster	During Disaster	After Disaster
<ul style="list-style-type: none"> ⊙ Encourage the involvement of Pakistan Red Crescent Societies, non-Government organizations and voluntary social welfare institutions working at the grassroots level for disaster management; ⊙ Develop pool of master trainers at community and district Government level; ⊙ Take support of the Civil Defence, PRCS and non-government organizations to establish UC and Village Level Disaster Management Committees and ensure their sustainability; ⊙ Develop a pool of volunteers and their database for effective emergency response at the grassroots level for disaster risk reduction; ⊙ Ensure communication systems are in order and disaster management drills are carried out periodically; ⊙ Give directions for the functionality and maintenance of the resources available to any department of the government and the local authority in the district; ⊙ Arrange commemoration days of important past disaster events and use public gathering platforms; ⊙ Ensure that the non-government organizations carry out their activities in an equitable and non-discriminatory manner. ⊙ DDMA should conduct mapping local NGOs; ⊙ DDMA facilitate local NGOs in the process of NOC; ⊙ Provide disability inclusive early warning through various means; ⊙ Ensure District Emergency Operation Center (DEOC) 24/7 Emergency control room has been equipped with all necessary gadgets and operationalized; 	<ul style="list-style-type: none"> ⊙ Control and restrict the entry of any person into, his movement within and departure from, a vulnerable or affected area; ⊙ Remove debris, conduct search and carry out rescue operations. Make arrangements for the disposal of the unclaimed dead bodies; ⊙ Direct any department of the government of the province or any authority or body under that government at the district level to take such measures as are necessary in its opinion; ⊙ Construct temporary bridges or other necessary structures and demolish structures which may be hazardous to the public or aggravate the effects of the disaster; ⊙ Ensure that the non-government organizations carry out their activities in an equitable and non-discriminatory manner; ⊙ Take such other steps as may be required or warranted to be taken in such a situation; ⊙ Working as a bridge between community and government department; ⊙ Provision of relief goods and relief camp management with cooperation of all line departments; ⊙ Reporting of all disaster management activities in district; ⊙ Coordination with provincial authorities for additional support; ⊙ Coordinate with all non-government organizations working in the District; 	<ul style="list-style-type: none"> ⊙ Review and update development plans prepared by the departments of the Government at the District level, statutory authorities or local authorities with a view to make necessary provisions therein for prevention or mitigations of disasters; ⊙ Hire the services of experts and consultants in the relevant fields of recovery and rehabilitation to advise and assist as it may deem necessary; ⊙ Review the DDMP and Contingency Plans in light of lessons learnt and improve the response mechanism; ⊙ Reporting of the activities during disaster; ⊙ Stock verification and updating of ware house; ⊙ Repair and maintenance of relief and rescue equipment's; ⊙ Coordinate all rehabilitation and reconstruction activities with all government departments and NGOs working in the district;

3.2.2. Municipal Committees (MCs)

Before Disaster	During Disaster	After Disaster
<ul style="list-style-type: none"> ⊙ Give technical inputs and approve bylaws related to disaster resilience practices in local context through tehsil councils; ⊙ Suggest, prioritize and approve budgetary requirements for disaster mitigation practices; ⊙ Integrate DRR in short and long term development plans within the municipality/tehsil with a focus on embedding proper planning code and suggesting DRR measures for the highly vulnerable and socially excluded groups; ⊙ Ensure that the multi-hazard, vulnerabilities and risk Assessments have been done, and maps have been developed and prioritized risk prone areas in the municipality/tehsil identified; ⊙ Strict compliance of the land use planning and zoning based on MHVRA conducted; ⊙ Ensure the implementation of bylaws related to encroachment at hazardous places, building codes, land use planning and zonation etc.; ⊙ Identify evacuation/shelter places to face any disaster/emergency; ⊙ Prepare contingency plans for the TMA and organize regular drill/simulation exercises; ⊙ Establish stockpiles of relief and rescue materials or ensure preparedness to make such materials available at a short notice during any emergency or disaster; ⊙ Identify the frequently disrupted sites of sewerages, water supply and sanitation and hence highlight for durable solutions; 	<ul style="list-style-type: none"> ⊙ Coordinate with the UCDMCs/VDMCs for effective emergency response; ⊙ Make arrangements for sanitation, cleanliness, disposal of garbage and carcasses, drainage and sewerage system caused and disrupted by a disastrous event; ⊙ Continue search and rescue activities and removal of debris; ⊙ Ensure health facilities are operationalized and roads are open to have access to health services during the disaster; ⊙ Facilitate formation of voluntary organizations for assistance and help of the victims alongside the international and national humanitarian agencies; ⊙ Conduct rapid damages and needs assessment of the survivors in order to start relief activities accordingly. Prepare flashes appeal and report to DDMA and PDMA Punjab and other relevant higher level authorities; ⊙ Report cases of PWDs, destitute and socially excluded groups to district government and higher authorities in order to streamline their special needs in relief and response operation; 	<ul style="list-style-type: none"> ⊙ Mobilize community for maintaining public ways, public streets, culverts, bridges and public buildings, de-silting of canals and other development activities; ⊙ Facilitate the formation of co-operatives for improving economic returns and reduction of poverty and vulnerability; ⊙ Dispose of debris from street and houses and promote cleanliness and encourage plantation of trees in public places; ⊙ Support in providing accurate, detailed and useful information for preparing detailed damages and needs assessment reports by the DDMA/PDMA Punjab etc;

3.2.3. Forest Department

Before Disaster	During Disaster	After Disaster
<ul style="list-style-type: none"> ○ Take care of the protection of forests, wildlife and the aquatic resources; ○ Training of staff in firefighting, handling of animals, conservation of species and wildlife and first aid etc.; ○ Develop disaster risk management plan with regards to the mandate of the department; ○ Coordinate with the PDMA and other scientific agencies to gather information about hazards and risks prevalent in rangelands that may lead to desertification; ○ Build capacity of the staff of department on disaster risk management in wildlife sector; ○ Supply of drought resistant seeds of tree species to farmers and communities; ○ Control grazing of animal in rangeland areas that have endangered tree species; ○ Ensure a pollution free livable environment in the areas of mandate; ○ Publish materials for communities and other stakeholders about seasonality of hazards and risks in areas of grazing for pasture & water. 	<ul style="list-style-type: none"> ○ Coordinate emergency response activities through the PDMA and make available all kinds of resources to PDMA if required upon the receipt of any disaster situation report; ○ Constitute a Rescue Unit/Disaster Management Unit to cope with any disaster challenge like fire, floods, etc.; ○ The functional units of Punjab Wildlife & Parks department may be divided into three regions i.e. Northern Zone, Central Zone, and Southern Zone; ○ Equipment required for floods, storms, fire and earthquake are motor boats, water lift pumps, special vehicles to shift birds and animals, firefighting equipment, etc. 	<ul style="list-style-type: none"> ○ Supply of drought resistant seeds of tree species to farmers and communities; ○ Ensure a pollution free livable environment and take measures for rehabilitation of the species in the forest areas; ○ Publications of materials for communities and other stakeholders about seasonality of hazards and risks in areas of grazing for pasture of wildlife and forests; ○ Develop recreational facilities in a disaster resilient manner in the rangeland areas; ○ Technical advice for rangeland planting and raising of tree nurseries for forestation and reforestation programs.

3.2.4. Livestock Department

Before Disaster	During Disaster	After Disaster
<ul style="list-style-type: none"> ○ Arrange fodder for livestock before disaster; ○ Capacity building of formers on disaster preparedness and livestock management; ○ Ensure safe fodder storage for livestock in the area; ○ Promotion/Adaptation of disaster resilience measures; 	<ul style="list-style-type: none"> ○ Provide guidelines for evacuation and cattle management of relief camps, ○ Vaccination and treatment for livestock; ○ Damage and needs assessment of livestock; ○ Close coordination and management reporting; 	<ul style="list-style-type: none"> ○ Livestock vaccination; ○ Ensure foods and fodders availability; ○ Advocacy series for rehabilitation; ○ Ensure availability for fodders for post disaster rehabilitation.

Before Disaster	During Disaster	After Disaster
<ul style="list-style-type: none"> ⊙ Formation of value chain groups; ⊙ Maintain emergency stock of vaccination and fodder etc.; ⊙ Mass awareness regarding epidemics and diseases of livestock and poultry. Regular vaccination is an effective tool to prevent diseases; ⊙ Ensure pre flood vaccination of animals to increase their immunity against different diseases; ⊙ Identification of safe points before disaster to ensure safety for livestock. 	<ul style="list-style-type: none"> ⊙ Arrange feed and fodder for surviving livestock; ⊙ Dispose of the dead carcasses to avoid any epidemics outbreak; ⊙ Provision of Wanda, wheat straw (bhoosa) and nutritional supplements for animals; ⊙ Mobile veterinary dispensary should be available for first aid treatment; ⊙ Availability of fresh green fodder / drinking water; ⊙ Announcement through megaphone for public awareness about your; departmental activities in the area; ⊙ Ample quantity of snake bite vaccine should be available; 	

3.2.5. Agriculture Department

Before Disaster	During Disaster	After Disaster
<ul style="list-style-type: none"> ⊙ Prepare Agricultural Disaster Management Plan and contingency plan and organize regular drill/simulation exercises; ⊙ Maintain emergency stock of seeds; ⊙ Creating community seed banks at the UC level to support the small farmers with minimum seed requirements after any disaster to enable them to resume and regenerate agriculture based livelihood activities; ⊙ Identified areas under disaster such as flood must be categorized according to its damage and its impact of disaster for those areas; ⊙ Surveys and identification of crops, agriculture inputs of most vulnerable mouzas to disaster before disasters; ⊙ Set cropping pattern according to the impact of flood or other disaster in that area; 	<ul style="list-style-type: none"> ⊙ Immediately, start interacting with DDMA/DC office for coordinating emergency response activities; ⊙ Make available all the technical and material resources to be made part of the relief effort; ⊙ Carryout agriculture sector's damages/losses and needs Assessment and prepare flash report for response; ⊙ Help other relevant departments in establishing relief camps in safe places. 	<ul style="list-style-type: none"> ⊙ Prepare detail report of agriculture sector damages/losses and needs and submit it to DDMA/DC office for onwards transmission to PDMA/NDMA; ⊙ Repair and rehabilitation of water sources to ensure that agriculture activities are resumed as early as possible; ⊙ Provision of seeds, fertilizers and other agro-inputs/implements to farmers as disaster early recovery support;

Before Disaster	During Disaster	After Disaster
<ul style="list-style-type: none"> ⊙ Forecast to reduce losses of disaster i- e Climate change; ⊙ Mass awareness regarding epidemics and diseases of crops; ⊙ Regular surveillance of water sources, which may be damaged or cause flooding during monsoon; ⊙ Closely coordinating with Pakistan Meteorological Department and the media to ensure that early warning messages are appropriately relayed / disseminated to hazard prone communities. It will help people to plan for sowing/planting and harvesting crops accordingly; ⊙ Arrange different trainings on impact of global warming and climate change and adopting of agriculture crops and enhance the productivity for the farmers; ⊙ Promote adoption of flood and drought resilient crops through research and dissemination to farmers with the help of agricultural extension workers. 		<ul style="list-style-type: none"> ⊙ Document lessons learned and revise the departmental contingency and Disaster Management plan accordingly.

3.2.6. Irrigation Department

Before Disaster	During Disaster	After Disaster
<ul style="list-style-type: none"> ⊙ Equip irrigation Department to mitigate floods and droughts with technical & managerial capacity and modern gadgetry and practices; ⊙ Ensure development & maintenance of flood protection systems in the pre-flood season; ⊙ Identify and mapping of the most vulnerable points of irrigation canals & headwork's in the district and takes corrective measures; ⊙ Demonstrate/assist & train local communities facing localized or regional droughts on cheaper rainwater harvesting and storage techniques; 	<ul style="list-style-type: none"> ⊙ Ensure establishment and operationalization of flood control cell in proper order; ⊙ Maintain liaison with field staff, provincial irrigation department and district authorities; ⊙ Institutionalize regular patrolling of vulnerable points/irrigation canals and breach sites to warn potential victims on time; ⊙ Create and disseminate flood situation reports among the stakeholders. 	<ul style="list-style-type: none"> ⊙ Do the stocktaking exercise of disaster affected areas and examines all the existing flood protection systems like protection walls, spurs studs and head works of the irrigation canals;

Before Disaster	During Disaster	After Disaster
<ul style="list-style-type: none"> ⊙ Establish a mechanism of early warning transmission, up and downstream across communities and establish special flood warning centers at UC level, with support of district administration and CSOs; ⊙ Develop and regularly review the district level plans on water management; ⊙ Identify and discourage encroachment(s) of various waterways, with the help of other District authorities; ⊙ Closely monitor discharge rates in the major water bodies, passing through the district and for this purpose optimize the functionality of the installed gauges; ⊙ Arrange protection material such as sandbags, stones, machinery, human resources and other material to be used at the time of need especially before the onset of monsoon. 		<ul style="list-style-type: none"> ⊙ Estimate and collect damages data and do need Assessment in terms of repair / maintenance and disseminate the information to the relevant stakeholders for securing needed resources; ⊙ Coordinate the repair work of damaged irrigation infrastructures; ⊙ Prepare a sectoral specific recovery plan.

3.2.7. Revenue Department

Before Disaster	During Disaster	After Disaster
<ul style="list-style-type: none"> ⊙ Being one of the key district departments, revenue has to do a lot with disaster mitigation, preparedness and response; ⊙ Support DDMA for carrying out the MHVRA which will help in identifying and prioritizing the most vulnerable areas for concerted efforts; ⊙ Inform the office of the DC and DDMA about the available financial resources against the contingency/disaster management plan and present a clear picture of gaps to be filled either by the district government's own funds or by the provincial government's funds through PDMA; 	<ul style="list-style-type: none"> ⊙ Establish the shelter places in coordination with other line departments, NGOs and philanthropists and evacuate the affected people; ⊙ Keep track of in-coming relief support, develop a relief distribution mechanism, and start providing assistance to the disaster affected population; ⊙ Coordinate with the district finance & planning department to ensure timely release of required funds through the DC's office; ⊙ Collect, verify and disseminate information about relief assistance being provided by the Government and non-Governmental actors; 	<ul style="list-style-type: none"> ⊙ Start carrying out detailed damages and losses report and support DDMA offices for detailed report; ⊙ Before the early recovery and rehabilitation activities take place, identify and prioritize areas of interventions by the Government, NGOs sector and CBOs. ⊙ Inform I/NGOs and the UNO about the district's priorities and facilitate their work;

Before Disaster	During Disaster	After Disaster
<ul style="list-style-type: none"> ⊙ Prepare and regularly update the contact list of Patwaris (revenue officials) to ensure that they are contacted and deployed in any looming emergency; ⊙ Capacity building of the revenue official in DRR and formal training on damages and needs Assessment would make them a very useful resource for accurate data collection for the district; ⊙ Regular liaison with the UC and village level disaster management committees and volunteers in order to take their help during any emergency. 	<ul style="list-style-type: none"> ⊙ Assess relief needs on a daily basis and prioritize to meet the most urgent needs of the affected people. It is of vital importance to prepare a sheet of required assistance on a weekly basis and gradually make it a fortnightly and then a monthly exercise; ⊙ Assess the overall situation and determine the likely timeframe of the evacuation/shelter places' population return to their homes. 	<ul style="list-style-type: none"> ⊙ Regularly monitor and supervise early recovery and rehabilitation activities; ⊙ Prepare and provide a progress update to the district administration and other relevant stakeholders; ⊙ Prepare budgetary estimates for reconstruction activities if the damages are massive.

3.2.8. District Health Authority

Before Disaster	During Disaster	After Disaster
<ul style="list-style-type: none"> ⊙ Undertake MHVRA for health facilities and services; ⊙ Develop a health risk management plan for the whole District based on MHVRA; ⊙ Integrate disaster preparedness and response capacities into all existing and future health programs at the district level; ⊙ Devise strategies for community involvement in all aspects of emergency preparedness, response and recovery with regard to the health sector. A pool of community health workers (CHWs) should be established or strengthened and can be linked to the UC and village level DM committees; ⊙ Health related data should be maintained and updated on priority basis along with data of at-risk communities and other elements that are available digitally; ⊙ Identify safe evacuation places in the health facilities and conduct regular emergency response and evacuation drills with all health officials; 	<ul style="list-style-type: none"> ⊙ Set-up medical camps and mobilize emergency health teams, including mobile hospitals; ⊙ Mobilize all available health resources and possible assets for emergency interventions; ⊙ Provide daily update on health response and highlight gaps/needs accordingly; ⊙ Keep the disaster-hit communities posted about any likelihood of epidemics and the precautionary measures. CHWs can be mobilized to gather data and report. This is very important to prevent a secondary wave of deaths in affected areas; ⊙ Guide and facilitate the non-governmental organizations in addressing the priority health needs in the most vulnerable areas; 	<ul style="list-style-type: none"> ⊙ Carrying out detailed damages and loss Assessment in the health sector; ⊙ Regular and vigilant health risks monitoring to deal with post-disaster diseases /epidemics; ⊙ With available resources, start repairing or retrofitting the damaged health infrastructure in order to cater to the health needs of the affected population during early recovery and rehabilitation stages;

Before Disaster	During Disaster	After Disaster
<ul style="list-style-type: none"> ⦿ With the support of DDMA, CHWs along with UCDMCs and VDMCs can be engaged to collect at-risk population data. 	<ul style="list-style-type: none"> ⦿ Conduct rapid damages / losses, needs Assessment of the health sector, and prepare flash reports. 	<ul style="list-style-type: none"> ⦿ It is important for the health officials to make sure that the drinking water is not contaminated. Similarly, proper dumping of hospital waste is necessary to be taken care of; ⦿ Regularly monitor and supervise early recovery and rehabilitation activities in the health sector.

3.2.9. District Education Authority

Before Disaster	During Disaster	After Disaster
<ul style="list-style-type: none"> ⦿ Conduct MHVRA for all educational facilities; ⦿ During the construction of new school buildings or any other educational facilities, proper designing, keeping in view the need of PWDs, should be incorporated in the structure; ⦿ Prepare Emergency Response Plan and disaster management plan for educational facilities and arrange regular drills and exercises during non-disaster phase; ⦿ Gather information about I/NGOs & CBOs working in the District in the education sector and make sure they mainstream DRR aspect into their project activities; ⦿ Identify schools that can be used as temporary evacuation centers for displaced population. It is important that the identified facilities have water, proper sanitation and latrine facilities; 	<ul style="list-style-type: none"> ⦿ Mobilize teacher and student volunteers to assist in the search & rescue operations to be followed by setting-up emergency evacuation and relief camps at already identified educational facilities; ⦿ In case of flood, inform teachers of those schools where the water can probably hit the school building and cause damages. This information will help teachers to take any emergency preparedness measures with support from local communities; ⦿ Conduct preliminary damages and needs Assessment and submit flash reports to higher authorities, DDMA and DC office; 	<ul style="list-style-type: none"> ⦿ Undertake a detailed Assessment of damages inflicted by the disaster on the educational facilities. On the basis of this report, determine short, medium and long-term needs of the education sector in the District; ⦿ Plan and provide provisional assistance for education after a disaster to ensure continuity of learning;

Before Disaster	During Disaster	After Disaster
<ul style="list-style-type: none"> ⊙ Engage active students through Girls Guide, Boy Scout Teams, and Parent Teacher Committees (PTCs) to conduct regular trainings on emergency response management for students, teachers and parents; ⊙ Identify safe evacuation places in the school and organize regular emergency response & evacuation drills with students and teachers; ⊙ Promote the spirit of volunteerism amongst students through awareness raising and training; ⊙ Build capacities of teachers on school safety during emergencies and disasters; ⊙ Educational facilities related data should be maintained and updated on a regular basis along with data on those who are more vulnerable, that include children under age of 10 and special persons; ⊙ Mass awareness and capacity building of the vulnerable groups through education & trainings and can disseminate messages by using students as a medium. 	<ul style="list-style-type: none"> ⊙ Temporary shelters in the form of the school's buildings can be provided for displaced population during a disaster, having water supply and latrine facilities available mostly in the buildings. Teachers can be used as a valuable working force for smoothly running of the emergency operating centers established at evacuation sites. 	<ul style="list-style-type: none"> ⊙ Rehabilitation and restoration of damaged educational facilities should be given high priority. PTC can be an effective bridge or communication channel for long term rehabilitation and reconstruction activities; ⊙ Nonstructural activities including preparedness, trainings, drills, awareness campaigns and celebration of the commemoration day in the schools should be continued.

3.2.10. Police Department

Before Disaster	During Disaster	After Disaster
<ul style="list-style-type: none"> ⊙ Prepare details of inventory available at each police station that may be used during any disaster or emergency; ⊙ Prepare contingency and DM plans for the department; ⊙ Working with the Pakistan Meteorological Department and DC office, support in dissemination of warning to the affected communities; ⊙ Support district Government authorities in the process of evacuating affected population to safer places. 	<ul style="list-style-type: none"> ⊙ Ensure law and order during any disaster situation in the affected areas; ⊙ Ensure security measures at evacuation points, in evacuating areas, at relief centers and godowns; ⊙ Provide assistance in emergency warning, rescue, relief and evacuation operation; ⊙ Ensure that over-loaded trucks are not coming/going to disaster affected areas; 	<ul style="list-style-type: none"> ⊙ Keep order and prevent obstruction on public places; ⊙ Aid and cooperate with other agencies for the prevention of destruction of public property by violence, fire or natural calamities; ⊙ Provide assistance to victims of road accidents;

Before Disaster	During Disaster	After Disaster
	<ul style="list-style-type: none"> ⊙ Divert traffic where necessary to keep the running of emergency relief operations; ⊙ Ensure security of humanitarian workers who perform duties during disaster; ⊙ Prevent harassment of women and children during any emergencies. 	<ul style="list-style-type: none"> ⊙ Protect life and property of citizens; ⊙ Preserve and promote public peace.

3.2.11. Rescue 1122 Services

Before Disaster	During Disaster	After Disaster
<ul style="list-style-type: none"> ⊙ Prepare contingency plan scenarios for the residential and commercial areas; ⊙ Capacitate the community before occurrence of any calamity for effective response. ⊙ Allocate sufficient resources for ambulances, firefighting equipment including running costs and trained human resources for rescue services; ⊙ Fully equip Rescue 1122 services at district and tehsil level; ⊙ Purchase more firefighting equipment and ambulances according to size and population of the each district in Pakistan; ⊙ Develop IEC material in national/local languages on fire prevention measures; ⊙ Promote Rescue 1122 services through media and other sources so that people get aware about services and can benefit from it; ⊙ Develop fire risk monitoring system in urban localities; ⊙ Conduct firefighting and rescue drills on regular basis; ⊙ Keep all the ambulances and rescue vehicles and fire brigade vehicles in order to deploy them anytime and anywhere; 	<ul style="list-style-type: none"> ⊙ Participate in relief and rescue activities with the collaboration of District Government and social sector organizations. ⊙ Deploy firefighting teams; and search and rescue teams. ⊙ Cordon off the area; activate cart for the affected area for quick response. ⊙ Immediately send ambulances and search and rescue teams after receiving phone call; ⊙ Search and rescue disaster victims; ⊙ Provide first aid to affected population; and provide boats for shuttle service during flood. ⊙ Evacuate seriously injured people to hospital for further assistance; ⊙ Transport dead bodies and transfer to the Government authorities/hospitals; ⊙ Coordinate with PDMA/DDMA and district administration for any further instruction; ⊙ Help the District Administration in establishment of the tent villages; 	<ul style="list-style-type: none"> ⊙ Support in data collection with response to damage and needs ⊙ Building capacities of staff for better preparedness for emergency response ⊙ Carryout regular drills and simulation exercises ⊙ Maintain regular coordination mechanism with DDMA and other disaster response organizations ⊙ Develop pool of master trainers on CERT and develop volunteer database.

Before Disaster	During Disaster	After Disaster
<ul style="list-style-type: none"> ⊙ Organize training courses on search and rescue, first aid, traffic accidents, building collapse, explosions etc. for Pakistan Red Crescent Society branches, volunteers, teachers, community workers so that they can play positive role in emergency; ⊙ Develop cadre of volunteers in the form of Community Emergency Response Team (CERT) and equip them with emergency response kits; ⊙ Maintain emergency response database and share with provincial head quarter and all other stakeholders. 	<ul style="list-style-type: none"> ⊙ Provision of drinking water at camp villages with the coordination of Municipal Committees; ⊙ Support in distribution of dry foods to the flood affectees through boats. 	<ul style="list-style-type: none"> ⊙ Protect life and property of citizens; ⊙ Preserve and promote public peace.

3.2.12. Civil Defence Department

Before Disaster	During Disaster	After Disaster
<ul style="list-style-type: none"> ⊙ Assist local administration/armed forces in rescue, evacuation and relief measures; ⊙ Render first aid, fire safety and rescue trainings to communities, individuals and organizations during peacetime; ⊙ Develop an emergency evacuation plan and conduct regular drills and exercises; ⊙ Create community awareness on public safety; ⊙ Recruit/induct operational staff for search and rescue teams with required specialized skills and equipment; ⊙ Ensure provision of trained rescue workers/Razakars and first aid staff; ⊙ Educate and train volunteers on DRR, emergency response management; ⊙ Participate in emergency drills with other stakeholders. 	<ul style="list-style-type: none"> ⊙ Undertake search & rescue activities immediately after a disaster; ⊙ Assist in restoration of essential traffic so as to carry out rescue work without any hindrance or obstruction; ⊙ Render first aid to injured persons and transport them to nearest hospitals facilities; ⊙ Ensure evacuation to avoid further loss of life and property; ⊙ Assist in debris clearance and restoration of essential services to the affected buildings; ⊙ Search and defuse unexploded bombs in the affected areas; ⊙ Work with the fire brigade in rescue and first aid operations related to fire and other rescue incidents. 	<ul style="list-style-type: none"> ⊙ On the basis of the response activities that are performed, make a detailed assessment of the capacities of the department and identify gaps and requirements; ⊙ Prepare a plan of action for the department and start resource mobilization accordingly.

3.2.13. Social Welfare Department

Before Disaster	During Disaster	After Disaster
<ul style="list-style-type: none"> ⊙ Develop disaster management and contingency plans with regards to the mandate of the Department; ⊙ Raise awareness of staff of the Department about special vulnerabilities and capacities of women and children in relation to disasters; ⊙ Encourage involvement of women and PWDs in disaster risk management activities; ⊙ Promote awareness amongst women and PWDs in hazard-prone areas about disaster risks and disaster preparedness; ⊙ Develop capacities of women, PWDs and children focused organizations on disaster risk and emergency management; ⊙ Ensure that needs of women survivors are addressed in post disaster situations during the relief rehabilitation and reconstruction phases; ⊙ Properly plan and provide shelter to the affected women, beggars, drug rehabilitation for addicts, special education, blind institute, registration of the disabled, child protective measures and rehabilitation of other socially excluded groups. 	<ul style="list-style-type: none"> ⊙ Facilitate participation of women and PWDs in the management of relief, rehabilitation and reconstruction activities; ⊙ Activate and use the emergency phone numbers as helpline for child protection during a disaster; ⊙ Provide shelter provision to affected women, support in damages and needs Assessment of the affected area, service provision through formal shelter provision to missing or unaccompanied children. 	<ul style="list-style-type: none"> ⊙ Support post-disaster rehabilitation of livelihoods of women survivors, which is mostly in the informal sector and is usually ignored; ⊙ Support the District Government and PDMA Punjab for re-unification of missing unaccompanied children, women, PWDs, rehabilitation of families and psychosocial support provision.

3.2.14. Communication & Works Department

Before Disaster	During Disaster	After Disaster
<ul style="list-style-type: none"> ⊙ Develop District guidelines for safer construction in hazard-prone areas through multi hazard approach; ⊙ Ensure DRR checklist of PC-1 has been seriously implemented in all new schemes; ⊙ During the construction of any new buildings, proper designing keeping in view the need of PWDs should be incorporated in the structure; 	<ul style="list-style-type: none"> ⊙ Send information to other district departments on road conditions, especially regarding blocked or impassable roads after a disaster; ⊙ Ensure to drain the flood water from roads and remove debris from under the bridges for smooth flow of water; 	<ul style="list-style-type: none"> ⊙ Undertake a detailed assessment of damages of government buildings, roads infrastructure including bridges, culverts, etc.;

Before Disaster	During Disaster	After Disaster
<ul style="list-style-type: none"> ⊙ Conduct training of builders, contractors and masons on safer construction methods and provide guidance on adopting inclusive DRR measures during the construction; ⊙ Monitor construction of buildings and infrastructure to ensure that safer construction techniques are followed; ⊙ Incorporate disaster risk assessment in the planning process for construction of new roads and bridges; ⊙ Construct, maintain & repair district and rural roads, bridges, tunnels, causeways etc.; ⊙ Develop guidelines on conduct of damage and loss assessment of infrastructure and government buildings in the event of a disaster, and conduct assessments after disasters. 	<ul style="list-style-type: none"> ⊙ Monitor disaster situation (in case of flood and landslide) with regard to roads and coordinate with other district departments for transporting relief items to the affected areas. 	<ul style="list-style-type: none"> ⊙ Prepare a report of damages to be shared with the district and provincial authorities along with budget requirements for the rehabilitation and reconstruction of damaged/ destroyed infrastructure.

3.2.15. Public Health Engineering Department

Before Disaster	During Disaster	After Disaster
<ul style="list-style-type: none"> ⊙ Repair and maintenance of the structure in command areas; ⊙ Preparation of contingency plan highlighting resources available to the department. ⊙ All the rural water supply schemes functioning in different areas should be properly visited, if there is gap regarding pump house, tube wells pumping machinery and water supply lines, they should be reported in written to higher authorities and should take appropriate actions; ⊙ Public health engineering department has a water testing laboratory at district level. The laboratory should be well equipped for testing the water samples. 	<ul style="list-style-type: none"> ⊙ Collect damages data and prepare reports for onward submission. ⊙ Community development organization unit along with engineering staff of should visit the affected areas and report the damaged structures of the water supply schemes; ⊙ Aqua safe tablets should be distributed in the flood effected areas and tell the community about the uses of aqua safe tablets; ⊙ Fresh water or purified water should be supplied to the affected areas to prevent the people from water borne diseases. 	<ul style="list-style-type: none"> ⊙ Rehabilitation of the damaged infrastructure, including protection walls, retaining walls, check dams, water ponds, surface water tanks, land leveling, field terracing, small dams, spurs etc; ⊙ All the water supply structures such as pump house, pumping machinery, pipelines and filtration plants should be properly rehabilitated and functioned; ⊙ All the damaged pipelines should be replaced / repaired.

3.2.16. Media

Before Disaster	During Disaster	After Disaster
<ul style="list-style-type: none"> ⊙ Develop understanding with the subject of DRM; ⊙ Look into DRM capacities of the district departments and NGOs operating in the district. It will be very helpful to identify gaps (preparedness & response) and inform the concerned authorities and hazard prone communities about them; ⊙ Keep a close eye on development schemes and assess with help from technical experts as to what extent such schemes are going to be beneficial for hazard prone communities; ⊙ Inform communities about any impending hazard on the basis of information that you may have received from the Met Department. This is called early warning dissemination. Correct early warning and its timely dissemination can save lives and property of the hazard prone communities. 	<ul style="list-style-type: none"> ⊙ Monitor emergency relief activities and identify gaps and the required needs of the most vulnerable people (elderly, women, children, religious minorities, etc.); ⊙ Keep track of the in-coming external relief assistance and play a role of a watchdog so that the aid is spent judiciously on disaster victims; ⊙ Compile success stories of disaster survivors & share their courageous efforts through electronic & print media; ⊙ Besides, identifying gaps and objectively criticizing the response efforts, it is always useful to acknowledge and appreciate the good work of government and non-governmental actors involved in emergency response. 	<ul style="list-style-type: none"> ⊙ After any disaster, the most significant part that a media person can play is to gather as much information as possible about damages and losses and the response efforts. It helps the government authorities and other stakeholders to prepare more informed action plans for early recovery and rehabilitation; ⊙ Continue monitoring early recovery and rehabilitation activities.

3.2.17. Pakistan Army

Before Disaster	During Disaster	After Disaster
<ul style="list-style-type: none"> ⊙ In consultation with NDMA, PDMA Punjab and other line department, identify areas that are most likely to be impacted in case of a disaster; ⊙ Prepare a disaster response plan and conduct regular drills and exercises; ⊙ Accordingly, prepare and upgrade necessary equipment, manpower and other necessary material to be used/deployed immediately after a disaster; ⊙ Conduct regular capacity building programs for soldiers so that they are able to carry out emergency relief activities effectively; 	<ul style="list-style-type: none"> ⊙ Provide search and rescue services where needed; ⊙ Evacuate people to safer areas and evacuation centers and focus on giving priority to women, children and PWDs; ⊙ Maintain close liaison with the district government and DDMA and if required, establish emergency relief centers and provide disaster victims with lifesaving food, shelter and health facilities; 	<ul style="list-style-type: none"> ⊙ Supplement early recovery efforts of civilian administration and the humanitarian community; ⊙ Reconstruct / repair roads and bridges at important locations.

Before Disaster	During Disaster	After Disaster
<ul style="list-style-type: none"> ⊙ Evacuate people to safer areas and designated evacuation centers before and after a disaster. 	<ul style="list-style-type: none"> ⊙ Install temporary bridges where appropriate to ensure mobility of affected populations and smooth transportation of relief items; ⊙ Provide logistic back-up in terms of trucks, boats, helicopters etc. to the civil administration, if need be. 	

3.2.18. Private Sector (NGOs and PRCS etc.)

Before Disaster	During Disaster	After Disaster
<ul style="list-style-type: none"> ⊙ Support in developing disaster management plans at all levels and help DDMA for its implementation; ⊙ Mobilize communities and develop local level capacities on disaster risk reduction ⊙ Help and provide technical support in conducting MHVRA under the supervision of and with close coordination with the DDMA; ⊙ Provide all necessary trainings, conduct drills/exercises and provide necessary equipment to the DRR committees with the close coordination of the DDMA; ⊙ Support DDMA in establishing the Tehsil/UC/Village level disaster management committees according to the set criteria of the PDMA Punjab; ⊙ Participate in DRM activities such as training, public education, damage assessment, rehabilitation and construction projects; ⊙ Implement programs on disaster risk reduction through structural interventions; ⊙ The PRCS is to assist the district government in crises, emergencies and disasters. 	<ul style="list-style-type: none"> ⊙ Facilitate local authorities in emergency relief operations (search& rescue, establishment of evacuation/relief camps, food distribution to displaced, provision of health services, etc.); ⊙ Establish information management centers at evacuation/relief camps with close coordination of the DC office and the DDMA. 	<ul style="list-style-type: none"> ⊙ Mobilize disaster affected communities for early recovery and rehabilitation efforts; ⊙ With the support of DMCs assess damages/losses and needs and contribute it to the district government's data; ⊙ Prepare village level early recovery and rehabilitation plans and mobilize resources for their implementation; ⊙ Provide emergency livelihood support to communities in terms of providing agriculture inputs, conditional cash grants, etc.; ⊙ Work on promoting community based disaster risk management.



Chapter - 4

**Strategies for Disaster Risk
Reduction in District Muzaffargarh**



4.1. Ongoing Investment Areas for Disaster Risk Management

After frequent disasters happened at the advent of the recent century, influx of resources came to country in the form of human, technical and financial resources especially in the areas of CBDRM, MHVRA, DRM planning, early warning system strengthening and institutional capacity assessment. For this purpose, International community extends their support in the form of involvement of United Nations Organizations, INGOs, Banks and other donor agencies like DEPICHO and USAID etc. Some of the key areas where works have been done are as follows;

4.1.1. Community Based Disaster Risk Management

CBDRM is one of very important area where the National and Provincial Disaster Management Authorities are giving very high priorities. Different programmes were initiated by different organizations in Pakistan including NDMA, NIDM, PDMA KP, ERRA, DEPICHO and some other organizations especially after the devastating earthquake 2005 and flood 2010. As for as CBDRM programme in Punjab is concerned, these models were adopted time to time by different stakeholders, however, until now we can't present a successful model which can be adopted and replicated in rest of the districts to develop disaster resilient communities. Therefore, there is intense need to develop and strategize a standard CBDRM model for unifying of efforts and avoid duplications. In this regard, the Government of Punjab has received financial support from the World Bank under the project titled "Disaster and Climate Resilience Improvement Project (DCRIP)". As part of this project, the PDMA Punjab is trying the standardize to strengthen the emergency response capacities of the communities through developing the following deliverables³⁰;

- ⊙ Develop Community Based Disaster Risk Management Programme for Punjab Province for coming five years;

- ⊙ Develop standard training toolkit including Trainer guidebook and participant's workbook) on CBDRM;
- ⊙ Conduct Training and Trainers (TOT) and develop a pool of master trainers initially in five selected districts but can be extended to other Districts later on. There will be two tiers master trainers (a). At government department level (b). At community level.

Similarly under the Building Disaster Resilience in Pakistan (BDRP), the Concern worldwide with local partners namely Welthungerhilfe (WHH), Doaba Foundation and Farmer Development Organization (FDO) have formed union council and village level disaster management committees in seven union councils namely Hanjrani, Bait Qaim Wala, Sheikh Umer, Aziz Abad, Chack Farazi, Rangpur and Jarh.

We are hopeful that all these existing models as well as PDMA Punjab CBDRM model will help in standardizing the CBDRM approach all over Punjab for developing disaster resilient communities in Punjab Province.

4.1.2. Early Warning System

Without any doubt, floods remain the most devastating natural disasters in Province of Punjab since time immemorial. With the advent of this century, the trend in flood damages has been growing exponentially and has observed at various occasions. This is a consequence of the increasing frequency of heavy rains due to many factors but more because of the global warming and climate change implications, heavy and erratic rains are more common with high frequency and magnitude, changes in upstream land-use and a continuously increasing concentration of population and assets in flood prone areas. Flood Forecasting forms an important tool in reducing vulnerabilities and flood risk and form an important ingredient of the strategy to "live with floods", thereby contributing to national sustainable development.

Pakistan Meteorological Department is key instrumental to disseminate the early warning to the target areas and communities. In this regard, the Flood

30. Project Implementation Unit, Provincial Disaster Management Authority, Punjab Province, 2018

Forecasting Division (FFD)³¹ is serving the nation to improve the capacity of meteorological and hydrological services to jointly deliver timely and more accurate products and services required in flood forecasting and warning and in collaborating with disaster managers, active in flood emergency preparedness and response. Pakistan Meteorological Department is also issuing early warning in case of other hazards including earthquake, drought, cyclones and tornadoes. Media is very effective tools playing important role in disseminating of early warning to remote communities in the province. However, there is dire need that at risk communities should get maximum benefit of such early warnings, which is now with the aggressive use of media, is disseminating affectively. Still there is lack of public awareness and need for translating flood information into such a simple and affective language where communities could easily understand and act upon.

4.1.3. Multi-Hazard, Vulnerability and Risk Assessment (MHVRA)

Multi-hazard, vulnerability and risk assessment is one of key areas of the DRR as it provides tools, models and techniques to assess the past damages and forecast future potential damages due to different types of hazards like flood, earthquake, drought etc. The exposure defined as the degree to which the elements at risk exposed to a particular hazard. The vulnerability described as the conditions obtained by physical, social, economic and environmental factors, which

increase the vulnerability of a community to the impact of hazards. The risk is the possibility of anticipated losses due to interactions between hazards and vulnerable conditions in a given area during specific period. MHVRA is the initial but one of a major phase in planning for disaster risk reduction activities. It specifies an evidence-based assessment of the risk so that effective risk reduction measures taken.

At Punjab level, there were different efforts for conducting MHVRA but all were carried out for certain areas within the domain of specific projects. However, we cannot find a complete database of MHVRA in digital or in hard form with the PDMA or any other relevant Departments. In the wake of 2014 countrywide flooding, Government of Pakistan conducted meeting with international donors including Asian Development Bank (ADB) and the World Bank (WB). Responding to the request for support to enhance resilience against natural catastrophes, by mid of 2015, ADB Assisted “Flood Emergency Reconstruction and Resilience Project” (FERRP) and WB assisted “Disaster and Climate Resilience Improvement Project”(DCRIP) was launched in the Province of Punjab. Both banks are involved in different activities to develop capacities of the PDMA Punjab, some other important sectors and District Government Departments. With funding support of the ADB, PDMA continues to develop a database of MHVRA in 20 disaster prone Districts of Punjab Province in three different phases. These Districts are as follows;

Table 4.1: List of District to be covered under MHVRA Study in Punjab Province

Phase I	Phase II	Phase III
1. Hafizabad	1. Khushab	1. Narowal
2. Sialkot	2. Mianwali	2. Jhelum
3. Layyah	3. Bhakkar	3. Gujrat
4. Jhang	4. Rajanpur	4. Gujranwala
5. Muzaffargarh	5. Multan	5. Kasur
	6. Rahim Yar Khan	6. Mandi Bahuddin
	7. D.G. Khan	7. Chiniot
		8. Sargodha

31. Pakistan Meteorological Department, Islamabad http://www.pmd.gov.pk/FFD/index_files/objectives.htm

The above table 4.1 shows that District Muzaffargarh has been included for conducting MHVRA in Phase I, where initial MHVRA data has been compiled at the District Government Office. According to the MHVRA results, the flood prone mouzas have been divided into three zones namely Zone I, II and III. According to the MHVRA results, there are 472 mouzas situated in flood prone areas along the river. Table 4.2 shows the

detail as follows while detail data about these mouzas are available at District Muzaffargarh and PDMA Lahore office also³².

After completing the MHVRA complete survey, there is hope that mouza wise hazard and risk profiling will be available which will help district government for development, DRR planning and emergency response management.

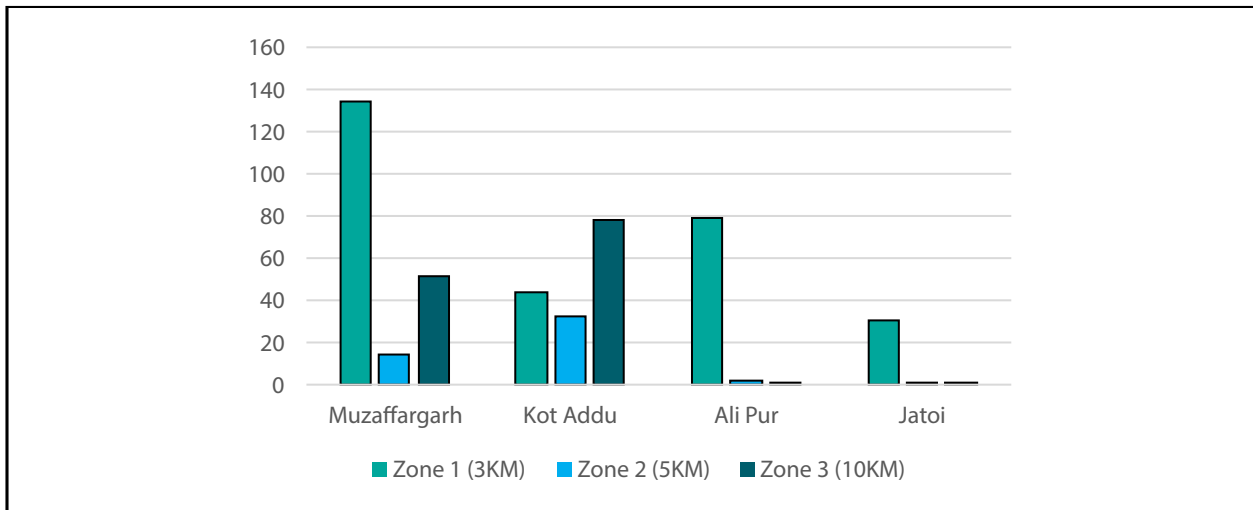


Figure 4.1: Number of Mouzas with MHVRA Data Set

4.1.4. Planning for Disaster Risk Management at all Level

After the promulgation of National Disaster Management Act 2010, MHVRA and disaster management planning at various levels became one of crucial required and most essential document to be available with the relevant stakeholders to focus on reducing the vulnerabilities and increasing the local capacities to combat the disasters. In this regards, National Disaster Management Authority has approved standard guidelines to develop the provincial and district disaster management plans all over the countries. Preparation of disaster management plan is one of an important document to be prepared by the District authorities.

The disaster management plan provides strategic guidance and help the Provincial and District level government department in unifying the efforts of all

partners working in various sectors and further establish a clear direction and provide coordinated basis for all partners in bringing a paradigm shift in the District from a response and recovery to mitigation and preparedness approach.

Like other Provinces, different initiatives started in Punjab Province also where United Nations, I/NGOs and financial institutions and donors help the provincial and district government in developing the disaster management plans. Under the one UN DRM Joint Programme, a Provincial disaster management plan and various district level disaster management plans developed during 2008-2010, however as plan is always a dynamic document and need to be revised especially after facing frequent disasters. Realizing the importance, World Bank under DCRIP project is going to develop District Disaster Management Plans for 18 districts and one Provincial Disaster Management Plan. Similarly UNDP under the Building Disaster Resilience

32. District Government Muzaffargarh; "Flood Contingency Plan 2017"; Page 8

in Pakistan (BDRP) is developing DDMP for District Rajanpur and Muzaffargarh, while Concern worldwide with local partners namely Welthungerhilfe (WHH), Doaba Foundation and Farmer Development Organization (FDO) have developed UC and village level DRM Plans in seven union councils namely Hanjrani, Bait Qaim Wala, Sheikh Umer, Aziz Abad, Chack Farazi, Rangpur and Jarh³³. Although it is encouraging to see the availability of such crucial documents with the Government stakeholders, there is, however, need for mobilizing technical, human and financial resources for the Provincial and District Government to ensure the implementation of these plans.

4.1.5. Asset Management Plan

There is intense need for assessing the institutional capacities of different Government Departments in terms of disaster risk management. It will help the DRM stakeholders including NDMA and PDMA Punjab to engage different Government Departments to develop a strong coordination mechanism and enhance capacities by mutual learning for swift emergency response and disaster management. World Bank under DCRIP project has already developed institutional capacity assessment of Punjab Province in order to know the grey areas for implementation of the DRM programme on long term.

4.2. Mitigation Planning

Vulnerability to natural and man-made hazards does not necessarily reduced by the development process. It is nothing but true when we analyze unplanned

developments wherein plenty of examples can be quoted from the recent years indicating increased vulnerabilities of communities in the country due to unplanned and hap-hazard development work. As we know during the recent decade various incidents of disasters have disrupted the development activities and despite the fact that many precious lives were lost and properties damaged, important heavy infrastructure was damaged severely with fraction of time. Sustaining these damages taught a lesson to take proactive steps focusing more on mitigation measures by adopting properly the building codes to build disaster resilient infrastructure besides to impart necessary trainings including awareness raising sessions for capacity enhancement of all those responsible for infrastructure development and to the disaster prone area communities.

The mitigation measures proposed below are the results of series of consultation meetings, consultation workshops at district and tehsil level followed by a validation workshop in Muzaffargarh to take government and non-government stakeholders on board to propose DRR measures that are designed purely on local wisdom and chosen by the concerned stakeholders who are frequently affecting by the episodes of disaster events. It is worth to mention that the suggested mitigation measures in this DDMP are aligned with the National Disaster Management Plan 2012-2022 priority areas No.7& 9 (Annexure II); National DRR Policy 2012 section 4.6; and SFDRR 2015-2030 priority area No. 3.

For the intensive consultations, the following sectors were taken into consideration;

Education	Municipal Committee
Public Health Engineering Department	Irrigation
Civil Defence	Health
Rescue 1122	Communication & Work
Agriculture	Revenue
Livestock	Social Welfare

As a result of the series of consultations, the following mitigation measures have been proposed by the

above stakeholders;

33. Concern Worldwide led Consortium, Islamabad working in District Muzaffargarh, 2017-18

4.2.1. Mitigation Measures Proposed for Education Sector

Sr. #	Proposed Interventions	Priority		
		Short term (1-2 Years)	Medium term (2-3 Years)	Long term (4-5 Years)
4.2.1.1.	Conduct MHVRA of all types' educational institutions in hazard-prone areas.	X		
4.2.1.2.	Development of Department level DRM operational plan.	X		
4.2.1.3.	Promoting hazards resilient construction of new education buildings by applying proper building codes.	X	X	X
4.2.1.4.	Staff capacity building on mainstreaming DRR into education sector and develop pool of technical and DRR experts in education sectors.	X	X	
4.2.1.5.	Formation of EWS and evacuation committees at school level, identify safer places and conduct drill on evacuation.	X	X	
4.2.1.6.	Building capacities of students, teachers and parent teacher council through various trainings on DRM and Emergency Response.	X		
4.2.1.7.	Development of IEC material on disaster management and emergency response for wide dissemination and public awareness among schools.	X		
4.2.1.8.	Arrange awareness raising sessions and organize rallies by involving students and teachers on National and international DRR day.	X		
4.2.1.9.	Suggestions and recommendation to schools for gender sensitive and inclusive planning. Construction of ramps for students and teachers with disabilities.	X		

4.2.2. Mitigation Measures Proposed for Health Sector

Sr. #	Proposed Interventions	Priority		
		Short term (1-2 Years)	Medium term (2-3 Years)	Long term (4-5 Years)
4.2.2.1.	Ensure that health related staff fully understand and fully trained in mainstreaming DRR into health sector.	X		
4.2.2.2.	Capacity assessment and resource mapping through MHVRA of health facilities and to determination the priorities for protecting public health facilities for emergency response management.	X		
4.2.2.3.	Development of health preparedness plans for District health authority, hospitals and health facilities.	X	X	

Sr. #	Proposed Interventions	Priority		
		Short term (1-2 Years)	Medium term (2-3 Years)	Long term (4-5 Years)
4.2.2.4.	Building capacities of hospitals by arranging Hospital Preparedness for Emergencies (HOPE) training on the NDMA standard guidelines.	X	X	X
4.2.2.5.	Reinforcement via establishment/strengthening mobile health teams, provision of emergency medicines to the health facilitators to provide basic health care.	X	X	X
4.2.2.6.	Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities. Established Disease Early Warning Systems in place, reaching, and serving people at the community level.	X	X	X
4.2.2.7.	Site health facilities on higher grounds or make flood protection bunds around these facilities.	X	X	
4.2.2.8.	Build the capacity of health practitioner Mass Casualty Incidents and incident command system to prepare them for effective emergency response management.	X	X	X
4.2.2.9.	Identification and ranking of critical assets for mitigation measures including retrofitting and repairing.		X	X
4.2.2.10.	Develop pool of master trainers through various trainings programme on health focused disaster risk management for LHVs, LHWs, LHSs, other para medical staff and CHWs.	X		
4.2.2.11.	Conduct non-structural mitigation measure for health facilities and subsequently Identify evacuation sites, construction and maintenance of emergency exists.	X	X	X
4.2.2.12.	Develop and enforce safe building codes to build on safer hospitals for multiple hazards especially floods.	X		

4.2.3. Mitigation Measures Proposed for Public Health Engineering Sector

Sr. #	Proposed Interventions	Priority		
		Short term (1-2 Years)	Medium term (2-3 Years)	Long term (4-5 Years)
4.2.3.1.	Assessment of at risks elements and determination of priorities for protecting PHE facilities.	X	X	X
4.2.3.2.	Making development-planning risk conscious and resilient. Construction of resilient deep wells and ponds and Installation of raised hand pumps at identified vulnerable villages.	X	X	X

Sr. #	Proposed Interventions	Priority		
		Short term (1-2 Years)	Medium term (2-3 Years)	Long term (4-5 Years)
4.2.3.3.	Recommendation for small mitigation projects like establishment of filtration plants for the provision of clean drinking water.		X	X
4.2.3.4.	Provision of water tanks before disasters for the storage of water especially ensure at evacuation sites and relief camps plus conversion of existing filtration plant from hydropower to solar energy system as a backup during disaster situation.		X	X
4.2.3.5.	Water-related disaster risk reduction preparedness plans and contingency plans are in place at all administrative levels, and regular training and rehearsals conducted to test and develop water-related disaster risk reduction response programmes.	X	X	X
4.2.3.6.	Financial reserves and contingency mechanisms allocated to water-related disaster risk reduction.	X	X	
4.2.3.7.	Development of resilient water supply like system like construction of elevated concrete platform for tube-wells and elevated level for sanitary latrines with the prevention of any kind of leaching.	X	X	X
4.2.3.8.	Capacity building and equipment exists for water-related disaster preparedness and response.	X	X	
4.2.3.9.	Land use development zoning and plans, building codes, and other national and local laws and regulations are in place.		X	X

4.2.4. Mitigation Measures Proposed for Civil Defence Sector

Sr. #	Proposed Interventions	Priority		
		Short term (1-2 Years)	Medium term (2-3 Years)	Long term (4-5 Years)
4.2.4.1.	Further strengthening of Warden posts established at tehsil levels so that maximum number of volunteers will be trained and as result, maximum public will be help.		X	X
4.2.4.2.	Sufficient budget provision for the purchase of new latest bomb disposal equipment to fully equip the bomb disposal squad with new techniques to provide better services.	X		
4.2.4.3.	Equipping wardens with emergency response kits and arrange proper trainings for them.		X	X
4.2.4.4.	Provision of DRM related trainings for staff and volunteer at each warden post.	X	X	X

Sr. #	Proposed Interventions	Priority		
		Short term (1-2 Years)	Medium term (2-3 Years)	Long term (4-5 Years)
4.2.4.5.	Linkage and develop coordination mechanism between trainers, volunteers and post warden and conduct mock drills of Govt. officers and volunteers twice in year to fully prepare for disaster response.	X	X	X
4.2.4.6.	Develop Departmental level disaster risk management operational plan.		X	

4.2.5. Mitigation Measures Proposed for Rescue 1122 Services

Sr. #	Proposed Interventions	Priority		
		Short term (1-2 Years)	Medium term (2-3 Years)	Long term (4-5 Years)
4.2.5.1.	Construction of new rescue 1122 posts in remote areas for early response to the disaster and safe placement of T.E.A. and strengthen the post via provision of all types if emergency response equipment.	X	X	X
4.2.5.2.	Formation of Community Emergency Response Teams (CERT) at Tehsil levels and conduct training on Community Action for Disaster Response.	X	X	X
4.2.5.3.	Refresher trainings for the community volunteers on emergency response related trainings including First Aid, Search and Rescue, Fire Safety and swift water rescue etc.	X	X	X
4.2.5.4.	Conduct advance Rescue training like Collapse Structures Search and Rescue (CSSR) and Medical First Responder (MFR) to the rescuer at District and tehsil level and potential increase in trained women staff.		X	X
4.2.5.5.	Conduct regular mock exercises, simulation exercises for awareness of public and expanding Mohafiz programme up to the village level.	X	X	X
4.2.5.6.	Provision of heavy-duty cranes to rescue 1122 to cope with the major incidents of oil tankers, trollies and buses in District.	X		
4.2.5.7.	Provision of firefighting material like (AFFF) foams and tools equipment accessories like (Fine suits, fine safety shoes, fine helmets, gloves etc. to Rescue 1122.	X		
4.2.5.8.	Provision of water search and rescue tools, equipment and accessories to cope with the flood disasters as well as drowning emergencies.	X		

4.2.6. Mitigation Measures Proposed for Agriculture Sector³⁴

Sr. #	Proposed Interventions	Priority		
		Short term (1-2 Years)	Medium term (2-3 Years)	Long term (4-5 Years)
4.2.6.1.	Assess impact of disasters on agriculture sector, and the process of agricultural risk and vulnerability assessment within the sector.	X		
4.2.6.2.	Ensure implementation of ADRMOP and closely coordinate with non-Government sectors for mobilization of financial and technical resources. For this purpose setting up of an Agricultural DRR Steering Committee with clearly defined TORs essential.	X	X	X
4.2.6.3.	Research, development and adaptation of modern agricultural machinery. Assess the role of agriculture, and other line Departments in disaster risk preparedness and linkages with other relevant institutions.		X	X
4.2.6.4.	Environmental friendly protection of crops from insect pests, diseases and weeds. Promoting programs of contingency crop planning and crop diversification.		X	X
4.2.6.5.	Supplementary income generation from off-farm and on-farm activities. Conduct awareness sessions and trainings to the farmers on DRM and how to ensure sustainable livelihood.	X	X	X
4.2.6.6.	Promote livelihood diversification. This can include small/scale enterprise development, introducing new farming activities (small/scale livestock, fishponds, new crops of higher market value.	X	X	X
4.2.6.7.	Renovation, rehabilitation, and improvement of watercourses and Provision of solar system with High Efficiency Irrigation Systems.		X	X
4.2.6.8.	Increase capacity for Land-Use Planning in Agriculture.		X	X
4.2.6.9.	Develop dust storm forecasting information channels and enhance knowledge on these phenomena.	X	X	X
4.2.6.10.	Promote flood resilient grain, seed, and fodder storage at communal and/ or household level for poor farmers.	X	X	X
4.2.6.11.	Introduce solar water pumps and fix, replace, or add tube wells for supplemental irrigation.	X	X	
4.2.6.12.	Solutions to post-flood disease, fungus, and root rot should be disseminated to mango orchard owners/ farmers.	X	X	X

34 With courtesy: Some of mitigation measures have been selected from the "Agricultural Disaster Risk Management Operational Plan 2018"; developed by Food and Agriculture Organization (FAO); Page-41-52; Viewed on 4 May 2018

4.2.7. Mitigation Measures Proposed for Livestock Sector³⁵

Sr. #	Proposed Interventions	Priority		
		Short term (1-2 Years)	Medium term (2-3 Years)	Long term (4-5 Years)
4.2.7.1.	DRR awareness among veterinary workers & farmers on livestock vaccination & disease prevention measures.	X	X	X
4.2.7.2.	Arrangements for pre-vaccination of animals during flood season.	X	X	
4.2.7.3.	Provide treatment/control of parasitic disease to the sick and flood affected animals in their respective areas.	X	X	
4.2.7.4.	Ensure implementation of ADRMOP and closely coordinate with non-Government sectors for mobilization of financial and technical resources. For this purpose setting up of an Agricultural DRR Steering Committee with clearly defined TORs essential.	X	X	X
4.2.7.5.	Training on damage need assessment of livestock, poultry, dairy farm, building machinery and veterinary institutions/buildings damaged.	X	X	
4.2.7.6.	Preservation and development of livestock genetic resources and research & training for livestock production. In addition capacity building of community facilitators to work with the mobile units of Livestock Department for awareness raising at each tehsil.	X	X	X
4.2.7.7.	Establishing flood livestock centers for flood emergency. Arrangements for tagging of animals during the pre-flood season.	X	X	X
4.2.7.8.	Ensure sufficient quantity of veterinary medicine/vaccine is available at health points & to meet flood emergency special funds are required from Zila Council.	X		
4.2.7.9.	Arrange specialized trainings on livestock, safer evacuation and emergency response and relief.	X	X	
4.2.7.10.	Increase capacity and knowledge base of livestock rearing communities to maintain livestock health.	X	X	X

³⁵ With courtesy: Some of mitigation measures have been selected from the "Agricultural Disaster Risk Management Operational Plan 2018"; developed by Food and Agriculture Organization (FAO); Page-41-52; Viewed on 4 May 2018

4.2.8. Mitigation Measures Proposed for Irrigation Sector³⁶

Sr. #	Proposed Interventions	Priority		
		Short term (1-2 Years)	Medium term (2-3 Years)	Long term (4-5 Years)
4.2.8.1.	Conducting MHVRA and identify at risk irrigation channels and infrastructure and determination of priorities for protecting the assets.	X	X	X
4.2.8.2.	Develop capacities of the irrigation Department to mitigate and prepare for floods & droughts hazards through upgrading and expanding drainage infrastructure.	X		
4.2.8.3.	Develop capacities of the irrigation Department to mitigate floods and droughts.	X	X	
4.2.8.4.	Complete repairs of flood protection works in the pre-flood season, which includes Operation and Maintenance of Barrages, Construction and maintenance of canals, Flood control and flood protection schemes.	X	X	X
4.2.8.5.	Assist local authorities and communities in building rainwater harvesting tanks and systems in arid zones.		X	X
4.2.8.6.	Conduct awareness campaign through electronic and print media especially during the monsoon season.	X	X	X
4.2.8.7.	Position machinery and materials near vulnerable points for emergency repairs and Inspect breaching of sections and carry out final survey.	X	X	X
4.2.8.8.	Install flood gauges at each sensitive location of the river.		X	X

4.2.9. Mitigation Measures Proposed for Municipal Committee

Sr. #	Proposed Interventions	Priority		
		Short term (1-2 Years)	Medium term (2-3 Years)	Long term (4-5 Years)
4.2.9.1.	Capacity building of the Municipal committee members of disaster risk management and emergency response management.	X		
4.2.9.2.	Provision of emergency machinery e.g. Dewatering pumps, tractors with buckets, boats etc.). Provision of clean drinking water especially during emergencies.	X	X	X

³⁶ With courtesy: Some of mitigation measures have been selected from the "Agricultural Disaster Risk Management Operational Plan 2018"; developed by Food and Agriculture Organization (FAO); Page-41-52; Viewed on 4 May 2018

Sr. #	Proposed Interventions	Priority		
		Short term (1-2 Years)	Medium term (2-3 Years)	Long term (4-5 Years)
4.2.9.3.	Ensure availability of fogging sprays at the flood relief camps to ensure control over further spread of diseases.	X		
4.2.9.4.	Provision of machinery and equipment's to MC for debris removal in post disaster situation.	X	X	
4.2.9.5.	Ensure cleanliness of flood relief camps, rehabilitation centers and arrange tents, mosquito nets etc.	X		
4.2.9.6.	Spray of anti-malarial/viral diseases in flood affected abides after floods.	X	X	X
4.2.9.7.	Capacity building of staff on the newly designed frameworks and guidelines.	X		

4.2.10. Mitigation Measures Proposed for Communication & Work Sector

Sr. #	Proposed Interventions	Priority		
		Short term (1-2 Years)	Medium term (2-3 Years)	Long term (4-5 Years)
4.2.10.1.	Capacity building of staff on the newly designed frameworks and guidelines.	X		
4.2.10.2.	Ensure building codes and laws in general and critical facilities in particular.		X	X
4.2.10.3.	Conduct Department level MHVRA and capacitate Department with structural and non-structural DRR planning and implementation.		X	X
4.2.10.4.	Monitoring and supervision of buildings structures in progress through civil engineers.	X	X	X
4.2.10.5.	Improved guidelines for building structure like safer but low-cost and appropriate housing designs, construction materials and building techniques.			X

4.2.11. Mitigation Measures Proposed for Revenue Sector

Sr. #	Proposed Interventions	Priority		
		Short term (1-2 Years)	Medium term (2-3 Years)	Long term (4-5 Years)
4.2.11.1.	Conduct MHVRA in overall District and particularly in the vulnerable area of the District.	X	X	X
4.2.11.2.	Establish warehouse at appropriate locations under the direct control of DC office.	X	X	
4.2.11.3.	Stockpiling emergency response kits for the UCDCMs and VDCMs at selected UCs.	X	X	

Sr. #	Proposed Interventions	Priority		
		Short term (1-2 Years)	Medium term (2-3 Years)	Long term (4-5 Years)
4.2.11.4.	Review the existing technical formats on Post Disaster Damage and Needs Assessment (PDNA), PDNA tools used by Government line Departments and built capacities by arranging trainings and workshops for filling required information.	X		
4.2.11.5.	Capacity building of District line Departments through training and mock drills on emergency response, evacuation and camp management at before onset on monsoon season.	X	X	X

4.2.12. Mitigation Measures Proposed for Social Welfare Sector

Sr. #	Proposed Interventions	Priority		
		Short term (1-2 Years)	Medium term (2-3 Years)	Long term (4-5 Years)
4.2.12.1.	Staff Capacity building on mainstreaming DRR into sector.	X		
4.2.12.2.	Risk assessment at community level and highlighting possible risks.	X	X	X
4.2.12.3.	Conduct mapping of active CBOs, I/NGOs and UN agencies working at District Muzaffargarh and their potential areas.		X	X
4.2.12.4.	Develop a central dashboard where the work done by the humanitarian agencies can be accessed. Conduct monthly coordination meetings of humanitarian agencies and invite 4W matrix.		X	X
4.2.12.5.	Mobilization of philanthropist, donors to provide relief goods to flood affectees.	X	X	X
4.2.12.6.	Working with NGOs and CSOs, and engaging volunteers, organize public awareness sessions and conduct seminars and workshops on DRR.	X	X	X

4.3. Modes of Financing for Mitigation Measures

One of an encouraging initiatives by the Asian Development Bank and Ministry of Finance at national level is recently formulated and it is in the process stage where sooner the National Disaster Risk Management Fund (NDRMF) will be established. The NDRMF is under process of legalization and once approved the NDRMF

will be constituted under Security and Exchange Commission of Pakistan public companies limited act. The NDRMF funding source will be an open source on 70/30 ratio to mobilize financial resources where NDRMF will provide 70% of funding and the requested organization will contribute 30% financing to ensure funding. Once operationalize, the NDRMF will be a unique opportunity to mobilize financial resources for the DDMP.

Besides at Province level, Provincial Disaster Management Fund need to be established regarding mobilizing of resources for emergency response as well as for disaster risk management. At District Government level, PC1 can be developed and submitted to Planning and Development Department under Annual Development Plan. Besides fund allocated for contingencies can also be used to mobilize financial resources. United Nation Organizations, Various International Non-Government

Organizations are other alternate sources where the financing of the DDMP can be ensured.

Private sector can also play important role in mobilizing resources and support district government for the implementation of mitigation measures. In this regard public private partnership can be built up to jointly support each other in mobilizing financial and technical resources.

Chapter - 5

Strategies for Emergency Response Management



5.1. Need for Establishing District Emergency Operations Centre (DEOC)³⁷

5.1.1. Status of District Emergency Operation Center in District Muzaffargarh

In order to strengthen the emergency response mechanism of the District Government, the PDMA Punjab with funding support of World Bank under the "Disaster and Climate Resilience Improvement Project (DCRIP)" initiated of revamping of 20 emergency control rooms in highly vulnerable Districts of Punjab. District Muzaffargarh is among those Districts where a new and highly equipped DEOC will soon be operationalized. Besides United National Development Programme under the "Building Disaster Resilience in Pakistan", will further support to provide modern gadgets and technical support to operationalize the DEOC.

The DEOC will be established at the vicinity of the district administration secretariat and will be equipped with all modern and high tech communication facilities. The DEOC will serve as the hub for receiving early warnings and issuing information to public at all levels in the district, taking measures to evacuate people, updating relevant departments and response agencies, and providing up-to-date information to media etc. The DEOC will also take lead in the coordination and management of relief operations and early recovery in the affected areas in the district. All concerned departments and humanitarian agencies will be coordinated through DEOC at district level.

In the event of a disaster, the DDMA shall activate the DEOC and take operational lead for the district government response. The DEOC will act as a state of the art resource center specially designated centralized facility where officials meet twenty four hours a day to respond to disaster and control the recovery efforts in support of field operations. It will be physically located within the premises of the DC office

and will be looked after by the DDMO or Secretary DDMA under the direct supervision of the Deputy Commissioner. During the non-disaster times, DEOC will be working during normal office hours and will focus on emergency preparedness and contingency planning.

5.1.2. Proposed Functions of DEOC

The following function of DEOC has been mentioned in the National Disaster Response Plan of the NDMA³⁸;

- ⊙ Monitor the situation and make everything ready and functional in the DEOC;
- ⊙ Receive early warnings, screen and issue disaster alerts and warnings from nodal agencies and other sources, and communicate the same to all designated authorities and stakeholders;
- ⊙ Issuance of early warnings to the concerned communities;
- ⊙ Coordinate with NEOC at NDMA, PEOC at PDMA Lahore, concerned Departments and other stakeholders;
- ⊙ Monitor emergency operations and make efforts for preventing secondary hazards;
- ⊙ Conduct rapid assessment of the relief needs by collecting information from the affected area and circulate to PDMA Punjab and other concerned departments and stakeholders;
- ⊙ Deploy evacuation, medical, search and rescue teams in the affected area;
- ⊙ Provide relief assistance in terms of relief camps, medical and sanitation facilities and temporary shelter to the affected population in the district;
- ⊙ Liaison with concerned departments and stakeholders engaged in emergency response by anticipating resource inventory;
- ⊙ Forward urgent information to relevant agencies for immediate action and arrange daily briefings on disaster situations for general public and specific groups;
- ⊙ Record keeping and preparation of consolidated reports and response plans and projects³⁹.

37. National Disaster Management Authority, Islamabad; "National Disaster Response Plan 2010"; Page 99-101

38. National Disaster Management Authority, Islamabad; "National Disaster Risk Management framework 2007 and "National Disaster Response Plan 2010"

39. National Disaster Management Authority; "National Disaster Risk Management Framework 2007; and "National Disaster Response Plan 2010"

5.2. Operationalization of DEOC

5.2.1. Standard Operating Procedure – Activation Procedure for DEOC to Deal with the Emergencies⁴⁰

In case of full activation of DEOC, Coordinator DEOC will be responsible to fully equip the DEOC and

provides all facilities to the representatives of departments who will present in DEOC during disaster time. Stockpiling of emergency food, office supplies, satellite phone sets, generators, logs, status boards, maps, and other material and necessary equipment must be available. Further to be ensured that briefing room is equipped with all maps, screens and multimedia projectors and other necessary material.

Standby Position (Stage 1)	Activation Procedure (Stage 2)	Stand down procedure (Stage 3)	Operationalization of DEOC
In situation of any well-known disaster, the DEOC Coordinator will gather authentic and up-to-date information from respective Departments and he/she will advise DC/DDMA and will seek alert/activation approval. Approval of Alert phase is notified to the key Departments at District and below District level, PEOC and NEOC.	The next stage of the DEOC process is called the activation stage. In this stage, a notification for full activation will be issued and the DEOC will remain fully operational at 24/7 basis. The DEOC Coordinator will inform all concerned Departments, PRCS, Pakistan Army, Media, PEOC and NEOC.	The Stand down Procedure is the third stage of the DEOC. At the stand down procedure, the overall situation is reviewed. After reviewing the situation and consulting with Tehsil/town administration, Coordinator DEOC will advise chairperson DDMA for stand down. Consequently, getting the approval of PDMC, Chairperson DDMA will approve the stand down of the DEOC. DEOC/DDMA will notify the key Departments at all levels, PDMA Punjab and NDMA etc. At the end, the final report will be circulated to key stakeholders.	On the full activation of District Emergency Operation Center, the DEOC Coordinator will be responsible to fully equip the DEOC and provide all facilities to the representatives of Departments who will be present in DEOC during a disaster situation. For the full and effective activation of DEOC, it is important that stocks of emergency food, office supplies, satellite phone sets, generators, logs, status boards, maps, screens and multimedia projectors and other necessary equipment must be available.

5.2.2. Warning & Information Dissemination

DDMA will guarantee all public warnings and information dissemination through the secretariat upon recommendation of the chairperson of the DDMA. Dissemination of warnings and information in disaster situation is the core responsibilities of DDMA/DEOC. DDMA will ensure that all public warnings will be distributed through the secretariat. The information which is conceded on to the public during pre, during, and post disaster, including, early

warnings, directions for evacuations and service access to affected populations is also part of the DDMA's responsibilities. For the information dissemination, electronic and print media will be used to distribute the warning to the general public and concerned authorities for appropriate standby preparedness and response measures.

5.2.3. Reporting & Media Briefing

Altogether accountable departments and organizations are to submit regular updated situation

40. National Disaster Management Authority; "National Disaster Response Plan 2010"; Page 46-48, NDMA Islamabad

reports to the DEOC, while the role of the DEOC coordinator will be to responsible for analyzing the received reports and circulate regular updates and situation reports among all concerned stakeholders. DEOC will be the hub for providing up-to-date information and will arrange media briefings and interviews with key personnel and media channels for proper dissemination of the information concerning disaster situation in order to reduce the risks.

5.2.4. Simulations and Drills

It is of utmost priority for the DDMA to conduct regular drills and simulation exercises during peace time on coordination and management of the disaster so that all line departments have full understanding and are fully onboard on how to respond and coordinate with other line departments. In case of any eminent disaster, the warning of disasters threat received will be passed on directly to the DDMO/Coordinator of the DEOC, who will direct the information to the most needed department and communities (as per the nature of disaster) to take immediate steps.

5.2.4.1. Responsibility for Organizing Drills

Periodically the DDMA will plan exercises or drills on various scenarios to assess the procedures in this document and those from contingency plans for districts and departments. Agencies and departments shall also conduct drills based on the hazard scenarios, sectoral response plans. The following are proposed table top exercises that can be undertaken in drills;

- ⊙ A major flooding caused by monsoon depression;
- ⊙ A fire incident;
- ⊙ Mass Casualty Incidents.

5.2.4.2. Schedules for Organizing Drills

The training and education officer of DDMA will develop an annual calendar for conducting the drills on a regular basis. The DDMA will make arrangements for organizing the emergency drills at the district and below levels by following the scheduled plan in the

document. Each department and DM committee may organize their sectoral drills at realistic and convenient schedule.

5.2.4.3. Resources for Organizing Drills

As for as financial and logistics resources are concerned, the DDMA is to contribute partly to the exercises or drills. However, each participating agency is advised to set aside funds for sectoral or contingency exercises both for coordinated DDMA drills and individual departmental drills. The humanitarian agency will also be encouraged to set aside funds for contingent both DDMA coordinated drills and individual organizational drills. For providing technical support, the Rescue 1122, Civil Defence Department, Social Welfare Department and PRCS can play very important role.

5.3. Resources for Emergency Response

It is of utmost importance that District Government should have all those financial, technical and human resources which would be required for efficient and effective emergency response. Although the District Government of Muzaffargarh has full capability to handle any emergency situation, however, whenever disaster occurs, government needs support of all outside resources for handling situation in swift manners. With the establishment of the DDMA, the DDMO/Secretary of the DDMA shall require to maintain stockpiling of relief and rescue materials and ensure readiness of such materials available at a short notice. To meet any challenges, the district government has warehouses and godowns with provision of necessary emergency response equipment. Still there is intense needs that these warehouses should be fully operationalized and equipped with all necessary food and non-food items to meet the challenges during any disaster threats. In this regard, I/NGOs and World Food Programme can also be an effective sources for equipping these warehouses and can procure necessary food and non-food items. Table 5.1 and 5.2 show the list of emergency response resources available with the irrigation department at Tehsil Municipal Committee and Municipal Committee levels.

Table 5.1: List of Resources available with Tehsil Municipal Committees⁴¹

S No.	Name of item	Number of items	Status of items	Required items
1	Boats	24	Functional	18
2	OBM	23	Functional	17
3	Dewatering Sets	58	Functional	-
4	Life Jackets	932	Functional	200 (Child)
5	Life rings	-	-	50
6	Life Buoys	85	Functional	20
7	Tents	94	Functional	-
8	Ropes 100 Meter	40	Functional	100
9	Plastic Mates	865	Functional	50
10	Mosquito Nets	320	Functional	100
11	Boat Trolleys	02	Functional	04

Table 5.2: List of Resources Available with Municipal Committee

Municipal Committee	Tractor	Trolleys	Dewatering Sets	Sucker Machine	Jetting Machine	Water Tanker Bouzer	Fire tender	Fire Machine	Hand Sprayer
Kot Addu	09	03	14	01	01	02	01	09	25
Ali Pur	04	03	10	01	01	0	0	07	16
Muzaffargarh	15	15	17	01	01	03	02	12	29
Jatoi	07	04	10	01	01	01	0	06	20
D.D.P	02	02	0	0	0	0	0	0	0
S. Sultan	03	01	06	01	01	01	0	0	0
Sinnawan	01	01	01	0	0	0	0	01	04
Khan Garh	Data is missing								
Chowk Sawar Shaheed	Data is missing								
Total	41	29	58	5	5	7	3	35	94

5.4. Search and Rescue Operations

Pakistan Army has the sole responsibility of emergency response especially when emergency is of high magnitude. A well-coordinated mechanism is already in place for involvement of Pakistan Army in emergency response. However, there is need of much closer coordination mechanism to ensure involvement of all stakeholders for swift emergency response.

At district level, Rescue 1122 is one of an organized

government department having the capabilities to handle any sort of emergencies in the district while with the formation of Community Emergency Response Teams (CERTs) is another milestone achieved by the Rescue1122 Muzaffargarh. With the combination of professionally trained staff and network of community volunteers, Rescue 1122 remains high alert to cope with any type of emergency/disaster with the resources highlighted in table 5.3 below.

41. District Government Muzaffargarh; "Flood Contingency Plan 2017"; Page 30-31

Table 5.3: Emergency Response Resources Available with the Rescue 1122 District Muzaffargarh⁴²

Boats	OBM Engine	Life Jackets	Life Buoys	Emergency lights	Staff Movement Vehicle (Truck)	Logistic Support Vehicle	Fire Vehicle	Rescue Vehicle
35	35	732	85	80	1	1	5	8

Ambulance			Fire Truck	Water Bowser	Rescue Vehicles	Water Rescue Truck	Generators	Walkie Talkie
Rescue	PTS	Total						
8	20	36	4	1	1	1 DAFF	3	23

Apart from Rescue1122 emergency response capabilities, Civil Defence and Pakistan Red Crescent Society (PRCS) are other important organizations who have communities' level trained volunteers and emergency responder's network that can be effective workforce for DDMA to handle any disaster situation. There is intense need for working in more close

coordination and especially to strengthen and revive the ward level volunteers and workforce establish under the civil defence, which are not that much active due to financial and human resources constraints. Following are the some of the resources available with civil defence.

Table 5.4: Emergency Response Resources Available with the Civil Defence District Muzaffargarh⁴³

S.No	Name of Equipment	Quantity Operational
1	First Aid Kits	03
2	Electric Power Generator	01
3	Mega Phones	02
4	Tents	03
5	Axes Shovels	04-10
6	Blankets	04

At community level, there are various efforts by I/NGOs and CSOs to establish village, union council level disaster management committees, which time to time remains active or inactive. DDMA can develop database of such committees and volunteers and can revitalize these community level disaster management committees in order to develop pool of volunteers to train them and effectively used as emergency responders at community level. It is of immense importance that DDMA should give high priority to strengthen their capacities through refresher courses and maintain regular coordination mechanism.

5.5. Transportation and Evacuation

The aim of designing operational mechanism for safe evacuation is to protect the vulnerable population well in advance and to evacuate them to safer locations, in order to save lives and further losses that might be affected by the floods threats. Therefore, a variety of preparedness measures needs to be taken in advance against the prevailing hazards that can potentially hit Muzaffargarh. The DDMA needs to collect disaster risk information in collaboration with nodal agencies. If any emergency risks are recognized, DDMA shall provide

42. Office of the Rescue 1122, District Government Muzaffargarh; 2018

43. District Government Muzaffargarh; "Flood Contingency Plan 2017"; Page: 33

information on evacuation preparedness, evacuation directives and evacuation orders to residents in the disaster prone areas and arrange swift transportation especially for PWDs in order to secure their lives and properties. Following are the measures to be adopted for safe evacuation, which can be implemented and monitored by the local decision makers to make evacuation efficient and safer.

5.5.1. Leading Evacuation

After the occurrence of disaster, DDMA shall lead evacuation of residents with the close coordination of concerned Departments/DM committees and target communities, taking into account that securing lives of the residents is the first priority. When leading evacuation, local Governments shall need to put effort into disseminating various information on evacuation sites, evacuation routes and high-risk areas prone to disasters outline of damage and other related matters that help smooth evacuation.

5.5.2. Arrangement for Transportation

Considering the evacuation of people with disabilities, elderly people, women and children, and the provision of relief services require a planned and well-organized logistics and transportation arrangements would require. Therefore, Assistant Commissioner of concern tehsil along with DDMA together with local DMCs should maintain data of government, private owned vehicle and ambulances along with database of owners and drivers of the vehicle to ensure that during any emergencies, these vehicles can be available for

safe evacuation. Besides road transportation, DDMA should also maintain database of the number of boats available in the districts. The data should be updated regularly especially before the monsoon season to ensure the availability of transportation during any disaster threats.

5.5.3. Establishing Local Level Evacuation Committees

It is advisable to establish the organizational as well as community level evacuation committees to ensure safe and secure evacuation and swift response for early evacuation. Such committees can be part of village level DMCs in the form of sub committees. Both male and female can be volunteers to ensure safe evacuation of all gender. Such committee should work very closely with the early warning sub-committee or with the district government to for acquiring quick and reliable information.

5.5.4. Establishing and Managing Evacuation/Relief Sites

Once the decision is made to evacuate, the District and particularly the DDMA will perform their duties as per their mandate to ensure safer evacuation of the vulnerable communities to the evacuation sites.

Therefore, the DDMA should ensure to enlist evacuation sites and pick up points well in advance at various localities during peacetime. Table. 5.5 shows tehsil-wise number of each evacuation/relief sites.

Table 5.5: List of Evacuation/Relief Camps identified by the District Government⁴⁴

S. No	Tehsil	No. of Relief Camps
1	Muzaffargarh	10
2	Kot Addu	09
3	Ali Pur	05
4	Jatoi	09
	Total	33

44. District Government Muzaffargarh; "Flood Contingency Plan 2017"

With the coordination of local government authorities, I/NGOs, CSOs and disaster management committees, the DDMA shall also need to put effort into developing all necessary facilities at these evacuation sites, such as water tanks, wells, temporary toilets, blankets and telecommunication equipment. In addition, local government shall pay special attention to the people in vulnerable groups such as the elderly, handicapped, infants and women at evacuation sites. DDMA will properly manage each evacuation site and will need to put effort into distributing information, food, water, cleaning supplies, and other non-food items in cooperation with evacuees, residents and community level disaster management committees. In light of this, DDMA will request cooperation from other government authorities if needed.

5.6. Recovery Operations

After the onset of the disaster, the first task is to get real time, up-to-date and realistic data about the damages and needs in order to respond to emergencies in quicker manner. For this purpose, National Disaster Management Authority has standardized assessment tools and developed guidelines for the enumerators called as Multi-sector Initial Rapid Assessment (MIRA)⁴⁵. MIRA is based on the coordinated approach, under the overall coordination and supervision of the Government of Pakistan and technical support of the United Nations Agencies, I/NGOs and all other relevant humanitarian partners. An executive body called

Assessment Working Group (AWG), co-lead by NDMA and UNOCHA leads the process while PDMA, DDMA and other stakeholders play critical role in the execution of field level assessment at the Provincial levels. Similarly to facilitate the AWG on the technical matters, an Assessment Technical Team (ATT) has also been constituted. Technical staff from the concerned Government Department, UN Agencies and other I/NGOs are part of ATT. MIRA standardized information found very useful for response, rehabilitation and over all recovery operations as it helps in providing accurate and quick decision making to ease lives of the suffered population.

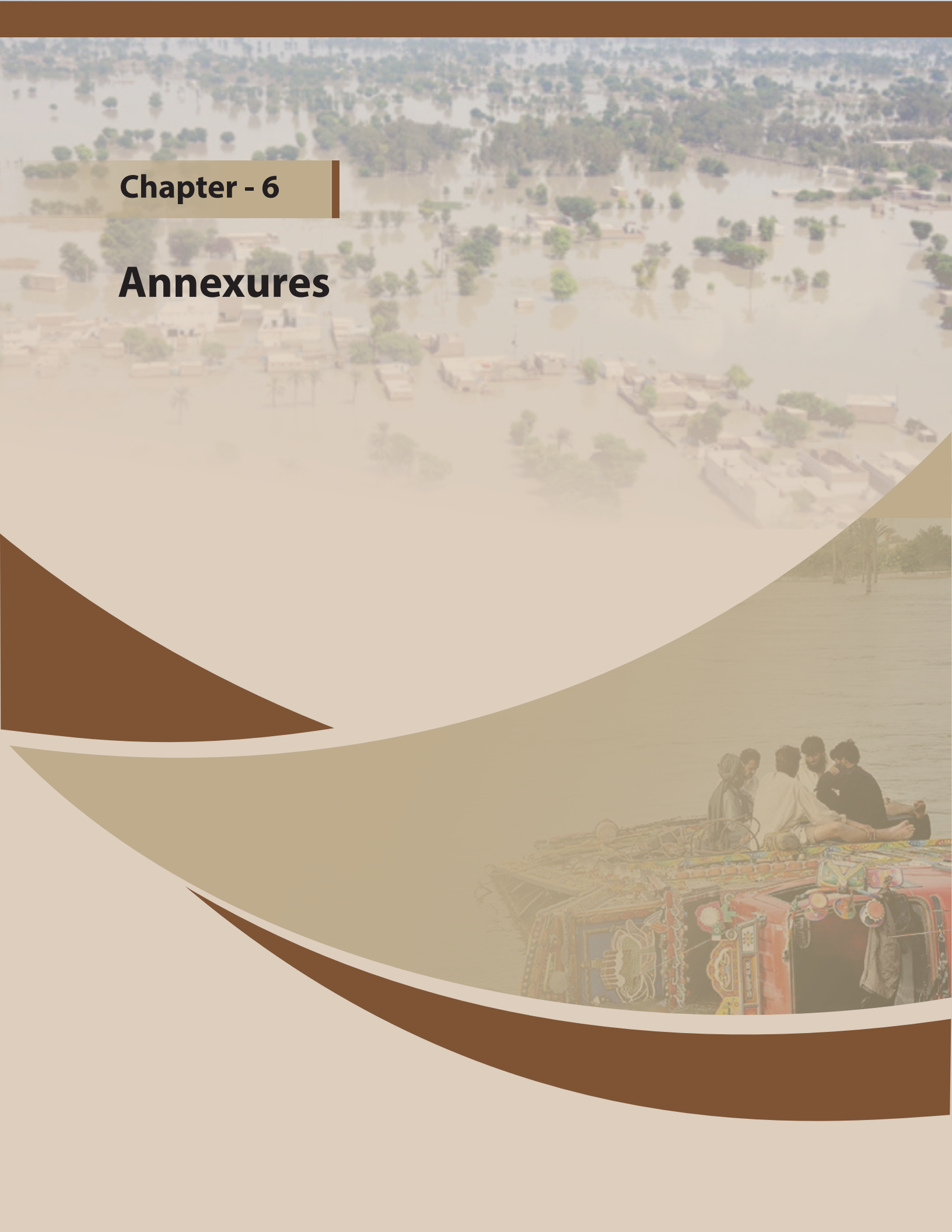
5.7. Women and other Vulnerable Groups Engagement as Cross Cutting Issues

Women, children, people of old age and PWDs are always considered as the most vulnerable elements and normally suffer more than others during any kind of disaster. Their involvement is vital for effective disaster risk management. In a disaster situation, there is need to particularly focus on gender equality and the specific needs of female, children, people of old age and PWDs before, during and after the disaster events. The DDMA will ensure to encourage all stakeholders to include women and PWDs for their active participation and will ensure that they have been mainstreamed in the planning, implementation and M&E process of all DRM related interventions.

45. National Disaster Management Authority, Islamabad; Multi-sector Initial Rapid Assessment (MIRA) Guidelines for enumerators, 2016

Chapter - 6

Annexures



Annexure - i: List of Basic Terminologies Relevant to this Plan

Term	Definition
Acceptable risk	The level of potential losses that a society or community considers acceptable given existing social, economic, political, cultural, technical and environmental conditions.
Adaptation	The adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities.
Building code	A set of ordinances or regulations and associated standards intended to control aspects of the design, construction, materials, alteration and occupancy of structures that are necessary to ensure human safety and welfare, including resistance to collapse and damage.
Capacity	The combination of all the strengths, attributes and resources available within a community, society or organization that can be used to achieve agreed goals
Contingency planning	A management process that analyses specific potential that might threaten society and establishes arrangements in advance to enable timely, effective and appropriate responses to such events.
Disaster	A serious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental losses and impacts, which exceeds the ability of the affected community or society to cope using its own resources.
Disaster risk	The potential disaster losses, in lives, health status, livelihoods, assets and services, which could occur to a particular community or a society over some specified future time period.
Disaster risk management	The systematic process of using administrative directives, organizations, and operational skills and capacities to implement strategies, policies and improved coping capacities in order to lessen the adverse impacts of hazards and the possibility of disaster.
Disaster risk reduction	The concept and practice of reducing disaster risks through systematic efforts to analyze and manage the causal factors of disasters, including through reduced exposure to hazards, lessened vulnerability of people and property, wise management of land and the environment, and improved preparedness for adverse events.
Disaster risk management plan	A document prepared by an authority, sector, organization or enterprise that sets out goals and specific objectives for reducing disaster risks together with related actions to accomplish these objectives.

Term	Definition
Early warning system	The set of capacities needed to generate and disseminate timely and meaningful warning information to enable individuals, communities and organizations threatened by a hazard to prepare and to act appropriately and in sufficient time to reduce the possibility of harm or loss.
Emergency management	The organization and management of resources and responsibilities for addressing all aspects of emergencies, in particular preparedness, response and initial recovery steps.
Exposure	People, property, systems, or other elements present in hazard zones that are thereby subject to potential losses.
Geological hazard	Geological process or phenomenon that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage.
Hazard	A dangerous phenomenon, substance, human activity or condition that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage.
Land-use planning	The process undertaken by public authorities to identify, evaluate and decide on different options for the use of land, including consideration of long term economic, social and environmental objectives and the implications for different communities and interest groups, and the subsequent formulation and promulgation of plans that describe the permitted or acceptable uses.
Mitigation	The lessening or limitation of the adverse impacts of hazards and related disasters.
Natural hazard	Natural process or phenomenon that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage.
Preparedness	The knowledge and capacities developed by Governments, professional response and recovery organizations, communities and individuals to effectively anticipate, respond to, and recover from, the impacts of likely, imminent or current hazard events or conditions.
Prevention	The outright avoidance of adverse impacts of hazards and related disasters.
Public awareness	The extent of common knowledge about disaster risks, the factors that lead to disasters and the actions that can be taken individually and collectively to reduce exposure and vulnerability to hazards.
Recovery	The restoration, and improvement where appropriate, of facilities, livelihoods and living conditions of disaster-affected communities, including efforts to reduce disaster risk factors.

Term	Definition
Resilience	The ability of a system, community or society exposed to hazards to resist, absorb, accommodate to and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions.
Response	The provision of emergency services and public assistance during or immediately after a disaster in order to save lives, reduce health impacts, ensure public safety and meet the basic subsistence needs of the people affected.
Retrofitting	Reinforcement or upgrading of existing structures to become more resistant and resilient to the damaging effects of hazards.
Risk	The combination of the probability of an event and its negative consequences.
Risk Assessment	A methodology to determine the nature and extent of risk by analyzing potential hazards and evaluating existing conditions of vulnerability that together could potentially harm exposed people, property, services, livelihoods and the environment on which they depend.
Risk management	The systematic approach and practice of managing uncertainty to minimize potential harm and loss.
Risk transfer	The process of formally or informally shifting the financial consequences of particular risks from one party to another whereby a household, community, enterprise or state authority will obtain resources from the other party after a disaster occurs, in exchange for ongoing or compensatory social or financial benefits provided to that other party.
Structural and non-structural measures	Structural measures: Any physical construction to reduce or avoid possible impacts of hazards, or application of engineering techniques to achieve hazard-resistance and resilience in structures or systems; Non-structural measures: Any measure not involving physical construction that uses knowledge, practice or agreement to reduce risks and impacts, in particular through policies and laws, public awareness raising, training and education.
Sustainable development	Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.
Technological hazards	A hazard originating from technological or industrial conditions, including accidents, dangerous procedures, infrastructure failures or specific human activities, that may cause loss of life, injury, illness or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage.
Vulnerability	The characteristics and circumstances of a community, system or asset that make it susceptible to the damaging effects of a hazard.

Annexure- ii: DRR Strategies Proposed in the National Disaster Management Plan 2012-22

4.1. Establish the Institutional and Legal System for Disaster Management	
4.1.1	Establish and function disaster management organizations at national, provincial and district levels
4.1.2	Formulate disaster management operation plans for relevant organizations
4.1.3	Implement periodic meetings among the disaster management organizations to monitor the situations
4.1.4	Implement drills and trainings of disaster management activities in the organizations to improve their capacities
4.2: Prepare Disaster Management Plans at Various Level	
4.2.1	Formulate and update disaster management plans at national, provincial, district and community or TMA levels
4.2.2	Develop hazard specific contingency plans
4.2.3	Develop sectoral disaster risk management operation in federal ministries, departments and authorities
4.3: Establish national hazard and vulnerability assessment	
4.3.1	Conduct detailed multi –hazard vulnerability and risk analysis/assessments at national level
4.3.2	Conduct detailed multi –hazard vulnerability and risk analysis/assessments at local level
4.3.3	Conduct research and studies on impact of climate change on glaciers and ice cap
4.4: Establish multi-hazard early warning and evacuation systems	
4.4.1	Strengthen, forecasting and early warning systems
4.4.2	Prepare hazard maps at local scale in targeted locations
4.4.3	Strengthen early warning dissemination systems
4.4.4	Develop capacity of early warning and evacuation systems
4.5: Promotion of training, education and awareness in relation to disaster management	
4.5.1	Develop NIDM (National Institute of Disaster Management) to promote human resource development in the field of disaster management
4.5.2	Enhance the capacity of government agencies in charge of disaster management
4.5.3	Promote mainstreaming DRR through capacity enhancement of governmental officers
4.5.4	Develop the capacity of communities to cope with disasters
4.5.5	Raise people's awareness of disaster management
4.6: Strengthen awareness program on disaster risk reduction at local level	
4.6.1	Enhance knowledge on disasters management in the general public
4.6.2	Establish safe evacuation places in the case of disaster situation
4.6.3	Implement and disseminate CBDRM activities
4.6.4	Disseminate self -help and mutual help efforts in disaster management
4.6.5	Establish disaster mitigation measures incorporated with existing development program

4.7: Infrastructure development for disaster risk reduction	
4.7.1	Develop safer schools, hospitals and other important public facilities against disasters
4.7.2	Protect important coastal facilities against disasters taking into account climate change
4.7.3	Enforce the building code in construction of buildings
4.7.4	Implement appropriate structural measures in flood prone areas taking into account comprehensive and integrated flood management plans
4.7.5	Enhance disaster risk management capacity in urban areas
4.8: Mainstreaming disaster risk reduction into development	
4.8.1	Establish disaster risk reduction policies in National Development Plan and National Poverty Reduction Strategy
4.8.2	Set up sectoral guidelines on mainstreaming disaster risk reduction
4.8.3	Establish criteria to assess development projects from a risk reduction perspective
4.8.4	Improve technical capacity of federal and provincial governments to integrate risk reduction into development plans and programs
4.9: Establish National emergency response system	
4.9.1	Establish and strengthen warehouse or stockpiling system for storing food, medicine, relief supplies and rescue equipment at strategic locations
4.9.2	Enhance emergency response capacities, such as emergency operation centers, Civil Defence and urban search and rescue teams in major cities
4.9.3	Establish a robust communication system and efficient transport and logistics mechanism to be used during emergency situations
4.9.4	Develop and implement emergency response plans in relevant ministries and departments at federal, provincial and district levels
4.9.5	Establish an National Disaster Management Fund to able the federal government to organize emergency response effectively
4.10: Capacity development for post disaster recovery	
4.10.1	Prepare guidelines for post disaster recovery programs and activities
4.10.2	Develop capacity of stakeholders in post disaster recovery
4.10.3	Develop system and methodology for recovery needs assessment

Annexure - iii: Identified at Risk District by the NDMA in Punjab Province (NDMP 2012-22)

Sr.#	District	Flood	Earthquake	Drought	Total Risk
1	Rahimyar khan	5	3	5	13
2	Sheikhupura	5	4	4	13
3	Rawalpindi	4	5	3	12
4	Jhang	5	3	3	11
5	Multan	4	4	3	11
6	Nankana Sahib	3	4	4	11
7	Sahiwal	3	4	4	11
8	Toba Tek Singh	3	4	4	11
9	D.G. Khan	5	2	3	10
10	Layyah	5	2	3	10
11	Kasur	3	4	3	10
12	Okara	3	3	4	10
13	Rajanpur	5	3	2	10
14	Chiniot	3	3	3	9
15	Gujrat	5	3	1	9
16	Jhelum	3	4	2	9
17	Khanewal	5	3	1	9
18	Khushab	4	3	2	9
19	Mandi Bahauddin	3	4	2	9
20	Mianwali	4	3	2	9
21	Muzaffargarh	5	3	1	9
22	Narowal	5	3	1	9
23	Pak Pattan	3	3	3	9
24	Sargodha	4	3	2	9
25	Vehari	3	3	3	9
26	Bahawalnagar	3	2	3	8
27	Bahawalpur	2	2	4	8
28	Faisalabad	3	1	3	8
29	Gujranwala	5	1	2	8
30	Hafiz Abad	3	3	2	8
31	Lahore	3	3	2	8
32	Sialkot	5	1	1	7
33	Chakwal	2	3	2	7
34	Lodhran	3	3	1	7
35	Attock	2	3	1	6
36	Bhakkar	3	2	1	6

Key	High	Medium	Low	Very Low	Very Low
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