

# DISTRICT DISASTER MANAGEMENT PLAN 2022

Division: D G Khan

District: D G Khan



IDP Camp in 2009



Earthquake



Floods in 2014



Fire incident at Lahori Gate, Lahore – Jan 2020

Prepared by: ADC(Rev)

Approved by: Deputy Commissioner D G Khan



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## Hill torrent

Estimated number of people at risk of **hill torrent** in 2022



of total population

Risk: Medium

## Flood

Estimated number of people at risk of Floods in 2022



of total population

Risk: Low

## Earthquake

Estimated number of people at risk of earthquake in 2022



of total population

Risk: Low

## Epidemic

Estimated number of people at risk of epidemic in 2022



of total population

Risk: Medium

## EXECUTIVE SUMMARY

District DG Khan is situated on the south region of Punjab Province at left Bank of Indus river. There are many natural and human induced hazards that threaten to affect the lives and livelihoods of its citizens. Natural hazards including floods, storms, earthquakes, heat-wave and drought. Human induced hazards include fires, civil unrest, road accidents, smog and health epidemics.

The local governments have a key role in identifying and understanding the hazards and risks that could impact on the safety and sustainability of their communities. At local level, DDMA, with technical assistance from PDMA, will prepare District DRR/DRM Plan keeping in view the detailed analysis of risks and vulnerabilities of the area. Mapping of capacities available with public and private sector. Clearly defined roles and responsibilities of district line departments to be performed in pre- and post-disaster phases will also become part of the District Disaster Management Plan.

## AIM AND OBJECTIVES

The plan is aimed to manage emergencies by putting in place requisite mitigation measures and a well-coordinated and integrated response at district level.

The main objectives of the plan include:

- To develop a plan of action for the District Disaster Management Authority and other district stakeholders to set priorities and provide directions for disaster management;
- To define the roles of various stakeholders in disaster management in all the phases pre, during and after disaster;
- To raise awareness of stakeholders about disaster risks and the requirements for disaster management;
- To introduce coordination mechanism for immediate response and rehabilitation at district level;
- To enhance the effectiveness and timeliness of emergency response through the clarification of goals, strategies, roles and responsibilities;
- To strengthen response coordination between government departments and humanitarian organizations (UN agencies, I/NGOs);

# DISTRICT PROFILE

## Socio-Economic Indicators (Average)

S.No.	Particulars	Numbers
1.	Population	3,345,934 approximatly
2.	No. of Tehsils	4
3.	No. of UCs	115
4.	No. of Revenue Estates	829
5.	Population Density (people per km <sup>2</sup> )	245.7 per Sq K(Censes 2017)
6.	Family Size	7.9
7.	Pop Growth Rate	2.98%
8.	PCI	-
9.	District GDP/Annual Income	-
10.	Poverty Rate	98
11.	Patient/Doctor Ratio	44.5
12.	AMR	-
13.	IMR	43.5%
14.	MMR	62.9
15.	Literacy Rate	2873201 Approximatly
16.	Global Acute Malnutrition (GAM) rate	-
17.	Severe Acute Malnutrition (SAM) rate	-
18.	Percentage of population having access to clean drinking water	4
19.	Annual Crime	115

## Population

Total	Male (above 18)	Female (above 18)	Minor (M) (less than 18)	Minor (F) (less than 18)	Vulnerable People (PLWs, disabled, aged)
3,345,934	1,789,305	1,687,723	918,663	697580	-

Source/Note: District Officer Population D G Khan

Number of Dwelling Units	Kaccha (Mud/clay)	Pakka (Bricks & Morter)
206,700	62217	144,483

Source/Note: Bureau of Statics, Punjab

## Area (in acres)

Total Area of District in Km <sup>2</sup>	Area under cultivation		Cultivation in Settled Area		Cultivation in Baid Area		Literacy Rate
11922 Sq K	1855,000 Hacters		-		-		
Overall	Rural		Urban		Total		
	Male	Female	Male	Female	Male	Female	
48%	53%	29%	75%	64%	59%	34%	

Source/Note: Bureau of Statics, Punjab

## Government Schools

		Schools	Enrollment
Total/ Overall		1697	272021
Boys	Primary	794	89565
	Middle	108	48574
	High	74	15947
Girls	Primary	576	94513
	Middle	85	43546
	High	43	11996
Co-Education	Primary	-	-
	Middle	-	-
	High	-	-
Special Education		-	-

## Private Schools

		Schools	Enrollment
Total/ Overall		849	189594
Boys	Primary	230	41127
	Middle	185	42976
	High	90	39280
Girls	Primary	115	22070
	Middle	185	20050
	High	43	24090
Co-Education	Primary	-	-
	Middle	-	-
	High	-	-
Special Education		-	-

## Higher/Technical/Professional Education (Public &amp; Private)

Particulars	College	Universities	Professional	Technical	Commerce	Total
No of Institution	18	2	-	9	4	33
No of Students	16142	3200	-	2010	850	22,202

## Health Facilities

Particulars	Primary	Secondary	Tertiary	Private Hospital	Total
No. of Facilities	53	13	1	13	80
Annual OPDs	-	-	-	-	-
No of beds	800	300	-	-	1100
Doctors Available	-	-	-	-	210
Paramedical staff	-	-	-	-	1144
Ambulances available	-	-	-	-	-
Mobile Medical Units					1

**Livestock:** Small Animals (goats, sheep etc.): - Big Animals (cows, buffalos, camel etc.) -

## Main source of livelihood of the community? (in percentage)

Agriculture	Livestock	Poultry	Fish Farming	Services (Public & Pvt)	Business	Expatriates	Industrial Labor	Skilled Labor	Unskilled Daily Labor	General Labor
35%	25%	2%	1%	0%	10%	2%	10%	5%	4%	5%

## Disaster History - Floods (since 1970)

S#	Year	No. of people affected	No. of deaths	No. of Revenue Estates affected	Houses Damaged (Partially)	Houses Damaged (Fully)	Compensation Paid (Rs.)	Financial Impact (including infrastructure damaged)
1	2010	11156	0	114	1575	811	0	0
2	2011	0	0	0	0	0	0	0
3	2012	2986	0	100	110	74	0	0
4	2013	1731	0	75	350	255	0	0
5	2014	2622	0	45	175	55	0	0

6	2015	18700	6	70	855	577	0	0
7	2016	0	0	0	0	0	0	0
8	2017	0	0	0	0	0	0	0
9	2018	0	0	0	0	0	0	0
10	2019	0	0	0	0	0	0	0
11	2020	0	0	0	0	0	0	0
12	2021	0	0	0	0	0	0	0

**Disaster History – Other disasters (since 1970)**

S#	Year	Disaster Type	No. of people affected	No. of deaths	Remarks
1	2012	-	-	-	-
2	2013	-	-	-	-
3	2014	-	-	-	-
4	2015	-	-	-	-
5	2016	-	-	-	-
6	2017	-	-	-	-
7	2018	-	-	-	-
8	2019	-	-	-	-
9	2020	-	-	-	-
10	2021	-	-	-	-

**General Information**

Particulars	Detail
Neighboring districts and their vulnerabilities	Rajanpur (Flood prone District), Muzaffargarh (Flood Prone District), Layyah (Flood Prone District)
Topographical Features	-
Weather/Climate pattern	e.g. max. and min. temperature, annual precipitation, storms, heat waves, snow fall etc.
Major Rivers	Name of river, passing through areas along with length in the district Major Barrages and their Flood levels Taunsa Barrage
Major Nullahs / Streams	Name of river, passing through areas along with length in the district Flood levels DG Canal
Motorway/Highway	Vulnerable points of motorway/highway Total Route of Highway in District D.G. Khan is 500 Km (Kashmoo To Ramak=373) Ghazi Ghat to Bawata=111) Vulnerable Points are Ghazi Ghat Bridge, Dharama Canal Bridge, Daat Bridge, D.G.Khan Canal Bridge, Kachi Canal Bridge, Vodore Bridge, Sakhi Sarwar Bridge, Mithawan Bridge, Rakhi Nala Bridge, Tali Bridge, Girdu Nala Bridge, Shahwali Bridge, Shori Creak Old Bridge, Shori Creak New Bridge, Miani Bridge, Thingan Bridge, Quadria Canal Bridge, Nallah Islam Bridge, Rajanpur Canal Bridge, Nallah Bridge, Shoriah Canal Bridge, Peer Adil Bridge, Kala Colony Bridge, Notak Bridge, Qambar Bridge, Qambar Bridge, Bohar Bridge, Sanghar Bridge, Sohrau wala Bridge, Nallah Bridge, Vahova Bridge
Railways	Vulnerable points of Railway
Geological features	e.g. fault line, mountainous areas etc. Agriculture Area

**Dams (including small dams)**

Name of Dam	Location	GPS Coordinates	Capacity	High Flood Level	Critical Points, if any	Remarks
NA	NA	X: NA Y: NA	NA	NA	NA	NA

NA	NA	X: NA Y: NA	NA	NA	NA	NA
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**Major Embankments/Bunds**

Name of Embankment	Length (km)	Starting Point (Revenue Estate /Tehsil Name)	Ending Point (Revenue Estate /Tehsil Name)	Name of Critical/vulnerable Points	GPS Location of Critical/Vulnerable Points	Remarks
Left Bank of Link NO 01 RD 119+000 to 205+000	27 KM	RD 103 link	RD 205 +000	Left Bank NO 01 RD 138+000 to RD 165+000 2. Lef Bank of link no IRD 165 +000 to RD 180+000 Left Bank of Link NO I RRD 180000 to rd 204+500	X: NA Y: NA	NA

**Breaching Section**

Name of Bund/ Embankment	Name of Breaching Section	Location with GPS Coordinates	Likely Affected Population			Likely Affected Revenue Estate	Remarks
			Male	Female	Children		
NA	NA	X: NA Y: NA	NA	NA	NA	NA	NA

**Power Houses/Grid Station/Oil Depot/other sensitive installations**

Name	Capacity	GPS Coordinates	Name	Capacity	GPS Coordinates
NA	NA	X: NA Y: NA	NA	NA	X: NA Y: NA

**Airport / Landing Strips**

Type	Area Name	GPS Coordinates	Type	Area Name	GPS Coordinates
Airport	Mouza Rakh Choti Dalana, Sakhi Sarwar Road DG Khan ( Link Road Choti)	X: 30.5740 Y: 70.2908	Balouch levy Line BMP	Near DC Office DG Khan	X: 30.050662 Y: 70626914

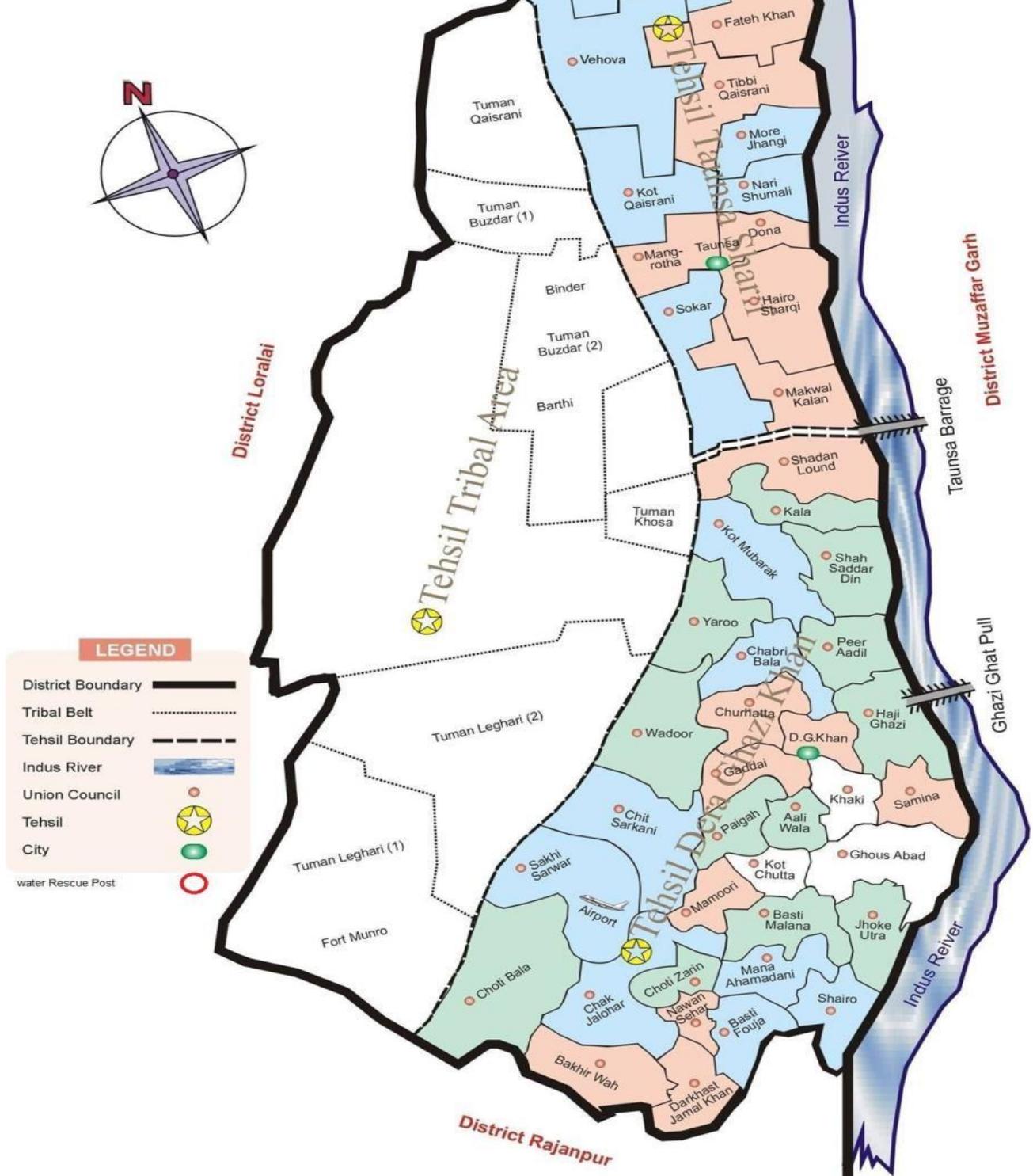
**Govt. storage facilities/warehouses in the district**

Facility Type	Capacity	Location with GPS Coordinates	Facility Type	Capacity	Location with GPS Coordinates
NA	NA	X: NA Y: NA	NA	NA	X: NA Y: NA

District baseline/reference map

# MAP OF DISTRICT DERA GAHZI KHAN

Deployment Plan of Water Rescue Operation  
Dated=

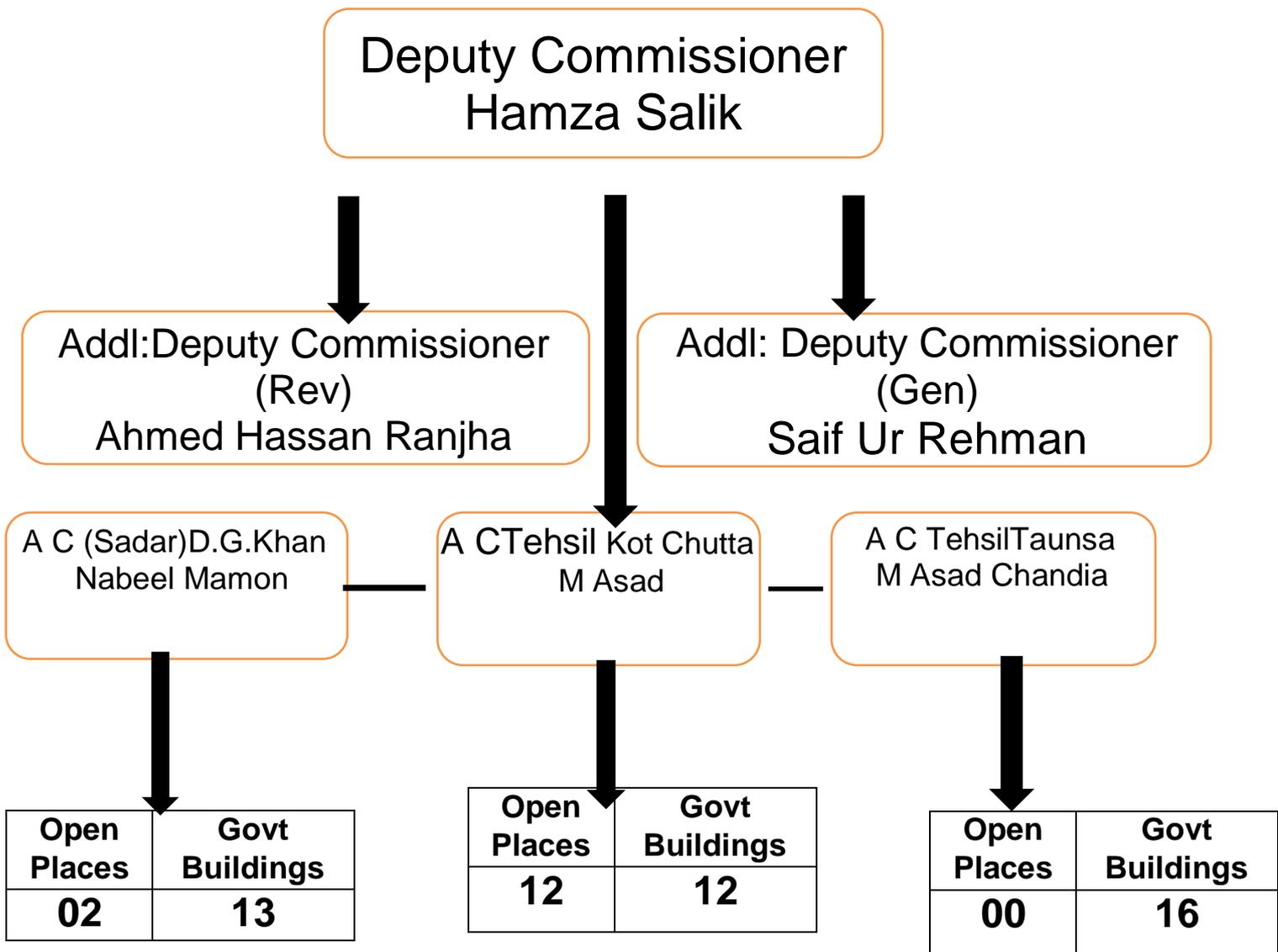


Source:

# COORDINATION MECHANISM

Coordination Organogram (including Sector lead agencies/departments, Military, NGOs and Volunteers)

## ORGANIZATION CHART



**Powers and functions of District Disaster Management Authority under NDM Act 2010:**

The District Authority shall be as the district planning, coordinating and implementing body for disaster management and take all measures for the purposes of disaster management in the district in accordance with the guidelines laid down by the National Authority and the Provincial Authority.

Without prejudice to the generality of the foregoing provisions, the District Authority may:

- a) prepare a disaster management plan including district response plan for the district;
- b) coordinate and monitor the implementation of the National Policy, Provincial Policy, National plan, Provincial Plan and District Plan;
- c) ensure that the areas in the district vulnerable to disasters are identified and measures for the prevention of disasters and the mitigation of its effects are undertaken by the departments of the Government at the district level as well as by the local authorities;
- d) 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;
- e) 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;
- f) lay down guidelines for preparation of disaster management plans by the departments of the Government at the districts level and local authorities in the district;
- g) monitor the implementation of disaster management plans prepared by the departments of the Government at the district level;
- h) lay down guidelines to be followed by the departments of the Government at the district level;
- i) organize and coordinate specialized training programmes for different levels of officers, employees and voluntary rescue workers in the district;
- j) facilitate community training and awareness programmes for prevention of disaster or mitigation with the support of local authorities, governmental and non-governmental organizations;
- k) set up, maintain, review and upgrade the mechanism for early warnings and dissemination of proper information to public;
- l) prepare, review and update district level response plan and guidelines;
- m) coordinate with, and give guidelines to, local authorities in the district to ensure that pre-disaster and post-disaster management activities in the district are carried out promptly and effectively;
- n) 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 of disaster or mitigation;
- o) identify buildings and places which could, in the event of disaster situation be used as relief centres or camps and make arrangements for water supply and sanitation in such buildings or places;
- p) establish stockpiles of relief and rescue materials or ensure preparedness to make such materials available at a short notice;
- q) provide information to the Provincial Authority relating to different aspects of disaster management;
- r) encourage the involvement of non-governmental organizations and voluntary social-welfare institutions working at the grass root level in the district for disaster management.
- s) ensure communication systems are in order and disaster management drills are carried out periodically; and
- t) perform such other functions as the Provincial Government or Provincial Authority may assign to it or as it deems necessary for disaster management in the district.

**District Plan:**

- a) There shall be a plan for disaster management for every district of the Province.
- b) The District Plan shall be prepared by the District Authority having regard to the National Plan and the Provincial Plan.
- c) The District Plan shall be reviewed and updated annually.

**Additional Powers of District Authority:**

For the purpose of assisting, protecting or providing relief to the community, in response to any disaster, the District Authority may:

- a) give directions for the release and use of resources available with any department of the Government and the local authority in the district;
- b) control and restrict vehicular traffic to, from and within, the vulnerable or affected areas;
- c) control and restrict entry of any person into, his movement within and departure from, a vulnerable or affected area;
- d) remove debris, conduct search and carry out rescue operations;
- e) provide shelter, food, drinking water and essential provisions, healthcare and services;
- f) establish emergency communication system in the affected area;
- g) make arrangements for the disposal of the unclaimed dead bodies;
- h) direct any department of the Government of the Province or any authority or body under the Government at the district level to take such measures as are necessary in its opinion;
- i) require experts and consultants in the relevant fields to advise and assist as it may deem necessary;
- j) procure exclusive preferential use of amenities from any authority or person;
- k) construct temporary bridges or other necessary structures and demolish structures which may be hazardous to public or aggravate the effects of the disaster;
- l) ensure that the non-governmental organizations carry out their activities in an equitable and non-discriminatory manner; and
- m) take such other steps as may be required or warranted to be taken in such a situation.

### **Revenue Department (Functions and Responsibilities)**

In case of any disaster or calamity the head of the revenue department in the district i.e. the DC/DC should ensure that the following measures and steps have been taken:

- Taking everyone on board is perhaps the most important thing to do. Regular meetings of DDMA should be held to clearly highlight the roles and duties of DPOs, EDOs, XENs etc.
- Pre-flood meeting should be held and duties of all concerned officers and departments should be clearly defined and assigned.
- A district disaster management plan should be prepared using the set template and updated regarding any disaster or emergency that may strike the district.
- A focal person for the disaster or calamity should be nominated and his/her number should be communicated to all concerned departments.
- Proper stock taking should be done regarding available stocks of food and rations. Similarly stock regarding machinery and equipment should also be taken and inventories should be prepared. Out of order machinery should be repaired or replaced.
- Committees should be formed and constituted which will deal with various functions during a flood or emergency. Purchasing of food items, food, and machinery should all be done through committees.
- Identification of Low lying, medium and high vulnerability levels with flood level
- In case of evacuation the district administration should be very clear about the places where the relief camps or shelters will be established. Teams should be formulated which will look after these camps and will be in-charge for provision of tents, food, water and maintaining general law and order. Provision of cooked food is also to be ensured.
- Proper ware houses and stores should be made available for storing of aid and donated items that may be received from authorities such as PDMA, WFP etc. A committee should be constituted to look after the record of all the items in the store.
- Proper crop surveys or girdawaris should be conducted through the revenue officials so that crop damage assessment can be made after disaster or flood affects the district. These surveys will also help in determining the identity of the true owners as well.
- Post damage assessment should be carried out by joint teams constituted of patwaris, teachers, and agriculture field assistants. Technology should be involved and android sets should be used to gather accurate data.
- Round the clock active control rooms should be set up and the numbers be circulated to all concerned. The control rooms should be equipped with wireless, telephones and computers. All info gathered or received should be conveyed to the concerned. The control room should have representatives of concerned departments such as police, health, 1122, and revenue.

- Early warning is critical in saving lives. The local revenue officials along with local police should be deployed to warn the people against the oncoming disaster and to urge them to vacate the disaster prone areas and villages. Loudspeakers, mosque speakers and word of mouth should be used. Banners and posters can also be used.
- Data collection is of prime importance and the senior network administrator should be declared as the focal person for collection of relevant information such as number of casualties, damages to infrastructure, injured, perished livestock etc. for onward submission to PDMA etc.
- Mock exercises should be carried out along with all concerned departments specially 1122, Police, civil defence and Pakistan army regarding the action plan during any emergency or flood. This will give a fair idea about the preparedness of the district.
- Availability of vehicles should be ensured for use during any emergency especially off road vehicles like jeeps.
- Suitable locations should be identified for accommodating armed forces like the Pakistan army. Normally schools, colleges or stadiums are allocated for the armed forces

#### Checklist for Revenue Department:

- Survey of entire District (Preparation of Village level information by Patwari)
- Identification of Low lying, medium and high: vulnerability levels with flood level
- Liaison of Patwari with Numberdars of their respective villages
- Contacts of all revenue staff posted near river belts and their output in flood prone areas
- List of Numberdars with their contacts, volunteer from low lying settlements with contact numbers
- Prepare list of vulnerable villages and make an estimate of likely affected population in such villages in the event of flood
- Name and contact numbers of private boat owners and operators Announcement of Flood Warning at settlement level – Patwari responsible Forced evacuation with police
- Rapid assessment for relief goods and ration provision Coordination and reporting
- Carry out survey of entire flood affected areas to assess losses in collaboration with Agriculture, Livestock and Education Department
- Conduct crop damaged/ house damaged surveys

#### Metropolitan / Municipal Corporations

##### Municipal / Town Committees

- Local Bodies play an important role of providing municipal services in the district including clean drinking water, sanitation facilities, maintenance of parks and removal of encroachment etc.
- Local Bodies will provide assistance to the District Administration for setting up and management of relief camps/ operations.
- Local Bodies are responsible for provision & restoration of water and sanitation facilities in their municipalities besides disposal of waste or rain water/sewerage.
- Local Bodies are equipped with trucks, water bowsers, tractors, dewatering sets, bulldozers, loaders and dump trucks. All of these equipment are utilized to restore proper sanitary facilities, ensure the delivery of clean water and remove debris or excess water.
- Local Bodies sanitary workers can be employed for cleaning relief camps, or other such areas which has been affected by any disaster.
- Local Bodies employ de-watering sets to remove excess water. All Local Bodies are required to ensure the maintenance of all dewatering sets prior to the monsoon season. The Local Bodies maintains a list of all the choking points where rainy water accumulates as a result of heavy storms which can cause urban flooding.
- Local Bodies should ensure supply of clean drinking in overhead reservoirs and ensure supply to the affected areas or relief camps through water bowsers. Clean drinking water is a major issue and requirement during any disaster.
- In case of any disaster that requires people to be relocated, the Local Bodies under the concerned Administrator i.e Commissioner / DC / AC will assist in the migration of the affected people.
- During the relief effort and subsequent rehabilitation effort the Local Bodies manpower can be effectively used for the distribution of food and essential commodities among evacuated people or any other relief activity such as provision of cash compensation.

### District Disaster Management Authority (DDMA)

- DDMA's are created under the NDM Act 2010 under Chapter IV Section 18 and the law defines their composition and also outlines their functions, duties and powers.
- District Disaster Management Authorities are the first line of defense and the implementing arm of the government policy and plans. Within the district there are three to four key players/departments that have to put up a joint and coordinated effort in order to fight with and handle any disaster under the leadership and coordination of the DC. The office of the DC fully supported by the DPO and line departments such as Health, Agriculture, Livestock, Civil Defence, 1122, Local Bodies and the Revenue Department form the main disaster management team within any given district. This plan is an effort to highlight their sets of responsibilities followed by the role of provincial departments.
- All district administrations had prepared a detailed contingency plan to face any disaster or hazard specially floods which until recently have become an annual affair for some districts.
- The district administration will divide the area as per district division with the Assistant Commissioner as in charge of his/her tehsil. All disaster related activities in a said tehsil will be coordinated through the concerned AC and the Local Bodies.
- On receipt of a flood warning, immediate warning will be conveyed to all the concerned officers. Immediate action will be taken in each sector / sub sector for evacuation of the population from risk prone areas to safer places or to Relief Camps. An Assistant Commissioner will ensure that announcements are made through loudspeakers of the mosques utilizing the services of the Revenue department. Each Patwari will inform the Numbardar, Headmaster of the School, Imam Masjid and councillors to make announcements etc.
- The tactical operations would be headed by the Additional District Collector (ADC). The ADC would be responsible for coordinating and supervising the disaster control and relief measures in the district.
- Provincial government had notified the following composition of DDMA's for whole of the province:
  - i. **Deputy Commissioner D G Khan(Chairperson)**
  - ii. District Police Officer D G Khan
  - iii. Additional Deputy Commissioner (Rev) D G Khan
  - iv. Executive Engineer Irrigation D G Khan
  - v. Representative of Pak Army
  - vi. Assistant Commissioners in district D G Khan
  - vii. Additional Deputy Commissioner (General) D G Khan
  - viii. Additional Deputy Commissioner (F&P) D G Khan
  - ix. XEN Buildings D G Khan
  - x. XEN Highways D G Khan
  - xi. Chief Executive Officer (DHA) D G Khan
  - xii. Chief Executive Officer (DEA) D G Khan
  - xiii. SP Special Branch D G Khan
  - xiv. XEN Irrigation / Public Health D G Khan
  - xv. District officer Civil Defense D G Khan
  - xvi. Administrators of Tehsil Councils / Municipal Corporations D G Khan
  - xvii. All Chief Officers of Local Bodies in District D G Khan
  - xviii. District Emergency Officer, Rescue 1122 (Secretary) D G Khan
  - xix. Representative of Red Crescent D G Khan
  - xx. Such other District level Officers to be appointed by District Administration
- District Administrations must establish a Disaster / Flood control room at the DC's office, the numbers of which will be circulated to all concerned. The Disaster / Flood Control Room has to maintain updated information regarding the threat

of disaster and statistics post disaster. The center will maintain a regular communication with the Flood Forecasting Division or the dam authorities up stream in case of a flood.

- The District Administration would immediately mobilize the equipment needed to tackle the challenges created by a disaster. The District Administrations will provide a comprehensive list of flood fighting equipment to PDMA as part of their flood contingency plans.
- Executive District Officer (Health) will ensure the availability of adequate medicines for treatment of common issues, particularly for snake and dog bite cases and general vaccines at each relief camp.
- DO (Agriculture) and DO Livestock would arrange fodder and feed supplement for livestock and animals displaced.
- District Regional Transport Authorities (DRTA) in all 36 districts of Punjab are managed by Secretaries who would coordinate with local transporters to arrange for arranging transport required for evacuation of people from affected areas. In case of shortfall in transport in a particular district, the adjoining district would mobilize the transporters in his district to assist with the evacuation of people.

### **Role of Rescue 1122 in districts during disaster**

- The immediate evacuation of people from the disaster prone and vulnerable areas.
- Provision of immediate medical aid during any emergency and at the same time transporting the injured or sick to the nearby hospital through their team of ambulances.
- In flood situations rescuing people from drowning in the strong currents is a specialty of 1122 as it has its own set of divers and boats. Similarly in case of collapsed buildings or structures the 1122 is equipped with heavy machinery to cut through heavy debris.
- Apart from that responsible deployment of fire fighters, cordoning of hazardous areas, provision of first aid and medical treatment, immediate search and rescue of victims and management of the pre-hospital emergency system.
- Rescue 1122 is well trained in setting up medical camps for provision of emergency medical treatment. These camps are setup by Rescue 1122's doctors and paramedic staff.

### **Pre-disaster Check list for DDMA**

- Meeting of DDMA held
- Identification of vulnerable areas
- Identification of Safe places
- Preparation of contingency plan
- Bunds and encroachments visited
- Sites identified for relief camps Evacuation routes/plan
- Safe custody of Government records and essential equipment and their shifting to safer areas on receipt of flood warning
- Enlistment of department wise available resources
- Preparation of list of required relief goods/ items
- Involvement of Volunteers, NGOs and other CSOs
- Designation of Focal Person
- Preparation of District vulnerability map with varying degrees of floods
- Evacuation well in time from vulnerable areas
- Establishment of Camps – All services under one roof
- Flood warning and weather forecast: Loudspeakers announcements
- Establishment of control rooms
- Cancellation of all type of leaves of all employees Designation of Focal Persons
- Assignment of duties and responsibilities of all officers for flood emergency
- Preparation of Telephone Directories with the cell numbers of all the members of DDMA's and volunteers
- No leave during flood days; No official will leave station

**Disaster Emergency Control Room (functions and responsibilities)**

A Disaster Management Coordination Centre working around the clock will be established at district level for effective coordination & mutual support among the different departments & agencies.

**FUNCTIONS OF THE CONTROL ROOM:****RECEIPT OF WARNINGS:**

Warnings of a natural disaster (e.g. cyclone, floods, etc) will be issued in the first instance by the Bureau of Meteorology and the Officer in Charge is responsible to ensure that the information is immediately forwarded to the Chairman of the District Emergency Board. In the event of a manmade disaster for which a warning would not be issued by the Bureau of Meteorology, the designated control authority (Police, Rescue 1122 etc) is to advise the Chairman.

**WARNING DISTRIBUTION:**

Upon the implementation of this plan, all public warnings will be distributed through the Disaster Co-ordination Centre upon recommendation of the relevant control authority and on the authorization of the Chairman.

**PUBLIC INFORMATION:**

The distribution of contact or telephone numbers to the public for disaster information will be the responsibility of and at the discretion of the Chairman.

**COORDINATION AMONG DIFFERENT DEPARTMENTS AND AGENCIES:**

It will be responsible for the coordination among different departments and agencies. The required resources will be mobilized and provided at the operational site.

**REPORTING:**

All responsible organizations are to submit regular situation reports to the Disaster Co-ordination Centre.

**Checklist for Control Room:**

- Dedicated Staff as per magnitude of the disaster
- Duty roaster of the staff
- 2 Dedicated telephone lines
- Dedicated Fax
- Wireless
- Internet and Email or any other source of communication
- Power backup

**Checklist for Relief Camp Incharge:**

- List of staff displayed with name and department teams will work in shifts
- Presence of representatives of all service providers i.e. Health, livestock, Rescue 1122, Civil Defence etc.
- No movement without the permission of Centre Incharge
- Each shift in-charge to contact District Control Room on arrival and then on departure
- In-charge will keep close liaison with SHO of the respective area
- No of affectees in camp (sick, aged and children) shall be communicated daily
- Availability of at least one emergency vehicle at center be ensured
- Keep record of private boat owners and their contacts details
- List of Doctors and private hospital in the vicinity
- List and contact of philanthropists in the vicinity
- Keeping record of donations coming directly to Centre and report the same to Tehsil and District Incharge.
- Centre Incharge shall ensure vaccination of animals and humans against Communicable diseases
- List of missing persons must be displayed at all Relief Camps

**Role of Health Department**

The public sector health delivery system comprises of four tiers and as such will continue to provide services at these four tiers during and after any disaster:

Outreach and Community Based Activities, which focus on immunization, sanitation, malaria control, maternal and child health, and family planning. Primary care facilities include BHUs, RHCs. THQs and DHQs provide inpatient and outpatient care. Tertiary care hospitals located in the major cities for more specialized care.

In case of any disaster or calamity the health department will ensure that the following measures are in place;

- To provide first aid to the injured people and arrange evacuation of patients for further assistance.
- Medical camps and mobile health teams should be arranged for prevention and control of communicable diseases, immunization and provision of essential drugs.
- Health department would make a roster of all medical officers and paramedics that would be deployed to these camps and teams.
- Drugs and other medical equipment should be available at all these camps and with mobile teams. The medicine should be for relevant flood related issues, **particularly Anti-snake venom, Anti-rabies.**
- The shelters or relief camps established by the district administration should have medical centers with ambulances and special facilities for women and children.
- An emergency control room will be established in the office of Directorate General Health Services and a representative of this emergency control room would be designated to PDMA's control room.
- A list of essential medicines would be prepared by the Health department and it would ensure that medicines and other resources are present in sufficient stocks in hospitals in disaster hit areas.
- Medical colleges may be involved to create Emergency Response teams
- Health department would also coordinate with international organizations such as WHO and UNICEF.
- Extensive disease surveillances in the disaster hit areas should be carried out warnings if needed be issued through the Disease Early Warning System.
- Medical teams and paramedic staff should be mobilized and deployed for rapid assessment and quick response in the affected areas.
- A contingency plan will be prepared and submitted regarding preparedness for any disaster or calamity.

- The National Disaster Management Authority has designated WHO as the key organization that will fill the gaps in the supply of medicines, rapid diagnostic kits, and vaccinations etc.
- The department would employ female health workers in emergency areas specially, for spreading awareness regarding health risks in a disaster and for any vaccination or immunization programme that may be needed during any emergency.
- A Health and Nutrition Cluster for overall management and oversight of Health department's disaster response would be formed at the Directorate General Health office.
- In case the medicine stocks or even the infrastructure is damaged due to floods, the department would draw up a plan for early recovery of health infrastructure and service delivery.

#### **Civil-Military Coordination Mechanism**

Any Disaster cannot be handle without the civil military coordination with other relivent department, District Police is ever been ready to deal with any kind of Major Incident (disaster). All the DSP/SDPO's and SHO's have been directed in this regard to remain vigilant to face any difficulty and to utilize all kinds of its resources to maintain law & order situation in the district. In the meanwhile the Representative of Military will ensure their presence along with all requisite resources

#### **Volunteer Network**

*E.g. how many registered volunteers, how to activate them, who will coordinate with them etc.  
Not Available as described by Executive District Officer (Civil Defense).*

# RISK ANALYSIS

## 1. Potential hazards of the district

Hazards	Likelihood (Score 1-5)	Impact (Score 1-5)	Risk
Floods	5	4	20
Urban Flooding	4	0	12
Flash Floods	5	3	15
Hill Torrent	5	3	15
Glacial Lake Outburst Flood (GLOF)	-	-	-
Landslide	3	2	6
Tornado	-	-	-
Earthquake	-	-	-
Drought	-	-	-
Epidemic	-	-	-
Fire Incidents	-	-	-
Other Major Accidents (Building Collapse, road traffic accidents, train accident, Stampede, plane crash)	5	4	20
Environmental Hazards (industrial accidents, severe pollution etc.)	5	4	20

Risk = Impact x Likelihood

Low : 1-7  
 Medium : 8-14  
 High : 15-25

## 2. Hazards

- Disasters occurred over the past two to three decades and their impact on communities and development sectors
- Provide a brief description of the hazards being planned for (medium and high risks), including potential location that could be affected;
- Briefly outline the triggers

District D. G. Khan have faced many Disaster during the period of last two decades, these disaster are included in both categorizes i.e Natural (Flood, Hill torrent) and Man-made (terrorist Activities, Bomb blast, Road Traffic Accidents etc).The simple brief of major incidents in the District since last one decade is mentioned in the below:

### DETAIL OF EMERGENCIES IN DISTRICT D. G. KHAN (from 30-10-2007 to 21-02-2022)

NO.	EMERGENCY TYPE	NO OF EMERGENCIES	EXPIRED VICTIMS	SHIFTED VICTIMS	FIRST AID.
1.	Road Traffic Accident	74391	1448	58406	34723
2.	Fire	4259	5	64	51
3.	Bomb Blast / Terrorist Attack	4	85	162	4
4.	Flood	05	6	14	First Aid = 421 Evacuation = 10584 Total = 11005
5.	Building Collapse.	515	51	526	182

#### Planning of Hazards: -

Following Planning is being implemented in order to reduce the damages of Disaster in District D.G. Khan: -

Edges of Indus River are being strengthened by Irrigation Department in order to reduce the damage of Flood due to Indus River.

#### **PREVENTION STRATEGIES:-**

In order to prevent from any major disaster, the following strategies will be set in different type of disasters: -

#### **PREVENTION FROM ROAD TRAFFIC ACCIDNETS: -**

1. Motorway Police at National Highways will be deputed.
2. Installation of Road Traffic Signals and slogans will be ensured.
3. Deployment of Traffic Wardens in the city will be ensured.
4. Enhancement in the power of Patrolling Police regarding imposing penalties against traffic rules violations on the high ways will be ensured.
5. One wheeling will be ban in best interest of Public.
6. Traffic signals / Signs and road safety slogans will be installed within the city and at high ways.
7. Painted reflected Speed breaker will be adonized on every junction of link high ways with main national highway (Multan, Quetta, Rajanpur and Taunsa).
8. The reflectors on each vehicle / cart will be ensured by the traffic police and Road Transport

Authority.

9. Special campaign to increase awareness in the public and schools about traffic rules should be conducted by the traffic / Patrolling Police.
10. Conducting of seminars regarding prevention of Road Traffic Accidents.

**PREVENTION FROM FIRE INCIDENTS: -**

1. Detailed joint survey will be conducted to ensure preventive measures from fire incidents.
2. Installation of Fire hydrants in commercial plazas, markets, industrial and other risky areas of District D.G. Khan will be ensured.
3. Installation of Fire extinguishers in offices, commercial plazas, and markets, industrial and other risky areas of District D.G. Khan will be ensured.
4. Installation of fire safety equipment i.e. Smoke & Heat detector, Fire Alara System & sprinkle system will be ensured.
5. Emergency Exits in all multistory buildings will be ensured by concerned department.
6. Medical First Aid Kit & Fire extinguishers in all vehicles.
7. A massive campaign to Aware the community will be conducted.
8. The building codes will be followed.
9. Rule of LPG Cylinder will be implemented strictly by concerned department.

**PREVENTION FROM FLOOD: -**

1. Hazard, vulnerability and capacity assessment of flood prone areas will be conducted.
2. Inter-agency coordination through District Disaster Management Authorities will be conducted.
3. Convene District Emergency Board meeting to take all stake holders on board.
4. Enrollment and training of Community emergency response teams (CERTs)
5. Recruitment of contingent OBM operator (if required)
6. Prepare comprehensive District Flood Contingency Plan.
7. Survey mapping of vulnerable areas.
8. Regular updates from concerned flood monitoring centers, Pakistan metrological Department and flood forecasting Division.
9. To conduct joint scenario based exercise to test the equipment and on ground coordination amongst all stockholders.
10. Devise early deployment pattern mechanism for human resources equipment at strategic location duly marked on map.
11. Division of available manpower to detail dedicated teams for flood rescue operation and routine emergencies separately.

**SCHOOL SAFETY STRATEGIES.**

1. Uprising and Strengthen of School buildings will be ensured by concerned departments.
2. Emergency Management of Disaster plan of Schools will be prepared.
3. Mock exercises in order check the preparedness level will be conducted.
4. Awareness sessions in order to combat with any untoward situation will be conducted by Punjab Emergency Service Rescue (1122).



### 3. Response & Operational Capacity

Briefly describe the existing response capacities in District (including government and NGO partners)

After establishing a strong and vital liason between all departments the response statergy has been prepared to ensure swift and effective response in case of any Disaster or Emergecnry.

#### TIERS OF RESPONSE: -

**1st Tier.** Local response by District teams to combat with any disaster.

**2nd Tier:** - Division efforts (Logistics / human resources) in support of District Teams.

**3rd Tier:** - Provincial Response by Disaster Response force in support of District & Divisional Teams.

The immediate steps to manage the incident will be deployment of resources and determine the priorities in an appropriate way to save the lives of victims. Following steps will be taken in this regard.

1. Immediate dispatch of all leading emergencies.
2. Additional resources may be called from other districts.
3. Dispatch of Disaster Response Force towards incident site.
4. Establishment of Incident Command Post by concerned leading agency.
5. Operational briefing to each
6. Deployment of rescuers in two shifts
7. Aggressive approach to extricate alive victims
8. Careful use of heavy machinery
9. Optimum provision of emergency care to injured
10. Identification & record keeping of victims
11. Shifting of victims to the hospitals for specialized treatment
12. Reporting.

### Regionalized Urban Search & Rescue Response

Successful regionalized response system will be developed through good planning, and cooperation of many District Emergency Officers. This effort will be resulted in an effective rescue response system using specialized resources through mutual aid and cooperative agreement to achieve the level of response required in that particular scenario. There will be a dire need to aggressively conduct Search & Rescue operation in order to save the maximum number of human lives during structure collapse emergency and Flood etc. The initial actions will be taken by the incident commander to set the tone of the rescue operation.

### 4. Strategic Reserves

Items	Available	Functional	Non-Functional	Extra Demand
Boats	38	38	-	9
OBM	46	46	-	-
De-watering sets	137	107	30	10
Navigators	-	-	-	8
GIS devices	-	-	-	-
Life Jackets	419	419	-	1000
Life Ring	32	32	-	18
Life Lines	14	14	-	-
Scuba diving suit with complete accessories	4	4	-	22
First Aid Kits	-	-	-	150
Rescue Bag	200	200	-	-
Safety Harnesses	24	24	-	35
Ambulances	42	42	-	-
Fire Brigade	10	10	-	-

Water Tanks / Bouzers	4	4	-	-
Extendable Ladders	5	5	-	10
Hydraulic Cutter	1	1	-	6
Sonar Rader	-	-	-	6
Jumping Sheet	1	1	-	6
Snack Catcher	8	8	-	35
Water Proof Cameras	-	-	-	15
Cranes	-	-	-	-
Bulldozer	8	8	-	-
Boat Carrier/Trolleys	6	6	-	7
Pickups/Jeeps/4x4 vehicles/Mini Trucks	-	-	-	-
Searchlight	70	70	-	80
Tent	2584	2584	-	1000
Mosquito Net	1650	1650	10	5000
Plastic Mat	1890	1890	-	500
Blanket	2000	2000	-	500
Quilt	-	-	-	2000
Generator Sets	8	8	-	5
Walki Talki	-	-	-	40
Rain Boats	40	40	-	120
Scuba Diving Set	-	-	-	-
Navigator/GPS Tracker	-	-	-	-
Hydraulic Cutter	-	-	-	-
Floating Rope	26	26	-	60

## 5. Gaps and Constraints

- Briefly outline the capacity gaps in the provision of rescue and response;
- Describe major obstacles to providing humanitarian assistance (security, access constraints, administrative obstacles, logistics, etc.)

Although some departmental SOPs are constraints between department but this gap may be covered by adopting following initiatives:-

1. Arrangement of Meetings regarding District Disaster Management Authority.
2. Conduction of Mock Exercises.
3. Conduction of liaison and collaboration before, during and after any untoward situation.

## MITIGATION STRATEGY

- ✓ Briefly describe what measures could be taken to reduce the impact of the potential disasters.
- ✓ Strategic pre-positioning of available relief stocks
- ✓ Public education and community awareness

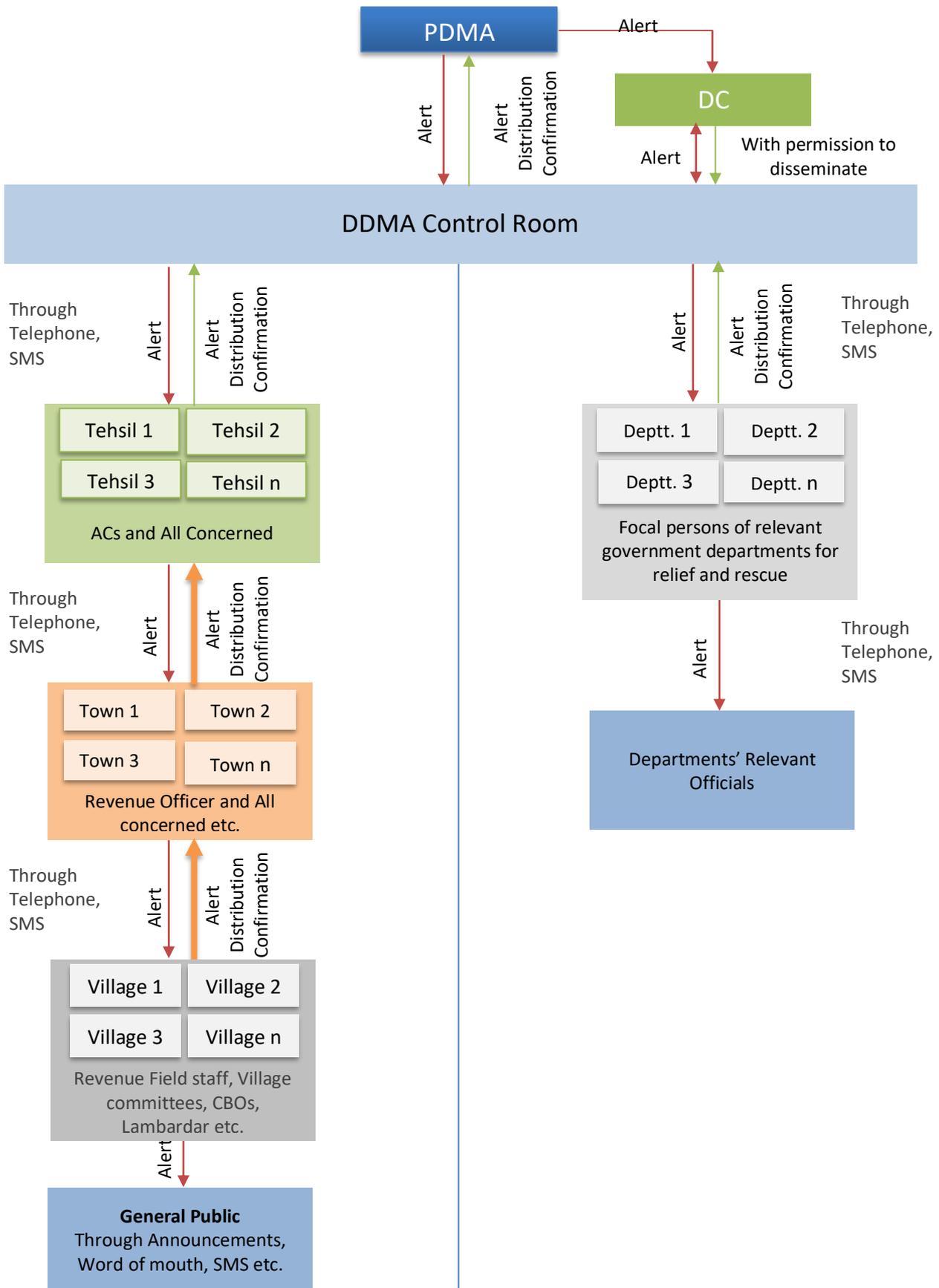
Hazards	Mitigate Actions	Responsible Department
Floods	<ul style="list-style-type: none"> <li>i. Maintenance of flood Protection Bunds</li> <li>ii. Awareness Raising</li> <li>iii. Community Based Disaster Risk Reduction</li> <li>iv. Emergency Response Kits at Village Level</li> <li>v. Periodic Multi Hazard Vulnerability and Risk Assessment (MHVRA) studies</li> <li>vi. Enforcement of Flood Plain Regulations</li> <li>vii. Clear roles and responsibilities in pre flood, during flood and post flood scenarios</li> <li>viii. Identification of evacuation and relief sites</li> <li>ix. Implementation of PDMA guidelines regarding flood</li> <li>x. Establishment of Control Rooms by all concerned</li> <li>xi. Regular DDMA meetings</li> <li>xii. Rescue 1122 to submit their plan including CERT team deployment</li> <li>xiii. Readiness certificates submission by all concerned</li> <li>xiv. Timely updation of list of private boats and volunteers by ACs, Rescue, Civil Defense, Social Welfare etc</li> <li>xv. Pre flood/moonson contingency preparation by all concerned as per PDMA requirements</li> <li>xvi. Timely inspection of sites for relief camps and ensuring their suitability</li> <li>xvii. Timely vaccination of flood prone areas by health and Livestock department</li> <li>xviii. Updation of list of relief camp incharges and sector incharges etc</li> <li>xix. Inspection of buildings during and after flood</li> <li>xx. XEN Highway to ensure breaches of respective roads</li> <li>xxi. Mobile teams of Health and Livestock department</li> <li>xxii. Disconnection of electricity of flood areas and timely restoration</li> <li>xxiii. Involving NGOs in all stages of flood preparation</li> <li>xxiv. Ensuring availability of Ata by Food Department</li> <li>xxv. Arrangement of fodder, husk, seeds, pesticides, fertilizers and medicines in adequate quantity by Livestock and Agriculture departments</li> <li>xxvi. Inspection of Flood Bunds and structures</li> <li>xxvii. Arrangement of Mock Exercise by Rescue 1122 involving all stakeholders</li> <li>xxviii. All department will ensure that the guide lines for prevention, mitigation, preparedness and response measures as lay down by national authority and provincial authority are followed in latter at spirit.</li> </ul> <p>All Departments will ensure the implementation of national ,provincial and district plan and will play their role as mention in this plan.</p>	Irrigation Revenue DDMA Recue 1122 Civil Defense Social welfare Health Education Livestock & Dairy Development Department Agriculture Department Buildings department Highway Department FESCO Police Department MCs DFC Information Departme
Urban Flooding	1. Revenue staff will ensure their presence to assist the flood effecties	Revenue.

	<p>2.Representative from irrigation department will also be present at the disastrous area to assist and brief the situation of flood</p> <p>3.Camp Management will be ensured by the District Health Authority</p> <p>4.Anti-allergic Vaccination will be ensured by District Health Authority.</p> <p>5.Police department will ensure its presents in order to avoid and untoward situation</p> <p>6.Food and shelter will be provided</p> <p>7.Maximum Evacuation of flood effecties will be Ensured by the Rescue (1122).</p> <p>8.Dewatering and drainage system will be ensured for timely dispersion of water from urban areas.</p> <p>9.Assistant may be called from Pak Army.</p>	<p>Irrigation.</p> <p>Health Authority.</p> <p>Rescue (1122)</p> <p>Police.</p> <p>Municipal-Corporation</p> <p>ARMY</p>
Flash Floods	<p>1.Revenue staff will ensure their presence to assist the flood effecties</p> <p>2.Representative from irrigation department will also be present at the disastrous area to assist and brief the situation of flood</p> <p>3.Camp Management will be ensured by the District Health Authority</p> <p>4.Anti-allergic Vaccination will be ensured by District Health Authority.</p> <p>5.Police department will ensure its presents in order to avoid and untoward situation</p> <p>6.Food and shelter will be provided</p> <p>7.Maximum Evacuation of flood effecties will be Ensured by the Rescue (1122).</p> <p>8.Assistant may be called from Pak Army.</p>	<p>Revenue.</p> <p>Irrigation.</p> <p>Health.</p> <p>Rescue (1122)</p> <p>Police.</p> <p>Army.</p>
Hill Torrent	<p>1.Revenue staff will ensure their presence to assist the flood effecties</p> <p>2.Representative from irrigation department will also be present at the disastrous area to assist and brief the situation of flood</p> <p>3.Camp Management will be ensured by the District Health Authority</p> <p>4.Anti-allergic Vaccination will be ensured by District Health Authority.</p> <p>5.Police department will ensure its presents in order to avoid and untoward situation</p> <p>6.Food and shelter will be provided</p> <p>7.Maximum Evacuation of flood effecties will be Ensured by the Rescue (1122).</p> <p>8.Assistant may be called from Pak Army.</p>	<p>Revenue.</p> <p>Irrigation.</p> <p>Health.</p> <p>Rescue (1122)</p> <p>Police.</p> <p>Army.</p>
Glacial Lake Outburst Flood (GLOF)	-	-
Landslide	<p>1.Revenue staff will ensure their presence to assist area where land-sliding will be occurred.</p> <p>2.Police department will ensure its presents in order to avoid and untoward situation</p> <p>3.DHQ, RHC's, THQ's will be called high alert.</p> <p>4.Food and shelter will be provided (if Need)</p> <p>5.Transportation of Effective victim after all codal medication formalities will be ensured by the Rescue (1122).</p> <p>6.Assistant may be called from Pak Army.</p>	<p>Revenue.</p> <p>Health.</p> <p>Rescue(1122)</p> <p>Police.</p> <p>Army.</p>
Tornado	-	-
Earthquake	<p>1.Revenue staff will ensure their presence to assist area where earthquake will be occurred.</p> <p>2.Police department will ensure its presents in order to avoid and untoward situation.</p> <p>3.DHQ, RHC's, THQ's will be called high alert.</p> <p>4.Food and shelter will be provided (if Need)</p> <p>5.Transportation of Effective victim after all codal medication formalities will be ensured by the Rescue (1122).</p> <p>6.Assistant may be called from Pak Army.</p>	<p>Revenue.</p> <p>Health.</p> <p>Rescue(1122)</p> <p>Police.</p> <p>Army.</p>
Drought	<p>1.Revenue staff will ensure their presence to assist area where earthquake will be occurred.</p> <p>2.Police department will ensure its presents in order to avoid and untoward situation.</p>	<p>Revenue.</p> <p>Food.</p> <p>Health.</p>

	<p>3.Representative of Food department will ensure his presence to guide and assist the departments.</p> <p>4.Food and shelter will be provided by District Administration.</p> <p>5.Transportation of Effective victim after all codal medication formalities will be ensured by the Rescue (1122).</p> <p>6. Assistant may be called from Pak Army.</p>	<p>Rescue(1122) Police. Army.</p>
Epidemic	<p>1.Revenue staff will ensure their presence to assist area where earthquake will be occurred.</p> <p>2.Police department will ensure its presents in order to avoid and untoward situation.</p> <p>3.Transportation of Effective victim after all codal medication formalities will be ensured by the Rescue (1122).</p> <p>4.DHQ, RHC's, THQ's will be called high alert.</p>	<p>Revenue. Police. Rescue 1122 Health.</p>
Fire Incidents	<p>1.Revenue staff will ensure their presence to assist area where earthquake will be occurred.</p> <p>2.Police department will ensure its presents in order to avoid and untoward situation.</p> <p>3.Representative of Building Department / Municipal Corporation will be present with approved map of Building.</p> <p>4.Fire Fighting will be done by Fire Brigade and Rescue (1122) immediately.</p> <p>5.Transportation of Effective victim after all codal medication formalities will be ensured by the Rescue (1122).</p> <p>6.DHQ, RHC's, THQ's will be called high alert.</p> <p>7.Assistant may be called from Pak Army.</p>	<p>Revenue. Police. Rescue 1122 Fire Brigade. Health. Army.</p>
Other Major Accidents (Building Collapse, road traffic accidents, train accident, Stampede, plane crash)	<p>1.Revenue staff will ensure their presence to assist area where earthquake will be occurred.</p> <p>2.Police department will ensure its presents in order to avoid and untoward situation.</p> <p>3.Representative of National Highway Authority or Provincial Highway / municipal corporation will be present.</p> <p>4.DHQ, RHC's, THQ's will be called high alert.</p> <p>5.Transportation of Effective victim after all codal medication formalities will be ensured by the Rescue (1122).</p> <p>6.Assistant may be called from Pak Army.</p>	<p>Revenue. Police. Rescue 1122 Fire Brigade. Health. Army.</p>
Environmental Hazards (industrial accidents, severe pollution etc.)	<p>1.Revenue staff will ensure their presence to assist area where earthquake will be occurred.</p> <p>2.Police department will ensure its presents in order to avoid and untoward situation.</p> <p>3.Representative of Industries department will be present with approved map of Building.</p> <p>4.Fire Fighting will be done by Fire Brigade and Rescue (1122) immediately (if needed).</p> <p>5.Transportation of Effective victim after all codal medication formalities will be ensured by the Rescue (1122).</p> <p>6.DHQ, RHC's, THQ's will be called high alert.</p> <p>7.Assistant may be called from Pak Army.</p>	<p>Revenue. Police. Rescue 1122 Fire Brigade. Industries Environment. Health. Army.</p>

# EARLY WARNING

## Information Flow Diagram



## Alertness Levels

Following four levels alertness have been established:

<p><b>Level-D</b> (Disaster threat is perceptible)</p>	<p>DDMA shall conduct monthly meetings besides atleast 2 mock exercises as per DDMP, well in time, to make the concerned officers/officials understand their role and responsibility for better coordination and testing of rescue and relief equipment. DDMA shall also ensure the physical presence of concerned staff deputed and availability of equipment/resources for all designated vulnerable sites within given time frame during disaster. Vulnerable site's inspections and necessary works/action shall be carried out as mitigation measures.</p>
<p><b>Level-C</b> <b>(Alert)</b> (Warning issued but likelihood of occurrence is less than 100%)</p>	<p><b>Activities to be undertaken in level D</b> + DDMA shall issue “<b>alert</b>” to all concerned for the vulnerable area. DDMA and LDMA (tehsil level) control rooms be made operational 24/7 and ensure availability of all required (available and additional) resources for on call mobilization and monitor the situation 6 hourly. Only DC and DPO shall grant leave according to the situation.</p>
<p><b>Level-B</b> <b>(High Alert)</b> (Disaster threat is imminent)</p>	<p><b>Activities to be undertaken in level C</b> + DDMA shall issue EW to all stakeholders and “<b>High Alert</b>” for the district to ensure that all additional HR and material resources including volunteers has reported to their assigned duties, and all resources for evacuation and disaster management have been mobilized as per DDMP. All emergency (health, fire, rescue 1122, LOCAL BODIES etc) facilities shall work 24/7 with full staff strength. DDMA shall monitor the situation on hourly basis.</p>
<p><b>Level-A</b> <b>(Red Alert)</b> (Disaster is materialized)</p>	<p><b>Activities to be undertaken in level B</b> + DDMA shall respond to the emergency immediately and shall carry out rescue and relief operation as defined in DDMP and shall continuously monitor the situation. Resources of adjoining districts shall be mobilized and Army may be called keeping in view the magnitude of the disaster.</p>

## Early Warning

*Briefly describe how the early warning will be received from provincial level?*

*Who is the focal person at district level?*

*Functions of District/Tehsil Emergency Control Rooms in early warning*

*How the early warning will be communicated to relevant departments for different disasters? What actions each relevant department should take after receiving the early warning e.g. evacuation.*

*How the early warning will be communicated to the relevant population? E.g. through Patwaris, SMS, Announcements, Media etc.*

- On the early warning will be communicated to the relevant population? E.g. through Patwari, SMS, Announcements, Media etc.
- The information/early warning will be received by DC/ADCR and District Control Room from provincial level control room.
- ADCR will be focal person for early warning / coordinating and supervising the disaster relief measures in the district.
- The district control room will intimate the information to the focal persons of DDMA, departments & Public Representatives and Tehsil Control room and will issue the alert to concerned department.
- After the intimation from Control Room all departments will take appropriate measures for evacuation, first aid, security and relief etc. as per their role and responsibilities
- Tehsil control room will issue early warning through telephone and revenue field staff to concerned chairman and councilors of the area.

## RESCUE STRATEGY

- *What actions will be taken as an immediate response to the situation? E.g. Evacuation, medical assistance*
- *Who does what and when? Responsible departments/agencies*
- *How and when Pakistan Army will be requested to support the rescue activities*
- *Camp sites identified? List at Annex I.*

### OPERATIONAL STRATEGY.

The general strategy in response was “Do the greatest good for the greatest number in the shortest period of time”. The operation will involve the search for, and rescue of alive victims and delicate application of force. Time remains critical factor in the initial strategy for achieving various rescue objectives, with the commensurate deployment of resources.

Risk to the rescuers will be maintained minimize or eliminate in the initial phase of response as risk / benefit and safety will be major consideration throughout the operation. To ensure a full deployment and allow for rotation of rescue personal, concerned teams will be assigned the responsibilities to carry out the Search & Rescue Operation. Each task force strived to perform physical, electronic and canine search; evaluate and stabilize the damage structure; extricate victims from collapse structure; provide emergency medical care to victims and shift the victims to nearest hospital.

### Operational Considerations

- Area cordon-off
- Control and manage the spontaneous responder Evacuating bystanders and nonessential people
- Establishment of incident command post
  - Identification and prioritization of operational objectives Tactical planning
  - Determine the resource requirement
- Identification of logistic support requirements Ensured multi-disciplinary response
  - Deployment of resources
- Monitoring & Evaluation of rescue operation
  - Dynamic risk assessment
- Continuous review of Progress
- Documentation of all activities

## Phases of Rescue Operation

The critical responsibilities of the rescue team leaders will be to determine, evaluate, and prioritize the rescue operation with a focus on extrication of trapped alive victims.

### Phase I:

- Initial response
- Assessment of the collapse structure / in any major incident.
- Evaluation of the structure's stability
- Area was searched for possible victims (surface/trapped)
- Identification of potential hazards
- Shut down of utilities for safety

### Phase II:

- Reinforced response
- Sectorization of the collapsed structure
- Identification of void spaces
- Physical, electronic visual, acoustic, and canine search
- Deployment of resources
- Removal of all surface victims as quickly and safely as possible
- Provisions of emergency medical care to the injured

### Phase III:

- All voids and accessible places were searched and explored for viable victims
- Confined space entries
- Hailing search by Audible calling out in voids/accessible places
- Canine search with the help of Pak Army dogs
- Electronic viewing with search cameras
- Application of Acoustic listening device
- Extrication of lightly trapped and visible victims
- Provisions of emergency medical care and shifting to the injured
- Horizontal and vertical cutting/breaching of unreinforced and reinforced concrete

### Phase IV:

- Forcible entry points
- Use of special tools & equipments to locate and extricate victims
- Extrication of all identified victims
- De-layering of concrete slabs (lifting of concrete slabs, beams, and columns)
- Selected debris removal
- Careful use of heavy machinery

**Phase V:**

- Extrication of the deceased
- General debris removal
- Use of heavy machinery to clear the rubble
- Demobilization

**Search**

The search team will be responsible to locate trapped victims. The teams capability included electronic (visual imaging, acoustic), canine and physical search. The search techniques will be applied separately or in combination depending on the situation.

**Rescue**

The rescue team will be responsible to evaluate incident areas for hazards, stabilize damage structures of the collapse, breaching and victim extrication in any major incident. The main Aim will be to evacuate maximum number of trapped victims was extricated on the "Golden Day" (First 24 hours)

**Medical**

The medical team will be assigned the responsibilities to provide emergency medical treatment and shifting of the victims. The emergency medical treatment will be provided by emergency medical technicians and the injured were shifted to nearby hospitals.

**Communications**

The hand held radio communication devices enhanced the operational capability of rescue teams as it linked the working teams and remained a potential solution for disseminating information quickly and accurately. The inter agency communications will be carried out through District Control Room or Rescue (1122) Control.

**Incident Command Post**

The incident command post will be established at the incident site in the incident command vehicle for information gathering, tactical planning, briefing sessions, develop incident action plans, coordinate the task force's efforts, ensure two way communications between the incident commander and task forces, reporting/documentation, rotation of the rescue teams and to integrate all resources.

**Finance & Logistics**

The Finance & Logistics team will be included logistics (transportation, supply of food & water, procurement of needed items), repair, & maintenance of the cache, communications, POL, security and provision of heavy machinery and equipment.

The Finance & Logistics cell will facilitate the operation in terms of supply of all necessary items, provision of food & water to the rescuers, POL for the equipment, immediate repair of machinery & equipment and transportation.

## The Media

The media will remain a positive source in providing timely and accurate information to the public. Public Relations Wing of Punjab Emergency Service will organize media briefings on a daily basis during which Director General kept on updating the progress of rescue operation.

## Plan “A” B and C

In case of plan” A” activation, already deployed/available resources in any institute will combat any emergency/incident. Plan-B shall be activated if more resources are required to be deployed or a bomb threat call is received. Plan-C shall be activated in case of large scale incident requiring all available resources in the district to be deployed.

## HUMANITARIAN ASSISTANCE

- *How damage and losses data will be collected and communicated to higher level?*
- *How the priority needs (e.g. food, shelter, health etc.) will be determined?*
- *What activities will be carried-out to provide assistance to the affected population and by whom?*
- *What assistance will be provided?*
- *Standardization of different packages/kits e.g. food, tents*
- *Humanitarian Assistance monitoring mechanism – to avoid duplication and identify gaps*
- *Minimum standards for camps, if camps are established*
- *What is the current capacity in the district? Enough for how much caseload?*
- *Explain how protection, gender and age, environment and other relevant cross-cutting issues that will be addressed or mainstreamed into the humanitarian assistance strategy*

Civil society and Non-Government Organizations (NGO) can play key roles in disaster management.

Organizations generally work at grass root level, and thus could be instrumental to raise public awareness and preparedness in the field of Disaster management. During disaster Organizations (NGOs) can assist in humanitarian work like rescue operation and relief distribution, medical facilities etc and in post-disaster phase they can actively assist in reconstruction and rehabilitation works. In D. G. Khan

District several organizations are actively working during disaster and are mainly involved in awareness raising, preparedness and research on disaster management. In case emergency, shelter, cooked food, free medicines, ambulance service, dry ration and other possible facilities will be provided to the affectees through NGOs.

## ANNEX I: IDENTIFIED SITES FOR DISPLACED PERSONS

S#	Location	No. of persons which can be accommodated	GPS Coordinates	S#	Location	No. of persons which can be accommodated	GPS Coordinates
1	Ghazi Ghat Bridge	NA	X: NA Y: NA	3	Wadoor	NA	X: NA Y: NA
2	Pull Qambar	NA	X: NA Y: NA	4	Taunsa Biradge	NA	X: NA Y: NA

## ANNEX II: LIST OF HAZARD PRONE VILLAGES/ REVENUE ESTATE (NAMES REQUIRED)

Hazards	Tehsils	UCs	Names of Revenue Estates	Names of Villages
Floods	D.G.Khan Kot Chutta. Taunsa. Koh Sulaman.	-	Kollay Wali, Malana, Noria KOria Sharki, Mehtar Bakhsh Arain, Sadar bader, Dargai Chand, Noria koria Gharbi,Ladan, Meeran, Usman Dona. Sawai, Alam Khan Karm Sah, chak rawin Sabin Machi, Rakh Sabin machi, Pati Makwal, Masoo sikhani, Pati Kasai, Meras Gurmani, Dera Puran, Soba arain, Haji Ghazi Sharki, Bait Mori, Sakhera Arain, Gharbi, Darama , Basti Bai, Chutala, Samina Sharki, Mantoos wala, Rakh, Gujja Bahar Sial, Jia Pitafi, Kachi Pitafi. Rawan, Shaba barkhand , Kot meer hasan, Phapri, sultan sandila, banjar jalal, basti kheera. Sabran Naacha.	Kollay Wali, Malana, Noria KOria Sharki, Mehtar Bakhsh Arain, Sadar bader, Dargai Chand, Noria koria Gharbi,Ladan, Meeran, Usman Dona. Sawai, Alam Khan Karm Sah, chak rawin Sabin Machi, Rakh Sabin machi, Pati Makwal, Masoo sikhani, Pati Kasai, Meras Gurmani, Dera Puran, Soba arain, Haji Ghazi Sharki, Bait Mori, Sakhera Arain, Gharbi, Darama , Basti Bai, Chutala, Samina Sharki, Mantoos wala, Rakh, Gujja Bahar Sial, Jia Pitafi, Kachi Pitafi. Rawan, Shaba barkhand , Kot meer hasan, Phapri, sultan sandila, banjar jalal, basti kheera. Sabran Naacha. Samina sharki, Gharbi, Shero.

Urban Flooding	-	-	Areas of Hill torrents in the City of District D.G.khan as early described	Areas of Hill torrents in the City of District D.G.khan as early described
Flash Floods	-	-	Same	Same
Hill Torrent	-	-	Chabri Bala Gharbi, Sharki, Umrani, Khalol, Yaroo, Chabri Zareen, Bela, kingrani, Kocha wadani, noorwah, Dalana pati zai, Bhoojari, Pati Khaas, toomi , Rakh bela wadoor, Dagar Chitt, Chit Sarkani, Pagan 1, Pagan 2, Pagan 3, Khosa basti, Mamori, Kaim wala. Salari, Jalari. Shadan lund. Churratta, kot haibat, pachad shumali, janoobi, sindh janoobi, shomali, rakh churratta, wadoor, sindh, Kotla sikhani gharbi. Bahadur garh, pati sultan lishari, darwaish lashari. Notak sikhani, pati makwal, Naraki, kala, ramin,	Chabri Bala Gharbi, Sharki, Umrani, Khalol, Yaroo, Chabri Zareen, Bela, kingrani, Kocha wadani, noorwah, Dalana pati zai, Bhoojari, Pati Khaas, toomi , Rakh bela wadoor, Dagar Chitt, Chit Sarkani, Pagan 1, Pagan 2, Pagan 3, Khosa basti, Mamori, Kaim wala. Salari, Jalari. Shadan lund. Churratta, kot haibat, pachad shumali, janoobi, sindh janoobi, shomali, rakh churratta, wadoor, sindh, Kotla sikhani gharbi. Bahadur garh, pati sultan lishari, darwaish lashari. Notak sikhani, pati makwal, Naraki, kala, ramin, Chack lama shadan lund, amdani, Pati Kasai. Ramin,kosha kukar, hota hotani. Shero dasti, piso pirar, basti ranjha,
Tornado	-	-	NA	NA
Earthquake	-	-	Any area of District may be affected.	-
Drought	-	-	Not Expected	-
Epidemic	-	-	NA	NA
Environmental Hazards (industrial accidents, severe pollution etc.)	-	-	All national Highways. Atomic energy.	-

## ANNEX III: LIST OF HEALTH FACILITIES AND THEIR VULNERABILITY TO HAZARDS

S#	Name and Location	GPS Coordinates	Health Facility Type (Primary, Secondary, Tertiary )	Name and Contact No of Focal Person	Hazard Vulnerability (Floods, Earthquake etc.)
1	Teaching / DHQ Hospital D.G.Khan	X: - Y: -	Tertiary	Dr. Najeeb Ur Rehman 064-9260224	Flood/ Earthquake
2	THQ Taunsa	X: - Y: -	Secondary	Dr. Muhammad Tahir 0333-6065063	Flood/ Earthquake
3	RHC, Sarwar Wali	X: - Y: -	Secondary	Dr. Abdul Ghafoor Leghari No. 0331-7271781	Flood / Earthquake
4	RHC Shadan Lund	X: - Y: -	Secondary	Dr. Airsh Khan 0313-6204546	Flood / Earthquake
5	RHC, Kala	X: - Y: -	Secondary	Dr. Waqas 0334-6801111	Flood / Earthquake
6	RHC, Qadirabad	X: - Y: -	Secondary	Dr. Saifal 0336-4058776	Flood / Earthquake
7	CH, Sakhi Sarwar	X: - Y: -	Secondary	Dr Muhammad Asghar 0333-2733333	Flood / Earthquake
8	RHC, Tibbi Qaisrani	X: - Y: -	Secondary	Dr.Sajid Hussain 0333-8916973	Flood / Earthquake
9	BHU Wadoor	X: - Y: -	Primary	Dr. Sara Tahir 0336-5621122	Flood
10	BHU Kot Haibat	X: - Y: -	Primary	Dr. Yamna 0331-7332378	Flood
11	BHU, Yaroo	X: - Y: -	Primary	Dr. Shamsa Kanwal No. 0335-1084709	Flood
12	BHU, Gaddai	X: - Y: -	Primary	Dr. Misbah Jamil 0333-6457819	Flood
13	BHU Samina	X: - Y: -	Primary	Dr. Zarwa Shahid 0332-4142065	Flood
14	BHU Pir Adil	X: - Y: -	Primary	Dr.M Tayyab	Flood
15	BHU Ghousabad	X: - Y: -	Primary	Dr. Ayesha Muntaha 0334-6787366	Flood

S#	Name and Location	GPS Coordinates	Health Facility Type (Primary, Secondary, Tertiary )	Name and Contact No of Focal Person	Hazard Vulnerability (Floods, Earthquake etc.)
16	BHU Bait Bait wala	X: - Y: -	Primary	Dr. Sana Ullah 0345-8055635	Flood
17	BHU Haji Ghazi	X: - Y: -	Primary	Dr. Maria Khan 0332-7498973	Flood
18	BHU Chabri Zarin	X: - Y: -	Primary	Dr. Jamal Buzdar 0333-6482428	Flood
19	BHU Shairoo	X: - Y: -	Primary	Dr. Syed Amjad Ali . 03346739117	Flood
20	BHU Bhakr wah	X: - Y: -	Primary	Dr. Mumtaz 0348-4175118	Flood
21	BHU, Mian pheroo	X: - Y: -	Primary	Dr. Warda 0335-4133434	Flood
22	BHU, TalPur	X: - Y: -	Primary	Dr. Muhammad Essa 0331-1048295	Flood
23	BHU, Jhoke Utra	X: - Y: -	Primary	Dr,Ambrin Fatima 0333-6496096	Flood
24	BHU, Nutkani	X: - Y: -	Primary	Dr. Lal Khan . 0333-5361272	Flood
25	BHU, Trimin	X: - Y: -	Primary	Dr. Jamshid Iqbal 0345-9848531	Flood
26	BHU, Hairo Sharqi	X: - Y: -	Primary	Dr.Atfa Mazhar 0311-9933527	Flood
27	BHU, Sanjar	X: - Y: -	Primary	Dr. Tauheed Rafiq 0347-3407101	Flood
28	BHU, More Jhangi	X: - Y: -	Primary	Dr. Irshad Nawaz 0333-4947070	Flood
29	BHU, Lakhani	X: - Y: -	Primary	Dr.Adeel 0333-0751677	Flood
30	BHU, Dona	X: - Y: -	Primary	Dr. Laraib 0317-9984666	Flood
31	BHU, Mangrotha	X: - Y: -	Primary	Dr. Sara Ahmed 0332-9577458	Flood
32	BHU, Sokar	X: - Y: -	Primary	Dr. Saddat Hussain 03336483713	Flood

## ANNEX IV: LIST OF VULNERABLE EDUCATIONAL INSTITUTIONS

S#	Name	Institute type (School, College etc.)	GPS Coordinates	Enrollment	Incharge Name	Contact Number
1	Govt B.H/S.Wadooe Puchad	School	X: - , Y: -	-	-	-
2	Govt B.H/SS.Kala	School	X: - , Y: -	-	-	-
3	Govt B. H/SS Shadan Lund	School	X: - , Y: -	-	-	-
4	Govt B. H/SS Shah Sadardin	School	X: - , Y: -	-	-	-
5	Govt B. H/S Peer Adil	School	X: - , Y: -	-	-	-
6	Govt B. M/S Marhata	School	X: - , Y: -	-	-	-
7	Govt B.M/S Ladan	School	X: - , Y: -	-	-	-
8	Govt B.H/S Paiga NO.2	school	X: - , Y: -	-	-	-
9	Govt B.M/S Paiga No2	School	X: - , Y: -	-	-	-
10	Govt B.H/S Lohar Wala	School	X: - , Y: -	-	-	-
11	Govt B.H/S Sarwar Wali	School	X: - , Y: -	-	-	-
12	Govt G.H/S Sarwar Wali	School	X: - , Y: -	-	-	-
13	Govt B.H/SS Samina	School	X: - , Y: -	-	-	-
14	Govt B. H/SS Mana Ahmdani	School	X: - , Y: -	-	-	-
15	Govt G. H/SS Mana Ahmdani	School	X: - , Y: -	-	-	-
16	Govt B. H/SS Kotchuta	School	X: - , Y: -	-	-	-
17	Govt B. H/S Jhok Utra	School	X: - , Y: -	-	-	-
18	Govt B. H/S Shero	School	X: - , Y: -	-	-	-
19	Govt Boys. H/S Ghusaabad	School	X: - , Y: -	-	-	-
20	Govt B. E/S Arra Jafar	School	X: - , Y: -	-	-	-
21	Govt Boys and Girls. M/S Haji Kamand	School	X: - , Y: -	-	-	-
22	Govt Boys H/S Choti	School	X: - , Y: -	-	-	-
23	Govt Boys and Girls Degree College Choti Zareen	College	X: - , Y: -	-	-	-
24	Govt Boys H/S Sakhi Sarwar	School	X: - , Y: -	-	-	-
25	Govt Boys H/S Darkhast Jamal Khan	School	X: - , Y: -	-	-	-

26	Govt Boys H/S Dona	School	X: - , Y: -	-	-	-
27	Govt Girls P/S Jarh Laghari	School	X: - , Y: -	-	-	-
28	Govt Girls H/S Daira Shah Mauza Bindi	School	X: - , Y: -	-	-	-
29	Govt Boys P/S Daira Shah Mauza Bindi	School	X: - , Y: -	-	-	-
30	Govt P/S Basti Manjotha Mauza Jhang	School	X: - , Y: -	-	-	-
31	Govt Boys H/S Makwal Kalan	School	X: - , Y: -	-	-	-
32	Govt Boys H/S Sanjar Saidan	School	X: - , Y: -	-	-	-
33	Govt Boys H/S Banbhan	School	X: - , Y: -	-	-	-
34	Govt Boys H/S Lakhani	School	X: - , Y: -	-	-	-
35	Govt Girls M/S Bukhara Mauza Triman	School	X: - , Y: -	-	-	-
36	Office Union Council Vehova	School	X: - , Y: -	-	-	-
37	Govt Boys H/S Nutkani	School	X: - , Y: -	-	-	-
38	Govt Boys H/S Churkin	School	X: - , Y: -	-	-	-
39	Govt Boys H/S More Jhangi	School	X: - , Y: -	-	-	-
40	Govt P/S Mari Gharbi	School	X: - , Y: -	-	-	-
41	Govt P/S Bait Laddha	School	X: - , Y: -	-	-	-

## ANNEX V: LIST OF INDUSTRIES WITH THEIR RISK LEVEL

S#	Industry Name	Location	GPS Coordinates	Risk Type (Chemical, Biological, Radiological, Nuclear)	Name and Contact of Focal Person	Risk Level (low, medium, high)	Prone to Hazard? Fire/ Floods/ Earthquake
1	D.G. Flour Mill	Near Taunsa by-passroad, D.G.Khan	x:30.11954 y:70.66557	-	Nouman 0303-6667410	Low	Fire and it may be the earthquake
2	Hayatani Rice Mill	Taunsaroad, D.G.Khan	x:30.12450 y:70.66831	-	Gulam Fareed 0321.6794990	Low	Fire and it may be the earthquake
3	Mastoi cotton and oilIndustry	AddaJhokYaar Shah, Taunsa road,D.G.Khan.	x:30.13733 y:70.67723	-	Aftab Ahmed 0336.7303029	Low	Fire and it may be the earthquake
4	Fakhar Alam Khan rice mill	Taunsa road, D.G.Khan	x:30.14671 y:70.68338	-	Aftab Ahmed 0336.7303029	Low	Fire and it may be the earthquake
5	Jhangail Rice Mill,	Kot Mubarak, Taunsa road, D.G.Khan.	x:30.20048 y:70.66316	-	HazoorBakhsh 0345-3277444	Low	Fire and it may be the earthquake
6	DGCement factory	Khofli satti, D.G.Khan	x:30.32335 y:70.53946	Chemical and Biological	Hafeezullah Shah 0333.8589312	Medium	Fire and it may be the earthquake
7	Al-Razi Rice Mill	Tibbi wala pull, Taunsa road, D.G.Khan.	x:30.16573 y:70.69832	-	Razi Khan 0307-7595651	Low	Fire and it may be the earthquake
8	Gishkori Rice Mill,	Taunsa road, D.G.Khan	x:30.16601 y:70.69920	-	Rab Nawaz 0344.8534452	Low	Fire and it may be the earthquake
9	Pakistan Rice Mill,	Taunsa road, D.G.Khan	x:30.17266 y:70.70296	-	Muhammad Safdar 0345-7514019	Low	Fire and it may be the earthquake
10	Atta Baig Cotton Industry	Taunsa road, D.G.Khan	x:30.18357 y:70.71157	-	Abdul Ghafar 0345.7360486	Low	Fire and it may be the earthquake

S#	Industry Name	Location	GPS Coordinates	Risk Type (Chemical, Biological, Radiological, Nuclear)	Name and Contact of Focal Person	Risk Level (low, medium, high)	Prone to Hazard? Fire/ Floods/ Earthquake
11	New Thal Rice mill	Peer Adil, D.G.Khan	x:30.21184 y:70.73198	-	Tauqeer Ahmed 0300.8680945	Low	Fire and it may be the earthquake
12	Sheikh Flour Mill	Taunsa road, D.G.Khan	x:30.09831 y:70.65865	-	Muhammad Ishaq 0333.6482848	Low	Fire and it may be the earthquake
13	Insaaf Rice Mill	Shah sadar din, Taunsa road, D.G.Khan.	x:30.28724 y:70.72750	-	Riaz Hussain 0331.7349714	Low	Fire and it may be the earthquake
14	Dasti Rice Mill	Shah sadar din, Taunsa road, D.G.Khan.	x:30.27332 y:70.72804	-	Mushtaq Ahmed 0333-6364474	Low	Fire and it may be the earthquake
15	Nawab Rice Mill,	Kala colony, Taunsa road, D.G.Khan	x:30.34034 y:70.70791	-	Ali Muhammad 0345.8132800	Low	Fire and it may be the earthquake
16	Baig Rice Mill,	Kala Taunsa road, D.G.Khan.	x:30.39223 y:70.72366	-	Atta Muhammad 0345-7360486	Low	Fire and it may be the earthquake
17	Mastoi Cotton Factory,	Shadan lund, Taunsa road, D.G.Khan	x:30.45013 y:70.72865	-	Aftab Khan 0346.7303029	Low	Fire and it may be the earthquake
18	Kotaddu Indus Cotton Industry	Zinda peer road, D.G.Khan	x:30.50808 y:70.70883	-	Abdul Shakoor 0333.6008999	Low	Fire and it may be the earthquake
19	Sanghar Cotton Industry	Adda karim wala, Taunsa road, D.G.Khan.	x:30.55640 y:70.69166	-	Muhammad Awais 0300.7397878	Low	Fire and it may be the earthquake
20	Baloch Cotton Factory,	Javed abad Taunsa road, D.G.Khan	x:30.56731 y:70.69012	-	Ghulam Abbas 0303.6666244	Low	Fire and it may be the earthquake

## ANNEX VI: LIST OF NGOs WORKING IN THE DISTRICT

S#	NGO Name	NGO Type (Local, National, International)	Location where they are working	Sector/Cluster of work (e.g. WASH, Health, Education)	Focal Person Name	Contact No.
1	Aghaz Development Organization, Block-V, D.G.Khan	-	-	Women Welfare	Ghulam Fareed	0301-7584189
2	Al-Asar Development Organization, Block-S, D.G.Khan.	-	-	Health and Education	Syed Sajjad Naqvi	0333-6464683
3	Al-Bait Development Organization, Muslim Town, D.G.Khan	-	-	Welfare, Health and Eduaction	Sh. Manzoor Ahmad	0334-6747509
4	Al-Eiman Development Oraganization, Block.No.58, Taunsa Road, D.G.Khan	-	-	Women and Child Welfare	Muhammad Asif Naqvi	0333-6482792
5	Al-Sirat Development Organization, Shams Abad Colony, D.G.Khan	-	-	Health	Syed Shafqat Abbas Naqvi	0334-6309999
6	Awami Itehad Welfare Organization, Gaddai, D.G.Khan	-	-	Women Youth and Child	Muhammad Ramzan	0321-6786578
7	Community Welfare Organization, 115-A, D.G.Khan	-	-	Women and Child Welfare	M. Tahir Hanif	0333-6162797
8	D.G.Khan Foundation For Disabled Persons, Al-Noor Public School, Block-B, D.G.Khan	-	-	Welfare and Rehabilitation of Disable person	Dr. Mansoor Ahmad	0344-8694535
9	Samaj Development	-	-	Women Welfare	Mian Sultan Mehmood	0336-6797777

S#	NGO Name	NGO Type (Local, National, International)	Location where they are working	Sector/Cluster of work (e.g. WASH, Health, Education)	Focal Person Name	Contact No.
	Organization, Main Market, Model Town, D.G.Khan.					
10	Tahafuz Development Organization, Ali Muhammad Wala, P.O. Box. NO. 22, D.G.Khan	-	-	Women and Youth Welfare	Sibtul Hasnain Naqvi	0300- 6692110
11	Usar Development Organization, Block-V, D.G.Khan	-	-	Women and Child Welfare	Malik Altaf Hussain	0333- 6482513
12	Youth Front Pakistan, Shakir Town, D.G.Khan	-	-	Women and Child Welfare	Qazi Nadeem Ahmad	0301- 7909145
13	Al-Bint Welfare Society, Muhallah Nizamabad,W#2, Taunsa Sharif.	-	-	Women, Child and Youth Welfare	Mrs. Fakhanda Yasmin	064 - 2006728
14	Al-Ghazi Development Organization, Muhallah Nizam Abad, College Road, Taunsa	-	-	Women and Child Welfare	Munir Ahmad	0321- 7982477
15	Habibani Welfare Organization, Mangrotha Ghrabi Tehsil Taunsa Sharif	-	-	Women Development	Saleem Akbar	0300- 7398129
16	Indus Development Organization, Nari Janoobi, Teh; Taunsa.	-	-	Education and Health	Malik Mumtaz Ahmad.	0333- 8287070
17	Tanzim Al-Falah, Mohalla Nizam Abad, College Road, W#2, Taunsa.	-	-	Education and Health	Munir Ahmad Khan.	0333 - 6024699
18	-	-	-	-	-	-

## ANNEX VII: CONTACT LIST OF MAIN STAKEHOLDERS / DEPARTMENTS

S#	Designation	Person Name	Telephone (Office)	Telephone (Residential)	Mobile
1	Focal Person for Disasters	Ahmed Hassan Ranjha	064-9260334	-	0346-7744555
2	Commissioner	Liaqat Ali Chhatha	064-2466377	-	-
3	RPO	M Waqas Nazeer	064-9260474	-	-
4	DC	Hamza Salik	064-9260340	-	-
5	DPO	-	064-9260100	-	-
6	ADC(Rev)	Ahmed Hassan Ranjha	064-9260334	-	0346-7744555
7	DEO Rescue 1122	Dr Nayyar	064-2430380	-	-
8	DO Civil Defence	Rub Nawaz	-	-	0346-7310408
9	SNA	Zubair Anjum	064-9260336	-	0336-8600725
10	AC – D G Khan	Nabeel Ahmed	064-9260496	-	-
11	AC - Taunsa	Asad Chandia	064-2602215	-	-
12	AC – Kot Chutha	M Asad	064-2843498	-	-
13	P A Koh Sulaman	M Akram	064-9060173	-	-
14	D.D Local Government	M Ramzan	-	-	0333-6461119
15	D.D (Development)	Waseem Jatoi	-	-	0332-7883232
16	GAR	-	-	-	-
17	Zonal Administrator	-	064-9260158	-	-
18	Director Anti Curruption	-	064-9260519	-	-
19	District Manager Auqaf	-	-	-	-
20	Registrar Ghazi University	Allah Bakhsh Gulshan	064-9260135	-	-
21	Director Excise & Taxation	-	064-9060186	-	-
22	Chief Officer - Carporation	Jawad Ul Hassan	-	-	0322-6410715
23	Chief Officer – MC Taunsa	-	-	-	0345-2021516
24	Chief Officer – MC Kot chutta	-	-	-	0314-6620667
25	Deputy Director Social Welfare	-	064-9260557	-	-
26	District Food Controller	-	064-2406834	-	-
27	Principal Danish School	-	064-2033854	-	-
28	CEO Education	-	064-9060044	-	-

S#	Designation	Person Name	Telephone (Office)	Telephone (Residential)	Mobile
29	Chief Engrn. Irrigation	-	064-9260245	-	-
30	XEN Irrigation	Zafar Bodla	064-9260245	-	0300-7955608
31	XEN Buildings	-	064-9260272	-	-
32	XEN CRBC	-	-	-	-
33	Director Agriculture(Ext)	-	064-9260145	-	-
34	CEO Health	Dr Atiq ureehman	064-9260218	-	-
35	MS DHQ Hospital	Dr Najeeb ur Rehman	064-9260224	-	-
36	Incharge DHQ Hospital	-	064-9260223	-	-
37	Addl: Director Livestock	-	064-9260168	-	-
38	Deputy Director Agri(Ext)	-	064-9260143	-	-
39	Director Public Health	-	064-9260640	-	-
40	Divisional Sport Officer	-	064-9239080	-	-

## ANNEX VIII: LIST OF VOLUNTEERS

S#	Volunteer Name	CNIC	Address	Contact Number and Email	Blood Group	Time Required to be on-board
1	Dr Arisha	-	-	0333-559901	-	-
2	M.Hashir	-	-	0331-3276527	-	-
3	Ahsan	-	-	0334-4856464	-	-
4	Shan Ali	-	-	0336-6235060	-	-
5	Janbaz Shahzad	-	-	0333-6121422	-	-
6	Syed Saqib Shah	-	-	0348-3667678	-	-
7	M.Shahbaz	-	-	0336-3500115	-	-
8	Usman Khan	-	-	0316-7812323	-	-
9	M Arham	-	-	0321-4603234	-	-
10	Tariq Bhatti	-	-	0332-7763277	-	-
11	Sulaman	-	-	0335-6838738	-	-
12	Saifullah	-	-	0306-8273508	-	-
13	Meezan	-	-	0335-4101313	-	-
14	M Bilal	-	-	0332-1669595	-	-
15	Abdul Ghafar	-	-	0333-6478257	-	-

## ANNEX IX: POLITICAL CONSTITUENCIES

National Constituencies				Provincial Constituencies			
Name of constituency	Name of Sitting Parliamentarian	Portfolio	Contact Number	Name of constituency	Name of Sitting Parliamentarian	Portfolio	Contact Number
<b>National Assembly</b>	Khawaj Sheeraz Mehmood	MNA	0300-8731692	Punjab Assembly	Sardar Usman Ahmed Khan Buzdar	MPA	0300-6329948

## ANNEX X: LOCAL GOVERNMENT

### District and Tehsil Level

S#	Designation	District/Tehsil Name	Name	Contact Number	Mobile Number
1	District	-	-	-	-
2	District	-	-	-	-
3	Tehsil	-	-	-	-

## ANNEX XI: DATA COLLECTION PROFORMAS

### P1: House Damage Assessment

District: \_\_\_\_\_

Date: \_\_\_\_\_

S#	Name	Father Name	CNIC	Address	Revenue Estate	Union Council	Tehsil	Partially/Completely	Katcha/Pakka	%age of Damage	Contact No.	GPS Coordinates	Picture Taken (Y/N)
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### P2: Deceased Person Reporting Proforma

District: \_\_\_\_\_

Date: \_\_\_\_\_

S#	Name of deceased	Father's name	Address	Domicile	Gender	Age	CNIC	Cause of death	Date of death	Place of death	Marital status	Next of kins (Name and Contact and CNIC etc.)	Verifying Officer (Name, Designation and Contact)	Compensation Paid or not
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**P3: Injurd Person Reporting Proforma**

District: \_\_\_\_\_

Date: \_\_\_\_\_

S#	Name of injured	Father's name	Address	Domicile	Gender	Age	CNIC	Cause of injury	Date of injury	Injury Type (Permanent or Temporary)	Compensation Paid or not

**P4: Cattle Head Perished**

District: \_\_\_\_\_

Date: \_\_\_\_\_

S#	Name of Farmer	Father Name	CNIC	Mauza	Tehsil	Type of Animals	Number of Animals (Cow, sheep etc.)	Vaccinated/ Unvaccinated	Witness 1 name and contact No.	Witness 2 Name and Contact No.

**P5: Crop Damages**

District: \_\_\_\_\_

Date: \_\_\_\_\_

S#	Tehsil	Qanoongoi	Union Council	Mauza	Farmer Name	Land owner/Tenant	CNIC of farmer	Contact number	Type of Crops	Total land affected (acres)	% of mauza affected

**P6: Relief Distribution Tracking Proforma**

District: \_\_\_\_\_

Date: \_\_\_\_\_

S#	Location/ Destination	Arrival Date and time	Items	Quantity	Items short (if any)	Items sent by	Driver name	Received by	Bilty no

**P7: Private Machinery (Boats, Bulldozers, Cranes etc.)**

In case of mega disaster that overwhelms the resources of the Government in certain area, the equipment of private owners are engaged to continue with evacuation, rescue or relief services. The following template is filled to maintain a record of boat owners that might be engaged at the time of a disaster.

District: \_\_\_\_\_

Date: \_\_\_\_\_

S#	Name of boat owner	Father name	Contact Number	Age	CNIC	Location of boat/Machinery	Type of Machinery (Boat, Bulldozers, Cranes etc.)	Engine type	Boat capacity	Equipment Condition	Number of Machinery
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**P8: Relief camp registration Proforma**

New entrants in the relief camps should be documented on a weekly basis by utilizing the following template:

District: \_\_\_\_\_

Date: \_\_\_\_\_

S#	Nationality	Domicile	Male	Female	Age	Children Under 12	Infants under 3	Sick	Injured	Pregnant
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**P9: NGOs registration proforma**

All the Non-Governmental Organizations operating in the disaster affected areas should register themselves at PDMA's website. The following template has been developed for NGOs assisting the Government in disaster response.

District: \_\_\_\_\_

Date: \_\_\_\_\_

S#	Name of NGO	Local /INGO	Relief activity	Relief camp if any	Focal person in the district	Registered with PDMA	Foreigners to be visiting or not.
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**P10: Control Room**

PDMA requires all districts to setup a control room at the incidence of a disaster. This control room would plan and execute a well-knit Governmental disaster response by bringing together all representatives of the various Governmental departments. This control room would be operational around the clock and PDMA must be informed about its operation and in-charge by filling the following template:

District: \_\_\_\_\_ Focal Person: \_\_\_\_\_ Date: \_\_\_\_\_

S#	Location of control room	Shift I Incharge Name and Contact	Shift II Incharge Name and Contact	Shift III Incharge Name and Contact	Phone Numbers	Fax Numbers	E- Mail Address
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## ANNEX XII: CAMP MANAGEMENT SOPs

- Camps would be established in areas accessible by metalled roads so that provision of essential facilities is not difficult
- Basic facilities such as food, clean drinking water, health, hygiene and sanitation should be available at these shelters.
- Proper registration mechanism should be in place to differentiate between those actually affected and cunning opportunists
- Proper security system should be in place in coordination with the local police as the presence of police always acts as deterrence for criminals who may be attracted to such places.
- Emergency medical care should be available as well as a proper firefighting system as fire out breaks are common in such tents
- Proper camp management should be announced and notified and there should be a complaint cell as well
- A proper distribution mechanism should be in place to ensure that the needy get what they deserve.
- Scattered camps should be catered for and encouraged to join the main camp.
- At times shallow hand pumps are not safe for drinking as the water underground has been affected. In such cases clean medicated water should be provided through water bowsers.
- Vector control is an essential part of the camp management and steps should be taken to remove rats, snakes and mosquitoes etc.
- Un-accompanied and missing children shall be placed separately with proper care and fulfilment of their physical and psycho-social needs.
- Needs of women as per local and cultural environment shall be considered for establishing separate relief camps for ladies with provision of proper security and light arrangements.

<b>Land</b>	<b>3.0-4.5 square meter per person</b>
<b>Shelter</b>	3.5 square meter per person
<b>Water</b>	15-20 liters per person per day
<b>Food</b>	2100 kcal per person per day
<b>Toilet</b>	One per family of 6-10 persons
<b>Health Centre</b>	One per 20,000 persons
<b>Child Friendly Spaces</b>	2-4 year olds- 15 children:2 facilitators
	5-9 year olds-20 children : 2 facilitators
	10-18 year olds- 30 children :2 facilitators
<b>Hospital</b>	One for as many as 200,000 persons

## ANNEX XIII: FLOOD BUNDS

### INFORMATION REGARDING FLOOD BUND CATEGORY A

SR:#	NAME OF DIVISION	NAME OF EMBANKMENT / BUND	LENGTH (ft)
<b>SARGODHA ZONE</b>			
1	Rasul Head works Division	Right Guide Bund	2,121
2	-do-	Left Guide Bund	3,360
3	-do-	Right Guide Spur	2,762
4	-do-	Left Marginal Bund	17,170
<b>Total in feet.</b>			<b>25,413</b>
<b>Total in Miles.</b>			<b>4.81</b>
<b>PMO BARRAGES</b>			
1	Kalabagh H/Works Division	Jinnah Barrage	25,080
<b>Total in feet.</b>			<b>25,080</b>
<b>Total in Miles.</b>			<b>4.75</b>
<b>FAISALABAD DIVISION</b>			
1	Khanki Division	Left Marginal Bund	21,000
2	-do-	Right Marginal Bund	33,650
3	Jhang Division	Jhang Flood Protection Bund	71000
4	Qadirabad Barrage Division	Left Marginal Bund	64938
5	-do-	Right Marginal Bund	106300
<b>Total in feet.</b>			<b>296888</b>
<b>Total in Miles.</b>			<b>56.22</b>
<b>BAHAWALPUR ZONE</b>			
1	Punjad Head works Division	Right Marginal Bund	70554
2	-do-	Left Marginal Bund	65169
3	-do-	Colony Protection Bund	15,000
4	Khanpur Canal Division	Minchin Flood Bund	115300
<b>Total in feet.</b>			<b>266,023</b>
<b>Total in Miles.</b>			<b>50.23</b>
<b>MULTAN ZONE.</b>			
1	Trimmu Division	Right Marginal Bund	54,000
2	-do-	Left Marginal Bund	46,000
3	Sulemanki Division	Left Marginal Bund	47,500
4	-do-	Right Marginal Bund	63,000
5	Shuja Canal Division	Right Bank of Shujabad Branch	48,000
6	-do-	Akbar Flood Bund	21,710
<b>Total in feet.</b>			<b>280,210</b>
<b>Total in Miles.</b>			<b>53.07</b>
<b>D.G.KHAN ZONE</b>			
1	Taunsa Barrage	Right First Defence Bund	23,500
2	-do-	Left Marginal Bund	133,200
3	-do-	Shahwala Groyne	66,000
4	Muzaffargarh Canal Division	Muzaffargarh Flood Bund	188000
5	-do-	Doaba Flood Bund.	19000
6	-do-	Khangarh Flood Bund	153,000
7	-do-	Shehr Sultan Flood Bund	134000
8	Jampur Construction Division	Jampur Flood Bund	170720
9	-do-	Laskani Flood Bund	26365
<b>Total in feet.</b>			<b>913,785</b>
<b>Total in miles</b>			<b>173.06</b>

<b>LBDC(IP)</b>			
1	Balloki Head works Division	Left Marginal Bund	28,350
2	do	Right Marginal Bund	26,500
<b>Total in Feet</b>			<b>54,850</b>
<b>Total in miles</b>			<b>10.38</b>
<b>LAHORE ZONE</b>			
1	FLOOD Bund Division Narowal	Jassar Highway Bund	20,000
2	do	Rayya flood Bund	40,000
3	Pasrur Link Division Sialkot	City Flood Protection Bund along Aik Nullah	7,340
4	do	Hajoipur Flood Protection Bund along Aik Nullah	86,00
5	do	Left Flood Protection Bund over deg Nullah from defence embankment to Zafarwala Kingra road	11,250
6	Marala Division UCC	Left Marginal Bund	68,639
7	do	Right Marginal Bund	6316
8	Lahore Drainage Div.	Shahdara Flood Protection Bund	15,750
<b>Total in Feet</b>			<b>169,295</b>
<b>Total in miles</b>			<b>32</b>
<b>Grand total in miles</b>			

**INFORMATION REGARDING FLOOD BUND CATEGORY B**

S#	Name of Division	Name of Embankment / Bund	Length (ft.)
<b>SARGODHA ZONE</b>			
1	Rasul Headworks Division	Important / Vulnerable Reaches	10,000
2	Bhakkar Division	-do-	10,000
3	Layyah Division	-do-	10,000
4	Jhelum Division	-do-	5,000
<b>Total in feet.</b>			<b>35,000</b>
<b>Total in miles</b>			<b>6.63</b>
<b>FAISALABAD ZONE</b>			
1	Khani Division	-do-	20,000
2	Jhang Division	-do-	50,000
3	Qadirabad Barrage Division	-do-	60,000
4	Burala Division	-do-	35,000
<b>Total in feet.</b>			<b>165,000</b>
<b>Total in miles</b>			<b>31.25</b>
<b>BAHAWALPUR ZONE</b>			
1	Punjnad Headworks Division	-do-	90,000
2	Khanpur Canal Division	-do-	100,000
3	Bahawalpur Canal Division	-do-	50,000
4	Rahimyar Canal Division	-do-	50,000
<b>Total in feet.</b>			<b>290,000</b>
<b>Total in miles</b>			<b>54.92</b>
<b>MULTAN ZONE</b>			

1	Trimmu Division	-do-	80,000
2	Suleimanki Division	-do-	50,000
3	Shujabad Canal Division	-do-	60,000
	<b>Total in feet.</b>		<b>190,000</b>
	<b>Total in miles</b>		<b>35.98</b>
<b>D.G.KHAN ZONE</b>			
1	Taunsa Barrage	-do-	80,000
2	Kot Adu Canal Division	-do-	90,000
3	Muzaffargarh Canal Division	-do-	180,000
4	River Diversion Division	-do-	80,000
5	Jampur Construction Division	-do-	140,000
6	D.G.Khan Construction Division	-do-	60,000
	<b>Total in feet.</b>		<b>630,000</b>
	<b>Total in miles</b>		<b>119.32</b>
<b>LBDC (IP)</b>			
1	Balloki Headworks Division	-do-	40,000
2	Okara Division	-do-	40,000
3	Sahiwal Division	-do-	20,000
	<b>Total in feet.</b>		<b>100,000</b>
	<b>Total in miles</b>		<b>18.94</b>
<b>LAHORE ZONE</b>			
1	Flood Bund Division Narowal	-do-	40,000
2	Pasrur Link Division Sialkot	-do-	10,000
3	Chakbandi Division	-do-	20,000
4	Marala Division UCC	-do-	50,000
5	Lahore Drainage Division	-do-	80,000
6	Kasur Division	-do-	80,000
7	Gujranwala UCC	-do-	100,000
8	Rachna Drainage	-do-	42,000
	<b>Total in feet.</b>		<b>422,000</b>
	<b>Total in miles</b>		<b>79.92</b>
<b>PMO BARRAGES</b>			
1	Jinnah Barrage	-do-	20,000
	<b>Total in feet.</b>		<b>20,000</b>
	<b>Total in miles</b>		<b>3.79</b>
	<b>Grand Total (in miles)</b>		<b>350.76</b>

## ANNEX XIV: RIVER DISCHARGE RATES

River	Gauge Site	Designed Capacity (lac Cs)	Flood Limits in Lac Cs.				Exp. High
			Low	Med:	High	Very High	
INDUS	Kalabagh	9.5	2.5	3.75	5	6.5	8
	Chashma	9.5	2.5	3.75	5	6.5	8
	Taunsa	10	2.5	3.75	5	6.5	8
JHELUM	Kohala	12	1	1.5	2	3	4
CHENAB	Mangla	10.6	0.75	1.1	1.5	2.25	3
	Rasul	8.5	0.75	1.1	1.5	2.25	3
	Marala	11	1	1.5	2	4	6
	Khanki	11	1	1.5	2	4	6
	Qadirabad	9	1	1.5	2	4	6
	Trimmu	8.75	1.5	2	3	4.5	6
	Punjnad	7	1.5	2	3	4.5	6
RAVI	Jassar	2.75	0.5	0.75	1	1.5	2
	Ravi Syphon	4.25	0.4	0.65	0.9	1.35	1.8
	Shahdara	2.5	0.4	0.65	0.9	1.35	1.8
	Balloki	2.25	0.4	0.65	0.9	1.35	1.8
	Sidhnai	1.5	0.3	0.45	0.6	0.9	1.3
	G.S.Wala	10 ft.	19.5	21.5	23.3	25.3	
SUTLEJ	Suleimanki	3.25	0.5	0.8	1.2	1.75	2.25
	Islam	3	0.5	0.8	1.2	1.75	2.25
	Mailsi Syphon	4	0.75	1.1	1.5	2.25	3

## ANNEX XV: LIST OF BASIC TERMS

### **Acceptable risk**

The level of loss a society or community considers it can live with and for which it does not need to invest in mitigation

### **Biological hazard**

Biological vectors, micro-organisms, toxins and bioactive substances, which may cause the loss of life or injury, property damage, social and economic disruption or environmental degradation.

### **Capacity**

A combination of all the strengths and resources available within a community, society or organization that can reduce the level of risk, or the effects of a disaster.

Capacity may include physical, institutional, social or economic means as well as skilled personnel or collective attributes such as leadership and management. Capacity may also be described as capability.

### **Capacity building**

Efforts aimed to develop human skills or societal infrastructure within a community or organization needed to reduce the level of risk. In extended understanding, capacity building also includes development of institutional, financial, political and other resources, at different levels of the society.

### **Climate change**

The climate of a place or region is changed if over an extended period (typically decades or longer) there is a statistically significant change in measurements of either the mean temperature or variability of the climate for that region.

### **Coping capacity**

The means by which people or organizations use available resources and abilities to face a disaster. In general, this involves managing resources, both in normal times as well as during crises or adverse conditions.

### **Disaster**

A serious disruption of the functioning of a community or society causing widespread human, material, economic or environmental losses which exceed the ability of the affected community or society to cope using its own resources. It results from the combination of hazards, conditions of vulnerability and insufficient capacity to reduce the potential negative consequences of risk.

### **Disaster risk management (DRM)**

The comprehensive approach to reduce the adverse impacts of a disaster. DRM encompasses all actions taken before, during, and after the disasters. It includes activities on mitigation, preparedness, emergency response, recovery, rehabilitation, and reconstruction.

### **Disaster risk reduction/disaster reduction**

The measures aimed to minimize vulnerabilities and disaster risks throughout a society, to avoid (prevention) or to limit (mitigation and preparedness) the adverse impacts of hazards, within the broad context of sustainable development.

### **Early warning**

The provision of timely and effective information, through identified institutions, to communities and individuals so that they could take action to reduce their risks and prepare for effective response.

### **Emergency management**

The management and deployment of resources for dealing with all aspects of emergencies, in particularly preparedness, response and rehabilitation

### **Forecast**

Estimate of the occurrence of a future event (UNESCO, WMO). This term is used with different meanings in different disciplines.

### **Geological hazard**

Natural earth processes that may cause the loss of life or injury, property damage, social and economic disruption or environmental degradation. For example earthquakes, tsunamis, volcanic activity and emissions, landslides, rockslides, rock falls or avalanches, surface collapses, expansive soils and debris or mud flows.