

# Organizational Capacity Assessment and Development of Capacity Enhancement Plan

Provincial Disaster Management Authority  
& District Disaster Management Authorities  
Sindh

2017-18



Part -B



Provincial Disaster Management Authority  
(PDMA), Sindh





Provincial Disaster Management Authority  
(PDMA), Sindh



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& District Disaster Management Authorities  
Sindh

(Part- B)

Prepared & Submitted by:



National Support Organization (NSO)  
Islamabad

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With the financial support from World Bank, PDMA Sindh is implementing five years' project, titled "Sindh Resilience Project" (SRP). The project aims to strengthen Government of Sindh's capacity to manage risks from natural disasters and climate change and to improve resilience of communities and economic assets in the Province of Sindh to natural disasters.

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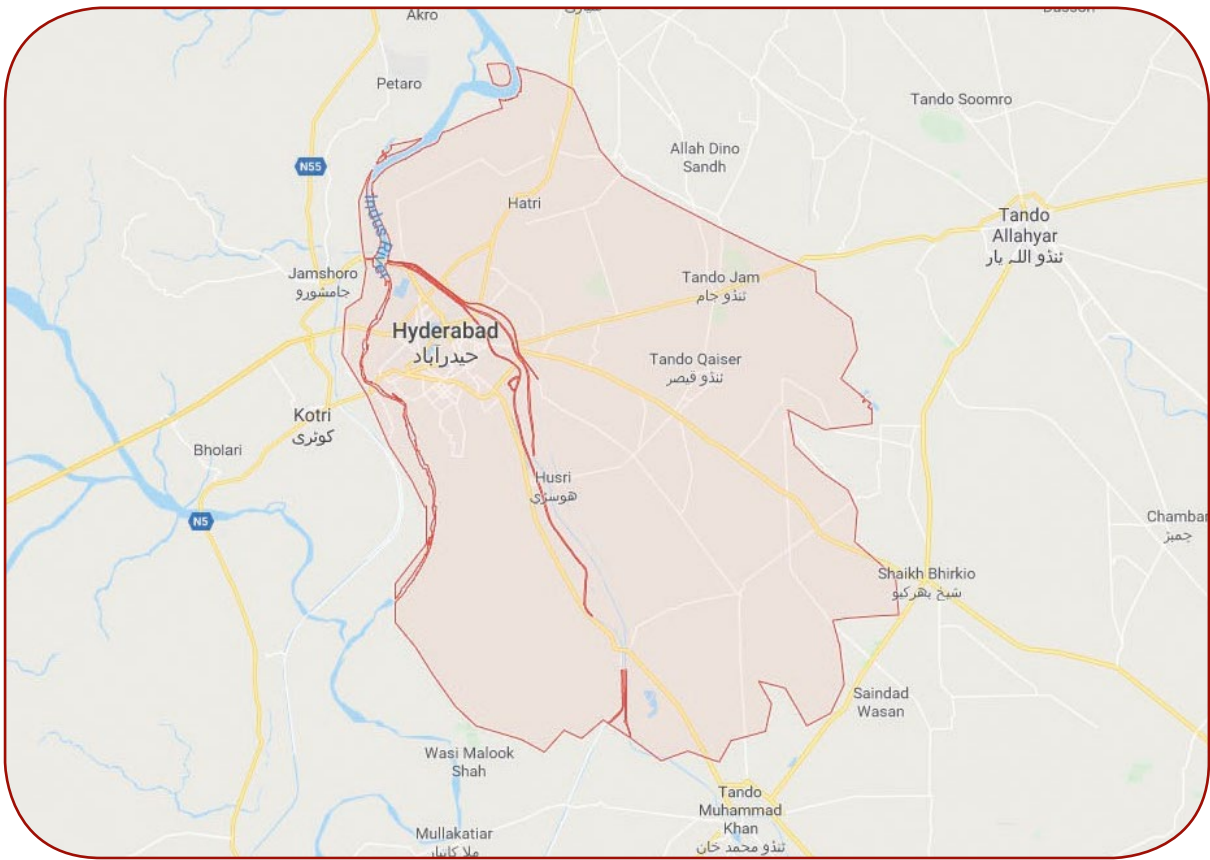


**Hyderabad Division**





## District Hyderabad



## District Hyderabad

Area	1,022 Km <sup>2</sup>
Population	2,201,079
Population Density	2,155 Per km <sup>2</sup>
Rural / Urban	16.7% / 83.3 %

Hyderabad is a divisional headquarter of the Sindh Province. District Hyderabad is a part of the lower Indus plain. There are no mountains or hills and the soil surface is uniform. The land cover structure of this District comprises of the irrigated croplands with an average altitude of 50 meters above the sea level. The climate of Hyderabad District as a whole is moderate.

The District was moderately hit in 2011 by heavy rains/flood. Overall, 20% of the population was affected due to these flood in 24 union councils of 03 talukas of the District. According to PDMA Sindh's assessment, the District falls under the category of low risk Districts. Along with the demographic losses, due to floods/rains 2011, the loss to agriculture sector exacerbated the sources of livelihood for the people of this District. The inundated crop area of the District was 16,217.

### *Hazard Matrix of District Hyderabad*

Hazard	Frequency	Severity	Year
Floods/Rain	Monsoon	Medium	2010, 2011, 2012, 2014
Epidemics	Seasonal	Low	Every year
Droughts	Rare	Medium	1998 to 2012
Earthquake	Rare	Low	2011, 2013
Industrial & Road Accidents/Fire	Common	Low	Through Out

Along with the above mentioned disasters, a list of potential future hazards can be seen below;

Depleting water resources
Clean drinking water
Increasing un-irrigated lands
Health epidemics and pandemics
Heavy chemical discharges/emissions
High rate of morbidity and mortality
Over exploitation of natural resources
Dense urbanization
Decreasing livestock
Sea and river intrusions
De-forestation of mangroves and other species
Water-logging and salinities
Nutritional stunting
Food insecurities
Forest fires

## Industrial Fires

**Summary of data received from District**

During the field survey data was collected with the help of a detailed questionnaire that was filled by concerned District authorities, the summary of data received can be seen in the table below;

Sr.	Description	Details
1	What are the crops being cultivated in your District	Wheat, Sugarcane, Pulses, Fodder, Cotton, Vegetable
2	What are most vulnerable services in your District	Education, Health, Transport, Roads, Electricity
3	Do you receive any support from line departments	No proper support received from line departments
4	District Level Legal Framework	No
5	Availability and quality of Disaster Management Plan	No disaster management plan is available
6	Availability and quality of Contingency Plan	Contingency plan does not exist
7	Does proper DDMA setup exist	There is no proper functional structure of DDMA in the District
8	Is there any proper coordination mechanism established between DDMA and line departments	There is no proper coordination mechanism
9	What are the existing means of communication being used	Radio, Internet and telephones
10	Are there any alternative means of communication	No
11	Is basic office equipment for DDMA available/ provided	Due to no proper DDMA setup, District lacks any sort of equipment
12	Is proper/dedicated space allocated for DDMA office	Yes, the office space allocated is adequate
13	Resource allocation sufficient	All resources for DDMA are required
14	Proper early warning system exist	EWS does not exist
15	What is the system to determine damage/loss	During the assessment no such system/mechanism was found
16	Geographic Information System	GIS system is required in the District.
17	Mechanism to purchase disaster relief supplies	Without DDMA setup no such mechanism can be setup
18	Do you carry out DRR/CBDRM trainings in your Districts	No such trainings are conducted in the District
19	What is the status of public education campaigns	District needs support from PDMA and other line departments for such campaigns
20	Are there any awareness raising activities being carried out in your District	No awareness raising programs had been conducted yet
21	Do you think BCC material and equipment is sufficient	Due to unavailability of support and resources no such material and equipment is present
22	Do you have sufficient funds for capacity building of staff	Due to insufficient funds, the District was unable to build capacity of the current staff

23	Well defined local level evacuation areas/ routes/shelters	Currently there are no such evacuation plans , The District needs various studies to define such routes or evacuation plans
24	Do you have any resource team for trainings	As there is no dedicated staff for DDMA, resource persons for trainings are required.
25	Is sufficient rescue relief & search equipment available	District even lacks basic search, rescue and relief equipment
26	Do you have sufficient HR to manage disaster	No dedicated staff for DDMA, management has to seek help from other departments in times of disasters
27	Are you using any tool to measure performance of staff	No such mechanism found
28	Is Government providing any sort of insurance facility to the community	Currently no such facility is being provided to the community
29	Do you have a proper capacity building policy	There is no capacity building policy
30	Do you have well equipped IT department in your District	IT department needs to be established
31	What sort of qualification and skills are required by your staff	Skills and trainings need to be provided
32	Are you satisfied with the governance structure of DDMA	Governance structure needs to be approved
33	Are the job descriptions of staff well defined	There are no well-defined JD's for the staff

## Recommendations

Following is the list of proposed basic search rescue and relief equipment.

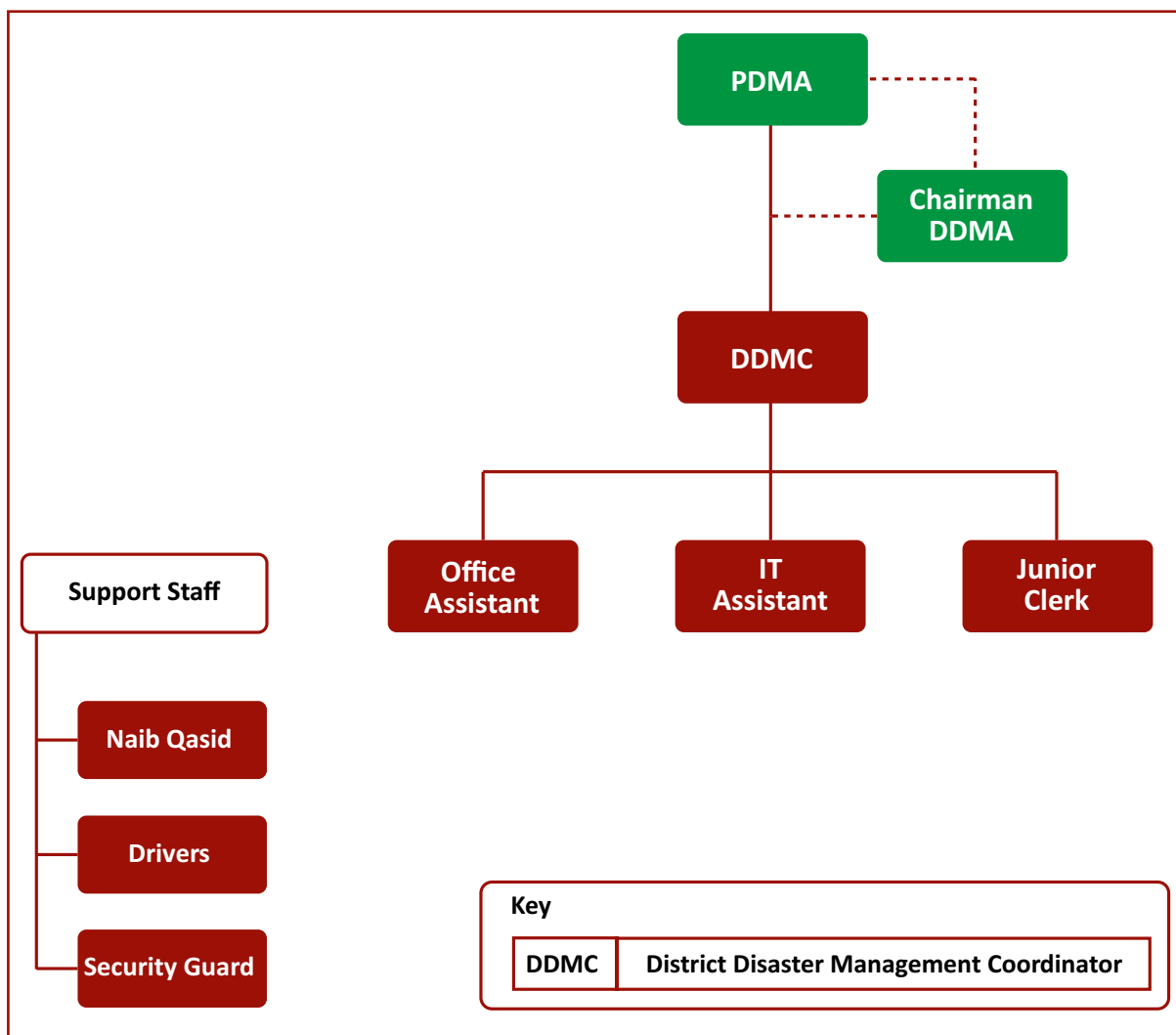
Sr.	Items	Available	Required
1	Life Jackets	3100	5000
2	De-watering Machines	364	500
2	Scuba	N/A	20
3	Torches	N/A	500
4	Life Bouys	N/A	250
5	Life Rings	N/A	250
6	Life Line	N/A	200
7	Nylon Rope	N/A	250
8	Tents	36,938	50000
9	First aid Box	N/ A	2000
10	Dry Suit	N/A	50
11	Jerry Can	230	1000
12	Cess Pool	1	N/A
13	Portable Generators	8	50
14	Folding Chairs	N/A	1000
15	Folding tables	N/A	250
16	Floating Ropes	N/A	500
17	Mosquito Nets (Available at HRF Hyderabad)	39861	50000
18	Rope Throwing Guns with Accessories	N/A	5
19	Pedestal Fans	N/A	250

20	Fumigation Machine	N/A	25
21	Boat	N/A	20
22	Mega Phone	N/A	25
23	Hand Moving Trolleys	N/A	250
24	Shovel/Karahi & Kahi/ Hammer/ Chisel (set)	N/A	150
25	Gas Mask (Multi-Purpose)	N/A	25
26	Snake Cather Stick	N/A	2
<b>Proposed Rescue Vehicles</b>			
27	Life Care Ambulance	N/A	02
28	Fire Fighting Vehicles	N/A	02
29	Water Bowser	N/A	02

- It is suggested that a new DDMA structure should be introduced along with dedicated staff, space and basic office equipment. Basic office equipment like (tables, office chairs, generators or solar system, GPS devices, desktop computers, communication devices, etc) have already been proposed for each DDMA.
- Institutional mandates should be revisited and writing staff ToRs to ensure the inclusion of DRR/DRM.
- Disaster management plans should be developed every year by DDMA with consent of line departments and stake holders.
- Contingency plans should also be developed at District level and shall be updated regularly.
- A proper Early Warning System (EWS) should be introduced in the District.
- Coordination among key stakeholders should be strengthened for the implementation of disaster risk reduction measures and effective emergency response through assignment of responsibility to each stakeholder. Stakeholders must have joint meetings to address the issues faced by them.
- Basic search, rescue and relief equipment should be provided to each District.
- Proper financial management system should be developed in the District for the transfer of funds in the event of disaster or in the phase of normal circumstances.
- Strengthening logistical capacity to facilitate networking between stakeholders.
- Placing staff on longer-term contracts to strengthen institutional knowledge and linkages.
- The Government and NGOs should invest in DRR sector and should corporate DRR measures in improving school buildings as these can be used as shelter and evacuation centers in case of emergency.
- Awareness programs should be organized by District Disaster Management Authority about the need of land use planning and building codes so that it can be followed by all the stakeholders, to avoid future threats.
- To minimize the flood risk, communities should be trained on rain water harvesting through microcatchments and roof top rain water harvesting as these practices will help them to store water for future productive use.
- Active people from the community can be used for disseminating early warning for the local endangered communities because people have lot of trust in informal and locally influential sources of information; e.g. a religious leader, a teacher, an NGO worker or a local Government official. But firstly, these active people should also be trained on EWS.

- Radio can be a very important part of Early Warning System (EWS) but care should be taken while transmitting early warnings. It should be in clear words and confirmed through reliable sources to avoid false reports and unnecessary panic.
- Media in District should expand its role as a watchdog during monitoring and handling of donations in the post-disaster phase so that the funds are given to the affected people of the District rather than self interest groups.
- A logistic system should be placed for determining the requirement of medicines, maintaining inventory, storing and stocking, issuing and controlling the use of commodities, stockpile of emergency medicine and supplies, special arrangement with vendors and suppliers for emergency purchases in time of disaster.
- DRR measures should be incorporated in the construction of sewerage system in order to minimize the possibility of overflowing of sewage water in rainy days and to mitigate the hygiene issues.
- District Disaster Management Authority should coordinate with the NGOs working in different sectors to address the problems of people. The NGOs working on different projects can be invited and can be asked for initiation of DRR projects in the vulnerable areas of the District.

### Proposed Structure of DDMA



## District Badin





## District Badin

Area	1,797 Km <sup>2</sup>
Population	455,295
Population Density	253.4Per km <sup>2</sup>
Rural / Urban	71.1 % / 28.9 %

Badin is among one of the most important coastal Districts of the Sindh Province. It is situated between latitude 24° 13' to 25° 12' North and longitude 68° 21' to 69°20' East. The District is bounded in the North by Hyderabad, in the East by Mirpurkhas and Tharparkar Districts, in the South by the Arabian Sea and Rann of Kutch, which also forms the international boundary with India and in the West it borders Thatta and Hyderabad Districts. Badin has a mild climate. Rainfall is highly erratic and unpredictable with an average rainfall of 258.8 mm. The District is part of the Lower Indus Plain formed by the illuvial deposits of the Indus River. Thus, its land is very uniform in character and it is not diversified by hills or rivers; in fact, there are no rivers or streams in the District

Badin is a highly disaster-prone area and disasters of different types have occurred in the past. District Badin is vulnerable to floods and heavy rainfalls. Badin has been affected by floods due to precipitation and drainage.

### *Hazard matrix of District Badin*

Hazard	Frequency	Severity	Years
Floods/Rains	Monsoon	High	1970, 1975, 1979, 1994, 2003, 2006, 2011, 2012
Left Bank Outfall Drain (LBOD)	Monsoon	High	1997 to onwards
Cyclone	Rare	High	1964, 1999, 2007
Epidemics	Seasonal	Low	Every year
Drought	Rare	Medium	1894, 1932, 1965-69, 1998-2002
Shortage of Water	Common	Low	1995 to onwards
Sea Intrusion	Common	Low	
Earthquake	Rare	Low	1958, 1960, 1963, 2001, 2013
Industrial & Road Accidents/ Fire	Common	Low	Through out

Along with the above mentioned disasters, a list of potential future hazards can be seen below;

Depilating water resources
Clean drinking water
Increasing un-irrigated lands
Health epidemics and pandemics
Heavy chemical discharges/emissions
High rate of morbidity and mortality
Over exploitation of natural resources



Dense urbanization
Decreasing livestock
Sea and river intrusions
De-forestation of mangroves and other species
Water-logging and salinities
Nutritional stunting
Food insecurities
Forest fires
Industrial Fires

### Summary of data received from District

During the field survey data was collected with the help of a detailed questionnaire that was filled by concerned District authorities, the summary of data received can be seen in the table below;

Sr.	Description	Details
1	What are the crops being cultivated in your District	Vegetable, wheat, sugarcane, orchards, cotton and pulses
2	What are most vulnerable services in your District	Education, Health, Transport, Roads, Electricity
3	Do you receive any support from PDMA	N/A
4	Do you receive any support from line departments	N/A
5	Does epidemic diseases occur in your District	Gastro, Malaria, Diarrhea, Typhoid, Dengue, Cholera
6	District Level Legal Framework	There is no proper District level legal framework currently being followed
7	Availability and quality of Disaster Management Plan	No disaster management plan is available
8	Availability and quality of Contingency Plan	Contingency plan does not exist
9	Does proper DDMA setup exist	There is no proper functional structure of DDMA in the District
10	Is there any proper coordination mechanism established between DDMA and line departments	There is no proper coordination mechanism between local Government to District to Provincial level
11	What are the existing means of communication being used	Telephone, Radio, Electronic Media
14	Are there any alternative means of communication	Radio, Internet, Telephone
15	Is basic office equipment for DDMA available/ provided	Due to no proper DDMA setup, District lacks any sort of equipment
16	Is proper/dedicated space allocated for DDMA office	No dedicated space is allocated for DDMA
17	Resource allocation sufficient	No
18	Proper early warning system exist	Alerts received from MET office & PDMA
19	What is the system to determine damage/loss	There is no such system in the District
20	Geographic Information System	GIS system is required in the District.
21	Mechanism to purchase disaster relief supplies	Without DDMA setup no such mechanism can be established

22	Do you carry out DRR/CBDRM trainings in your Districts	No such trainings are conducted in the District
23	What is the status of public education campaigns	Public education campaigns are currently running in the District
24	Are there any awareness raising activities being carried out In your District	No awareness raising programs had been conducted yet
25	Do you think BCC material and equipment is sufficient	Due to unavailability of support and resources no such material and equipment is present
26	Do you have sufficient funds for capacity building of staff	Due to insufficient funds, the District was unable to build capacity of the current staff
27	Well defined local level evacuation areas/ routes/shelters	Currently, there are no such evacuation plans. The District needs various studies to define such routes or evacuation plans
28	Do you have any resource team for trainings	As there is no dedicated staff for DDMA, resource persons for trainings are required.
29	Is sufficient rescue relief & search equipment available	District even lacks basic search, rescue and relief equipment
30	Do you have sufficient HR to manage disaster	No dedicated staff for DDMA, management has to seek help from other departments in times of disasters
31	Are you using any tool to measure performance of staff	No such mechanism found
32	Is Government providing any sort of insurance facility to the community	Currently no such facility is being provided to the community
33	Do you have a proper capacity building policy	There is no capacity building policy
34	Do you have well equipped IT department in your District	IT department needs to be established
35	What sort of qualification and skills are required by your staff	Skills and trainings need to be provided in technical and disaster related fields
36	Are you satisfied with the governance structure of DDMA	Governance structure needs to be approved
37	Are the job descriptions of staff well defined	There are no well-defined JD's for the staff

## Recommendations

Following is the list of proposed basic search rescue and relief equipment;

Sr.	Items	Available	Required
1	Life Jackets	N/A	250
2	De-watering Machines	N/A	50
3	Scuba	N/A	2
4	Torches	N/A	300
5	Life Bouys	N/A	50
6	Life Rings	N/A	50
7	Life Line	N/A	50
8	Nylon Rope	N/A	50
9	Tents	N/A	10000
10	First aid Box	N/A	1000
11	Dry Suit	N/A	5

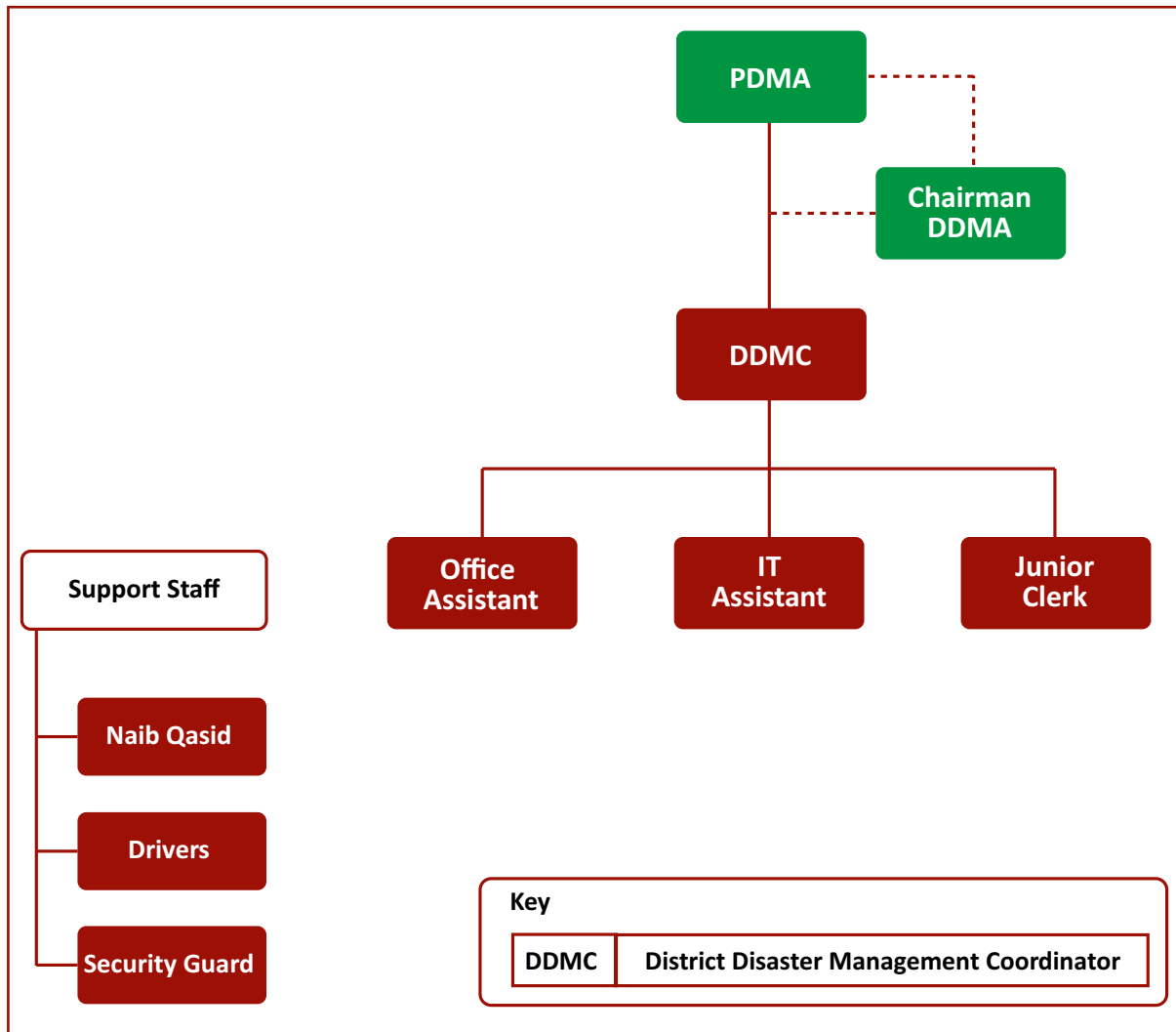
12	Jerry Can	N/A	250
13	Cess Pool	N/A	N/A
14	Portable Generators	N/A	25
15	Folding Chairs	N/A	500
16	Folding tables	N/A	100
17	Floating Ropes	N/A	100
18	Mosquito Nets	N/A	10000
19	Rope Throwing Guns with Accessories	N/A	2
20	Pedestal Fans	N/A	150
21	Fumigation Machine	N/A	10
22	Boats	N/A	10
23	Mega Phone	N/A	30
24	Hand Moving Trolleys	N/A	100
25	Shovel/Karahi & Kahi/ Hammer/ Chisel (set)	N/A	50
27	Gas Mask (Multi-Purpose)	N/A	20
28	Snake Cather Stick	N/A	5
29	Darryan (Solid like Carpets)	N/A	500
30	Steel Daggers	N/A	50
31	Steel safety Helmets	N/A	50
32	Under water Plastic Shoes for Boat Operators	N/A	20
33	Water Filters	N/A	100
<b>Proposed Rescue Vehicles</b>			
34	Life Care Ambulance	N/A	02
35	Fire Fighting Vehicles	N/A	02
36	Water Bowser	N/A	02

- It is suggested that a new DDMA structure should be introduced along with dedicated staff, space and basic office equipment. Basic office equipment like (tables, office chairs, generators or solar system, GPS devices, desktop computers, communication devices, etc) have already been proposed for each DDMA.
- Institutional mandates should be revisited and writing staff ToRs to ensure the inclusion of DRR/DRM.
- Disaster management plans should be developed every year by DDMA with consent of line departments and stake holders.
- Contingency plans should also be developed at District level and shall be updated regularly.
- A proper Early Warning System (EWS) should be introduced in the District.
- Coordination among key stakeholders should be strengthened for the implementation of disaster risk reduction measures and effective emergency response through assignment of responsibility to each stakeholder. Stakeholders must have joint meetings to address the issues faced by them.
- Basic search, rescue and relief equipment should be provided to each District.
- Proper financial management system should be developed in the District for the transfer of funds in the event of disaster or in the phase of normal circumstances.
- Strengthening logistical capacity to facilitate networking between stakeholders.
- Placing staff on longer-term contracts to strengthen institutional knowledge and

linkages.

- The Government and NGOs should invest in DRR sector and should incorporate DRR measures in improving school buildings as these can be used as shelter and evacuation centers in case of emergency.
- Awareness programs should be organized by District Disaster Management Authority about the need of land use planning and building codes so that it can be followed by all the stakeholders, to avoid future threats.
- To minimize the flood risk, communities should be trained on rain water harvesting through microcatchments and roof top rain water harvesting as these practices will help them to store water for future productive use.
- Active people from the community can be used for disseminating early warning for the local endangered communities because people have lot of trust in informal and locally influential sources of information; e.g. a religious leader, a teacher, an NGO worker or a local Government official. But firstly, these active people should also be trained on EWS.
- Radio can be a very important part of Early Warning System (EWS) but care should be taken while transmitting early warnings. It should be in clear words and confirmed through reliable sources to avoid false reports and unnecessary panic.
- Media in District should expand its role as a watchdog during monitoring and handling of donations in the post-disaster phase so that the funds are given to the affected people of the District rather than self interest groups.
- A logistic system should be placed for determining the requirement of medicines, maintaining inventory, storing and stocking, issuing and controlling the use of commodities, stockpile of emergency medicine and supplies, special arrangement with vendors and suppliers for emergency purchases in time of disaster.
- DRR measures should be incorporated in the construction of sewerage system in order to minimize the possibility of overflowing of sewage water in rainy days and to mitigate the hygiene issues.
- District Disaster Management Authority should coordinate with the NGOs working in different sectors to address the problems of people. The NGOs working on different projects can be invited and can be asked for initiation of DRR projects in the vulnerable areas of the District.

### Proposed Structure of DDMA



## District Dadu



## District Dadu

Area	8,034 Km <sup>2</sup>
Population	1,550,266
Population Density	193.0 Per km <sup>2</sup>
Rural / Urban	75.3 % / 24.7 %

Dadu District is located in the West of Sindh Province and is bounded on the North by District Kamber Shahdaskot, on the East by District Larkana and Shaheed Banizeerabad, on the West by Kirther range of mountains and Balochistan, and on the South by District Jamshoro. River Indus flows North to South along the Eastern boundary of the District. Manchar is a huge lake of the District and is used for fish breeding and as a natural reservoir.

Dadu District has a history of disasters. It was consecutively hit by heavy floods in 2010, 2011 and again in 2012. The relative severity of floods was ranked as high in District Dadu. In 2010 floods, 1,166 villages/settlements of 40 UCs were affected. 920,105 persons were affected and there were 27 casualties and 327 injuries. In 2011 floods, 381,454 villages/settlements of 52 union councils in 04 talukas were affected. A population of 325,000 persons was affected and there were 19 casualties and 161 injuries. In 2010, total of 320,742 area was effected while in 2011 it was 187,811. Crops area was also badly affected. Total crop affected area in 2011 was 97,248 and in 2010 it was 284,630.

### *Hazard matrix of District Dadu*

Hazards	Frequency	Severity	Years
Floods	Monsoon	High	2010, 2011, 2012
Heavy Rains	Monsoon	High	2010, 2011, 2012, 2014
Epidemics	Seasonal	Low	Every year
Droughts	Rare	Low	1997-2002
Earthquake	Sometimes/ Rare	Low	
Transport Accidents	Often	Low	Every year

Along with the above mentioned disasters, a list of potential future hazards can be seen below.;

Depilating water resources
Clean drinking water
Increasing un-irrigated lands
Health epidemics and pandemics
Heavy chemical discharges/emissions
High rate of morbidity and mortality
Over exploitation of natural resources
Dense urbanization
Decreasing livestock
Sea and river intrusions
De-forestation of mangroves and other species
Water-logging and salinities

Nutritional stunting
Food insecurities
Forest fires
Industrial Fires

### Summary of data received from District

During the field survey data was collected with the help of a detailed questionnaire that was filled by concerned District authorities, the summary of data received can be seen in the table below;

Sr.	Description	Details
1	What are the crops being cultivated in your District	Cotton, Vegetable, Pulses and rice
2	What are most vulnerable services in your District	Education, Health, Transport, Roads and Electricity
3	Do you receive any support from PDMA	N/A
4	Do you receive any support from line departments	Lack of support from all departments
5	Does epidemic diseases occur in your District	Gastro, Malaria, Diarrhea, Typhoid, Dengue and Cholera
6	District Level Legal Framework	District legal framework exists, needs to be followed properly
7	Availability and quality of Disaster Management Plan	Disaster management plan is available
8	Availability and quality of Contingency Plan	Contingency plan is available
9	Does proper DDMA setup exist	DDMA is setup as per notification of NDMA. Led by DC
10	Is there any proper coordination mechanism established between DDMA and line departments	There is no proper coordination mechanism between local Government to District to Provincial level
11	What are the existing means of communication being used	Radio, Internet and telephones are only means of communication
12	Are there any alternative means of communication	No
13	Is basic office equipment for DDMA available/ provided	Due to no proper DDMA setup, District lacks any sort of equipment
14	Is proper/dedicated space allocated for DDMA office	No dedicated space is allocated for DDMA
15	Resource allocation sufficient	Resources are not sufficient
16	Proper early warning system exist	EWS does not exist
17	What is the system to determine damage/loss	During the assessment no such system/mechanism was found
18	Geographic Information System	GIS system is required in the District.
19	Mechanism to purchase disaster relief supplies	Without DDMA setup no such mechanism can be setup
20	Do you carry out DRR/CBDRM trainings in your Districts	Such trainings are conducted in District
21	What is the status of public education campaigns	Public education campaigns are being run



22	Are there any awareness raising activities being carried out In your District	Yes
23	Do you think BCC material and equipment is sufficient	Due to unavailability of support and resources no such material and equipment is present
24	Do you have sufficient funds for capacity building of staff	Due to insufficient funds, the District was unable to build capacity of the current staff
25	Well defined local level evacuation areas/ routes/shelters	Such routes are defined but at a very limited level
26	Do you have any resource team for trainings	As there is no dedicated staff for DDMA, resource persons for trainings are required.
27	Is sufficient rescue relief & search equipment available	District even lacks basic search, rescue and relief equipment
28	Do you have sufficient HR to manage disaster	No dedicated staff for DDMA, management has to seek help from other departments in times of disasters
29	Are you using any tool to measure performance of staff	No such mechanism found
30	Is Government providing any sort of insurance facility to the community	Currently no such facility is being provided to the community
31	Do you have a proper capacity building policy	There is no capacity building policy
32	Do you have well equipped IT department in your District	IT department needs to be established
33	What sort of qualification and skills are required by your staff	Skills and trainings need to be provided in technical and disaster related fields
34	Are you satisfied with the governance structure of DDMA	Governance structure needs to be approved
35	Are the job descriptions of staff well defined	There are no well-defined JD's for the staff

## Recommendations

Following is the list of proposed basic search rescue and relief equipment;

Sr.	Items	Available	Required
1	Life Jackets	N/A	200
2	De-watering Machines	N/A	50
3	Scuba	N/A	5
4	Torches	N/A	200
5	Life Bouys	N/A	50
6	Life Rings	N/A	50
7	Life Line	N/A	50
8	Nylon Rope	N/A	50
9	Tents	N/A	10000
10	First aid Box	N/A	1000
11	Dry Suit	N/A	5
12	Jerry Can	N/A	250
13	Cess Pool	N/A	N/A
14	Portable Generators	3	25
15	Folding Chairs	N/A	500
16	Folding tables	N/A	100

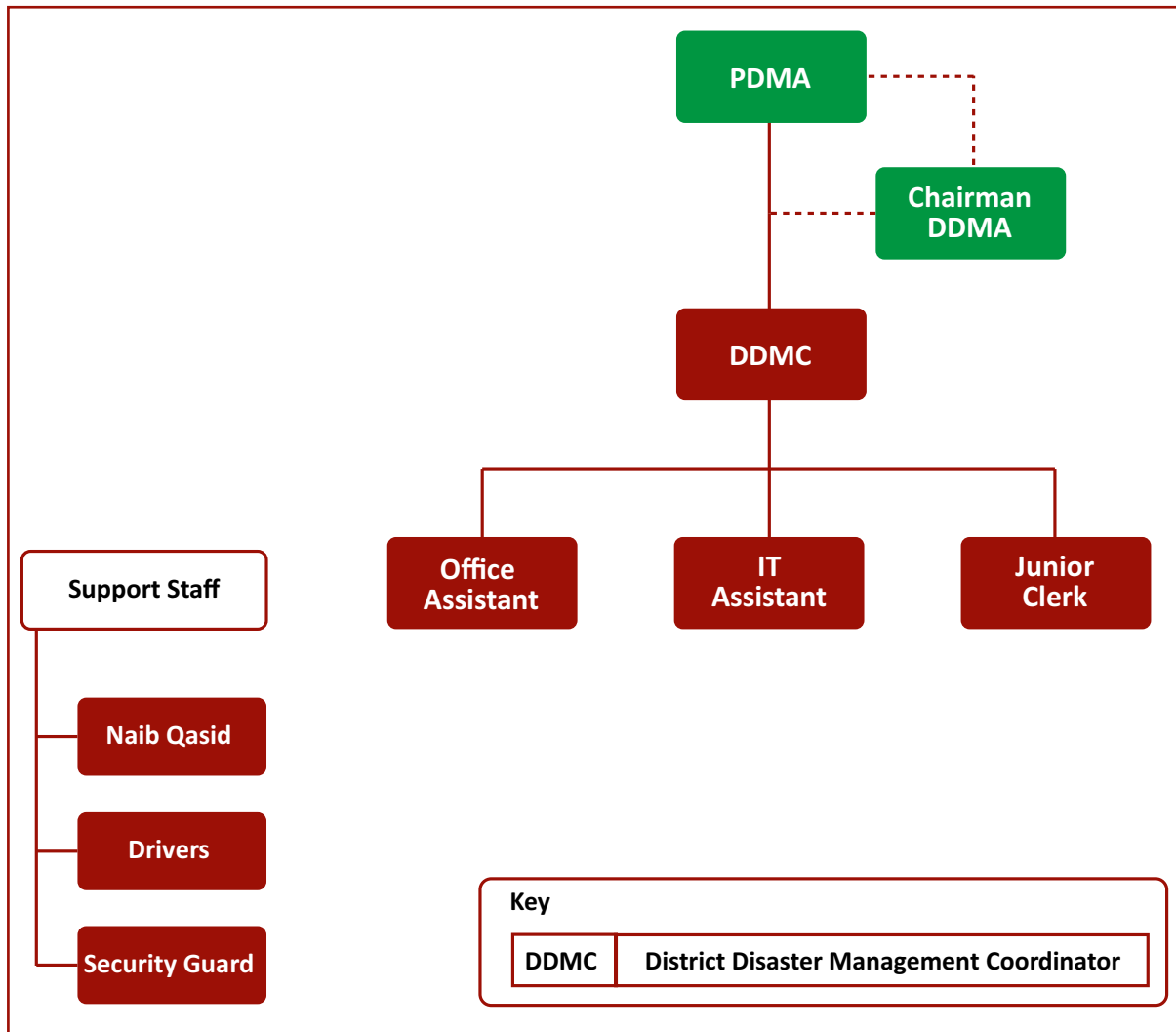
17	Floating Ropes	N/A	50
18	Mosquito Nets	N/A	50000
19	Rope Throwing Guns with Accessories	N/A	2
20	Pedestal Fans	N/A	250
21	Fumigation Machine	N/A	20
22	Boats	N/A	10
23	Mega Phone	N/A	25
24	Hand Moving Trolleys	N/A	100
25	Shovel/Karahi & Kahi/ Hammer/ Chisel (set)	N/A	50
26	Ration Pack	N/A	50
27	Gas Mask (Multi-Purpose)	N/A	20
28	Snake Cather Stick	N/A	10
29	Darryan (Solid like Carpets)	N/A	500
30	Steel Daggers	N/A	50
31	Steel safety Helmets	N/A	50
32	Under water Plastic Shoes for Boat Operators	N/A	20
<b>Proposed Rescue Vehicles</b>			
33	Life Care Ambulance	N/A	02
34	Fire Fighting Vehicles	N/A	02
35	Water Bowser	N/A	02

- It is suggested that a new DDMA structure should be introduced along with dedicated staff, space and basic office equipment. Basic office equipment like (tables, office chairs, generators or solar system, GPS devices, desktop computers, communication devices, etc) have already been proposed for each DDMA.
- Institutional mandates should be revisited and writing staff ToRs to ensure the inclusion of DRR/DRM.
- Disaster management plans should be developed every year by DDMA with consent of line departments and stake holders.
- Contingency plans should also be developed at District level and shall be updated regularly.
- A proper Early Warning System (EWS) should be introduced in the District.
- Coordination among key stakeholders should be strengthened for the implementation of disaster risk reduction measures and effective emergency response through assignment of responsibility to each stakeholder. Stakeholders must have joint meetings to address the issues faced by them.
- Basic search, rescue and relief equipment should be provided to each District.
- Proper financial management system should be developed in the District for the transfer of funds in the event of disaster or in the phase of normal circumstances.
- Strengthening logistical capacity to facilitate networking between stakeholders.
- Placing staff on longer-term contracts to strengthen institutional knowledge and linkages.
- The Government and NGOs should invest in DRR sector and should incorporate DRR measures in improving school buildings as these can be used as shelter and evacuation centers in case of emergency.
- Awareness programs should be organized by District Disaster Management Authority about the need of land use planning and building codes so that it can be followed by

all the stakeholders, to avoid future threats.

- To minimize the flood risk, communities should be trained on rain water harvesting through microcatchments and roof top rain water harvesting as these practices will help them to store water for future productive use.
- Active people from the community can be used for disseminating early warning for the local endangered communities because people have lot of trust in informal and locally influential sources of information; e.g. a religious leader, a teacher, an NGO worker or a local Government official. But firstly, these active people should also be trained on EWS.
- Radio can be a very important part of Early Warning System (EWS) but care should be taken while transmitting early warnings. It should be in clear words and confirmed through reliable sources to avoid false reports and unnecessary panic.
- Media in District should expand its role as a watchdog during monitoring and handling of donations in the post-disaster phase so that the funds are given to the affected people of the District rather than self interest groups.
- A logistic system should be placed for determining the requirement of medicines, maintaining inventory, storing and stocking, issuing and controlling the use of commodities, stockpile of emergency medicine and supplies, special arrangement with vendors and suppliers for emergency purchases in time of disaster.
- DRR measures should be incorporated in the construction of sewerage system in order to minimize the possibility of overflowing of sewage water in rainy days and to mitigate the hygiene issues.
- District Disaster Management Authority should coordinate with the NGOs working in different sectors to address the problems of people. The NGOs working on different projects can be invited and can be asked for initiation of DRR projects in the vulnerable areas of the District.

### Proposed Structure of DDMA



## District Jamshoro



## District Jamshoro

Area	11,250 Km <sup>2</sup>
Population	993,142
Population Density	88.28 Per km <sup>2</sup>
Rural / Urban	56.3% / 43.7 %

District Jamshoro is situated in the Western part of the Sindh Province. The climate of this District is pleasant. In summer, the Northern part is hotter than other parts of the District. The winters are dry and cold in this District.

District Jamshoro is disaster prone area and is vulnerable to earthquake, riverine and flash floods. River Indus is situated in the North East of the District which inundates the low lying risk areas during monsoon. District Jamshoro is one of the oldest Districts of Sindh. It was hit by 2010 and 2011 rains. District Jamshoro was hit by floods in 2010; whereas it was again hit in 2011 by rains/floods. In 2010, 49% of the population was affected due to floods, in 16 union councils of all talukas of the District. After 2010 floods, the District falls under the category of low risk Districts as declared by PDMA Sindh. In rains/floods 2011, only 12% of the population was affected in 25 union councils. Along with the demographic losses, due to floods/rains 2010 and 2011, the loss to agriculture sector exacerbated the sources of livelihood for the people of this District. 70% of the cotton and 80% of other crops (fodder, vegetables) were damaged.

### *Hazard matrix of District Jamshoro*

Hazards	Frequency	Severity	Years
Riverine Floods	Monsoon	High	2010, 2011
Flash Floods	Monsoon	Low	
Heavy Rainfall	Monsoon	Low	2011, 2012, 2013, 2014
Epidemics	Seasonal	Low	Every year
Droughts	Rare	High	1999-2002
Earthquake	Rare	Low	2013
Transport Accidents	Frequently	Low	Through Out

Along with the above mentioned disasters, a list of potential future hazards can be seen below;

Depilating water resources
Clean drinking water
Increasing un-irrigated lands
Health epidemics and pandemics
Heavy chemical discharges/emissions
High rate of morbidity and mortality
Over exploitation of natural resources
Dense urbanization
Decreasing livestock
Sea and river intrusions

De-forestation of mangroves and other species
Water-logging and salinities
Nutritional stunting
Food insecurities
Forest fires
Industrial Fires

### Summary of data received from District

During the field survey data was collected with the help of a detailed questionnaire that was filled by concerned District authorities, the summary of data received can be seen in the table below;

Sr.	Description	Details
1	What are the crops being cultivated in your District	Wheat, sugarcane, cotton and vegetable
2	What are most vulnerable services in your District	Education, Health, Transport, Roads, Electricity
3	Do you receive any support from PDMA	N/A
4	Do you receive any support from line departments	N/A
5	Does epidemic diseases occur in your District	Malaria, Gastro, Diarrhoea, Cholera, Typhoid, Dengue, Scabies
6	District Level Legal Framework	There is no proper District level legal framework currently being followed
7	Availability and quality of Disaster Management Plan	No disaster management plan is available
8	Availability and quality of Contingency Plan	Contingency plan does not exist, initiative should be taken, such plans should be prepared
9	Does proper DDMA setup exist	There is no proper functional structure of DDMA in the District
10	Is there any proper coordination mechanism established between DDMA and line departments	There is no proper coordination mechanism between local Government to District to Provincial level
11	What are the existing means of communication being used	Local communication and telecommunication
12	Are there any alternative means of communication	Telephone, internet and radio
13	Is basic office equipment for DDMA available/provided	Due to no proper DDMA setup, District lacks any sort of equipment
14	Is proper/dedicated space allocated for DDMA office	No dedicated space is allocated for DDMA, main office should be established at District level and cluster offices in locality
15	Resource allocation sufficient	No resources are allocated
16	Proper early warning system exist	EWS does not exist
17	What is the system to determine damage/loss	During the assessment no such system/mechanism was found
18	Geographic Information System	GIS system is required in the District
19	Mechanism to purchase disaster relief supplies	Without DDMA setup no such mechanism can be established

20	Do you carry out DRR/CBDRM trainings in your Districts	No such trainings are conducted in the District
21	What is the status of public education campaigns	District needs support from PDMA and other line departments for such campaigns
22	Are there any awareness raising activities being carried out In your District	No awareness raising programs had been conducted yet
23	Do you think BCC material and equipment is sufficient	Due to unavailability of support and resources no such material and equipment is present
24	Do you have sufficient funds for capacity building of staff	Due to insufficient funds, the District was unable to build capacity of the current staff
25	Well defined local level evacuation areas/ routes/shelters	Currently there are no such evacuation plans, The District needs various studies to define such routes or evacuation plans
26	Do you have any resource team for trainings	As there is no dedicated staff for DDMA, resource persons for trainings are required.
27	Is sufficient rescue relief & search equipment available	District even lacks basic search, rescue and relief equipment
28	Do you have sufficient HR to manage disaster	No dedicated staff for DDMA, management has to seek help from other departments in times of disasters
29	Are you using any tool to measure performance of staff	No such mechanism is found
30	Is Government providing any sort of insurance facility to the community	Currently no such facility is being provided to the community
31	Do you have a proper capacity building policy	There is no capacity building policy
32	Do you have well equipped IT department in your District	IT department needs to be established
33	What sort of qualification and skills are required by your staff	Skills and trainings need to be provided
34	Are you satisfied with the governance structure of DDMA	Governance structure needs to be approved
35	Are the job descriptions of staff well defined	There are no well-defined JD's for the staff

## Recommendations

Following is the list of proposed basic search rescue and relief equipment;

Sr.	Items	Available	Required
1	Life Jackets	N/A	500
2	De-watering Machines	N/A	50
3	Scuba	N/A	2
4	Torches	N/A	200
5	Life Bouys	N/A	150
6	Life Rings	N/A	150
7	Life Line	N/A	150
8	Nylon Rope	N/A	100
9	Tents	N/A	10000
10	First aid Box	N/A	1000
11	Dry Suit	N/A	5

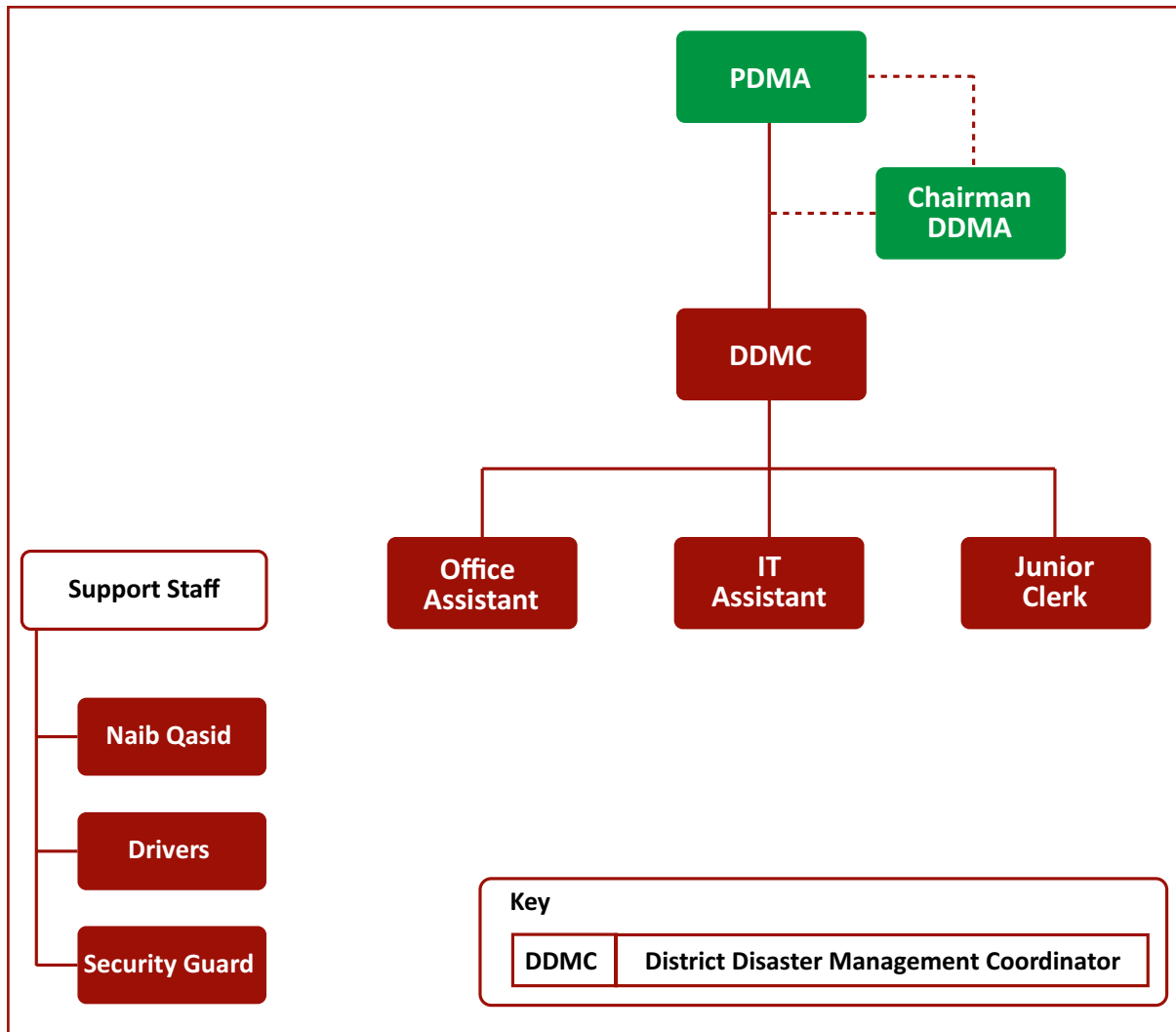


12	Jerry Can	N/A	250
13	Cess Pool	N/A	N/A
14	Portable Generators	N/A	20
15	Folding Chairs	N/A	500
16	Folding tables	N/A	100
17	Floating Ropes	N/A	100
18	Mosquito Nets	N/A	20000
19	Rope Throwing Guns with Accessories	N/A	1
20	Pedestal Fans	N/A	150
21	Fumigation Machine	N/A	20
22	Boats	N/A	10
23	Mega Phone	N/A	20
24	Hand Moving Trolleys	N/A	100
25	Shovel/Karahi & Kahi/ Hammer/ Chisel (set)	N/A	50
26	Gas Mask (Multi-Purpose)	N/A	20
27	Snake Cather Stick	N/A	1
28	Darryan (Solid like Carpets)	N/A	50
29	Steel Daggers	N/A	50
30	Steel safety Helmets	N/A	50
31	Under water Plastic Shoes for Boat Operators	N/A	20
<b>Proposed Rescue Vehicles</b>			
32	Life Care Ambulance	N/A	02
33	Fire Fighting Vehicles	N/A	02
34	Water Bowser	N/A	02

- It is suggested that a new DDMA structure should be introduced along with dedicated staff, space and basic office equipment. Basic office equipment like (tables, office chairs, generators or solar system, GPS devices, desktop computers, communication devices, etc) have already been proposed for each DDMA.
- Institutional mandates should be revisited and writing staff ToRs to ensure the inclusion of DRR/DRM.
- Disaster management plans should be developed every year by DDMA with consent of line departments and stake holders.
- Contingency plans should also be developed at District level and shall be updated regularly.
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- Basic search, rescue and relief equipment should be provided to each District.
- Proper financial management system should be developed in the District for the transfer of funds in the event of disaster or in the phase of normal circumstances.
- Strengthening logistical capacity to facilitate networking between stakeholders.
- Placing staff on longer-term contracts to strengthen institutional knowledge and linkages.

- The Government and NGOs should invest in DRR sector and should incorporate DRR measures in improving school buildings as these can be used as shelter and evacuation centers in case of emergency.
- Awareness programs should be organized by District Disaster Management Authority about the need of land use planning and building codes so that it can be followed by all the stakeholders, to avoid future threats.
- To minimize the flood risk, communities should be trained on rain water harvesting through microcatchments and roof top rain water harvesting as these practices will help them to store water for future productive use.
- Active people from the community can be used for disseminating early warning for the local endangered communities because people have lot of trust in informal and locally influential sources of information; e.g. a religious leader, a teacher, an NGO worker or a local Government official. But firstly, these active people should also be trained on EWS.
- Radio can be a very important part of Early Warning System (EWS) but care should be taken while transmitting early warnings. It should be in clear words and confirmed through reliable sources to avoid false reports and unnecessary panic.
- Media in District should expand its role as a watchdog during monitoring and handling of donations in the post-disaster phase so that the funds are given to the affected people of the District rather than self interest groups.
- A logistic system should be placed for determining the requirement of medicines, maintaining inventory, storing and stocking, issuing and controlling the use of commodities, stockpile of emergency medicine and supplies, special arrangement with vendors and suppliers for emergency purchases in time of disaster.
- DRR measures should be incorporated in the construction of sewerage system in order to minimize the possibility of overflowing of sewage water in rainy days and to mitigate the hygiene issues.
- District Disaster Management Authority should coordinate with the NGOs working in different sectors to address the problems of people. The NGOs working on different projects can be invited and can be asked for initiation of DRR projects in the vulnerable areas of the District.

### Proposed Structure of DDMA



## District Matiari



## District Matiari

Area	1,459 Km <sup>2</sup>
Population	769,349
Population Density	527.3 Per km <sup>2</sup>
Rural / Urban	76.3 % / 23.7 %

The District is bounded by District Saanghar on the East, District Jamshoro on the West, District Shaheed Benazirabad on the North and District Hyderabad and Tando Allahyar on the South. Indus River flows alongside the western border of the District. The climate of the District is moderate as a whole.

The District was hit by 2010, 2011 and 2012 rains and floods. River Indus, when receives excess water from 05 of its tributary rivers, causes floods in the Northern and Southern parts of Sindh Province. Rain/Floods brought great misery to the Sindh Province. Only in Matiari, flood 2012 affected 2,590 people and damaged 785 houses in the District.

The District falls under the category of medium risk Districts, as declared by PDMA Sindh. But in 2011 rains/floods, the extent of damage was not moderate at all as assessments showed that 415 villages/settlements of 19 union councils in all the 03 talukas were affected. A population of 109,629 person were affected and there were 25 casualties and 28 injuries. In total, 32,803 houses were damaged. Geographically, 44.2% of the District was inundated and 55% of the sown area was affected due to these rains/floods.

### *Hazard matrix of District Mitari*

Hazards	Frequency	Severity	Years
Riverine Floods	Monsoon	Medium	2010, 2011
Heavy Rains	Monsoon	High	2011, 2012
Epidemics	Seasonal	Low	Every year
Earthquake	Rare	Low	2013
Transport Accidents/ Fire	Frequently	Low	Through Out

Along with the above mentioned disasters, a list of potential future hazards can be seen below;

Depleting water resources
Clean drinking water
Increasing un-irrigated lands
Health epidemics and pandemics
Heavy chemical discharges/emissions
High rate of morbidity and mortality
Over exploitation of natural resources
Dense urbanization
Decreasing livestock
Sea and river intrusions
De-forestation of mangroves and other species

Water-logging and salinities
Nutritional stunting
Food insecurities
Forest fires
Industrial Fires

### Summary of data received from District

During the field survey data was collected with the help of a detailed questionnaire that was filled by concerned District authorities, the summary of data received can be seen in the table below;

Sr.	Description	Details
1	What are the crops being cultivated in your District	Wheat, Sugar cane, Cotton, Vegetables
2	What are most vulnerable services in your District	Education, Health, Transport, Roads, Electricity
3	Do you receive any support from PDMA	N/A
4	Do you receive any support from line departments	N/A
5	Does epidemic diseases occur in your District	Malaria, Diarrhoea, Scabies, Cholera, Typhoid, Gastro, Dengue
6	District Level Legal Framework	There is no proper District level legal framework currently being followed
8	Availability and quality of Disaster Management Plan	No disaster management plan is available
9	Availability and quality of Contingency Plan	Contingency plan does not exist
10	Does proper DDMA setup exist	There is no proper functional structure of DDMA
12	Is there any proper coordination mechanism established between DDMA and line departments	There is no proper coordination mechanism
13	What are the existing means of communication being used	Radio, Internet and telephones are only means of communication
14	Are there any alternative means of communication	No
15	Is basic office equipment for DDMA available/provided	Due to no proper DDMA setup, District lacks any sort of equipment
16	Is proper/dedicated space allocated for DDMA office	Office space is adequate and allocated for DDMA
17	Resource allocation sufficient	Resources are available but not allocated for DDMA
18	Proper early warning system exist	EWS does not exist
19	What is the system to determine damage/loss	During the assessment no such system/mechanism was found
20	Geographic Information System	GIS system is required in the District.
21	Mechanism to purchase disaster relief supplies	Without DDMA setup no such mechanism can be established
22	Do you carry out DRR/CBDRM trainings in your Districts	No such trainings are conducted in the District

23	What is the status of public education campaigns	District needs support from PDMA and other line departments for such campaigns
24	Are there any awareness raising activities being carried out In your District	No awareness raising programs had been conducted yet
25	Do you think BCC material and equipment is sufficient	Due to unavailability of support and resources no such material and equipment is present
26	Do you have sufficient funds for capacity building of staff	Due to insufficient funds, the District was unable to build capacity of the current staff
27	Well defined local level evacuation areas/ routes/shelters	Currently there are no such evacuation plans, the District needs various studies to define such routes or evacuation plans
28	Do you have any resource team for trainings	As there is no dedicated staff for DDMA, resource persons for trainings are required.
29	Is sufficient rescue relief & search equipment available	District even lacks basic search, rescue and relief equipment
30	Do you have sufficient HR to manage disaster	No dedicated staff for DDMA, management has to seek help from other departments in times of disasters
31	Are you using any tool to measure performance of staff	No such mechanism found
32	Is Government providing any sort of insurance facility to the community	Currently no such facility is being provided to the community
33	Do you have a proper capacity building policy	There is no capacity building policy
34	Do you have well equipped IT department in your District	IT department needs to be established
35	What sort of qualification and skills are required by your staff	Skills and trainings need to be provided in technical and disaster related fields
36	Are you satisfied with the governance structure of DDMA	Governance structure needs to be approved
37	Are the job descriptions of staff well defined	There are no well-defined JD's for the staff

## Recommendations

Following is the list of proposed basic search rescue and relief equipment;

Sr.	Items	Available	Required
1	Life Jackets	N/A	1000
2	De-watering Machines	18	50
3	Scuba	N/A	5
4	Torches	N/A	250
5	Life Bouys	N/A	100
6	Life Rings	N/A	100
7	Life Line	N/A	100
8	Nylon Rope	N/A	50
9	Tents	N/A	50000
10	First aid Box	N/A	1000
11	Dry Suit	N/A	10
12	Jerry Can	N/A	100
13	Cess Pool	N/A	N/A

14	Portable Generators	N/A	20
15	Folding Chairs	N/A	500
16	Folding tables	N/A	100
17	Floating Ropes	N/A	50
18	Mosquito Nets	N/A	50000
19	Rope Throwing Guns with Accessories	N/A	2
20	Pedestal Fans	N/A	250
21	Fumigation Machine	N/A	10
22	Boats	N/A	10
23	Mega Phone	N/A	20
24	Hand Moving Trolleys	N/A	100
25	Shovel/Karahi & Kahi/ Hammer/ Chisel (set)	N/A	100
26	Gas Mask (Multi-Purpose)	N/A	10
27	Snake Cather Stick	N/A	10
28	Darryan (Solid like Carpets)	N/A	500
29	Steel Daggers	N/A	100
30	Steel safety Helmets	N/A	50
31	Under water Plastic Shoes for Boat Operators	N/A	10
32	Water Filters	N/A	50
<b>Proposed Rescue Vehicles</b>			
33	Life Care Ambulance	N/A	02
34	Fire Fighting Vehicles	N/A	02
35	Water Bowser	N/A	02

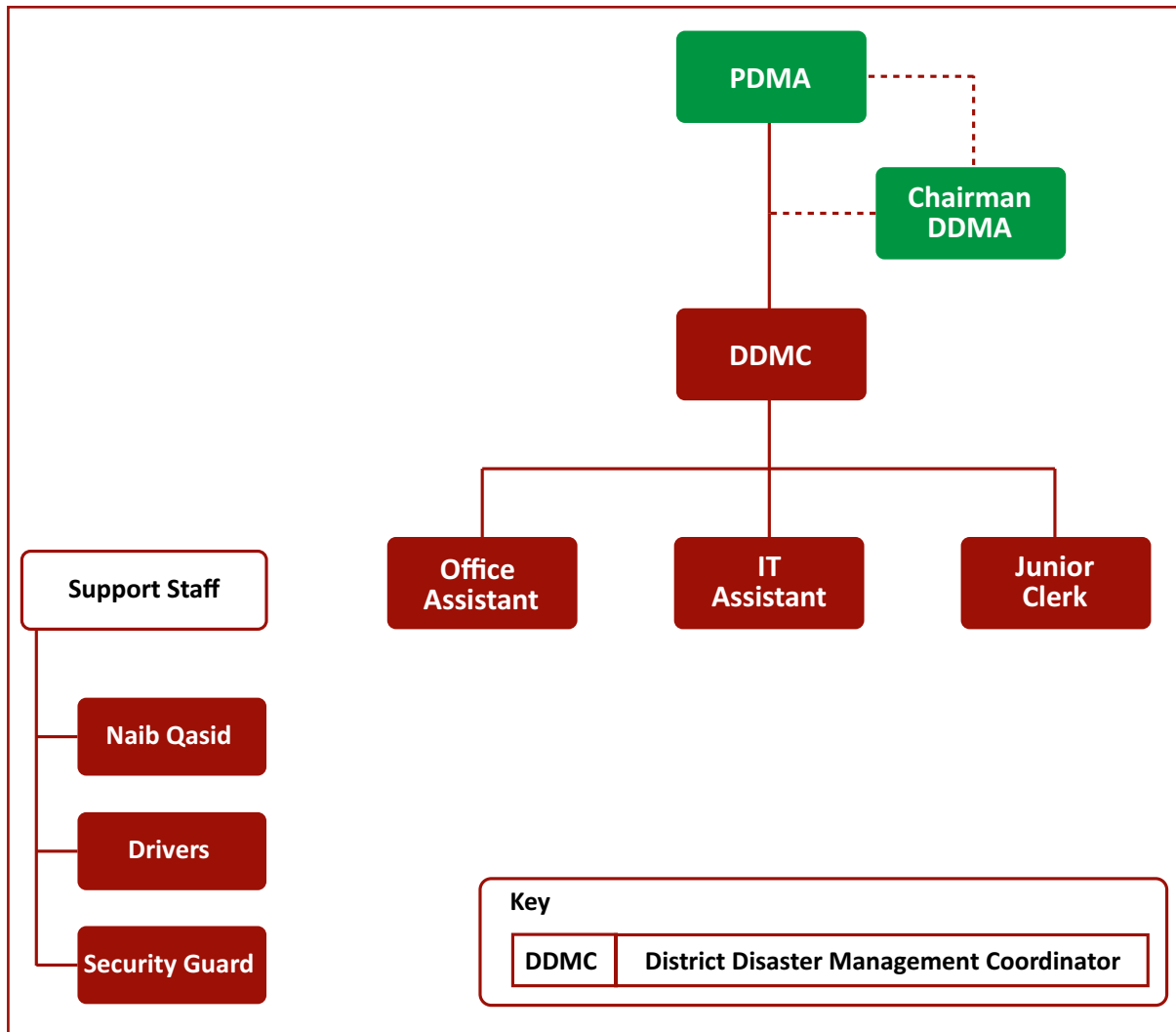
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- Institutional mandates should be revisited and writing staff ToRs to ensure the inclusion of DRR/DRM.
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- Contingency plans should also be developed at District level and shall be updated regularly.
- A proper Early Warning System (EWS) should be introduced in the District.
- Coordination among key stakeholders should be strengthened for the implementation of disaster risk reduction measures and effective emergency response through assignment of responsibility to each stakeholder. Stakeholders must have joint meetings to address the issues faced by them.
- Basic search, rescue and relief equipment should be provided to each District.
- Proper financial management system should be developed in the District for the transfer of funds in the event of disaster or in the phase of normal circumstances.
- Strengthening logistical capacity to facilitate networking between stakeholders.
- Placing staff on longer-term contracts to strengthen institutional knowledge and linkages.
- The Government and NGOs should invest in DRR sector and should corporate DRR



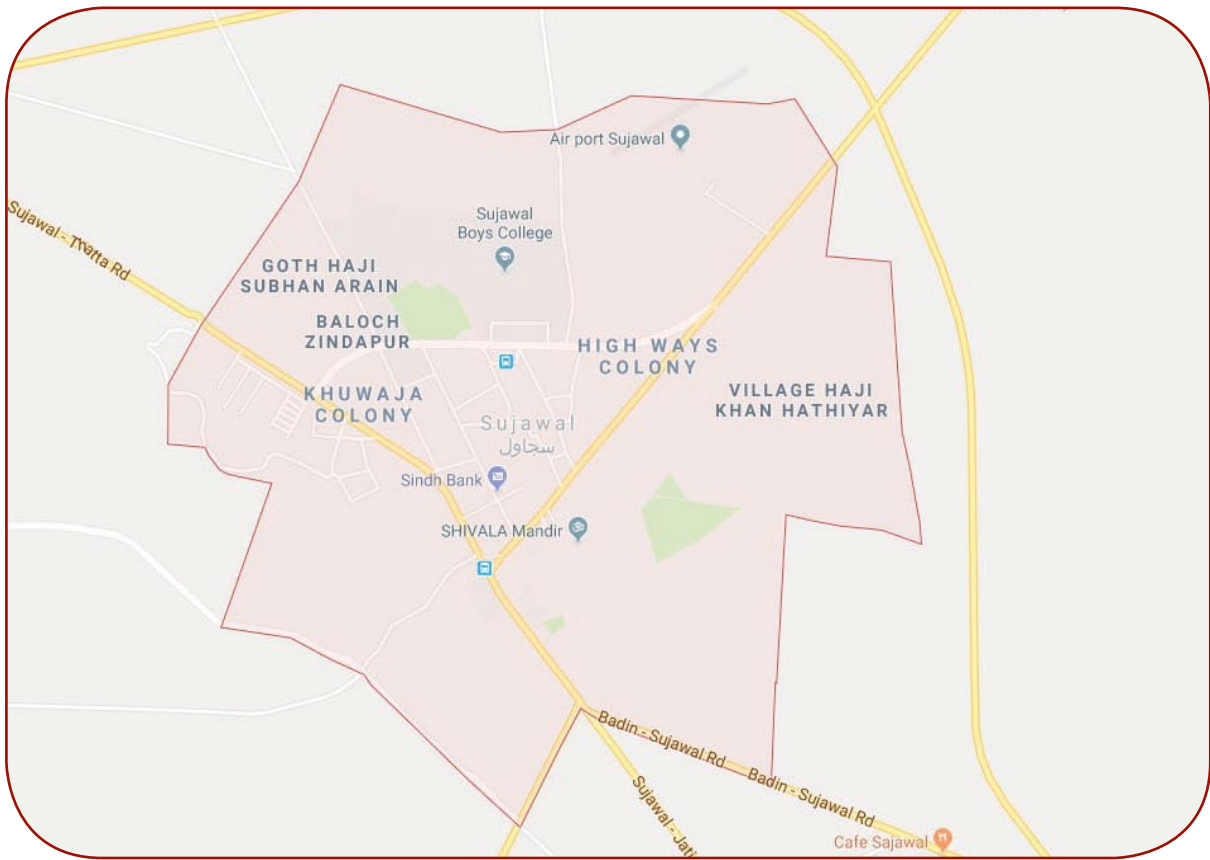
measures in improving school buildings as these can be used as shelter and evacuation centers in case of emergency.

- Awareness programs should be organized by District Disaster Management Authority about the need of land use planning and building codes so that it can be followed by all the stakeholders, to avoid future threats.
- To minimize the flood risk, communities should be trained on rain water harvesting through microcatchments and roof top rain water harvesting as these practices will help them to store water for future productive use.
- Active people from the community can be used for disseminating early warning for the local endangered communities because people have lot of trust in informal and locally influential sources of information; e.g. a religious leader, a teacher, an NGO worker or a local Government official. But firstly, these active people should also be trained on EWS.
- Radio can be a very important part of Early Warning System (EWS) but care should be taken while transmitting early warnings. It should be in clear words and confirmed through reliable sources to avoid false reports and unnecessary panic.
- Media in District should expand its role as a watchdog during monitoring and handling of donations in the post-disaster phase so that the funds are given to the affected people of the District rather than self interest groups.
- A logistic system should be placed for determining the requirement of medicines, maintaining inventory, storing and stocking, issuing and controlling the use of commodities, stockpile of emergency medicine and supplies, special arrangement with vendors and suppliers for emergency purchases in time of disaster.
- DRR measures should be incorporated in the construction of sewerage system in order to minimize the possibility of overflowing of sewage water in rainy days and to mitigate the hygiene issues.
- District Disaster Management Authority should coordinate with the NGOs working in different sectors to address the problems of people. The NGOs working on different projects can be invited and can be asked for initiation of DRR projects in the vulnerable areas of the District.

### Proposed Structure of DDMA



## District Sujawal



## District Sujawal

Area	7335 Km <sup>2</sup>
Population	781,967
Population Density	106.60 Per km <sup>2</sup>
Rural / Urban	91.07% / 8.93 %

Sujawal District was established in 2013, formerly part of District Thatta. District Sujawal is divided into four Talukas Jaati, Bathoro, Shah Bandar and Sujawal. It is located at 24°36'23" of North and 68°4'19" of East and is bordered in the North-West by the Indus River which separates it from Thatta District.

Along with the above mentioned disasters, a list of potential future hazards can be seen below;

Depleting water resources
Clean drinking water
Increasing un-irrigated lands
Health epidemics and pandemics
Heavy chemical discharges/emissions
High rate of morbidity and mortality
Over exploitation of natural resources
Dense urbanization
Decreasing livestock
Sea and river intrusions
De-forestation of mangroves and other species
Water-logging and salinities
Nutritional stunting
Food insecurities
Forest fires
Industrial Fires

### Summary of data received from District

During the field survey data was collected with the help of a detailed questionnaire that was filled by concerned District authorities, the summary of data received can be seen in the table below;

Sr.	Description	Details
1	What are the crops being cultivated in your District	Wheat, sugarcane, vegetables, rice, pulses and fodder
2	What are most vulnerable services in your District	Education, Health, Transport, Roads, Electricity
3	Do you receive any support from PDMA	PDMA supports in terms of planning, funding, infrastructure and rehabilitation
4	Do you receive any support from line departments	Yes, all line departments provide support
5	Does epidemic diseases occur in your District	Malaria, Diarrhoea, Scabies, Cholera, Typhoid, Gastro, Dengue

6	District Level Legal Framework	There is no proper District level legal framework currently being followed
7	Availability and quality of Disaster Management Plan	No disaster management plan is available
8	Availability and quality of Contingency Plan	Contingency plan is available
9	Does proper DDMA setup exists	DDMA exists as per Governments notification
10	Is there any proper coordination mechanism established between DDMA and line departments	Yes, Provincial to District to UC level
11	What are the existing means of communication being used	Radio, Internet, Telephone, Mobile, Print & Electronic Media
12	Are there any alternative means of communication	Internet, telephone and radio
13	Is basic office equipment for DDMA available/ provided	District lacks basic DDMA equipment
14	Is proper/dedicated space allocated for DDMA office	Office space is allocated and is adequate
15	Resource allocation sufficient	No, resources are not sufficient
16	Proper early warning system exist	There is no proper EWS mechanism though warnings are received from PDMA, NDMA and disbursed via print and electronic media
17	What is the system to determine damage/loss	Yes, through local revenue office and NGOs
18	Geographic Information System	GPS is being used for location mapping, Proper GIS system needs to be established
19	Mechanism to purchase disaster relief supplies	Relief supplies are purchased when required
20	Do you carry out DRR/CBDRM trainings in your Districts	No such trainings are conducted in the District
21	What is the status of public education campaigns	Yes, such campaigns are running in the District
22	Are there any awareness raising activities being carried out In your District	No awareness raising programs had been conducted yet
23	Do you think BCC material and equipment is sufficient	Due to unavailability of support and resources no such material and equipment is present
24	Do you have sufficient funds for capacity building of staff	Due to insufficient funds, the District was unable to build capacity of the current staff
25	Well defined local level evacuation areas/ routes/shelters	Evacuation areas have been identified
26	Do you have any resource team for trainings	Yes
27	Is sufficient rescue relief & search equipment available	District even lacks basic search, rescue and relief equipment
28	Do you have sufficient HR to manage disaster	HR is sufficient to manage disaster
29	Are you using any tool to measure performance of staff	No such mechanism found
30	Is Government providing any sort of insurance facility to the community	Currently no such facility is being provided to the community
31	Do you have a proper capacity building policy	There is no capacity building policy
32	Do you have well equipped IT department in your District	IT department exist with basic IT equipment

33	What sort of qualification and skills are required by your staff	Skills and trainings need to be provided, emergency relief and rehabilitation
34	Are you satisfied with the governance structure of DDMA	Governance structure needs to be improved
35	Are the job descriptions of staff well defined	There are no well-defined JD's for the staff

## Recommendations

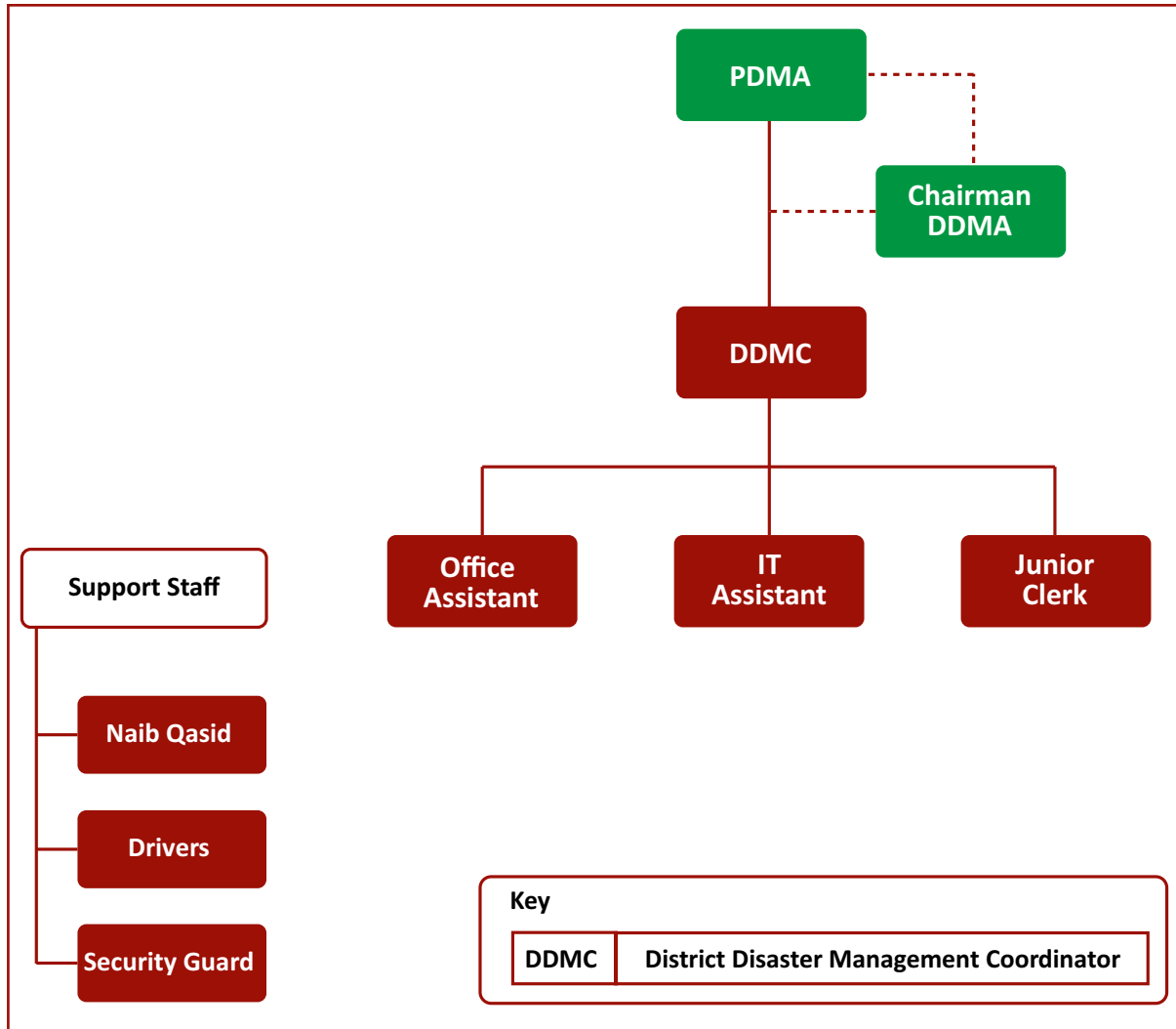
Following is the list of proposed basic search rescue and relief equipment;

Sr.	Items	Available	Required
1	Life Jackets	N/A	2500
2	De-watering Machines	N/A	100
3	Scuba	N/A	20
4	Torches	N/A	250
5	Life Bouys	N/A	500
6	Life Rings	N/A	500
7	Life Line	N/A	500
8	Nylon Rope	N/A	250
9	Tents	N/A	20000
10	First aid Box	N/A	1500
11	Dry Suit	N/A	20
12	Jerry Can	N/A	250
13	Cess Pool	N/A	N/A
14	Portable Generators	N/A	25
15	Folding Chairs	N/A	1000
16	Folding tables	N/A	250
17	Floating Ropes	N/A	500
18	Mosquito Nets	N/A	10000
19	Rope Throwing Guns with Accessories	N/A	5
20	Pedestal Fans	N/A	250
21	Fumigation Machine	N/A	20
22	Boats	N/A	20
23	Mega Phone	N/A	25
24	Hand Moving Trolleys	N/A	150
25	Shovel/Karahi & Kahi/ Hammer/ Chisel (set)	N/A	100
26	Gas Mask (Multi-Purpose)	N/A	20
27	Snake Cather Stick	N/A	10
28	Darryan (Solid like Carpets)	N/A	500
29	Steel Daggers	N/A	100
30	Steel safety Helmets	N/A	50
31	Under water Plastic Shoes for Boat Operators	N/A	20
<b>Proposed Rescue Vehicles</b>			
32	Life Care Ambulance	N/A	02
33	Fire Fighting Vehicles	N/A	02
34	Water Bowser	N/A	02

- It is suggested that a new DDMA structure should be introduced along with dedicated staff, space and basic office equipment. Basic office equipment like (tables, office chairs, generators or solar system, GPS devices, desktop computers, communication devices, etc) have already been proposed for each DDMA.
- Institutional mandates should be revisited and writing staff ToRs to ensure the inclusion of DRR/DRM.
- Disaster management plans should be developed every year by DDMA with consent of line departments and stake holders.
- Contingency plans should also be developed at District level and shall be updated regularly.
- A proper Early Warning System (EWS) should be introduced in the District.
- Coordination among key stakeholders should be strengthened for the implementation of disaster risk reduction measures and effective emergency response through assignment of responsibility to each stakeholder. Stakeholders must have joint meetings to address the issues faced by them.
- Basic search, rescue and relief equipment should be provided to each District.
- Proper financial management system should be developed in the District for the transfer of funds in the event of disaster or in the phase of normal circumstances.
- Strengthening logistical capacity to facilitate networking between stakeholders.
- Placing staff on longer-term contracts to strengthen institutional knowledge and linkages.
- The Government and NGOs should invest in DRR sector and should incorporate DRR measures in improving school buildings as these can be used as shelter and evacuation centers in case of emergency.
- Awareness programs should be organized by District Disaster Management Authority about the need of land use planning and building codes so that it can be followed by all the stakeholders, to avoid future threats.
- To minimize the flood risk, communities should be trained on rain water harvesting through microcatchments and roof top rain water harvesting as these practices will help them to store water for future productive use.
- Active people from the community can be used for disseminating early warning for the local endangered communities because people have lot of trust in informal and locally influential sources of information; e.g. a religious leader, a teacher, an NGO worker or a local Government official. But firstly, these active people should also be trained on EWS.
- Radio can be a very important part of Early Warning System (EWS) but care should be taken while transmitting early warnings. It should be in clear words and confirmed through reliable sources to avoid false reports and unnecessary panic.
- Media in District should expand its role as a watchdog during monitoring and handling of donations in the post-disaster phase so that the funds are given to the affected people of the District rather than self interest groups.
- A logistic system should be placed for determining the requirement of medicines, maintaining inventory, storing and stocking, issuing and controlling the use of commodities, stockpile of emergency medicine and supplies, special arrangement with vendors and suppliers for emergency purchases in time of disaster.
- DRR measures should be incorporated in the construction of sewerage system in order to minimize the possibility of overflowing of sewage water in rainy days and to mitigate the hygiene issues.

- District Disaster Management Authority should coordinate with the NGOs working in different sectors to address the problems of people. The NGOs working on different projects can be invited and can be asked for initiation of DRR projects in the vulnerable areas of the District.

### Proposed Structure of DDMA





## District Tando Allahyar



## District Tando Allahyar

Area	1,573 Km <sup>2</sup>
Population	836,887
Population Density	532.1Per km <sup>2</sup>
Rural / Urban	68.7% / 31.3 %

Tando Allahyar is one of the oldest cities of Sindh. District Tando Allahyar lies in 68° 34' 23" to 68° 57' 35" East longitudes and 25° 12' 24" to 25° 45' 17" North latitudes. This District is bounded by District Mirpur Khas on the East, District Sanghar on the North, District Hyderabad and Matiari on the West and District Tando Muhammad Khan & Badin on the South. The climate of District Tando Allahyar is temperate and pleasant. It is neither hot in summer nor cold in winter.

District Tando Allahyar is vulnerable to heavy rainfall. It was severely hit by 2011 and 2012 rains/floods. The relative severity of floods was ranked as medium in District Tando Allahyar. River Indus, after receiving water from five of its tributary rivers, causes floods in the Northern and Southern parts of Sindh Province.

Tando Allahyar was severely hit by rains/floods in 2011, though, the District falls under the category of medium risk Districts as declared by PDMA Sindh. In 2011 rains/floods, 1,609 villages/settlements of 19 union councils in 03 talukas were affected. A population of 569,829 person were affected.

Along with the demographic loss due to floods 2011, the loss to agriculture sector exacerbated the sources of livelihood for the people of this District. Total area damaged in flood 2011 was 81,645.

### *Hazard matrix of District Tando Allahyar*

Hazards	Frequency	Severity	Years
Heavy Rains	Monsoon	Medium	2011, 2012
Epidemics	Seasonal	Low	Every Year
Earthquake	Rare	Low	2013
Transport Accidents	Frequent	Low	Every Year

Along with the above mentioned disasters, a list of potential future hazards can be seen below;

Depilating water resources
Clean drinking water
Increasing un-irrigated lands
Health epidemics and pandemics
Heavy chemical discharges/emissions
High rate of morbidity and mortality
Over exploitation of natural resources
Dense urbanization

Decreasing livestock
Sea and river intrusions
De-forestation of mangroves and other species
Water-logging and salinities
Nutritional stunting
Food insecurities
Forest fires
Industrial Fires

### Summary of data received from District

During the field survey data was collected with the help of a detailed questionnaire that was filled by concerned District authorities, the summary of data received can be seen in the table below;

Sr.	Description	Details
1	What are the crops being cultivated in your District	Cotton, wheat, sugarcane, pulses, rice, vegetables and fodder
2	What are most vulnerable services in your District	Education, Health, Transport, Roads, Electricity
3	Do you receive any support from PDMA	PDMA supports whenever required in rehabilitation
4	Do you receive any support from line departments	All line departments support to whatever extent they can
5	Does epidemic diseases occur in your District	Malaria, Diarrhoea, Scabies
6	District Level Legal Framework	There is no proper District level legal framework currently being followed
7	Availability and quality of Disaster Management Plan	No disaster management plan is available
8	Availability and quality of Contingency Plan	Contingency plan does not exist
9	Does proper DDMA setup exist	There is no proper functional structure of DDMA
10	Is there any proper coordination mechanism established between DDMA and line departments	There is no proper coordination mechanism
13	What are the existing means of communication being used	Radio, Internet and telephones are only means of communication
14	Are there any alternative means of communication	No
15	Is basic office equipment for DDMA available/provided	Due to no proper DDMA setup, District lacks any sort of equipment
16	Is proper/dedicated space allocated for DDMA office	No dedicated space is allocated for DDMA
17	Resource allocation sufficient	There is no proper resource allocation for DDMA
18	Proper early warning system exist	EWS does not exist
19	What is the system to determine damage/loss	During the assessment no such system/mechanism was found
20	GIS	GIS system is required in the District.
21	Mechanism to purchase disaster relief supplies	There is no such mechanism to purchase disaster relief supplies

22	Do you carry out DRR/CBDRM trainings in your Districts	No, such trainings are conducted in the District
23	What is the status of public education campaigns	There is no concept of such campaigns
24	Are there any awareness raising activities being carried out In your District	No, awareness raising programs had been conducted yet
25	Do you think BCC material and equipment is sufficient	Due to unavailability of support and resources no such material and equipment is present
26	Do you have sufficient funds for capacity building of staff	Due to insufficient funds, the District was unable to build capacity of the current staff
27	Well defined local level evacuation areas/ routes/shelters	Currently there are no such evacuation plans , The District needs various studies to define such routes or evacuation plans
28	Do you have any resource team for trainings	As there is no dedicated staff for DDMA, resource persons for trainings are required.
29	Is sufficient rescue relief & search equipment available	District even lacks basic search, rescue and relief equipment
30	Do you have sufficient HR to manage disaster	No, dedicated staff for DDMA, management has to seek help from other departments in times of disasters
31	Are you using any tool to measure performance of staff	No, such mechanism found
32	Is Government providing any sort of insurance facility to the community	Currently no such facility is being provided to the community
33	Do you have a proper capacity building policy	There is no capacity building policy
34	Do you have well equipped IT department in your District	IT department needs to be established
35	What sort of qualification and skills are required by your staff	Skills and trainings need to be provided
36	Are you satisfied with the governance structure of DDMA	Governance structure needs to be improved
37	Are the job descriptions of staff well defined	There are no well-defined JD's for the staff

## Recommendations

Following is the list of proposed basic search rescue and relief equipment;

Sr.	Items	Available	Required
1	Life Jackets	N/A	200
2	De-watering Machines	18	50
3	Scuba	N/A	N/A
4	Torches	N/A	250
5	Life Bouys	N/A	100
6	Life Rings	N/A	100
7	Life Line	N/A	100
8	Nylon Rope	N/A	50
9	Tents	N/A	20000
10	First aid Box	N/A	1000
11	Dry Suit	N/A	2

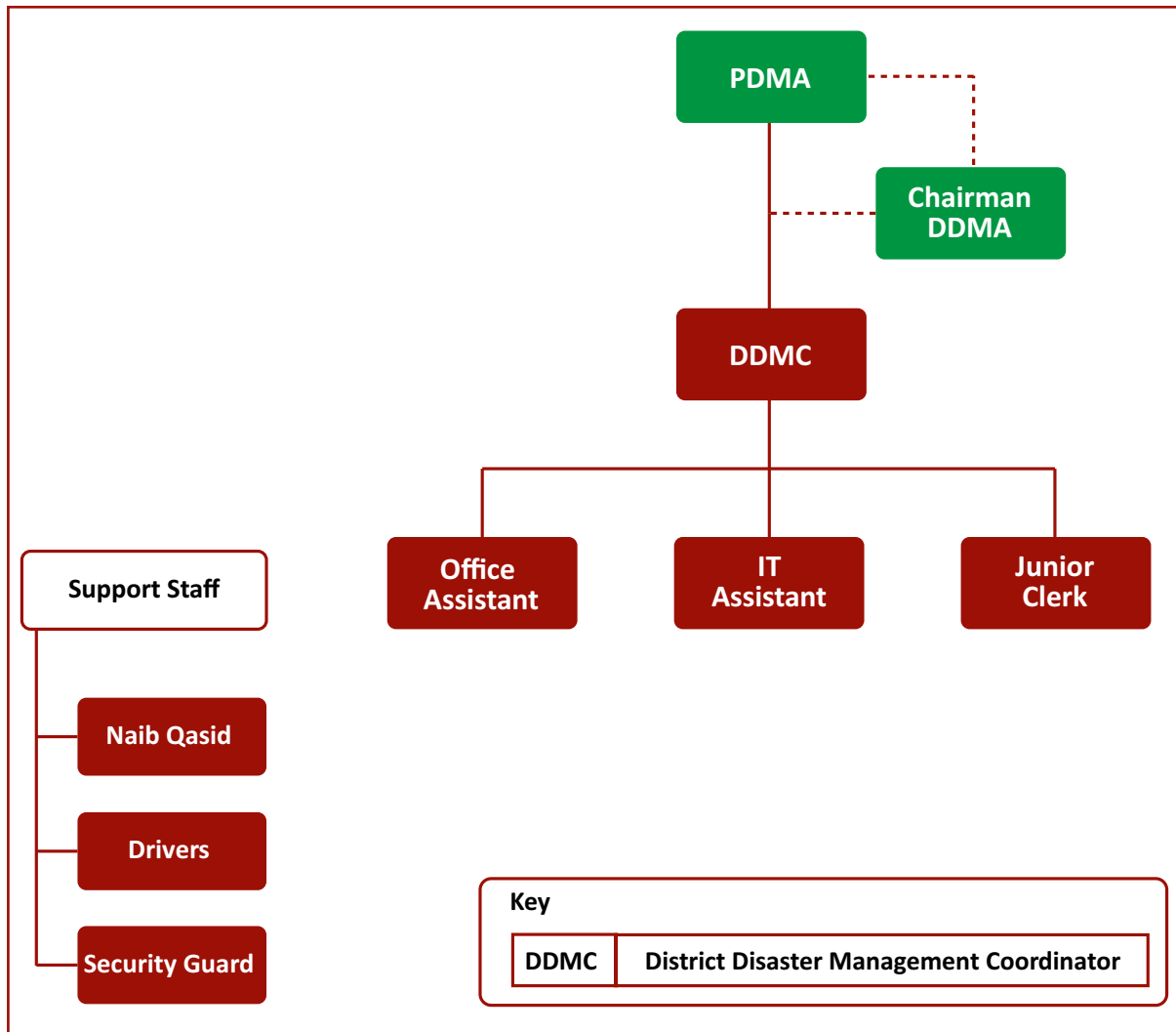
12	Jerry Can	N/A	100
13	Cess Pool	N/A	N/A
14	Portable Generators	N/A	20
15	Folding Chairs	N/A	250
16	Folding tables	N/A	100
17	Floating Ropes	N/A	50
18	Mosquito Nets	N/A	10000
19	Rope Throwing Guns with Accessories	N/A	N/A
20	Pedestal Fans	N/A	100
21	Fumigation Machine	1	N/A
22	Boat	N/A	5
23	Mega Phone	N/A	20
24	Hand Moving Trolleys	N/A	100
25	Shovel/Karahi & Kahi/ Hammer/ Chisel (set)	N/A	50
26	Gas Mask (Multi-Purpose)	N/A	10
27	Snake Cather Stick	N/A	2
28	Darryan (Solid like Carpets)	N/A	500
29	Steel Daggers	N/A	50
30	Steel safety Helmets	N/A	50
31	Under water Plastic Shoes for Boat Operators	N/A	10
32	Water Filters	N/A	50
<b>Proposed Rescue Vehicles</b>			
33	Life Care Ambulance	N/A	02
34	Fire Fighting Vehicles	N/A	02
35	Water Bowser	N/A	02

- It is suggested that a new DDMA structure should be introduced along with dedicated staff, space and basic office equipment. Basic office equipment like (tables, office chairs, generators or solar system, GPS devices, desktop computers, communication devices, etc) have already been proposed for each DDMA.
- Institutional mandates should be revisited and writing staff ToRs to ensure the inclusion of DRR/DRM.
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- Placing staff on longer-term contracts to strengthen institutional knowledge and

linkages.

- The Government and NGOs should invest in DRR sector and should incorporate DRR measures in improving school buildings as these can be used as shelter and evacuation centers in case of emergency.
- Awareness programs should be organized by District Disaster Management Authority about the need of land use planning and building codes so that it can be followed by all the stakeholders, to avoid future threats.
- To minimize the flood risk, communities should be trained on rain water harvesting through microcatchments and roof top rain water harvesting as these practices will help them to store water for future productive use.
- Active people from the community can be used for disseminating early warning for the local endangered communities because people have lot of trust in informal and locally influential sources of information; e.g. a religious leader, a teacher, an NGO worker or a local Government official. But firstly, these active people should also be trained on EWS.
- Radio can be a very important part of Early Warning System (EWS) but care should be taken while transmitting early warnings. It should be in clear words and confirmed through reliable sources to avoid false reports and unnecessary panic.
- Media in District should expand its role as a watchdog during monitoring and handling of donations in the post-disaster phase so that the funds are given to the affected people of the District rather than self interest groups.
- A logistic system should be placed for determining the requirement of medicines, maintaining inventory, storing and stocking, issuing and controlling the use of commodities, stockpile of emergency medicine and supplies, special arrangement with vendors and suppliers for emergency purchases in time of disaster.
- DRR measures should be incorporated in the construction of sewerage system in order to minimize the possibility of overflowing of sewage water in rainy days and to mitigate the hygiene issues.
- District Disaster Management Authority should coordinate with the NGOs working in different sectors to address the problems of people. The NGOs working on different projects can be invited and can be asked for initiation of DRR projects in the vulnerable areas of the District.

### Proposed Structure of DDMA



## District Tando Muhammad Khan





## District Tando Muhammad Khan

Area	1,814Km <sup>2</sup>
Population	677,228
Population Density	373.4 Per km <sup>2</sup>
Rural / Urban	79 % / 21 %

It is bordered by Hyderabad and Tando Allah Yar Districts to the North, to the South and East Badin District and to the West Thatta District. The River Indus flows in North-West. The climate of Tando Mohammad Khan District is moderate.

TM Khan District is one of the newly created Districts of Sindh. The District is vulnerable to riverine floods and rains which occur usually in monsoon season. It was hit by 2010 and 2011 rains/floods. The relative severity of floods was ranked as medium in District Tando Mohammad Khan. The extent of damage in 2011 was far more than that of the 2010 floods. In 2011 floods 2,835 villages/settlements of 16 union councils in 03 talukas were affected. A population of 585,411 person were affected. Crop area affected in 2010 was 20,160 and in 2011 it was 78,038.

### *Hazard matrix of District Tando Muhammad Khan*

Hazards	Frequency	Severity	Years
Flood	Monsoon	Medium	2010, 2011, 2012
Heavy Rains	Monsoon	Medium	2010, 2011, 2012
Epidemics	Seasonal	Low	Every Year
Earthquake	Rare	Low	2013
Transport Accidents	Often	Low	Throughout Year

Along with the above mentioned disasters, a list of potential future hazards can be seen below;

Depleting water resources
Clean drinking water
Increasing un-irrigated lands
Health epidemics and pandemics
Heavy chemical discharges/emissions
High rate of morbidity and mortality
Over exploitation of natural resources
Dense urbanization
Decreasing livestock
Sea and river intrusions
De-forestation of mangroves and other species
Water-logging and salinities
Nutritional stunting
Food insecurities
Forest fires
Industrial Fires

### Summary of data received from District

During the field survey data was collected with the help of a detailed questionnaire that was filled by concerned District authorities, the summary of data received can be seen in the table below;

Sr.	Description	Details
1	What are the crops being cultivated in your District	Wheat, cotton and vegetables
2	What are most vulnerable services in your District	Education, Health, Transport, Roads, Electricity
3	Do you receive any support from PDMA	N/A
4	Do you receive any support from line departments	N/A
5	Does epidemic diseases occur in your District	Malaria, Gastro, Diarrhoea
6	District Level Legal Framework	There is no proper District level legal framework currently being followed
7	Availability and quality of Disaster Management Plan	No, disaster management plan is available
8	Availability and quality of Contingency Plan	Contingency plan does not exist
9	Does proper DDMA setup exists	There is no proper DDMA setup
10	Is there any proper coordination mechanism established between DDMA and line departments	There is no proper coordination mechanism
11	What are the existing means of communication being used	Telephone and mobile phones
12	Are there any alternative means of communication	Radio and internet
13	Is basic office equipment for DDMA available/ provided	Due to no proper DDMA setup, District lacks any sort of equipment
14	Is proper/dedicated space allocated for DDMA office	No, dedicated space is allocated for DDMA
15	Resource allocation sufficient	No, resources are allocated
16	Proper early warning system exist	EWS does not exist
17	What is the system to determine damage/loss	During the assessment no such system/mechanism was found
18	Geographic Information System	GIS system is required in the District.
19	Mechanism to purchase disaster relief supplies	Without DDMA setup no such mechanism can be established
20	Do you carry out DRR/CBDRM trainings in your Districts	No such trainings are conducted in the District
21	What is the status of public education campaigns	District needs support from PDMA and other line departments for such campaigns
22	Are there any awareness raising activities being carried out In your District	Yes at primary level such activities are being carried out
23	Do you think BCC material and equipment is sufficient	Due to unavailability of support and resources no such material and equipment is present
24	Do you have sufficient funds for capacity building of staff	Due to insufficient funds, the District was unable to build capacity of the current staff

25	Well defined local level evacuation areas/ routes/shelters	Currently, there are no such evacuation plans, the District needs various studies to define such routes or evacuation plans
26	Do you have any resource team for trainings	As there is no dedicated staff for DDMA, resource persons for trainings are required.
27	Is sufficient rescue relief & search equipment available	District even lacks basic search, rescue and relief equipment
28	Do you have sufficient HR to manage disaster	No, dedicated staff for DDMA, management has to seek help from other departments in times of disasters
29	Are you using any tool to measure performance of staff	No, such mechanism found
30	Is Government providing any sort of insurance facility to the community	Currently, no such facility is being provided to the community
31	Do you have a proper capacity building policy	There is no capacity building policy
32	Do you have well equipped IT department in your District	IT department needs to be established
33	What sort of qualification and skills are required by your staff	Skills and trainings need to be provided
34	Are you satisfied with the governance structure of DDMA	Governance structure needs to be improved
35	Are the job descriptions of staff well defined	There are no well-defined JD's for the staff

### Recommendations

Following is the list of proposed basic search rescue and relief equipment;

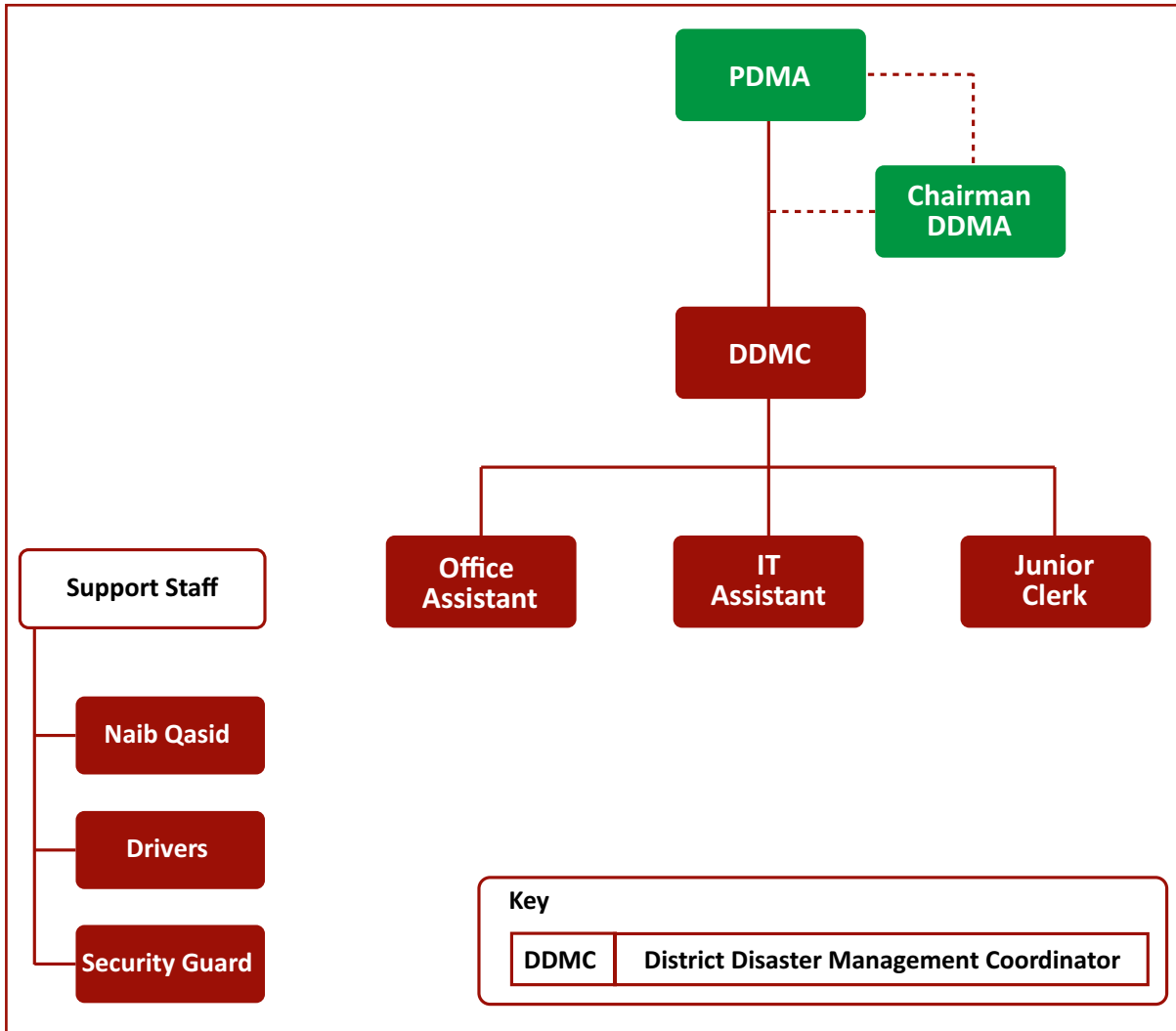
Sr.	Items	Available	Required
1	Life Jackets	N/A	500
2	De-watering Machines	N/A	50
3	Scuba	N/A	2
4	Torches	N/A	200
5	Life Bouys	N/A	100
6	Life Rings	N/A	100
7	Life Line	N/A	100
8	Nylon Rope	N/A	50
9	Tents	N/A	30000
10	First aid Box	N/A	1000
11	Dry Suit	N/A	5
12	Jerry Can	N/A	250
13	Cess Pool	N/A	N/A
14	Portable Generators	N/A	250
15	Folding Chairs	N/A	500
16	Folding tables	N/A	100
17	Floating Ropes	N/A	50
18	Mosquito Nets	N/A	20000
19	Rope Throwing Guns with Accessories	N/A	2
20	Pedestal Fans	N/A	150

21	Fumigation Machine	N/A	20
22	Boats	N/A	10
23	Mega Phone	N/A	20
24	Hand Moving Trolleys	N/A	100
25	Shovel/Karahi & Kahi/ Hammer/ Chisel (set)	N/A	50
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27	Snake Cather Stick	N/A	10
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29	Steel Daggers	N/A	100
30	Steel safety Helmets	N/A	50
31	Under water Plastic Shoes for Boat Operators	N/A	10
32	Water Filters	N/A	50
<b>Proposed Rescue Vehicles</b>			
33	Life Care Ambulance	N/A	02
34	Fire Fighting Vehicles	N/A	02
35	Water Bowser	N/A	02

- It is suggested that a new DDMA structure should be introduced along with dedicated staff, space and basic office equipment. Basic office equipment like (tables, office chairs, generators or solar system, GPS devices, desktop computers, communication devices, etc) have already been proposed for each DDMA.
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- Basic search, rescue and relief equipment should be provided to each District.
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- Strengthening logistical capacity to facilitate networking between stakeholders.
- Placing staff on longer-term contracts to strengthen institutional knowledge and linkages.
- The Government and NGOs should invest in DRR sector and should corporate DRR measures in improving school buildings as these can be used as shelter and evacuation centers in case of emergency.
- Awareness programs should be organized by District Disaster Management Authority about the need of land use planning and building codes so that it can be followed by all the stakeholders, to avoid future threats.
- To minimize the flood risk, communities should be trained on rain water harvesting through microcatchments and roof top rain water harvesting as these practices will help them to store water for future productive use.

- Active people from the community can be used for disseminating early warning for the local endangered communities because people have lot of trust in informal and locally influential sources of information; e.g. a religious leader, a teacher, an NGO worker or a local Government official. But firstly, these active people should also be trained on EWS.
- Radio can be a very important part of Early Warning System (EWS) but care should be taken while transmitting early warnings. It should be in clear words and confirmed through reliable sources to avoid false reports and unnecessary panic.
- Media in District should expand its role as a watchdog during monitoring and handling of donations in the post-disaster phase so that the funds are given to the affected people of the District rather than self interest groups.
- A logistic system should be placed for determining the requirement of medicines, maintaining inventory, storing and stocking, issuing and controlling the use of commodities, stockpile of emergency medicine and supplies, special arrangement with vendors and suppliers for emergency purchases in time of disaster.
- DRR measures should be incorporated in the construction of sewerage system in order to minimize the possibility of overflowing of sewage water in rainy days and to mitigate the hygiene issues.
- District Disaster Management Authority should coordinate with the NGOs working in different sectors to address the problems of people. The NGOs working on different projects can be invited and can be asked for initiation of DRR projects in the vulnerable areas of the District.

### Proposed Structure of DDMA



## District Thatta



## District Thatta

Area	7,705 Km <sup>2</sup>
Population	979,817
Population Density	127.2 Per km <sup>2</sup>
Rural / Urban	82% / 18 %

District Thatta is in one of the oldest regions of Indus civilization. It lies in 67° 20" 48' to 68° 44" 52' East longitudes to 23° 48" 44' to 25° 26" 35' North latitudes. Indus River flows downstream from Hyderabad and passes through the middle of this District till it reaches the delta of the Arabian Sea in Keti Bunder taluka. Four talukas of District Thatta are on the right bank of Indus River and four lie on the left bank while one taluka is on both sides of the river. The climate of the District is moderate. The mean maximum and minimum temperature recorded are about 40°C and 25°C respectively.

Thatta was hit by 2010, 2011 and 2012 rains/riverine floods. The relative severity of floods was ranked as medium in District Thatta. The extent of damage in 2010 was far more than that of the 2011 floods. In 2010 floods, 38, 977 villages/settlements of 55 union councils in 09 talukas were affected. A population of 895,400 person were affected and there were 07 casualties and 24 injuries. In total, 107,981 houses were damaged. Total affected area in 2010 was 874,030 and in 2011 was 98,111. Total crop area affected in 2010 was 177,800 and in 2011 was 108,303.

### *Hazard matrix of District Thatta*

Hazards	Frequency	Severity	Years
Cyclones	Seasonal	High	1964, 1993, 1999, 2003, 2004, 2007, 2010
Floods	Seasonal	High	1840, 1856, 1874, 1942, 1946, 1948, 1956, 1973, 1974, 1976, 1978, 1978, 1988, 1989, 1992, 1994, 1995, 1996, 1999, 2003, 2006, 2007, 2010, and 2011
Monsoon rains	Seasonal	Medium	Every year
Tsunami	Rare	High	1945, 2005
Sea Intrusion	Often	Medium	1992 onwards
Earthquake	Rare	Low	2001, 2013

Along with the above mentioned disasters, a list of potential future hazards can be seen below;

Depleting water resources
Clean drinking water
Increasing un-irrigated lands
Health epidemics and pandemics
Heavy chemical discharges/emissions
High rate of morbidity and mortality



Over exploitation of natural resources
Dense urbanization
Decreasing livestock
Sea and river intrusions
De-forestation of mangroves and other species
Water-logging and salinities
Nutritional stunting
Food insecurities
Forest fires
Industrial Fires

### Summary of data received from District

During the field survey data was collected with the help of a detailed questionnaire that was filled by concerned District authorities, the summary of data received can be seen in the table below;

Sr.	Description	Details
1	What are the crops being cultivated in your District	Wheat, sugarcane, vegetables, rice and orchards
2	What are most vulnerable services in your District	Education, Health, Transport, Roads, Electricity
3	Do you receive any support from PDMA	Yes, Funds are received from PDMA
4	Do you receive any support from line departments	Yes, Health and irrigation department help during the time of disaster
5	Does epidemic diseases occur in your District	Gastro, malaria, cholera and scabies are common
6	District Level Legal Framework	There is no proper District level legal framework currently being followed
7	Availability and quality of Disaster Management Plan	No, disaster management plan is available
8	Availability and quality of Contingency Plan	Contingency plan is available
9	Does proper DDMA setup exist	DDMA is formulated as per notification of Government, there is no separate staff for DDMA
10	Is there any proper coordination mechanism established between DDMA and line departments	Yes, in case of emergency stakeholders are gathered
11	What are the existing means of communication being used	FM radio, telephone, print and electronic media
12	Are there any alternative means of communication	Internet
13	Is basic office equipment for DDMA available/ provided	Due to no proper DDMA setup, District lacks any sort of equipment
14	Is proper/dedicated space allocated for DDMA office	Office space is allocated and is adequate
15	Resource allocation sufficient	No, resources are not sufficient
16	Proper early warning system exist	EWS system exists, alerts are received from MET and PDMA
17	What is the system to determine damage/loss	Damage loss is determined through revenue department

18	Geographic Information System	GPS is being used for location mapping, Proper GIS system needs to be established
19	Mechanism to purchase disaster relief supplies	Without proper DDMA setup no such mechanism can be established
20	Do you carry out DRR/CBDRM trainings in your Districts	No, such trainings are conducted in the District
21	What is the status of public education campaigns	District needs support from PDMA and other line departments for such campaigns
22	Are there any awareness raising activities being carried out In your District	No, awareness raising programs had been conducted yet
23	Do you think BCC material and equipment is sufficient	Due to unavailability of support and resources no such material and equipment is present
24	Do you have sufficient funds for capacity building of staff	Due to insufficient funds, the District was unable to build capacity of the current staff
25	Well defined local level evacuation areas/ routes/shelters	Currently there are no such evacuation plans, the District needs various studies to define such routes or evacuation plans
26	Do you have any resource team for trainings	As there is no dedicated staff for DDMA, resource persons for trainings are required.
27	Is sufficient rescue relief & search equipment available	District even lacks basic search, rescue and relief equipment
28	Do you have sufficient HR to manage disaster	HR is sufficient to manage disaster
29	Are you using any tool to measure performance of staff	No, such mechanism found
30	Is Government providing any sort of insurance facility to the community	Currently no such facility is being provided to the community
31	Do you have a proper capacity building policy	There is no capacity building policy
32	Do you have well equipped IT department in your District	IT department exists with basic IT equipment
33	What sort of qualification and skills are required by your staff	Skills and trainings need to be provided, experts of relief and evacuation and disaster required
34	Are you satisfied with the governance structure of DDMA	Governance structure needs to be approved
35	Are the job descriptions of staff well defined	There are no well-defined JD's for the staff

## Recommendations

Following is the list of proposed basic search rescue and relief equipment;

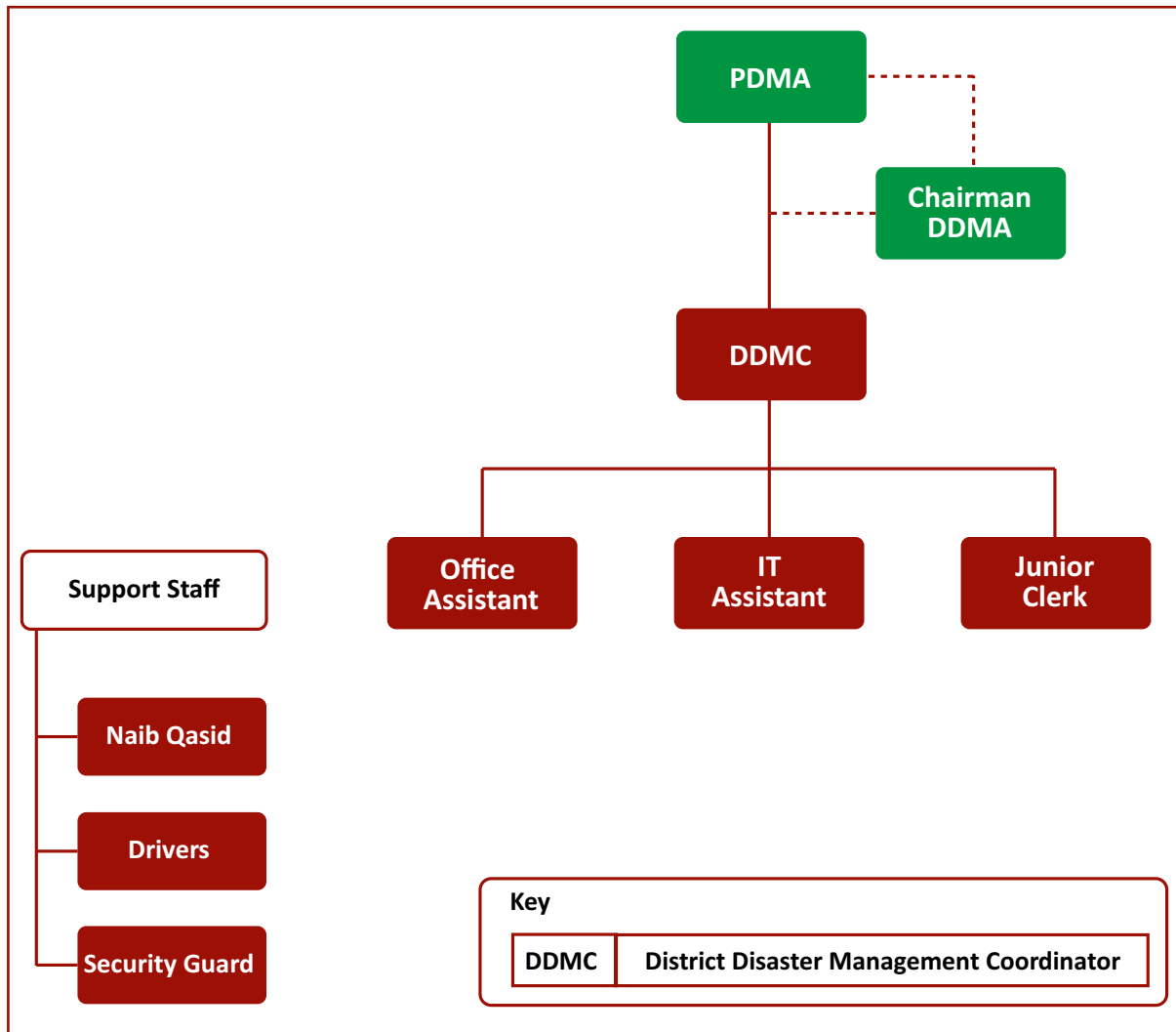
Sr.	Items	Available	Required
1	Life Jackets	N/A	2500
2	De-watering Machines	24	100
3	Scuba	N/A	20
4	Torches	N/A	250
5	Life Bouys	N/A	500
6	Life Rings	N/A	500
7	Life Line	N/A	500
8	Nylon Rope	N/A	250
9	Tents	N/A	20000

10	First aid Box	N/A	1500
11	Dry Suit	N/A	20
12	Jerry Can	N/A	250
13	Cess Pool	N/A	N/A
14	Portable Generators	N/A	25
15	Folding Chairs	N/A	1000
16	Folding tables	N/A	250
17	Floating Ropes	N/A	500
18	Mosquito Nets	N/A	10000
19	Rope Throwing Guns with Accessories	N/A	5
20	Pedestal Fans	N/A	250
21	Fumigation Machine	N/A	20
22	Boats	N/A	20
23	Mega Phone	N/A	25
24	Hand Moving Trolleys	N/A	150
25	Shovel/Karahi & Kahi/ Hammer/ Chisel (set)	N/A	100
26	Gas Mask (Multi-Purpose)	N/A	20
27	Snake Cather Stick	N/A	10
28	Darryan (Solid like Carpets)	N/A	500
29	Steel Daggers	N/A	100
30	Steel safety Helmets	N/A	50
31	Under water Plastic Shoes for Boat Operators	N/A	20
<b>Proposed Rescue Vehicles</b>			
32	Life Care Ambulance	N/A	02
33	Fire Fighting Vehicles	N/A	02
34	Water Bowser	N/A	02

- It is suggested that a new DDMA structure should be introduced along with dedicated staff, space and basic office equipment. Basic office equipment like (tables, office chairs, generators or solar system, GPS devices, desktop computers, communication devices, etc) have already been proposed for each DDMA.
- Institutional mandates should be revisited and writing staff ToRs to ensure the inclusion of DRR/DRM.
- Disaster management plans should be developed every year by DDMA with consent of line departments and stake holders.
- Contingency plans should also be developed at District level and shall be updated regularly.
- A proper Early Warning System (EWS) should be introduced in the District.
- Coordination among key stakeholders should be strengthened for the implementation of disaster risk reduction measures and effective emergency response through assignment of responsibility to each stakeholder. Stakeholders must have joint meetings to address the issues faced by them.
- Basic search, rescue and relief equipment should be provided to each District.
- Proper financial management system should be developed in the District for the transfer of funds in the event of disaster or in the phase of normal circumstances.
- Strengthening logistical capacity to facilitate networking between stakeholders.

- Placing staff on longer-term contracts to strengthen institutional knowledge and linkages.
- The Government and NGOs should invest in DRR sector and should incorporate DRR measures in improving school buildings as these can be used as shelter and evacuation centers in case of emergency.
- Awareness programs should be organized by District Disaster Management Authority about the need of land use planning and building codes so that it can be followed by all the stakeholders, to avoid future threats.
- To minimize the flood risk, communities should be trained on rain water harvesting through microcatchments and roof top rain water harvesting as these practices will help them to store water for future productive use.
- Active people from the community can be used for disseminating early warning for the local endangered communities because people have lot of trust in informal and locally influential sources of information; e.g. a religious leader, a teacher, an NGO worker or a local Government official. But firstly, these active people should also be trained on EWS.
- Radio can be a very important part of Early Warning System (EWS) but care should be taken while transmitting early warnings. It should be in clear words and confirmed through reliable sources to avoid false reports and unnecessary panic.
- Media in District should expand its role as a watchdog during monitoring and handling of donations in the post-disaster phase so that the funds are given to the affected people of the District rather than self interest groups.
- A logistic system should be placed for determining the requirement of medicines, maintaining inventory, storing and stocking, issuing and controlling the use of commodities, stockpile of emergency medicine and supplies, special arrangement with vendors and suppliers for emergency purchases in time of disaster.
- DRR measures should be incorporated in the construction of sewerage system in order to minimize the possibility of overflowing of sewage water in rainy days and to mitigate the hygiene issues.
- District Disaster Management Authority should coordinate with the NGOs working in different sectors to address the problems of people. The NGOs working on different projects can be invited and can be asked for initiation of DRR projects in the vulnerable areas of the District.

### Proposed Structure of DDMA





**Karachi Division**





## District Karachi Central



## District Karachi Central

Area	61.5 Km <sup>2</sup>
Population	2,972,639
Population Density	48,336 Per km <sup>2</sup>
Rural / Urban	0% / 100 %

It is located in the central part of Karachi. District Karachi Central is prone to multiple natural and man-made hazards. Natural hazards include cyclones, heavy rainfalls, urban floods, tsunami, droughts and earthquakes. Karachi Central faces a constant risk of experiencing a tsunami if an undersea quake strikes the Indian Ocean close enough to Pakistan's coast. Its neighboring Makran coast. District Karachi Central is vulnerable to earthquake hazard.

A geological tectonic line runs under Karachi through Khirthar Hills/Mountains to North-West of Sindh and Thar desert, due to which Sindh has risk of a major earthquake in the future. A strong earthquake measuring magnitude 7.8 on Richter scale jolted Karachi in 2013.

Climate change is said to be responsible for the heavy rains of 2011 and 2012 because usually Sindh Province receives very little rains. Environmental scientists agree that they cannot explain the floods in Sindh as the area that received the rain is normally very dry. Heavy rainfalls of Sep, 2011 caused traffic jam, electrocution, sewerage overflow, contamination of drinking water, power failure, uprooting of trees and billboards accidents in the city District.

### *Hazard matrix of District Karachi Central*

Hazards	Frequency	Severity	Years
Urban Floods	Monsoon	Medium	1966, 1977
Heavy Rainfall	Monsoon	High	2017
Heat Wave	Frequently	High	Almost Every Year
Epidemics	Seasonal	Low	Every Year
Earthquake	Rare	Low	2013
Industrial Accidents	Frequently	Low	Every Year

Along with the above mentioned disasters, a list of potential future hazards can be seen below;

Depleting water resources
Clean drinking water
Increasing un-irrigated lands
Health epidemics and pandemics
Heavy chemical discharges/emissions
High rate of morbidity and mortality
Over exploitation of natural resources
Dense urbanization
Decreasing livestock
Sea and river intrusions
De-forestation of mangroves and other species

Water-logging and salinities
Nutritional stunting
Food insecurities
Forest fires
Industrial Fires

### Summary of data received from District

During the field survey data was collected with the help of a detailed questionnaire that was filled by concerned District authorities, the summary of data received can be seen in the table below;

Sr.	Description	Details
1	What are most vulnerable services in your District	Education, Health, Transport, Roads, Electricity
2	Do you receive any support from PDMA	Yes, PDMA should help in case of disaster to establish relief camps and provide machinery for urban flooding
3	Do you receive any support from line departments	N/A
4	Does epidemic diseases occur in your District	diahorrea
5	District Level Legal Framework	No
6	Availability and quality of Disaster Management Plan	Yes, DMP is updated and reviewed regularly with consultation of field officers and stakeholders
7	Availability and quality of Contingency Plan	Contingency plan does exist and is of good quality
8	Does proper DDMA setup exist	Yes, well defined structure led by DC with other line departments
9	Is there any proper coordination mechanism established between DDMA and line departments	Coordination Mechanism is Good at level of Line Departments
10	What are the existing means of communication being used	Telephone, Mobile, Fax, WhatsApp
11	Are there any alternative means of communication	Radio, Internet
12	Is basic office equipment for DDMA available/ provided	No, Computer, HR machinery and GIS is required
13	Is proper/dedicated space allocated for DDMA office	Yes, office space and location is adequate
14	Resource allocation sufficient	N/A
15	Proper early warning system exists	Media and weather department
16	What is the system to determine damage/loss	No, appropriate system, Dependent on field surveys
17	Geographic Information System	Specialized GIS team required with equipment
18	Mechanism to purchase disaster relief supplies	No
19	Do you carry out DRR/CBDRM trainings in your Districts	No
20	What is the status of public education campaigns	No
21	Are there any awareness raising activities being carried out In your District	No

22	Do you think BCC material and equipment is sufficient	No
23	Do you have sufficient funds for capacity building of staff	No
24	Well defined local level evacuation areas/ routes/shelters	No
25	Do you have any resource team for trainings	No
26	Is sufficient rescue relief & search equipment available	District even lacks basic search, rescue and relief equipment
27	Do you have sufficient HR to manage disaster	No, dedicated staff for DDMA, management has to seek help from other departments in times of disasters
28	Are you using any tool to measure performance of staff	ACR, Field Observation
29	Is Government providing any sort of insurance facility to the community	Currently, no such facility is being provided to the community
30	Do you have a proper capacity building policy	There is no capacity building policy
31	Do you have well equipped IT department in your District	IT department needs to be established, with IT accessories and trained staff
32	What sort of qualification and skills are required by your staff	Training for Disaster Management is required
33	Are you satisfied with the governance structure of DDMA	Governance structure needs to be approved
34	Are the job descriptions of staff well defined	There are no well-defined JD's for the staff

## Recommendations

Following is the list of proposed basic search rescue and relief equipment;

Sr.	Items	Available	Required
1	Life Jackets	N/A	100
2	De-watering Machines	N/A	100
3	Scuba	N/A	2
4	Torches	N/A	300
5	Life Bouys	N/A	50
6	Life Rings	N/A	50
7	Life Line	N/A	50
8	Nylon Rope	N/A	100
9	Tents	N/A	20000
10	First aid Box	N/A	1500
11	Dry Suit	N/A	2
12	Jerry Can	N/A	250
13	Cess Pool	N/A	N/A
14	Portable Generators	N/A	25
15	Folding Chairs	N/A	500
16	Folding tables	N/A	100
17	Floating Ropes	N/A	50
18	Mosquito Nets	N/A	10000

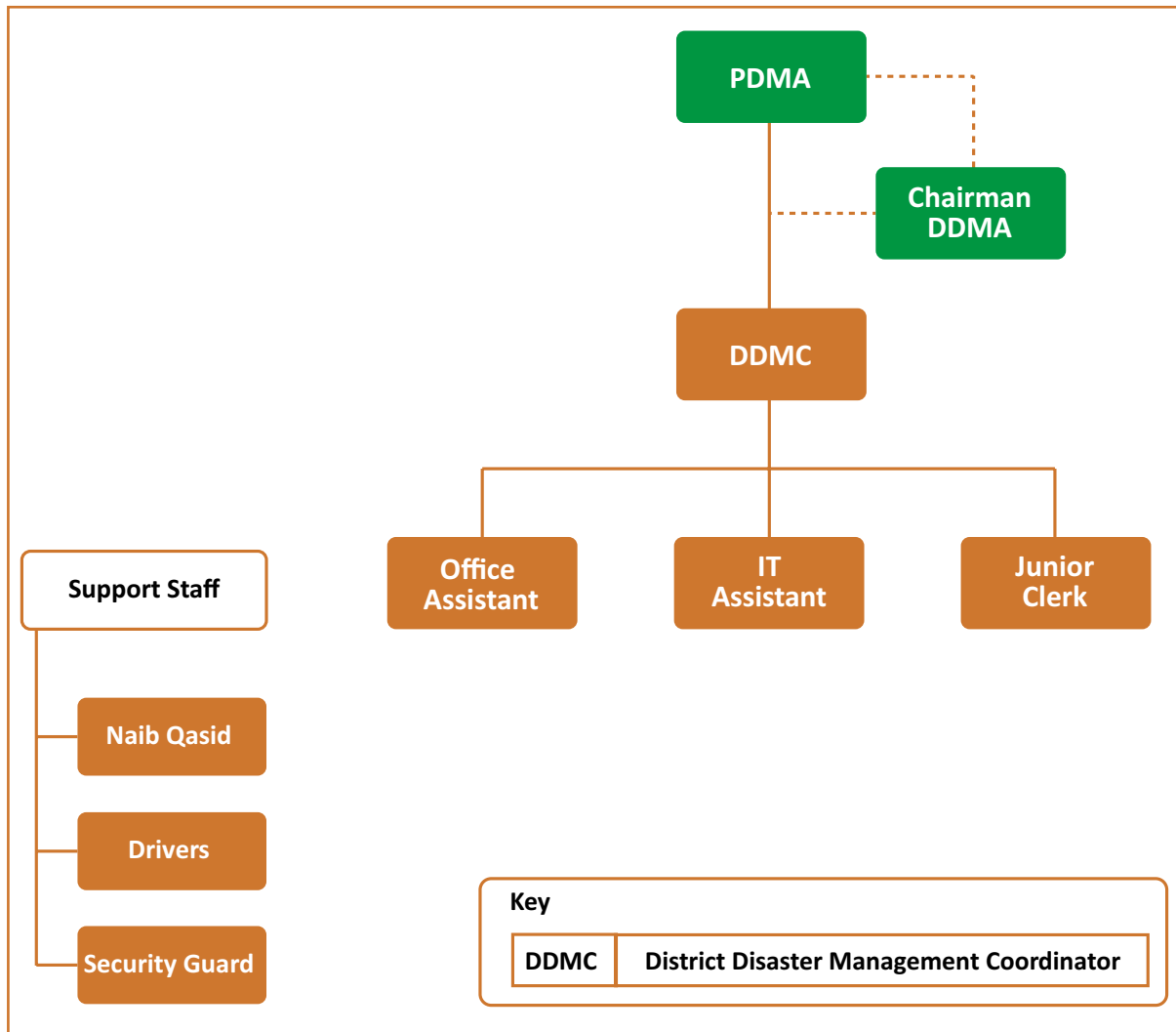
19	Rope Throwing Guns with Accessories	N/A	5
20	Pedestal Fans	N/A	250
21	Fumigation Machine	N/A	20
22	Boats	N/A	N/A
23	Mega Phone	N/A	30
24	Hand Moving Trolleys	N/A	150
25	Shovel/Karahi & Kahi/ Hammer/ Chisel (set)	N/A	100
26	Gas Mask (Multi-Purpose)	N/A	25
27	Snake Cather Stick	N/A	N/A
28	Darryan (Solid like Carpets)	N/A	500
29	Steel Daggers	N/A	50
30	Steel safety Helmets	N/A	100
31	Under water Plastic Shoes for Boat Operators	N/A	N/A
32	Water Filters	N/A	1000
<b>Proposed Rescue Vehicles</b>			
33	Life Care Ambulance	N/A	02
34	Fire Fighting Vehicles	N/A	02
35	Water Bowser	N/A	02

- It is suggested that a new DDMA structure should be introduced along with dedicated staff, space and basic office equipment. Basic office equipment like (tables, office chairs, generators or solar system, GPS devices, desktop computers, communication devices, etc) have already been proposed for each DDMA.
- Institutional mandates should be revisited and writing staff ToRs to ensure the inclusion of DRR/DRM.
- Disaster management plans should be developed every year by DDMA with consent of line departments and stake holders.
- Contingency plans should also be developed at District level and shall be updated regularly.
- A proper Early Warning System (EWS) should be introduced in the District.
- Coordination among key stakeholders should be strengthened for the implementation of disaster risk reduction measures and effective emergency response through assignment of responsibility to each stakeholder. Stakeholders must have joint meetings to address the issues faced by them.
- Basic search, rescue and relief equipment should be provided to each District.
- Proper financial management system should be developed in the District for the transfer of funds in the event of disaster or in the phase of normal circumstances.
- Strengthening logistical capacity to facilitate networking between stakeholders.
- Placing staff on longer-term contracts to strengthen institutional knowledge and linkages.
- The Government and NGOs should invest in DRR sector and should corporate DRR measures in improving school buildings as these can be used as shelter and evacuation centers in case of emergency.
- Awareness programs should be organized by District Disaster Management Authority about the need of land use planning and building codes so that it can be followed by all the stakeholders, to avoid future threats.
- To minimize the flood risk, communities should be trained on rain water harvesting

through microcatchments and roof top rain water harvesting as these practices will help them to store water for future productive use.

- Active people from the community can be used for disseminating early warning for the local endangered communities because people have lot of trust in informal and locally influential sources of information; e.g. a religious leader, a teacher, an NGO worker or a local Government official. But firstly, these active people should also be trained on EWS.
- Radio can be a very important part of Early Warning System (EWS) but care should be taken while transmitting early warnings. It should be in clear words and confirmed through reliable sources to avoid false reports and unnecessary panic.
- Media in District should expand its role as a watchdog during monitoring and handling of donations in the post-disaster phase so that the funds are given to the affected people of the District rather than self interest groups.
- A logistic system should be placed for determining the requirement of medicines, maintaining inventory, storing and stocking, issuing and controlling the use of commodities, stockpile of emergency medicine and supplies, special arrangement with vendors and suppliers for emergency purchases in time of disaster.
- DRR measures should be incorporated in the construction of sewerage system in order to minimize the possibility of overflowing of sewage water in rainy days and to mitigate the hygiene issues.
- District Disaster Management Authority should coordinate with the NGOs working in different sectors to address the problems of people. The NGOs working on different projects can be invited and can be asked for initiation of DRR projects in the vulnerable areas of the District.

### Proposed Structure of DDMA





## District Karachi East





## District Karachi East

Area	165 Km <sup>2</sup>
Population	2,909,921
Population Density	17,625 Per km <sup>2</sup>
Rural / Urban	0% / 100 %

District Karachi East is prone to multiple natural and man-made hazards. Natural hazards include cyclones, heavy rainfalls, urban floods, tsunami, droughts and earthquakes. Recently Cyclone Nilofar developed in the Arabian Sea but weakened down without any impact. Karachi East faces a constant risk of experiencing a tsunami if an undersea quake strikes the Indian Ocean close enough to Pakistan`s coast.

District Karachi East is vulnerable to earthquake hazard. A geological tectonic line runs under Karachi through Khirthar Hills/Mountains to North-West of Sindh and Thar desert, due to which Sindh has risk of a major earthquake in the future. A strong earthquake measuring magnitude 7.8 on Richter scale jolted Karachi in 2013. Climate change is said to be responsible for the heavy rains of 2011 and 2012 because usually Sindh Province receives very little rains. Environmental scientists agree that they cannot explain the floods in Sindh as the area that received the rain is normally very dry. Heavy rainfalls of Sep, 2011 caused traffic jam, electrocution, sewerage overflow, contamination of drinking water, power failure, uprooting of trees and billboards accidents in the city District.

### *Hazard matrix of District Karachi East*

Hazards	Frequency	Severity	Years
Floods	Monsoon	Medium	2017
Monsoon Rain	Monsoon	High	2017
Heat Wave	Frequently	High	Almost Every Year
Epidemics	Seasonal	Low	Every Year
Earthquake	Rare	Low	2013
Industrial Accidents	Frequently	Low	Every Year

Along with the above mentioned disasters, a list of potential future hazards can be seen below;

Depleting water resources
Clean drinking water
Increasing un-irrigated lands
Health epidemics and pandemics
Heavy chemical discharges/emissions
High rate of morbidity and mortality
Over exploitation of natural resources
Dense urbanization
Decreasing livestock
Sea and river intrusions
De-forestation of mangroves and other species

Water-logging and salinities
Nutritional stunting
Food insecurities
Forest fires
Industrial Fires

### Summary of data received from District

During the field survey data was collected with the help of a detailed questionnaire that was filled by concerned District authorities, the summary of data received can be seen in the table below;

Sr.	Description	Details
1	What are most vulnerable services in your District	Road, Health
2	Do you receive any support from PDMA	Yes, In terms of equipment only
3	Do you receive any support from line departments	Yes, Local Govt. provides machinery
4	District Level Legal Framework	There is no proper District level legal framework currently being followed
5	Availability and quality of Disaster Management Plan	No, disaster management plan is available
6	Availability and quality of Contingency Plan	Contingency plan does not exist
7	Does proper DDMA setup exist	There is no proper functional structure of DDMA in the District
8	Is there any proper coordination mechanism established between DDMA and line departments	Yes, direct communication is held between District administration and District municipal corporation
9	What are the existing means of communication being used	Telephone, Fax, Mobile
10	Are there any alternative means of communication	No
11	Is basic office equipment for DDMA available/provided	Due to no proper DDMA setup, District lacks any sort of equipment
12	Is proper/dedicated space allocated for DDMA office	No, dedicated space is allocated for DDMA
13	Resource allocation sufficient	No, resources are allocated
14	Proper early warning system exist	Media and MET department
15	What is the system to determine damage/loss	During the assessment no such system/mechanism was found
16	Geographic Information System	GIS system is required in the District.
17	Mechanism to purchase disaster relief supplies	Without DDMA setup no such mechanism can be established
18	Do you carry out DRR/CBDRM trainings in your Districts	No, such trainings are conducted in the District
19	What is the status of public education campaigns	District needs support from PDMA and other line departments for such campaigns
20	Are there any awareness raising activities being carried out in your District	No, awareness raising programs had been conducted yet

21	Do you think BCC material and equipment is sufficient	Due to unavailability of support and resources no such material and equipment is present
22	Do you have sufficient funds for capacity building of staff	Due to insufficient funds, the District was unable to build capacity of the current staff
23	Well defined local level evacuation areas/ routes/shelters	Currently there are no such evacuation plans, the District needs various studies to define such routes or evacuation plans
24	Do you have any resource team for trainings	As there is no dedicated staff for DDMA, resource persons for trainings are required.
25	Is sufficient rescue relief & search equipment available	District even lacks basic search, rescue and relief equipment
26	Do you have sufficient HR to manage disaster	No dedicated staff for DDMA, management has to seek help from other departments in times of disasters
27	Are you using any tool to measure performance of staff	No such mechanism found
28	Is Government providing any sort of insurance facility to the community	Currently no such facility is being provided to the community
29	Do you have a proper capacity building policy	There is no capacity building policy
30	Do you have well equipped IT department in your District	IT department needs to be established
31	What sort of qualification and skills are required by your staff	Disaster management course
32	Are you satisfied with the governance structure of DDMA	Governance structure needs to be approved
33	Are the job descriptions of staff well defined	There are no well-defined JD's for the staff

## Recommendations

Following is the list of proposed basic search rescue and relief equipment;

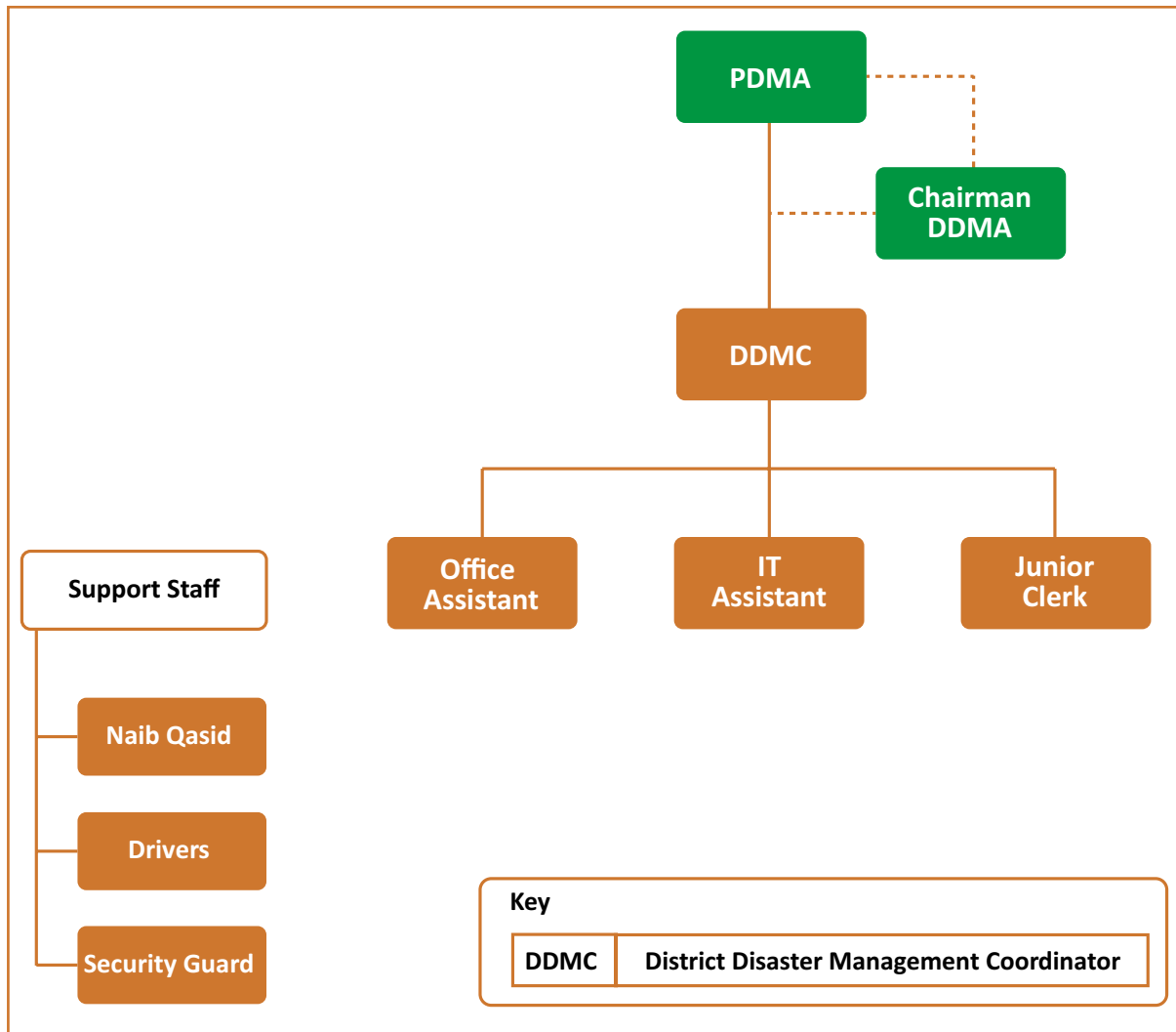
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3	Scuba	N/A	2
4	Torches	N/A	300
5	Life Bouys	N/A	50
6	Life Rings	N/A	50
7	Life Line	N/A	50
8	Nylon Rope	N/A	100
9	Tents	N/A	40000
10	First aid Box	N/A	1500
11	Dry Suit	N/A	2
12	Jerry Can	N/A	100
13	Cess Pool	N/A	N/A
14	Portable Generators	N/A	20
15	Folding Chairs	N/A	500
16	Folding tables	N/A	100
17	Floating Ropes	N/A	30

18	Mosquito Nets	N/A	20000
19	Rope Throwing Guns with Accessories	N/A	5
20	Pedestal Fans	N/A	250
21	Fumigation Machine	N/A	20
22	Boat with OBM	N/A	N/A
23	Mega Phone	N/A	30
24	Hand Moving Trolleys	N/A	100
25	Shovel/Karahi & Kahi/ Hammer/ Chisel (set)	N/A	50
26	Gas Mask (Multi-Purpose)	N/A	25
27	Snake Cather Stick	N/A	N/A
28	Darryan (Solid like Carpets)	N/A	500
29	Steel Daggers	N/A	100
30	Steel safety Helmets	N/A	50
31	Under water Plastic Shoes for Boat Operators	N/A	N/A
32	Water Filters	N/A	2000
<b>Proposed Rescue Vehicles</b>			
33	Life Care Ambulance	N/A	02
34	Fire Fighting Vehicles	N/A	02
35	Water Bowser	N/A	02

- It is suggested that a new DDMA structure should be introduced along with dedicated staff, space and basic office equipment. Basic office equipment like (tables, office chairs, generators or solar system, GPS devices, desktop computers, communication devices, etc) have already been proposed for each DDMA.
- Institutional mandates should be revisited and writing staff ToRs to ensure the inclusion of DRR/DRM.
- Disaster management plans should be developed every year by DDMA with consent of line departments and stake holders.
- Contingency plans should also be developed at District level and shall be updated regularly.
- A proper Early Warning System (EWS) should be introduced in the District.
- Coordination among key stakeholders should be strengthened for the implementation of disaster risk reduction measures and effective emergency response through assignment of responsibility to each stakeholder. Stakeholders must have joint meetings to address the issues faced by them.
- Basic search, rescue and relief equipment should be provided to each District.
- Proper financial management system should be developed in the District for the transfer of funds in the event of disaster or in the phase of normal circumstances.
- Strengthening logistical capacity to facilitate networking between stakeholders.
- Placing staff on longer-term contracts to strengthen institutional knowledge and linkages.
- The Government and NGOs should invest in DRR sector and should corporate DRR measures in improving school buildings as these can be used as shelter and evacuation centers in case of emergency.
- Awareness programs should be organized by District Disaster Management Authority about the need of land use planning and building codes so that it can be followed by all the stakeholders, to avoid future threats.

- To minimize the flood risk, communities should be trained on rain water harvesting through microcatchments and roof top rain water harvesting as these practices will help them to store water for future productive use.
- Active people from the community can be used for disseminating early warning for the local endangered communities because people have lot of trust in informal and locally influential sources of information; e.g. a religious leader, a teacher, an NGO worker or a local Government official. But firstly, these active people should also be trained on EWS.
- Radio can be a very important part of Early Warning System (EWS) but care should be taken while transmitting early warnings. It should be in clear words and confirmed through reliable sources to avoid false reports and unnecessary panic.
- Media in District should expand its role as a watchdog during monitoring and handling of donations in the post-disaster phase so that the funds are given to the affected people of the District rather than self interest groups.
- A logistic system should be placed for determining the requirement of medicines, maintaining inventory, storing and stocking, issuing and controlling the use of commodities, stockpile of emergency medicine and supplies, special arrangement with vendors and suppliers for emergency purchases in time of disaster.
- DRR measures should be incorporated in the construction of sewerage system in order to minimize the possibility of overflowing of sewage water in rainy days and to mitigate the hygiene issues.
- District Disaster Management Authority should coordinate with the NGOs working in different sectors to address the problems of people. The NGOs working on different projects can be invited and can be asked for initiation of DRR projects in the vulnerable areas of the District.

### Proposed Structure of DDMA



## District Karachi South



## District Karachi South

Area	84 Km <sup>2</sup>
Population	1,791,751
Population Density	21,079 Per km <sup>2</sup>
Rural / Urban	0% / 100 %

District Karachi South is prone to multiple natural and man-made hazards. Natural hazards include cyclones, heavy rainfalls, urban floods, tsunamis, droughts and earthquakes. Recently, Cyclone Nilofar was developed in the Arabian Sea but weakened down without any impact. Karachi South faces a constant risk of experiencing a tsunami if an undersea quake strikes the Indian Ocean close enough to Pakistan's coast. Its neighboring Makran coast. District Karachi South is vulnerable to earthquake hazard.

A geological tectonic line runs under Karachi through Khirthar Hills/Mountains to North-West of Sindh and Thar desert, due to which Sindh has risk of a major earthquake in the future. A strong earthquake measuring magnitude 7.8 on Richter scale jolted Karachi in 2013. Climate change is said to be responsible for the heavy rains of 2011 and 2012 because usually Sindh Province receives very little rains. Environmental scientists agree that they cannot explain the floods in Sindh as the area that received the rain is normally very dry. Heavy rainfalls of Sep, 2011 caused traffic jam, electrocution, sewerage overflow, contamination of drinking water, power failure, uprooting of trees and billboards accidents in the city District.

### *Hazard matrix of District Karachi South*

Hazards	Frequency	Severity	Years
Urban Floods	Monsoon	Medium	1966, 1977, 2017
Monsoon Rain	Monsoon	High	2017
Heat Wave	Frequently	High	2015
Epidemics	Seasonal	Low	Every Year
Earthquake	Rare	Low	2013
Industrial Accidents	Frequently	Low	Every Year

Along with the above mentioned disasters, a list of potential future hazards can be seen below;

Depleting water resources
Clean drinking water
Increasing un-irrigated lands
Health epidemics and pandemics
Heavy chemical discharges/emissions
High rate of morbidity and mortality
Over exploitation of natural resources
Dense urbanization
Decreasing livestock
Sea and river intrusions
De-forestation of mangroves and other species



Water-logging and salinities
Nutritional stunting
Food insecurities
Forest fires
Industrial Fires

### Summary of data received from District

During the field survey data was collected with the help of a detailed questionnaire that was filled by concerned District authorities, the summary of data received can be seen in the table below;

Sr.	Description	Details
1	What are the crops being cultivated in your District	N/A
2	What are most vulnerable services in your District	Health, Electricity
3	Do you receive any support from PDMA	Funds, Legislation, Rehabilitation and Resettlement
4	Do you receive any support from line departments	Health Dept.: tries help in attending patients at all level Education: Puts forth their manpower during crisis Roads: basically roads falling under various agencies step forward to assist Navy: Provide divers & machinery at time of crisis for rescue mission Army: comes forth with all resources they have in alert situation Rangers: looks after law & order situation in liaison with police NDMA: have a limited role during urban crisis Fire Brigade: tends to all fire emergency situations Police: looks after law & order situation Local Govt.: DMCs utilize their staff to serve with their resources & duties
5	Does epidemic diseases occur in your District	Diseases like diahorrea are frequent
6	District Level Legal Framework	There is no proper District level legal framework currently being followed
7	Availability and quality of Disaster Management Plan	DMP are updated prior to expected disaster strikes
8	Availability and quality of Contingency Plan	District administration basically makes plan in liaison with LEA's & all other line departments for setting SOPs & coordinating machinery, labour & staff at crisis sites
9	Does proper DDMA setup exist	DDMA setup does exist and led by DC in coordination with line departments
10	Is there any proper coordination mechanism established between DDMA and line departments	Coordination mechanism does exist but it needs to be enhanced
11	What are the existing means of communication being used	Telecom, Fax, WhatsApp, Internet
12	Are there any alternative means of communication	Radio, Internet

13	Is basic office equipment for DDMA available/ provided	Office is furnished
14	Is proper/dedicated space allocated for DDMA office	DC office can accommodate 300 people
15	Resource allocation sufficient	Resources are available but as per need
16	Proper early warning system exist	Commissioner Karachi office issues alert during emergency after receiving the same from concerned agency
17	What is the system to determine damage/loss	During the assessment no such system/mechanism was found
18	Geographic Information System	WhatsApp and its location
19	Mechanism to purchase disaster relief supplies	Procurement takes place under SPPRA rules
20	Do you carry out DRR/CBDRM trainings in your Districts	Sessions and meetings conducted with public representatives and leaders
21	What is the status of public education campaigns	At school level and through concerned leaders
22	Are there any awareness raising activities being carried out In your District	DC office engages president private school association and president of market association to execute trainings and create awareness
23	Do you think BCC material and equipment is sufficient	Material and funds are required
24	Do you have sufficient funds for capacity building of staff	No
25	Well defined local level evacuation areas/ routes/shelters	District level hospital, big schools and colleges are kept available in case of evacuation during emergency and saving large number of patients
26	Do you have any resource team for trainings	There is no resource team for training
27	Is sufficient rescue relief & search equipment available	There is no sufficient rescue relief & search equipment available
28	Do you have sufficient HR to manage disaster	Staff not sufficient, pools in staff during disaster from other agencies
29	Are you using any tool to measure performance of staff	Performance of staff is measured on the basis of punctuality, integrity, coordination, timely decision making and relief activities performed
30	Is Government providing any sort of insurance facility to the community	Insurance facility is provided at private level
31	Do you have a proper capacity building policy	There is no capacity building policy but job training is the only possible mean
32	Do you have well equipped IT department in your District	IT department needs to be improved
33	What sort of qualification and skills are required by your staff	Interpersonal skills, Management and decision making, coordination, utilizing skills and communication skills
34	Are you satisfied with the governance structure of DDMA	Governance structure needs to be approved
35	Are the job descriptions of staff well defined	There are no well-defined JD's for the staff

## Recommendations

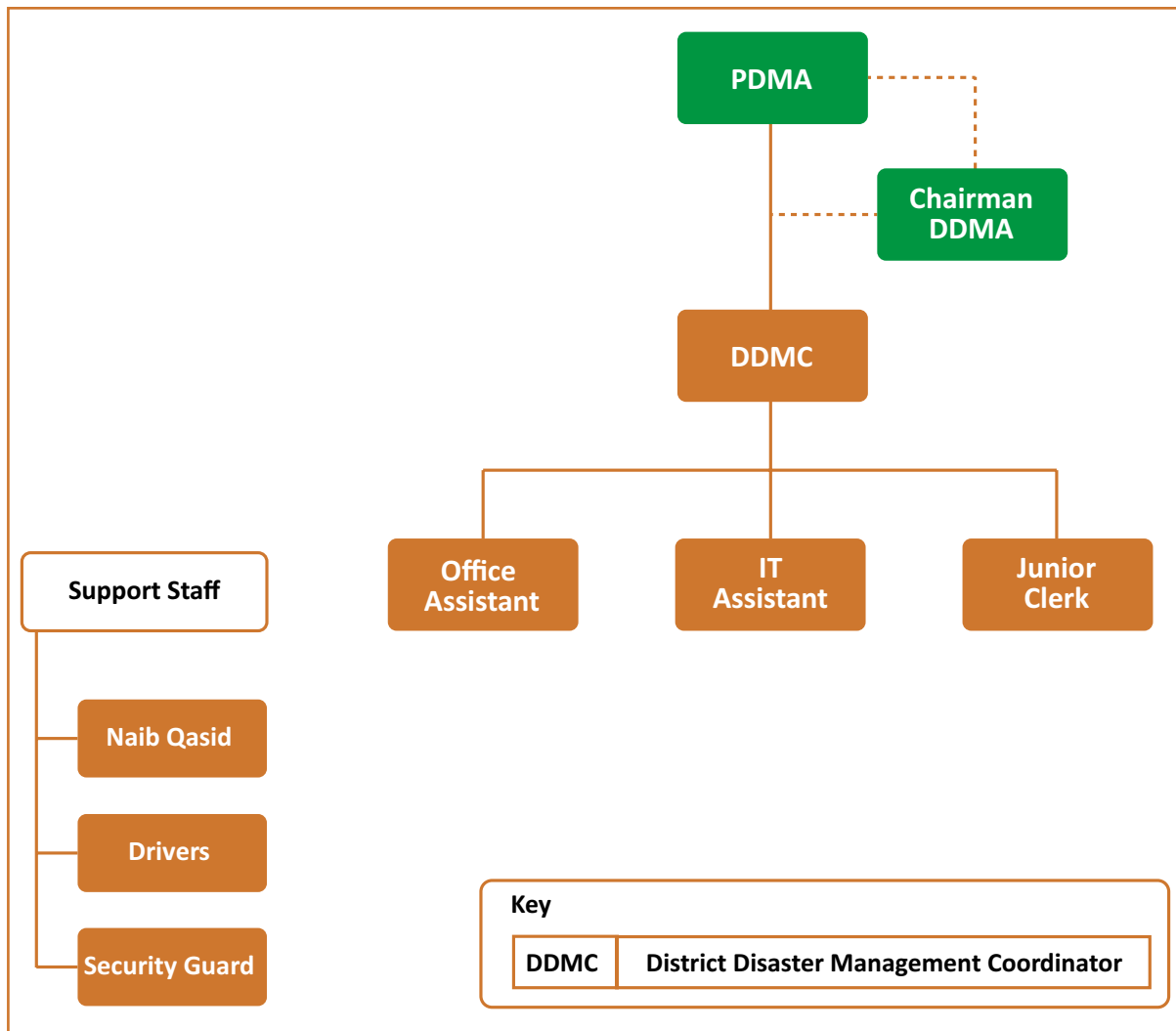
Following is the list of proposed basic search rescue and relief equipment;

Sr.	Items	Available	Required
1	Life Jackets	N/A	5000
2	De-watering Machines	N/A	250
3	Scuba	N/A	20
4	Torches	N/A	300
5	Life Bouys	N/A	250
6	Life Rings	N/A	250
7	Life Line	N/A	250
8	Nylon Rope	N/A	200
9	Tents	N/A	50000
10	First aid Box	N/A	2000
11	Dry Suit	N/A	25
12	Jerry Can	N/A	250
13	Cess Pool	N/A	N/A
14	Portable Generators	N/A	25
15	Folding Chairs	N/A	500
16	Folding tables	N/A	150
17	Floating Ropes	N/A	100
18	Mosquito Nets	N/A	15000
19	Rope Throwing Guns with Accessories	N/A	10
20	Pedestal Fans	N/A	250
21	Fumigation Machine	N/A	20
22	Boat with OBM	N/A	25
23	Boats	N/A	10
24	Mega Phone	N/A	50
25	Hand Moving Trolleys	N/A	150
26	Shovel/Karahi & Kahi/ Hammer/ Chisel (set)	N/A	100
27	Gas Mask (Multi-Purpose)	N/A	25
28	Snake Cather Stick	N/A	20
29	Darryan (Solid like Carpets)	N/A	500
30	Steel Daggers	N/A	100
31	Steel safety Helmets	N/A	50
32	Under water Plastic Shoes for Boat Operators	N/A	25
33	Water Filters	N/A	1000
<b>Proposed Rescue Vehicles</b>			
34	Life Care Ambulance	N/A	02
35	Fire Fighting Vehicles	N/A	02
36	Water Bowser	N/A	02

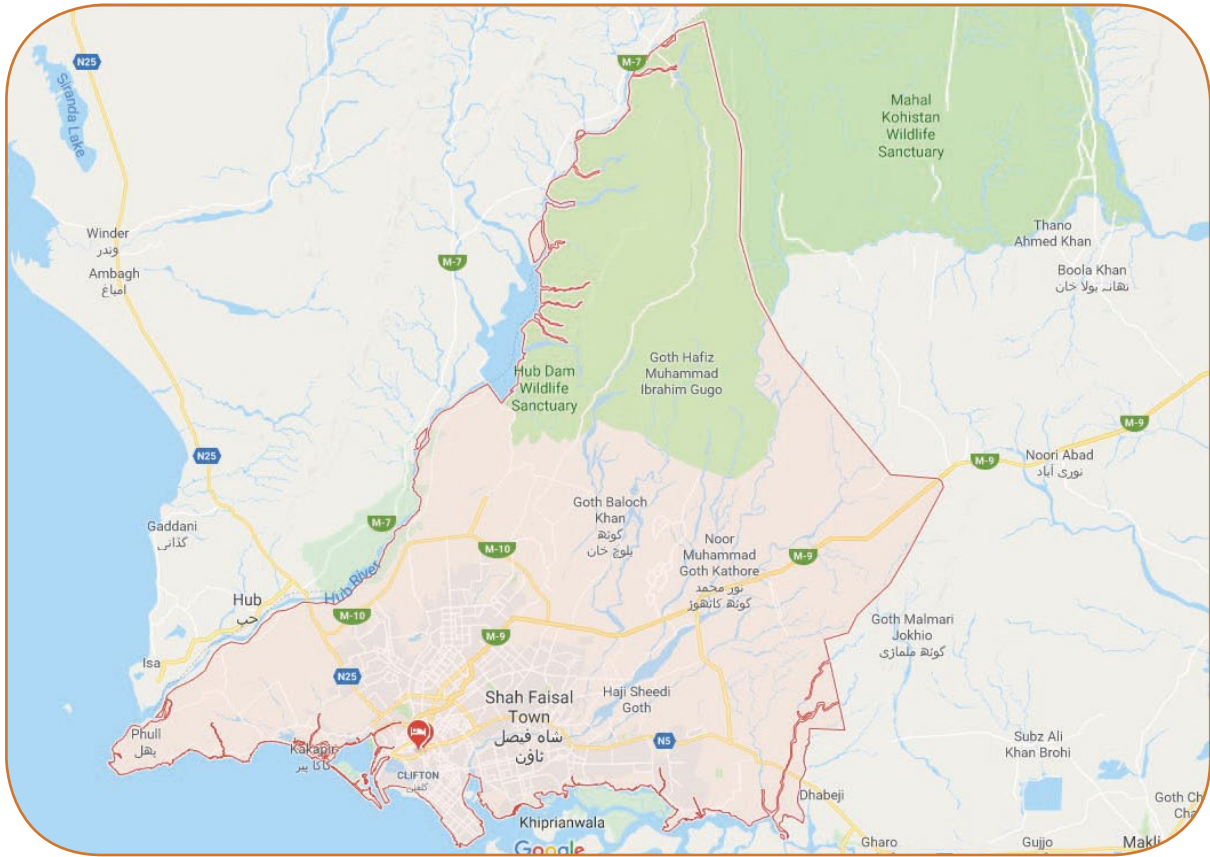
- It is suggested that a new DDMA structure should be introduced along with dedicated staff, space and basic office equipment. Basic office equipment like (tables, office chairs, generators or solar system, GPS devices, desktop computers, communication devices, etc) have already been proposed for each DDMA.
- Institutional mandates should be revisited and writing staff ToRs to ensure the inclusion of DRR/DRM.
- Disaster management plans should be developed every year by DDMA with consent of line departments and stake holders.
- Contingency plans should also be developed at District level and shall be updated regularly.
- A proper Early Warning System (EWS) should be introduced in the District.
- Coordination among key stakeholders should be strengthened for the implementation of disaster risk reduction measures and effective emergency response through assignment of responsibility to each stakeholder. Stakeholders must have joint meetings to address the issues faced by them.
- Basic search, rescue and relief equipment should be provided to each District.
- Proper financial management system should be developed in the District for the transfer of funds in the event of disaster or in the phase of normal circumstances.
- Strengthening logistical capacity to facilitate networking between stakeholders.
- Placing staff on longer-term contracts to strengthen institutional knowledge and linkages.
- The Government and NGOs should invest in DRR sector and should incorporate DRR measures in improving school buildings as these can be used as shelter and evacuation centers in case of emergency.
- Awareness programs should be organized by District Disaster Management Authority about the need of land use planning and building codes so that it can be followed by all the stakeholders, to avoid future threats.
- To minimize the flood risk, communities should be trained on rain water harvesting through microcatchments and roof top rain water harvesting as these practices will help them to store water for future productive use.
- Active people from the community can be used for disseminating early warning for the local endangered communities because people have lot of trust in informal and locally influential sources of information; e.g. a religious leader, a teacher, an NGO worker or a local Government official. But firstly, these active people should also be trained on EWS.
- Radio can be a very important part of Early Warning System (EWS) but care should be taken while transmitting early warnings. It should be in clear words and confirmed through reliable sources to avoid false reports and unnecessary panic.
- Media in District should expand its role as a watchdog during monitoring and handling of donations in the post-disaster phase so that the funds are given to the affected people of the District rather than self interest groups.
- A logistic system should be placed for determining the requirement of medicines, maintaining inventory, storing and stocking, issuing and controlling the use of commodities, stockpile of emergency medicine and supplies, special arrangement with vendors and suppliers for emergency purchases in time of disaster.
- DRR measures should be incorporated in the construction of sewerage system in order to minimize the possibility of overflowing of sewage water in rainy days and to mitigate the hygiene issues.

- District Disaster Management Authority should coordinate with the NGOs working in different sectors to address the problems of people. The NGOs working on different projects can be invited and can be asked for initiation of DRR projects in the vulnerable areas of the District.

### Proposed Structure of DDMA



## District Karachi West



## District Karachi West

Area	630 Km <sup>2</sup>
Population	3,914,757
Population Density	6,212 Per km <sup>2</sup>
Rural / Urban	7.2% / 92.8%

Karachi West is divided into five towns namely Lyari Town, Kemari Town, SITE Town, Baldia Town and Orangi Town. The District contains mix population including Sindhi, Baloch, Punjabis, Pashtuns and Muhajirs. No single ethnic group form established majority in the District.

District Karachi West is prone to multiple natural and man-made hazards. Natural hazards include cyclones, heavy rainfalls, urban floods, tsunami, droughts and earthquakes. Recently , Cyclone Nilofar was developed in the Arabian Sea but weakened down without any impact. Karachi West faces a constant risk of experiencing a tsunami if an undersea quake strikes the Indian Ocean close enough to Pakistan`s coast.

District Karachi West is vulnerable to earthquake hazard. A geological tectonic line runs under Karachi through Khirthar Hills/Mountains to North-West of Sindh and Thar desert, due to which Sindh has risk of a major earthquake in the future. A strong earthquake measuring magnitude 7.8 on Richter scale jolted Karachi in 2013. Climate change is said to be responsible for the heavy rains of 2011 and 2012 because usually Sindh Province receives very little rains. Environmental scientists agree that they cannot explain the floods in Sindh as the area that received the rain is normally very dry. Heavy rainfalls of Sep, 2011 caused traffic jam, electrocution, sewerage overflow, contamination of drinking water, power failure, uprooting of trees and billboards accidents in the city District.

### *Hazard matrix of District Karachi West*

Hazards	Frequency	Severity	Years
Urban Floods	Monsoon	Medium	1966, 1977
Monsoon Rain	Monsoon	High	2017
Heat Wave		High	Almost Every Year
Epidemics	Seasonal	Low	Every Year
Earthquake	Rare	Low	2013
Industrial Accidents	Frequently	Low	Every Year

Along with the above mentioned disasters, a list of potential future hazards can be seen below;

Depilating water resources
Clean drinking water
Increasing un-irrigated lands
Health epidemics and pandemics
Heavy chemical discharges/emissions
High rate of morbidity and mortality
Over exploitation of natural resources

Dense urbanization
Decreasing livestock
Sea and river intrusions
De-forestation of mangroves and other species
Water-logging and salinities
Nutritional stunting
Food insecurities
Forest fires
Industrial Fires

### Summary of data received from District

During the field survey data was collected with the help of a detailed questionnaire that was filled by concerned District authorities, the summary of data received can be seen in the table below;

Sr.	Description	Details
1	What are the crops being cultivated in your District	Vegetables, Fodder, Orchards
2	What are most vulnerable services in your District	Education, Health, Transport, Roads, Electricity
3	Do you receive any support from PDMA	Support received from PDMA interims of equipment only
4	Do you receive any support from line departments	Health, Civil Defense, Rangers, Fire Brigade, Police and Local Govt.
5	Does epidemic diseases occur in your District	Diseases like malaria, diahorrea ,Dengue and Gastro are frequent
6	District Level Legal Framework	District level legal framework does exist
7	Availability and quality of Disaster Management Plan	DMP is reviewed with line departments regularly
8	Availability and quality of Contingency Plan	Contingency plan does exist and quality of plan is satisfactory
9	Does proper DDMA setup exist	DDMA setup exist and Led by DC with coordination of other line departments
10	Is there any proper coordination mechanism established between DDMA and line departments	Coordination mechanism is established and helps to avoid duplication of activity
11	What are the existing means of communication being used	Telecommunication
12	Are there any alternative means of communication	Radio, Internet
13	Is basic office equipment for DDMA available/ provided	Due to no proper DDMA setup, District lacks any sort of equipment
14	Is proper/dedicated space allocated for DDMA office	No dedicated space is allocated for DDMA
15	Resource allocation sufficient	HR, Machinery, Funds, Equipment and Space is required
16	Proper early warning system exist	Warnings through control room Karachi



17	What is the system to determine damage/loss	During the assessment no such system/mechanism was found
18	Geographic Information System	GIS system needs to installed in the District.
19	Mechanism to purchase disaster relief supplies	No mechanism for relief supplies due to no proper DDMA setup
20	Do you carry out DRR/CBDRM trainings in your Districts	Trainings Carried out by Civil defense, KANUPP & PDMA
21	What is the status of public education campaigns	Public education campaigns carried out at the time of disaster
22	Are there any awareness raising activities being carried out In your District	No awareness raising programs had been conducted yet
23	Do you think BCC material and equipment is sufficient	Due to unavailability of support and resources no such material and equipment is present
24	Do you have sufficient funds for capacity building of staff	Due to insufficient funds, the District was unable to build capacity of the current staff
25	Well defined local level evacuation areas/ routes/shelters	Currently, there are no such evacuation plan.
26	Do you have any resource team for trainings	Resource team is available but staff is not dedicated
27	Is sufficient rescue relief & search equipment available	District even lacks basic search, rescue and relief equipment
28	Do you have sufficient HR to manage disaster	No dedicated staff for DDMA's, management has to seek help from other departments in times of disasters
29	Are you using any tool to measure performance of staff	No such mechanism found
30	Is Government providing any sort of insurance facility to the community	Currently, no such facility is being provided to the community
31	Do you have a proper capacity building policy	There is no capacity building policy but different agencies conduct trainings
32	Do you have well equipped IT department in your District	IT department is established but needs to be improved
33	What sort of qualification and skills are required by your staff	Specific HR professionals and training specialists to cope up with disaster
34	Are you satisfied with the governance structure of DDMA	PDMA is trying to improve disaster management mechanism
35	Are the job descriptions of staff well defined	There are no well-defined JD's for the staff

## Recommendations

Following is the list of proposed basic search rescue and relief equipment;

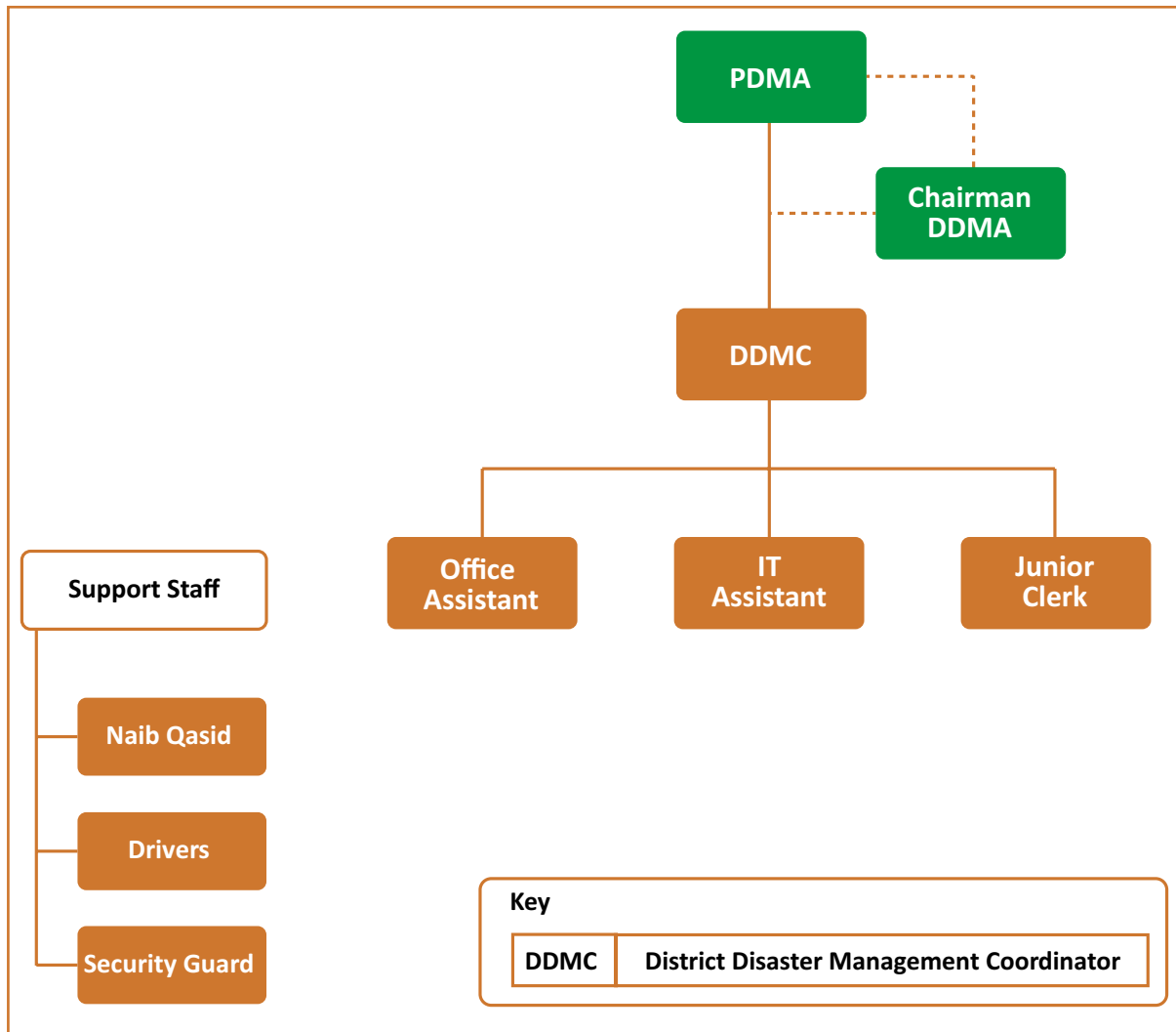
Sr.	Items	Available	Required
1	Life Jackets	N/A	1500
2	De-watering Machines	N/A	100
3	Scuba	N/A	5
4	Torches	N/A	300
5	Life Bouys	N/A	100
6	Life Rings	N/A	100
7	Life Line	N/A	100
8	Nylon Rope	N/A	50

9	Tents	N/A	15000
10	First aid Box	N/A	2000
11	Dry Suit	N/A	10
12	Jerry Can	N/A	100
13	Cess Pool	N/A	N/A
14	Portable Generators	N/A	20
15	Folding Chairs	N/A	500
16	Folding tables	N/A	100
17	Floating Ropes	N/A	50
18	Mosquito Nets	N/A	10000
19	Rope Throwing Guns with Accessories	N/A	10
20	Pedestal Fans	N/A	150
21	Fumigation Machine	N/A	20
22	Boat with OBM	N/A	10
23	Boats	N/A	10
24	Mega Phone	N/A	30
25	Hand Moving Trolleys	N/A	200
26	Shovel/Karahi & Kahi/ Hammer/ Chisel (set)	N/A	100
27	Gas Mask (Multi-Purpose)	N/A	20
28	Snake Cather Stick	N/A	N/A
29	Darryan (Solid like Carpets)	N/A	500
30	Steel Daggers	N/A	100
31	Steel safety Helmets	N/A	100
32	Under water Plastic Shoes for Boat Operators	N/A	20
33	Water Filters	N/A	500
<b>Proposed Rescue Vehicles</b>			
34	Life Care Ambulance	N/A	02
35	Fire Fighting Vehicles	N/A	02
36	Water Bowser	N/A	02

- It is suggested that a new DDMA structure should be introduced along with dedicated staff, space and basic office equipment. Basic office equipment like (tables, office chairs, generators or solar system, GPS devices, desktop computers, communication devices, etc) have already been proposed for each DDMA.
- Institutional mandates should be revisited and writing staff ToRs to ensure the inclusion of DRR/DRM.
- Disaster management plans should be developed every year by DDMA with consent of line departments and stake holders.
- Contingency plans should also be developed at District level and shall be updated regularly.
- A proper Early Warning System (EWS) should be introduced in the District.
- Coordination among key stakeholders should be strengthened for the implementation of disaster risk reduction measures and effective emergency response through assignment of responsibility to each stakeholder. Stakeholders must have joint meetings to address the issues faced by them.
- Basic search, rescue and relief equipment should be provided to each District.

- Proper financial management system should be developed in the District for the transfer of funds in the event of disaster or in the phase of normal circumstances.
- Strengthening logistical capacity to facilitate networking between stakeholders.
- Placing staff on longer-term contracts to strengthen institutional knowledge and linkages.
- The Government and NGOs should invest in DRR sector and should incorporate DRR measures in improving school buildings as these can be used as shelter and evacuation centers in case of emergency.
- Awareness programs should be organized by District Disaster Management Authority about the need of land use planning and building codes so that it can be followed by all the stakeholders, to avoid future threats.
- To minimize the flood risk, communities should be trained on rain water harvesting through microcatchments and roof top rain water harvesting as these practices will help them to store water for future productive use.
- Active people from the community can be used for disseminating early warning for the local endangered communities because people have lot of trust in informal and locally influential sources of information; e.g. a religious leader, a teacher, an NGO worker or a local Government official. But firstly, these active people should also be trained on EWS.
- Radio can be a very important part of Early Warning System (EWS) but care should be taken while transmitting early warnings. It should be in clear words and confirmed through reliable sources to avoid false reports and unnecessary panic.
- Media in District should expand its role as a watchdog during monitoring and handling of donations in the post-disaster phase so that the funds are given to the affected people of the District rather than self interest groups.
- A logistic system should be placed for determining the requirement of medicines, maintaining inventory, storing and stocking, issuing and controlling the use of commodities, stockpile of emergency medicine and supplies, special arrangement with vendors and suppliers for emergency purchases in time of disaster.
- DRR measures should be incorporated in the construction of sewerage system in order to minimize the possibility of overflowing of sewage water in rainy days and to mitigate the hygiene issues.
- District Disaster Management Authority should coordinate with the NGOs working in different sectors to address the problems of people. The NGOs working on different projects can be invited and can be asked for initiation of DRR projects in the vulnerable areas of the District.

### Proposed Structure of DDMA



## District Korangi



## District Korangi

Area	94.8 Km <sup>2</sup>
Population	2,457,019
Population Density	25,918 Per km <sup>2</sup>
Rural / Urban	0% / 100 %

Korangi District is one of the six administrative Districts of Karachi. It is a part of the Karachi Division in Sindh, Pakistan. This District was formerly a part of District East in Karachi and was later given an individual status in November 2013 by dividing it, in order to form District Korangi.

Sindhi people form majority in the District followed by the Baloch, Pashtun, Muhajir, Punjabi and other ethnicity. The District suffers water crisis and contamination issues. A Reverse Osmosis (RO) plant was inaugurated in 35 Union Councils of District Municipal Corporation (DMC) Korangi on March 6, 2017.

District Korangi is prone to multiple natural and man-made hazards. Natural hazards include cyclones, heavy rainfalls, urban floods, tsunami, droughts and earthquakes. Recently Cyclone Nilofar developed in the Arabian Sea but weakened down without any impact. Korangi faces a constant risk of experiencing a tsunami if an undersea quake strikes the Indian Ocean close enough to Pakistan's coast. Its neighboring Makran coast.

District Korangi is vulnerable to earthquake hazard. A geological tectonic line runs under Karachi through Khirthar Hills/Mountains to North-West of Sindh and Thar desert, due to which Sindh has risk of a major earthquake in the future. A strong earthquake measuring magnitude 7.8 on Richter scale jolted Karachi in 2013.

Climate change is said to be responsible for the heavy rains of 2011 and 2012 because usually Sindh Province receives very little rains. Environmental scientists agree that they cannot explain the floods in Sindh as the area that received the rain is normally very dry. Heavy rainfalls of Sep, 2011 caused traffic jam, electrocution, sewerage overflow, contamination of drinking water, power failure, uprooting of trees and billboards accidents in the city District.

### *Hazard matrix of District Korangi*

Hazards	Frequency	Severity	Years
Urban Floods	Monsoon	Medium	1966, 1977, 2017
Monsoon Rain	Monsoon	High	2017
Heat Wave	Frequently	High	2015 - 2017
Epidemics	Seasonal	Low	Every Year
Earthquake	Rare	Low	2013
Industrial Accidents	Frequently	Low	Every Year

Along with the above mentioned disasters, a list of potential future hazards can be seen below;

Depleting water resources
Clean drinking water
Increasing un-irrigated lands
Health epidemics and pandemics
Heavy chemical discharges/emissions
High rate of morbidity and mortality
Over exploitation of natural resources
Dense urbanization
Decreasing livestock
Sea and river intrusions
De-forestation of mangroves and other species
Water-logging and salinities
Nutritional stunting
Food insecurities
Forest fires
Industrial Fires

### Recommendations

Following is the list of proposed basic search rescue and relief equipment;

Sr.	Items	Available	Required
1	Life Jackets	N/A	1000
2	De-watering Machines	N/A	100
3	Scuba	N/A	5
4	Torches	N/A	300
5	Life Bouys	N/A	100
6	Life Rings	N/A	100
7	Life Line	N/A	100
8	Nylon Rope	N/A	50
9	Tents	N/A	10,000
10	First aid Box	N/A	1500
11	Dry Suit	N/A	10
12	Jerry Can	N/A	100
13	Cess Pool	N/A	N/A
14	Portable Generators	N/A	20
15	Folding Chairs	N/A	500
16	Folding tables	N/A	100
17	Floating Ropes	N/A	50
18	Mosquito Nets	N/A	10,000
19	Rope Throwing Guns with Accessories	N/A	10
20	Pedestal Fans	N/A	250
21	Fumigation Machine	N/A	10
22	Boat with OBM	N/A	10

23	Boats	N/A	10
24	Mega Phone	N/A	30
25	Hand Moving Trolleys	N/A	150
26	Shovel/Karahi & Kahi/ Hammer/ Chisel (set)	N/A	100
27	Gas Mask (Multi-Purpose)	N/A	25
28	Snake Cather Stick	N/A	N/A
29	Darryan (Solid like Carpets)	N/A	500
30	Steel Daggers	N/A	100
31	Steel safety Helmets	N/A	50
32	Under water Plastic Shoes for Boat Operators	N/A	20
33	Water Filters	N/A	1000
<b>Proposed Rescue Vehicles</b>			
34	Life Care Ambulance	N/A	02
35	Fire Fighting Vehicles	N/A	02
36	Water Bowser	N/A	02

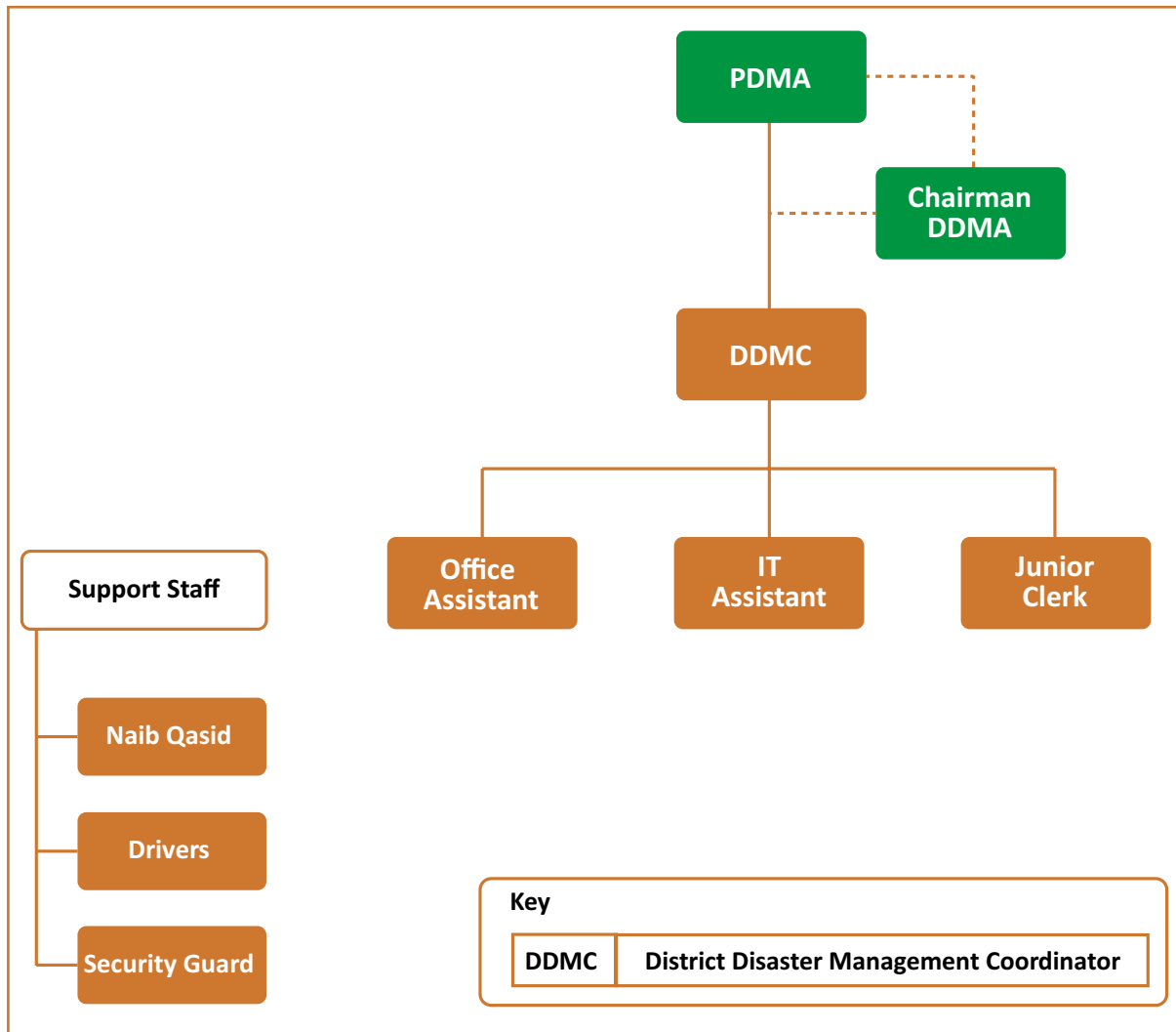
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- Institutional mandates should be revisited and writing staff ToRs to ensure the inclusion of DRR/DRM.
- Disaster management plans should be developed every year by DDMA with consent of line departments and stake holders.
- Contingency plans should also be developed at District level and shall be updated regularly.
- A proper Early Warning System (EWS) should be introduced in the District.
- Coordination among key stakeholders should be strengthened for the implementation of disaster risk reduction measures and effective emergency response through assignment of responsibility to each stakeholder. Stakeholders must have joint meetings to address the issues faced by them.
- Basic search, rescue and relief equipment should be provided to each District.
- Proper financial management system should be developed in the District for the transfer of funds in the event of disaster or in the phase of normal circumstances.
- Strengthening logistical capacity to facilitate networking between stakeholders.
- Placing staff on longer-term contracts to strengthen institutional knowledge and linkages.
- The Government and NGOs should invest in DRR sector and should corporate DRR measures in improving school buildings as these can be used as shelter and evacuation centers in case of emergency.
- Awareness programs should be organized by District Disaster Management Authority about the need of land use planning and building codes so that it can be followed by all the stakeholders, to avoid future threats.
- To minimize the flood risk, communities should be trained on rain water harvesting through microcatchments and roof top rain water harvesting as these practices will help them to store water for future productive use.
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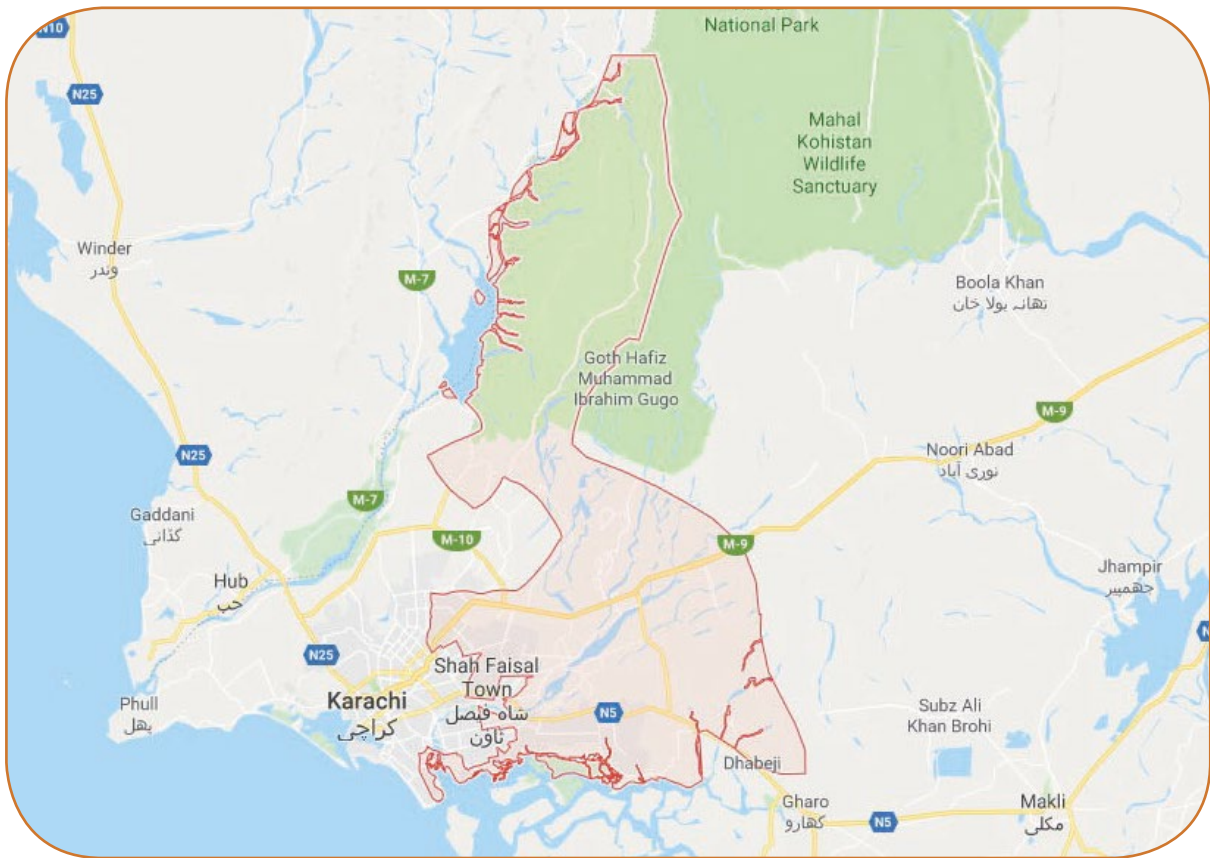
local endangered communities because people have lot of trust in informal and locally influential sources of information; e.g. a religious leader, a teacher, an NGO worker or a local Government official. But firstly, these active people should also be trained on EWS.

- Radio can be a very important part of Early Warning System (EWS) but care should be taken while transmitting early warnings. It should be in clear words and confirmed through reliable sources to avoid false reports and unnecessary panic.
- Media in District should expand its role as a watchdog during monitoring and handling of donations in the post-disaster phase so that the funds are given to the affected people of the District rather than self interest groups.
- A logistic system should be placed for determining the requirement of medicines, maintaining inventory, storing and stocking, issuing and controlling the use of commodities, stockpile of emergency medicine and supplies, special arrangement with vendors and suppliers for emergency purchases in time of disaster.
- DRR measures should be incorporated in the construction of sewerage system in order to minimize the possibility of overflowing of sewage water in rainy days and to mitigate the hygiene issues.
- District Disaster Management Authority should coordinate with the NGOs working in different sectors to address the problems of people. The NGOs working on different projects can be invited and can be asked for initiation of DRR projects in the vulnerable areas of the District.

### Proposed Structure of DDMA



## District Malir



## District Malir

Area	2635 Km <sup>2</sup>
Population	2,008,901
Population Density	762.5 Per km <sup>2</sup>
Rural / Urban	42.6% / 57.4 %

Malir District is an administrative District of Karachi Division in Sindh, Pakistan. District Malir is prone to multiple natural and man-made hazards. Natural hazards include cyclones, heavy rainfalls, urban floods, tsunami, droughts and earthquakes. Recently, Cyclone Nilofar developed in the Arabian Sea but weakened down without any impact. Malir faces a constant risk of experiencing a tsunami if an undersea quake strikes the Indian Ocean close enough to Pakistan's coast. Its neighboring Makran coast. Malir is vulnerable to earthquake hazard.

A geological tectonic line runs under Karachi through Khirthar Hills/Mountains to North-West of Sindh and Thar desert, due to which Sindh has risk of a major earthquake in the future. A strong earthquake measuring magnitude 7.8 on Richter scale jolted Karachi in 2013. Climate change is said to be responsible for the heavy rains of 2011 and 2012 because usually Sindh Province receives very little rains. Environmental scientists agree that they cannot explain the floods in Sindh as the area that received the rain is normally very dry. Heavy rainfalls of Sep, 2011 caused traffic jam, electrocution, sewerage overflow, contamination of drinking water, power failure, uprooting of trees and billboards accidents in the city District.

### *Hazard matrix of District Malir*

Hazards	Frequency	Severity	Years
Floods	Monsoon	Medium	2013 , 2014
Heavy Rainfall	Monsoon	High	Every Year
Heat Wave	Frequently	High	Almost Every Year
Epidemics	Seasonal	Low	Every Year
Earthquake	Rare	Low	2013
Industrial Accidents	Frequently	Low	Every Year

Along with the above mentioned disasters, a list of potential future hazards can be seen below;

Depleting water resources
Clean drinking water
Increasing un-irrigated lands
Health epidemics and pandemics
Heavy chemical discharges/emissions
High rate of morbidity and mortality
Over exploitation of natural resources
Dense urbanization
Decreasing livestock
Sea and river intrusions
De-forestation of mangroves and other species

Water-logging and salinities
Nutritional stunting
Food insecurities
Forest fires
Industrial Fires

### Summary of data received from District

During the field survey data was collected with the help of a detailed questionnaire that was filled by concerned District authorities, the summary of data received can be seen in the table below;

Sr.	Description	Details
1	What are the crops being cultivated in your District	Vegetables, Orchards
2	What are most vulnerable services in your District	N/A
3	Do you receive any support from PDMA	PDMA supports in terms of planning, staffing, equipment, funds, legislation, rehabilitation and resettlement
4	Do you receive any support from line departments	Support is received from irrigation, health, logistic, education department
5	Does epidemic diseases occur in your District	
6	District Level Legal Framework	Yes, but needs development with change in climate
7	Availability and quality of Disaster Management Plan	No disaster management plan is available
8	Availability and quality of Contingency Plan	Yes, developed at time of disaster
9	Does proper DDMA setup exist	Yes, Led by DC
10	Is there any proper coordination mechanism established between DDMA and line departments	Yes, control room is established at District level
11	What are the existing means of communication being used	Radio, TV message, social media message
12	Are there any alternative means of communication	Telephone, radio, internet
13	Is basic office equipment for DDMA available/ provided	N/A
14	Is proper/dedicated space allocated for DDMA office	Structure is weak and 1 portion is working
15	Resource allocation sufficient	N/A
16	Proper early warning system exists	Yes, warnings are circulated from control room
17	What is the system to determine damage/loss	Damage loss is determined by reports of ACs
18	Geographic Information System	N/A
19	Mechanism to purchase disaster relief supplies	Without DDMA setup no such mechanism can be established
20	Do you carry out DRR/CBDRM trainings in your Districts	No, Trainings need to be provided by field specialists
21	What is the status of public education campaigns	Yes through Poster, Brouchers, Newspaper and banners

22	Are there any awareness raising activities being carried out In your District	Yes
23	Do you think BCC material and equipment is sufficient	Need funds
24	Do you have sufficient funds for capacity building of staff	Due to insufficient funds, the District was unable to build capacity of the current staff
25	Well defined local level evacuation areas/ routes/shelters	No, needs to be developed
26	Do you have any resource team for trainings	Yes
27	Is sufficient rescue relief & search equipment available	No
28	Do you have sufficient HR to manage disaster	Need more HR
29	Are you using any tool to measure performance of staff	ACR and performance check from seniors
30	Is Government providing any sort of insurance facility to the community	N/A
31	Do you have a proper capacity building policy	N/A
32	Do you have well equipped IT department in your District	No, Computer, IT specialist and internet along with proper power backup is required
33	What sort of qualification and skills are required by your staff	Qualified and skill HR is required in field of DRM
34	Are you satisfied with the governance structure of DDMA	No, DDMA needs to be setup with relevant experts
35	Are the job descriptions of staff well defined	No

## Recommendations

Following is the list of proposed basic search rescue and relief equipment;

Sr.	Items	Available	Required
1	Life Jackets	N/A	1000
2	De-watering Machines	N/A	100
3	Scuba	N/A	10
4	Torches	N/A	400
5	Life Bouys	N/A	150
6	Life Rings	N/A	200
7	Life Line	N/A	250
8	Nylon Rope	N/A	150
9	Tents	N/A	50000
10	First aid Box	N/A	1500
11	Dry Suit	N/A	10
12	Jerry Can	N/A	250
13	Cess Pool	N/A	N/A
14	Portable Generators	N/A	25
15	Folding Chairs	N/A	500
16	Folding tables	N/A	100
17	Floating Ropes	N/A	150
18	Mosquito Nets	N/A	50000

19	Rope Throwing Guns with Accessories	N/A	10
20	Pedestal Fans	N/A	250
21	Fumigation Machine	N/A	20
22	Boat with OBM	N/A	10
23	Mega Phone	N/A	50
24	Hand Moving Trolleys	N/A	250
25	Shovel/Karahi & Kahi/ Hammer/ Chisel (set)	N/A	100
26	Gas Mask (Multi-Purpose)	N/A	25
27	Snake Cather Stick	N/A	10
28	Darryan (Solid like Carpets)	N/A	500
29	Steel Daggers	N/A	100
30	Steel safety Helmets	N/A	50
31	Under water Plastic Shoes for Boat Operators	N/A	20
<b>Proposed Rescue Vehicles</b>			
32	Life Care Ambulance	N/A	02
33	Fire Fighting Vehicles	N/A	02
34	Water Bowser	N/A	02

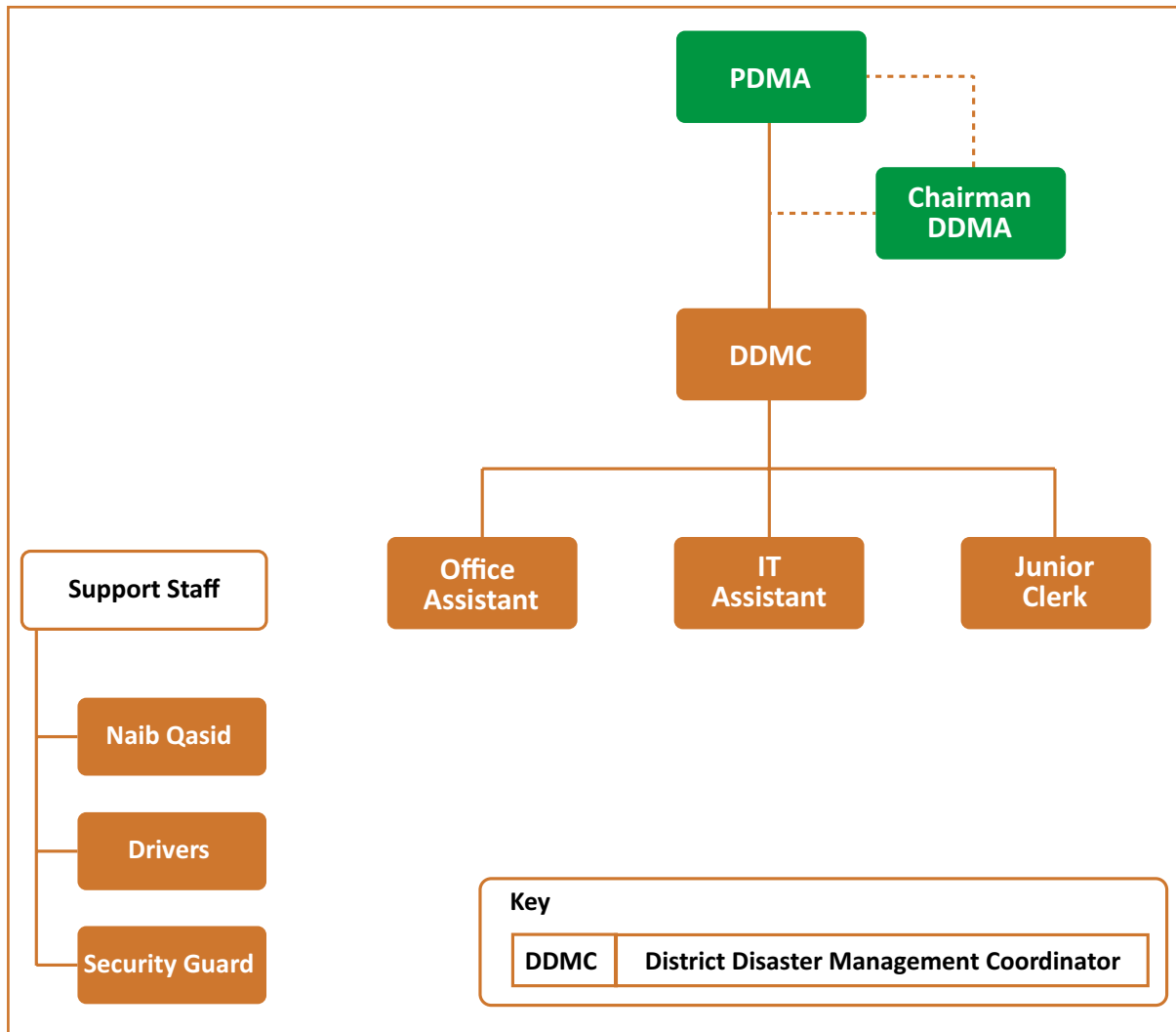
- It is suggested that a new DDMA structure should be introduced along with dedicated staff, space and basic office equipment. Basic office equipment like (tables, office chairs, generators or solar system, GPS devices, desktop computers, communication devices, etc) have already been proposed for each DDMA.
- Institutional mandates should be revisited and writing staff ToRs to ensure the inclusion of DRR/DRM.
- Disaster management plans should be developed every year by DDMA with consent of line departments and stake holders.
- Contingency plans should also be developed at District level and shall be updated regularly.
- A proper Early Warning System (EWS) should be introduced in the District.
- Coordination among key stakeholders should be strengthened for the implementation of disaster risk reduction measures and effective emergency response through assignment of responsibility to each stakeholder. Stakeholders must have joint meetings to address the issues faced by them.
- Basic search, rescue and relief equipment should be provided to each District.
- Proper financial management system should be developed in the District for the transfer of funds in the event of disaster or in the phase of normal circumstances.
- Strengthening logistical capacity to facilitate networking between stakeholders.
- Placing staff on longer-term contracts to strengthen institutional knowledge and linkages.
- The Government and NGOs should invest in DRR sector and should incorporate DRR measures in improving school buildings as these can be used as shelter and evacuation centers in case of emergency.
- Awareness programs should be organized by District Disaster Management Authority about the need of land use planning and building codes so that it can be followed by all the stakeholders, to avoid future threats.
- To minimize the flood risk, communities should be trained on rain water harvesting through microcatchments and roof top rain water harvesting as these practices will

help them to store water for future productive use.

- Active people from the community can be used for disseminating early warning for the local endangered communities because people have lot of trust in informal and locally influential sources of information; e.g. a religious leader, a teacher, an NGO worker or a local Government official. But firstly, these active people should also be trained on EWS.
- Radio can be a very important part of Early Warning System (EWS) but care should be taken while transmitting early warnings. It should be in clear words and confirmed through reliable sources to avoid false reports and unnecessary panic.
- Media in District should expand its role as a watchdog during monitoring and handling of donations in the post-disaster phase so that the funds are given to the affected people of the District rather than self interest groups.
- A logistic system should be placed for determining the requirement of medicines, maintaining inventory, storing and stocking, issuing and controlling the use of commodities, stockpile of emergency medicine and supplies, special arrangement with vendors and suppliers for emergency purchases in time of disaster.
- DRR measures should be incorporated in the construction of sewerage system in order to minimize the possibility of overflowing of sewage water in rainy days and to mitigate the hygiene issues.
- District Disaster Management Authority should coordinate with the NGOs working in different sectors to address the problems of people. The NGOs working on different projects can be invited and can be asked for initiation of DRR projects in the vulnerable areas of the District.



### Proposed Structure of DDMA

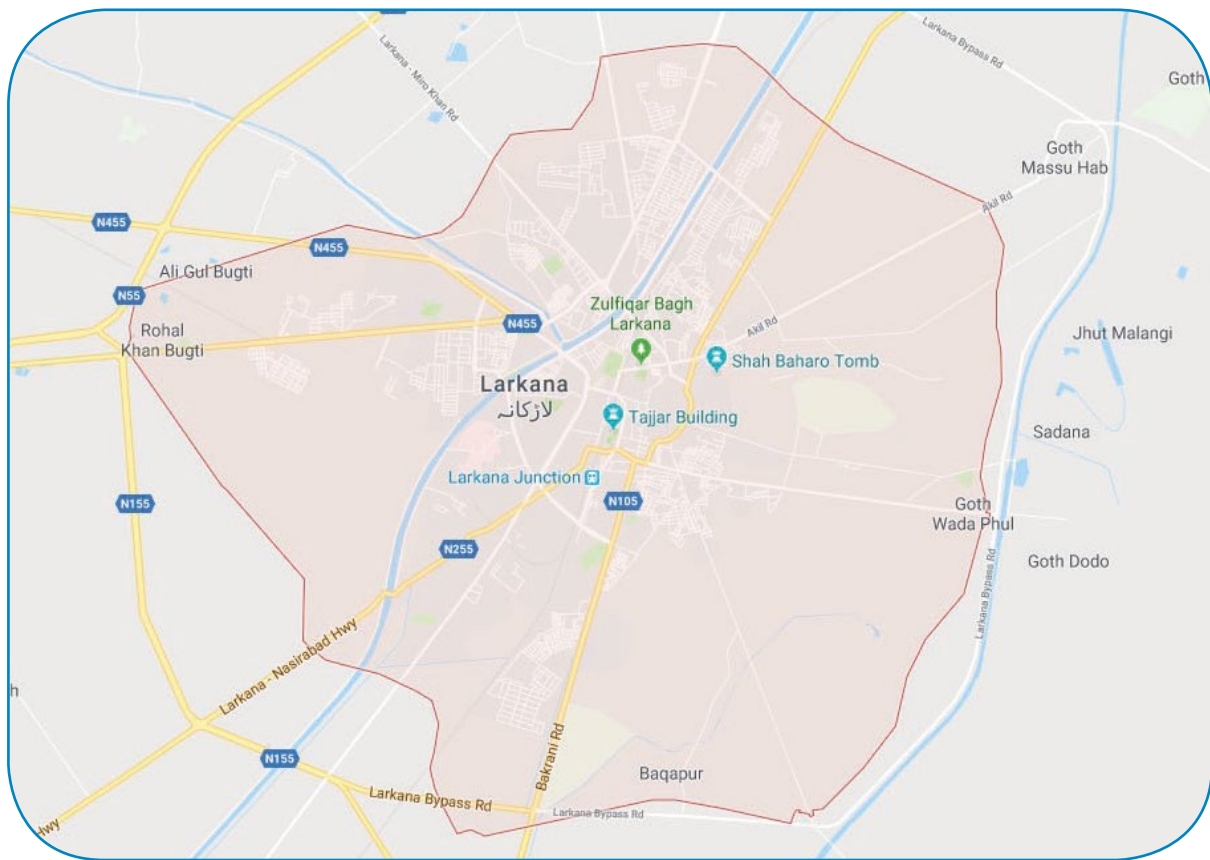




**Larkana Division**



## District Larkana



## District Larkana

Area	1930 Km <sup>2</sup>
Population	1,524,391
Population Density	870 Per km <sup>2</sup>
Rural / Urban	71% / 21 %

District Larkana is one of the oldest Districts of Sindh. River Indus runs down on the Eastern side of the District, making this part vulnerable to riverine floods. While District's Western part is vulnerable to flash floods because of the presence of Khirthar mountain ranges. Like majority of the other Districts in Sindh, District Larkana is rural by its characteristics. 71 % of the population resides in rural area as compared to the 29 % that resides in the urban areas. Most people in rural areas lack job opportunities, health and educational facilities which escalate the risk against different hazards.

District Larkana was severely hit by floods 2010 and rains/floods in 2011. According to the PDMA Sindh figures, the total affected population, in 2010, was 490,000. The inundated crop area of the District was 25,028 acres.

### *Hazard matrix of District Larkana*

Hazards	Frequency	Severity	Years
Riverine Floods	Monsoon	Medium	2010, 2011, 2012
Flash Floods	Seasonal	Low	
Heavy Rain	Monsoon	Medium	2011, 2012
Epidemics	Seasonal	Low	Throughout
Earthquake	Rare	Low	
Road Accidents	Frequently	Low	Every Year

Along with the above mentioned disasters, a list of potential future hazards can be seen below;

Depleting water resources
Clean drinking water
Increasing un-irrigated lands
Health epidemics and pandemics
Heavy chemical discharges/emissions
High rate of morbidity and mortality
Over exploitation of natural resources
Dense urbanization
Decreasing livestock
Sea and river intrusions
De-forestation of mangroves and other species
Water-logging and salinities
Nutritional stunting
Food insecurities
Forest fires

## Industrial Fires

**Summary of data received from District**

During the field survey data was collected with the help of a detailed questionnaire that was filled by concerned District authorities, the summary of data received can be seen in the table below;

Sr.	Description	Details
1	What are the crops being cultivated in your District	Cotton, Wheat, Sugarcane, Pulses, Rice, Vegetables
2	What are most vulnerable services in your District	Education, Health, Transport, Roads, Electricity
3	Do you receive any support from PDMA	N/A
4	Do you receive any support from line departments	N/A
5	Does epidemic diseases occur in your District	Diseases like malaria and diarrhoea are frequent
6	District Level Legal Framework	There is no proper District level legal framework currently being followed
7	Details about partnership with any local NGOs	There is no proper coordination with any local NGOs
8	Availability and quality of Disaster Management Plan	No disaster management plan is available
9	Availability and quality of Contingency Plan	Contingency plan does not exist
10	Does proper DDMA setup exist	There is no proper functional structure of DDMA in the District, during disaster DDMA is led by DC
11	Details of logistical support provided by PDMA	PDMA has never provided any logistical support
12	Is there any proper coordination mechanism established between DDMA and line departments	There is no proper coordination mechanism between local Government to District to Provincial level
13	What are the existing means of communication being used	Radio, Internet and telephones are only means of communication
14	Are there any alternative means of communication	No
15	Is basic office equipment for DDMA available/ provided	Due to no proper DDMA setup, District lacks any sort of equipment
16	Is proper/dedicated space allocated for DDMA office	No dedicated space is allocated for DDMA
17	Resource allocation sufficient	Resources are available but not allocated for DDMA
18	Proper early warning system exist	EWS does not exist
19	What is the system to determine damage/loss	During the assessment no such system/mechanism was found
20	Geographic Information System	GIS system is required in the District.
21	Mechanism to purchase disaster relief supplies	Without DDMA setup no such mechanism can be established
22	Do you carry out DRR/CBDRM trainings in your Districts	No such trainings are conducted in the District
23	What is the status of public education campaigns	District needs support from PDMA and other line departments for such campaigns
24	Are there any awareness raising activities being carried out In your District	No awareness raising programs has been conducted yet

25	Do you think BCC material and equipment is sufficient	Due to unavailability of support and resources no such material and equipment is present
26	Do you have sufficient funds for capacity building of staff	Due to insufficient funds, the District was unable to build capacity of the current staff
27	Well defined local level evacuation areas/ routes/shelters	Currently there are no such evacuation plans, the District needs various studies to define such routes or evacuation plans
28	Do you have any resource team for trainings	As there is no dedicated staff for DDMA, resource persons for trainings are required
29	Is sufficient rescue relief & search equipment available	District even lacks basic search, rescue and relief equipment
30	Do you have sufficient HR to manage disaster	No dedicated staff for DDMA, management has to seek help from other departments in times of disasters
31	Are you using any tool to measure performance of staff	No such mechanism found
32	Is Government providing any sort of insurance facility to the community	Currently no such facility is being provided to the community
33	Do you have a proper capacity building policy	There is no capacity building policy
34	Do you have well equipped IT department in your District	IT department needs to be established
35	What sort of qualification and skills are required by your staff	Skills and trainings need to be provided in technical and disaster related fields
36	Are you satisfied with the governance structure of DDMA	Governance structure needs to be approved
37	Are the job descriptions of staff well defined	There are no well-defined JD's for the staff

## Recommendations

Following is the list of proposed basic search rescue and relief equipment;

Sr.	Items	Available	Required
1	Life Jackets	N/A	350
2	De-watering Machines	5	40
3	Scuba	N/A	N/A
4	Torches	N/A	150
5	Life Bouys	N/A	50
6	Life Rings	N/A	50
7	Life Line	N/A	50
8	Nylon Rope	N/A	25
9	Tents	N/A	2,500
10	First aid Box	N/A	600
11	Dry Suit	N/A	25
12	Jerry Can	N/A	100
13	Cess Pool	N/A	N/A
14	Portable Generators	3	15
15	Folding Chairs	N/A	250
16	Folding tables	N/A	200
17	Floating Ropes	N/A	30



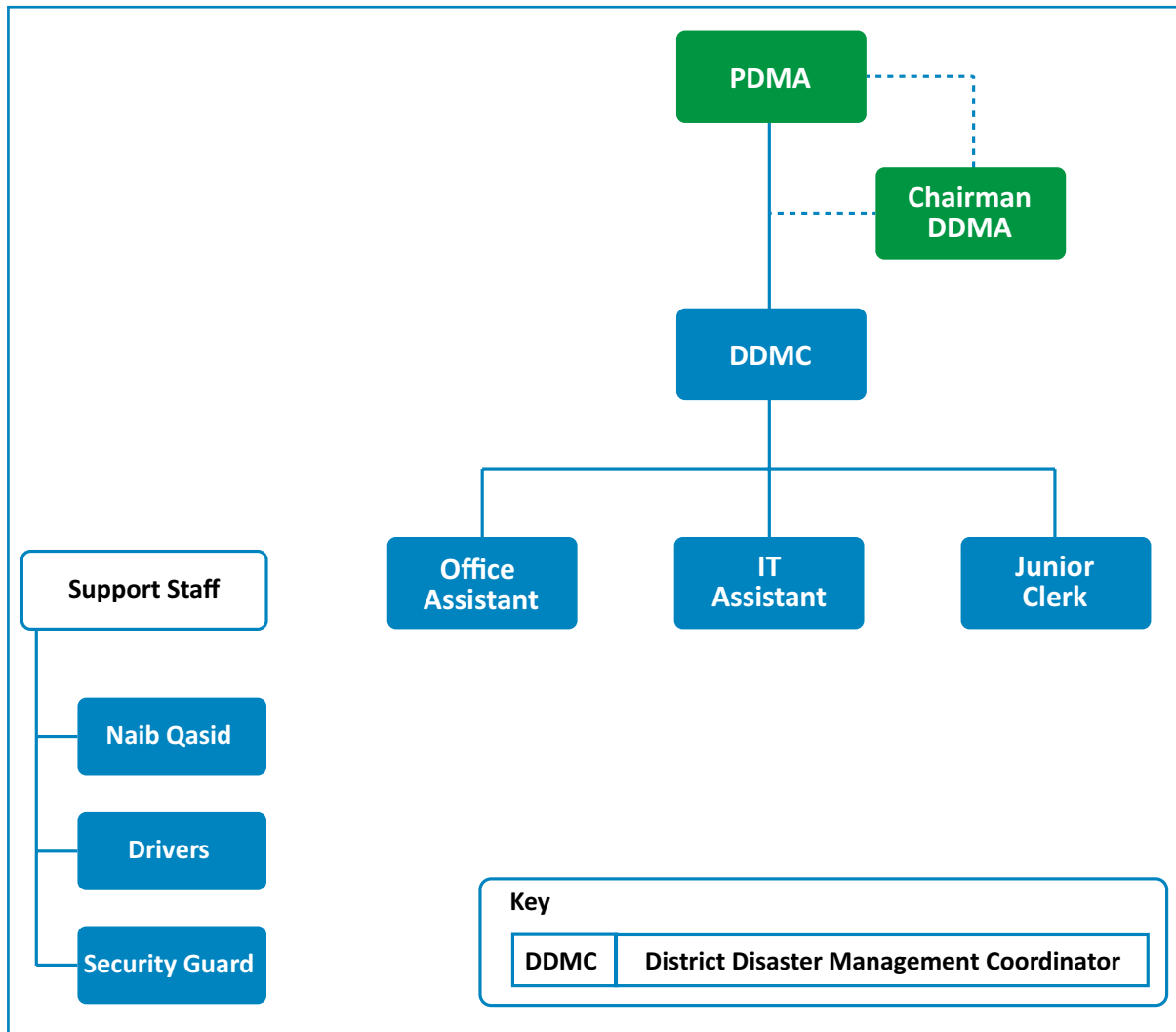
18	Mosquito Nets	N/A	5,000
19	Rope Throwing Guns with Accessories	N/A	N/A
20	Pedestal Fans	N/A	150
21	Fumigation Machine	N/A	40
22	Boat with OBM	N/A	N/A
23	Boats	N/A	20
24	Mega Phone	N/A	30
25	Hand Moving Trolleys	N/A	50
26	Shovel/Karahi & Kahi/ Hammer/ Chisel (set)	N/A	50
27	Gas Mask (Multi-Purpose)	N/A	25
28	Snake Cather Stick	N/A	15
29	Darryan (Solid like Carpets)	N/A	250
30	Steel Daggers	N/A	100
31	Steel safety Helmets	N/A	50
32	Under water Plastic Shoes for Boat Operators	N/A	50
33	Water Filters	N/A	100
<b>Proposed Rescue Vehicles</b>			
34	Life Care Ambulance	N/A	02
35	Fire Fighting Vehicles	N/A	02
36	Water Bowser	N/A	02

- It is suggested that a new DDMA structure should be introduced along with dedicated staff, space and basic office equipment. Basic office equipment like (tables, office chairs, generators or solar system, GPS devices, desktop computers, communication devices, etc) have already been proposed for each DDMA.
- Institutional mandates should be revisited and writing staff ToRs to ensure the inclusion of DRR/DRM.
- Disaster management plans should be developed every year by DDMA with consent of line departments and stake holders.
- Contingency plans should also be developed at District level and shall be updated regularly.
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- Coordination among key stakeholders should be strengthened for the implementation of disaster risk reduction measures and effective emergency response through assignment of responsibility to each stakeholder. Stakeholders must have joint meetings to address the issues faced by them.
- Basic search, rescue and relief equipment should be provided to each District.
- Proper financial management system should be developed in the District for the transfer of funds in the event of disaster or in the phase of normal circumstances.
- Strengthening logistical capacity to facilitate networking between stakeholders.
- Placing staff on longer-term contracts to strengthen institutional knowledge and linkages.
- The Government and NGOs should invest in DRR sector and should incorporate DRR measures in improving school buildings as these can be used as shelter and evacuation centers in case of emergency.
- Awareness programs should be organized by District Disaster Management Authority about the need of land use planning and building codes so that it can be followed by

all the stakeholders, to avoid future threats.

- To minimize the flood risk, communities should be trained on rain water harvesting through microcatchments and roof top rain water harvesting as these practices will help them to store water for future productive use.
- Active people from the community can be used for disseminating early warning for the local endangered communities because people have lot of trust in informal and locally influential sources of information; e.g. a religious leader, a teacher, an NGO worker or a local Government official. But firstly, these active people should also be trained on EWS.
- Radio can be a very important part of Early Warning System (EWS) but care should be taken while transmitting early warnings. It should be in clear words and confirmed through reliable sources to avoid false reports and unnecessary panic.
- Media in District should expand its role as a watchdog during monitoring and handling of donations in the post-disaster phase so that the funds are given to the affected people of the District rather than self interest groups.
- A logistic system should be placed for determining the requirement of medicines, maintaining inventory, storing and stocking, issuing and controlling the use of commodities, stockpile of emergency medicine and supplies, special arrangement with vendors and suppliers for emergency purchases in time of disaster.
- DRR measures should be incorporated in the construction of sewerage system in order to minimize the possibility of overflowing of sewage water in rainy days and to mitigate the hygiene issues.
- District Disaster Management Authority should coordinate with the NGOs working in different sectors to address the problems of people. The NGOs working on different projects can be invited and can be asked for initiation of DRR projects in the vulnerable areas of the District.

### Proposed Structure of DDMA



## District Jacobabad



## District Jacobabad

Area	2797 Km <sup>2</sup>
Population	1,006,297
Population Density	394 Per km <sup>2</sup>
Rural / Urban	73% / 27%

District Jacobabad is bounded by District Kashmore in the East, Baluchistan Province in the North, District Shikarpur and Larkana in the South and District Shahdad Kot in the West. The total area of the District is 22,797 km<sup>2</sup>. The land lies 51.8 to 52.7 meter above sea level. Jacobabad is known to be the hottest place in South Asia. The temperature is usually high in the second half of July and August.

Jacobabad District has a history of disasters, though river Indus does not flow inside the District directly but it crosses the District near North East side, in Kashmore District (previously a part of Jacobabad) which overflows in monsoon and inundates the District. Heavy rains are a major cause of flooding in the District. Climate change is said to be responsible for the heavy rains of 2011, 2012 & 2013.

In 1999 and 2001 Jacobabad was hit by drought. Heavy rains and flooding hit the District in 2003, 2010, 2011 and again in 2012. The extent of damage was higher in 2010 where a population of 938,659 was affected. The relative severity of floods was ranked as high in District Jacobabad. In 2012, Jacobabad was again hit by heavy floods worse than ever with an affected population of 890,000 in all 40 UCs.

### *Hazard matrix of District Jacobabad*

Hazard	Frequency	Area affected/ Union Council	Severity/ Force	Year
Floods	Monsoon	Entire District	Medium	1942, 2010
Heavy Rains	Monsoon	Entire District	Medium	1979, 2011, 2013
Epidemics	Seasonal	Entire Jacobabad	Low	Every Year
Drought	Rare	Entire District	Low	1999, 2001
Earthquake	Rare	Whole District	Low	Nil
Transport Accidents/ Fire	Often	Whole Jacobabad	Low	Every Year

Along with the above mentioned disasters, a list of potential future hazards can be seen below;

Depleting water resources
Clean drinking water
Increasing un-irrigated lands
Health epidemics and pandemics
Heavy chemical discharges/emissions
High rate of morbidity and mortality
Over exploitation of natural resources
Dense urbanization

Decreasing livestock
Sea and river intrusions
De-forestation of mangroves and other species
Water-logging and salinities
Nutritional stunting
Food insecurities
Forest fires
Industrial Fires

### Summary of data received from District

During the field survey data was collected with the help of a detailed questionnaire that was filled by concerned District authorities, the summary of data received can be seen in the table below;

Sr.	Description	Details
1	What are the crops being cultivated in your District	Cotton, Rice, Wheat
2	What are most vulnerable services in your District	Education, Health
3	Do you receive any support from PDMA	N/A
4	Do you receive any support from line departments	During time of disaster line departments do support to their extent.
5	Does epidemic diseases occur in your District	Diseases like malaria diarrhoea and scabies are frequent
6	District Level Legal Framework	There is no proper District level legal framework
7	Availability and quality of Disaster Management Plan	No disaster management plan is available
8	Does proper DDMA setup exist	There is no proper functional structure of DDMA in the District
9	Is there any proper coordination mechanism established between DDMA and line departments	District lacks proper coordination mechanism.
10	What are the existing means of communication being used	Radio, Internet and telephones are only means of communication
11	Are there any alternative means of communication	No
12	Is basic office equipment for DDMA available/ provided	No furniture has been allocated for DDMA office
13	Is proper/dedicated space allocated for DDMA office	Space is allocated for DDMA office and it is adequate enough
14	Resource allocation sufficient	Resource allocation is not enough to manage any disaster
15	Proper early warning system exist	There is no early warning system in the District
16	What is the system to determine damage/loss	During the assessment no such system/mechanism was found
17	Proper GIS mechanism	There is no such thing in the District
18	Do you carry out DRR/CBDRM trainings in your Districts	No such trainings are conducted in the District

19	What is the status of public education campaigns	There is currently no such activity in the District
20	Are there any awareness raising activities being carried out In your District	There is no such programme in District
21	Do you think BCC material and equipment is sufficient	Due to unavailability of support and resources no such material and equipment is present
22	Do you have sufficient funds for capacity building of staff	Due to insufficient funds, the District was unable to build capacity of the current staff. Funds need to be allocated for such activities
23	Well defined local level evacuation areas/ routes/shelters	Currently, there are no such evacuation plans, the District needs various studies to define such routes or evacuation plans
24	Do you have any resource team for trainings	As there is no dedicated staff for DDMA, resource persons for trainings are required.
25	Is sufficient rescue relief & search equipment available	District even lacks basic search, rescue and relief equipment
26	Do you have sufficient HR to manage disaster	No dedicated staff for DDMA, management has to seek help from other departments in times of disasters
27	Are you using any tool to measure performance of staff	No such mechanism found
28	Is Government providing any sort of insurance facility to the community	Currently, no such facility is being provided to the community
29	Do you have a proper capacity building policy	There is no capacity building policy
30	Do you have well equipped IT department in your District	IT department needs to be established
31	What sort of qualification and skills are required by your staff	Skills and trainings need to be provided in technical and disaster related fields
32	Are you satisfied with the governance structure of DDMA	No
33	Are the job descriptions of staff well defined	There are no well-defined JD's for the staff

## Recommendations

Following is the list of proposed basic search rescue and relief equipment;

Sr.	Items	Available	Required
1	Life Jackets	N/A	500
2	De-watering Machines	9	100
3	Scuba	N/A	N/A
4	Torches	N/A	200
5	Life Bouys	N/A	50
6	Life Rings	N/A	50
7	Life Line	N/A	50
8	Nylon Rope	N/A	100
9	Tents	N/A	15000
10	First aid Box	N/A	1000
11	Dry Suit	N/A	10
12	Jerry Can	N/A	N/A

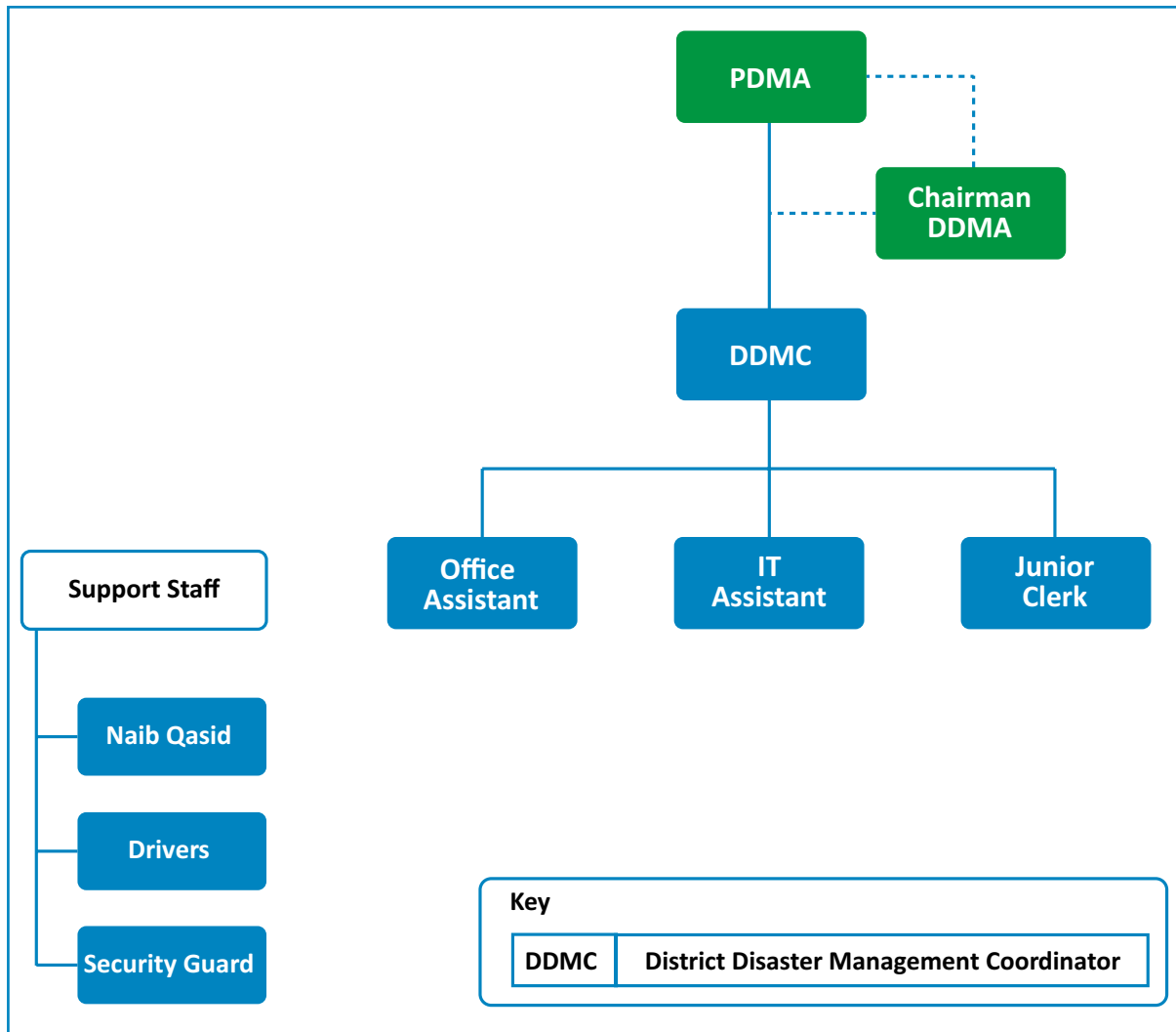
13	Cess Pool	N/A	N/A
14	Portable Generators	N/A	20
15	Folding Chairs	N/A	500
16	Folding tables	N/A	100
17	Floating Ropes	N/A	50
18	Mosquito Nets	N/A	15000
19	Rope Throwing Guns with Accessories	N/A	N/A
20	Pedestal Fans	N/A	100
21	Fumigation Machine	N/A	20
22	Boats	N/A	10
23	Mega Phone	N/A	20
24	Hand Moving Trolleys	N/A	100
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27	Snake Cather Stick	N/A	20
28	Darryan (Solid like Carpets)	N/A	500
29	Steel Daggers	N/A	50
30	Steel safety Helmets	N/A	50
31	Under water Plastic Shoes for Boat Operators	N/A	N/A
32	Water Filters	N/A	200
<b>Proposed Rescue Vehicles</b>			
33	Life Care Ambulance	N/A	02
34	Fire Fighting Vehicles	N/A	02
35	Water Bowser	N/A	02

- It is suggested that a new DDMA structure should be introduced along with dedicated staff, space and basic office equipment. Basic office equipment like (tables, office chairs, generators or solar system, GPS devices, desktop computers, communication devices, etc) have already been proposed for each DDMA.
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- Basic search, rescue and relief equipment should be provided to each District.
- Proper financial management system should be developed in the District for the transfer of funds in the event of disaster or in the phase of normal circumstances.
- Strengthening logistical capacity to facilitate networking between stakeholders.
- Placing staff on longer-term contracts to strengthen institutional knowledge and linkages.



- The Government and NGOs should invest in DRR sector and should incorporate DRR measures in improving school buildings as these can be used as shelter and evacuation centers in case of emergency.
- Awareness programs should be organized by District Disaster Management Authority about the need of land use planning and building codes so that it can be followed by all the stakeholders, to avoid future threats.
- To minimize the flood risk, communities should be trained on rain water harvesting through microcatchments and roof top rain water harvesting as these practices will help them to store water for future productive use.
- Active people from the community can be used for disseminating early warning for the local endangered communities because people have lot of trust in informal and locally influential sources of information; e.g. a religious leader, a teacher, an NGO worker or a local Government official. But firstly, these active people should also be trained on EWS.
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- A logistic system should be placed for determining the requirement of medicines, maintaining inventory, storing and stocking, issuing and controlling the use of commodities, stockpile of emergency medicine and supplies, special arrangement with vendors and suppliers for emergency purchases in time of disaster.
- DRR measures should be incorporated in the construction of sewerage system in order to minimize the possibility of overflowing of sewage water in rainy days and to mitigate the hygiene issues.
- District Disaster Management Authority should coordinate with the NGOs working in different sectors to address the problems of people. The NGOs working on different projects can be invited and can be asked for initiation of DRR projects in the vulnerable areas of the District.

### Proposed Structure of DDMA



## District Kambar Shahdad Kot



## District Kambar Shahdad Kot

Area	5675.66Km <sup>2</sup>
Population	1,341,042
Population Density	244 Per km <sup>2</sup>
Rural / Urban	71% / 29 %

District Kamber-Shahdadkot is situated in the North-West of Sindh, Pakistan. It is bounded by District Larkana in the East, Baluchistan Province in the North-West, District Shikarpur and Jacobabad in the North-East and District Dadu in the south. The climate of Kamber Shahdadkot District is similar to that of Jacobabad, which is the severest in the Province as well as in the country. The climate of Kamber Shahdadkot District is mainly dry, with rain-fall varying between 05 to 10 inches (or 127 to 254 mm) in a year.

Kamber Shahdadkot is prone to heavy rainfalls and flash floods. In monsoon, hill torrents bring immense destruction. Heavy flood hit the District in year 2010 which effected 133 revenue villages.

### Hazard matrix of District Kambar Shahdad Kot

Hazard	Frequency	Area affected/ Union Council	Severity/ Force	Year
Flash Flood	Monsoon	Entire District	Medium	2007, 2010, 2011
Heavy Rains	Monsoon	Whole District	Medium	2010, 2011, 2012, 2013
Epidemics	Seasonal	Entire District	Low	Every year
Drought	Infrequent	Entire District	Low	1999 - 2002
Earthquake	Infrequent	Entire District	Low	1935

Along with the above mentioned disasters, a list of potential future hazards can be seen below;

Depilating water resources
Clean drinking water
Increasing un-irrigated lands
Health epidemics and pandemics
Heavy chemical discharges/emissions
High rate of morbidity and mortality
Over exploitation of natural resources
Dense urbanization
Decreasing livestock
Sea and river intrusions
De-forestation of mangroves and other species
Water-logging and salinities
Nutritional stunting
Food insecurities
Forest fires

## Industrial Fires

**Summary of data received from District**

During the field survey data was collected with the help of a detailed questionnaire that was filled by concerned District authorities, the summary of data received can be seen in the table below;

Sr.	Description	Details
1	What are the crops being cultivated in your District	Major Crops are rice, wheat, jowar, bajra
2	What are most vulnerable services in your District	Education, Health, Transport, Electricity, Roads
3	Do you receive any support from PDMA	There is no proper funding from PDMA
4	Do you receive any support from line departments	All line departments help as much as they can
5	Does epidemic diseases occur in your District	Gastro and diarrhea
6	Availability and quality of Disaster Management Plan	Disaster management plan is available and updated regularly
7	Availability and quality of Contingency plan	Contingency plan is available in the District
8	Does proper DDMA setup exist	There is no proper DDMA setup in District and it needs to be established
9	Is there any proper coordination mechanism established between DDMA and line departments	Coordination mechanism is established at District level
10	What are the existing means of communication being used	Radio, Internet and telephones are only means of communication
11	Are there any alternative means of communication	No
12	Is basic office equipment for DDMA available/provided	There is no DDMA equipment
13	Is proper/dedicated space allocated for DDMA office	DDMA should be established, separate office should be provided
14	Resource allocation sufficient	Proper resources/funds should be allocated to District headquarter
15	Proper Early Warning System exist	Early Warning System exists in the District, warnings are disseminated with the help of line departments
16	What is the system to determine damage/loss	N/A. Proper system should be established
17	Proper GIS mechanism	Basic GIS system exists in District for location mapping only, but District lacks inhouse technical staff
18	Do you carry out DRR/CBDRM trainings in your Districts	Yes, at District, taluka and village level
19	What is the status of public education campaigns	Public education campaigns are carried out at District, taluka and village level
20	Are there any awareness raising activities being carried out in your District	Yes, awareness raising campaigns are carried out in schools and communities
21	Do you think BCC material and equipment is sufficient	Material and equipment is not sufficient.

22	Do you have sufficient funds for capacity building of staff	Due to insufficient funds, the District was unable to build capacity of the current staff. Funds need to be allocated for such activities
23	Well defined local level evacuation areas/ routes/shelters	Evacuation areas, routes and shelters are defined at District level
24	Do you have any resource team for trainings	There is no staff of DDMA at District level
25	Is sufficient rescue relief & search equipment available	No.
26	Do you have sufficient HR to manage disaster	District lacks HR
27	Are you using any tool to measure performance of staff	No
28	Is Government providing any sort of insurance facility to the community	Currently, no such facility is being provided to the community
29	Do you have a proper capacity building policy	There is no capacity building policy
30	Do you have well equipped IT department in your District	IT department needs to be established
31	What sort of qualification and skills are required by your staff	Qualification and skills are required
32	Are you satisfied with the governance structure of DDMA	No, a proper mechanism/structure needs to be introduced at District level
33	Are the job descriptions of staff well defined	N/A

### Recommendations

Following is the list of proposed basic search rescue and relief equipment;

Sr.	Items	Available	Required
1	Life Jackets	N/A	100
2	De-watering Machines	26	100
3	Scuba	N/A	N/A
4	Torches	N/A	200
5	Life Bouys	N/A	50
6	Life Rings	N/A	50
7	Life Line	N/A	50
8	Nylon Rope	N/A	100
9	Tents	N/A	10000
10	First aid Box	N/A	1000
11	Dry Suit	N/A	N/A
12	Jerry Can	N/A	N/A
13	Cess Pool	N/A	N/A
14	Portable Generators	N/A	20
15	Folding Chairs	N/A	500
16	Folding tables	N/A	100
17	Floating Ropes	N/A	50
18	Mosquito Nets	N/A	15000
19	Rope Throwing Guns with Accessories	N/A	N/A
20	Pedestal Fans	N/A	150
21	Fumigation Machine	N/A	20

22	Boats	N/A	5
23	Mega Phone	N/A	20
24	Hand Moving Trolleys	N/A	100
25	Shovel/Karahi & Kahi/ Hammer/ Chisel (set)	N/A	50
26	Gas Mask (Multi-Purpose)	N/A	10
27	Snake Cather Stick	N/A	20
28	Darryan (Solid like Carpets)	N/A	500
29	Steel Daggers	N/A	50
30	Steel safety Helmets	N/A	20
31	Under water Plastic Shoes for Boat Operators	N/A	N/A
32	Water Filters	N/A	N/A
<b>Proposed Rescue Vehicles</b>			
33	Life Care Ambulance	N/A	02
34	Fire Fighting Vehicles	N/A	02
35	Water Bowser	N/A	02

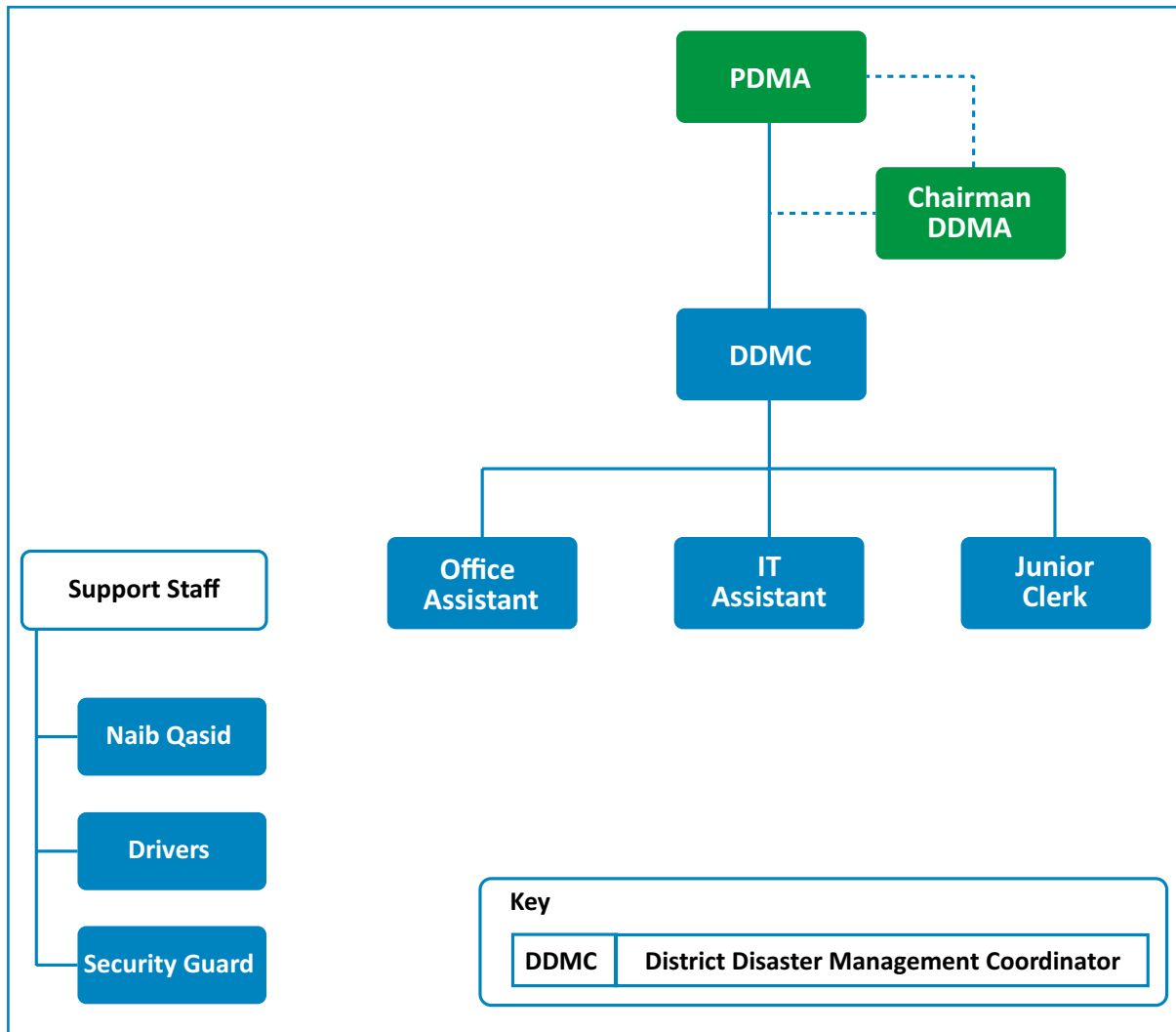
- It is suggested that a new DDMA structure should be introduced along with dedicated staff, space and basic office equipment. Basic office equipment like (tables, office chairs, generators or solar system, GPS devices, desktop computers, communication devices, etc) have already been proposed for each DDMA.
- Institutional mandates should be revisited and writing staff ToRs to ensure the inclusion of DRR/DRM.
- Disaster management plans should be developed every year by DDMA with consent of line departments and stake holders.
- Contingency plans should also be developed at District level and shall be updated regularly.
- A proper Early Warning System (EWS) should be introduced in the District.
- Coordination among key stakeholders should be strengthened for the implementation of disaster risk reduction measures and effective emergency response through assignment of responsibility to each stakeholder. Stakeholders must have joint meetings to address the issues faced by them.
- Basic search, rescue and relief equipment should be provided to each District.
- Proper financial management system should be developed in the District for the transfer of funds in the event of disaster or in the phase of normal circumstances.
- Strengthening logistical capacity to facilitate networking between stakeholders.
- Placing staff on longer-term contracts to strengthen institutional knowledge and linkages.
- The Government and NGOs should invest in DRR sector and should corporate DRR measures in improving school buildings as these can be used as shelter and evacuation centers in case of emergency.
- Awareness programs should be organized by District Disaster Management Authority about the need of land use planning and building codes so that it can be followed by all the stakeholders, to avoid future threats.
- To minimize the flood risk, communities should be trained on rain water harvesting through microcatchments and roof top rain water harvesting as these practices will help them to store water for future productive use.
- Active people from the community can be used for disseminating early warning for the

local endangered communities because people have lot of trust in informal and locally influential sources of information; e.g. a religious leader, a teacher, an NGO worker or a local Government official. But firstly, these active people should also be trained on EWS.

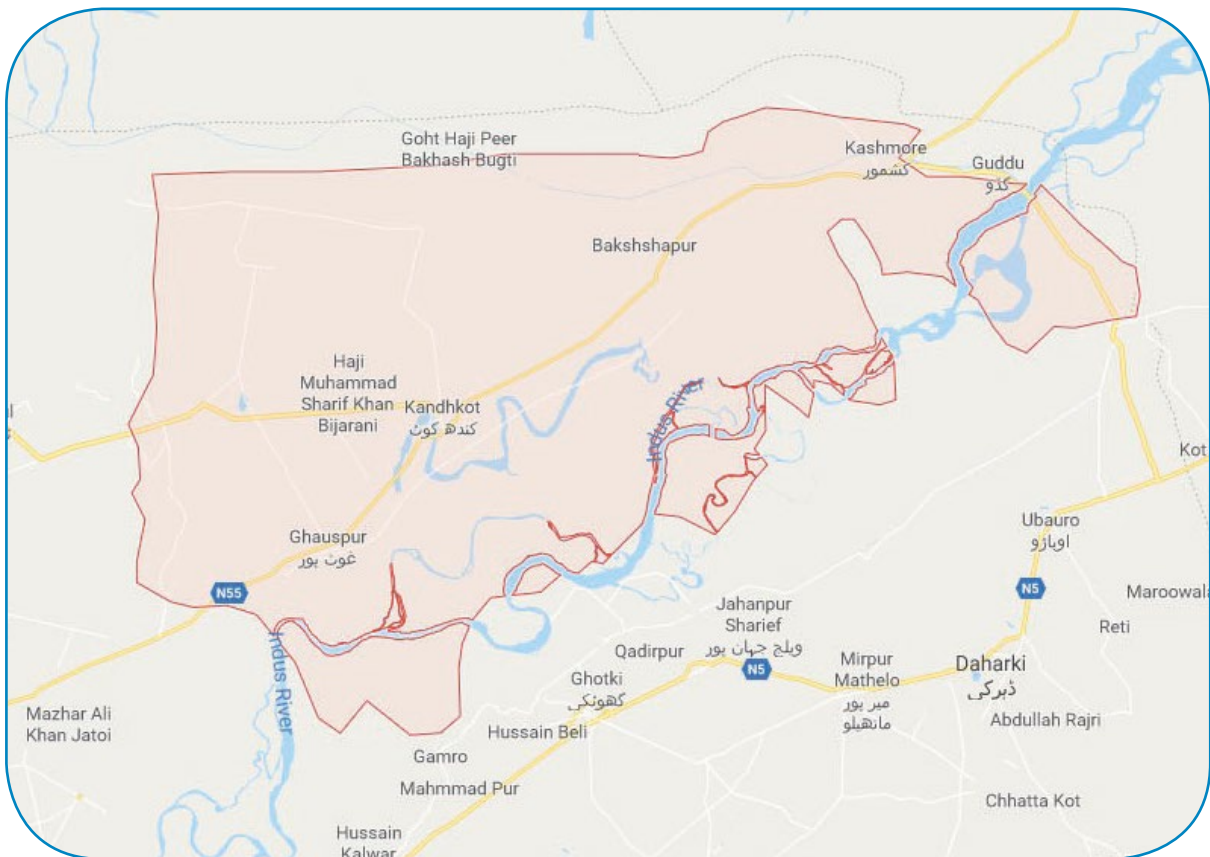
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- Media in District should expand its role as a watchdog during monitoring and handling of donations in the post-disaster phase so that the funds are given to the affected people of the District rather than self interest groups.
- A logistic system should be placed for determining the requirement of medicines, maintaining inventory, storing and stocking, issuing and controlling the use of commodities, stockpile of emergency medicine and supplies, special arrangement with vendors and suppliers for emergency purchases in time of disaster.
- DRR measures should be incorporated in the construction of sewerage system in order to minimize the possibility of overflowing of sewage water in rainy days and to mitigate the hygiene issues.
- District Disaster Management Authority should coordinate with the NGOs working in different sectors to address the problems of people. The NGOs working on different projects can be invited and can be asked for initiation of DRR projects in the vulnerable areas of the District.



### Proposed Structure of DDMA



## District Kashmore



## District Kashmore

Area	2682.46 Km <sup>2</sup>
Population	1,089,169
Population Density	388 Per km <sup>2</sup>
Rural/Urban	75% / 25 %

The Headquarter of District Kashmore is situated in Kandhkot. Kashmore District is situated in Northern part of Sindh, bordering Ghotki District, Jacobabad District, Shikarpur District and Sukkur District within Sindh. It also borders Balouchistan on the Northern side and Punjab on the Eastern side. The Indus River runs through the Eastern side of Kashmore District. The South-Eastern side of Kashmore District has forest of Katcha that supports wild animals. The Thar Desert is on the Eastern side of the District, and is home to wild desert animals. On the East side, this District shares its boundary with District Rajanpur of Punjab; on the West side, it touches District Jacobabad and Shikarpur; on North side, District Dera Bugti of Balochistan; on the South, District Ghotki and Sukkur of Sindh touch this District.

District Kashmore is prone to natural hazards; riverine floods and heavy rains, drought and earthquake. River Indus flows in the East of the District and makes the District vulnerable to riverine floods. Kashmore has been hit by flood 2010 and torrential rains of 2011, 2012 and 2013.

### *Hazard matrix of District Kashmore*

Hazard	Frequency	Area affected	Severity/ Force	Year
Floods	Monsoon	Entire District	High	2003, 2005, 2010
Heavy Rains	Monsoon	Entire District	High	2010, 2011, 2012, 2013
Epidemics	Seasonal	Entire District	Low	Every Year
Droughts	Rare	Entire District	Low	2002
Earthquake	Rare	Entire District	Low	2001, 2013
Transport Accidents	Often	Entire District	Low	Every Year

Along with the above mentioned disasters, a list of potential future hazards can be seen below;

Depilating water resources
Clean drinking water
Increasing un-irrigated lands
Health epidemics and pandemics
Heavy chemical discharges/emissions
High rate of morbidity and mortality
Over exploitation of natural resources
Dense urbanization
Decreasing livestock
Sea and river intrusions
De-forestation of mangroves and other species

Water-logging and salinities
Nutritional stunting
Food insecurities
Forest fires
Industrial Fires

### Summary of data received from District

During the field survey data was collected with the help of a detailed questionnaire that was filled by concerned District authorities, the summary of data received can be seen in the table below;

Sr.	Description	Details
1	What are the crops being cultivated in your District	wheat and rice is being produced as major crops along with other cash crops such as maize, pulses and vegetables
2	What are most vulnerable services in your District	Education, Health, Transport, Electricity, Roads
3	Do you receive any support from PDMA	N/A
4	Do you receive any support from line departments	Support is received but not sufficient
5	Does epidemic diseases occur in your District	Yes, seasonal
6	Availability and quality of Disaster Management Plan	Disaster management plan is available
7	Does proper DDMA setup exist	DDMA is in place, but there is no dedicated staff or resources
8	Is there any proper coordination mechanism established between DDMA and line departments	Coordination mechanism is established that helps avoid duplication of activities, but it still needs to be improved
9	What are the existing means of communication being used	Radio, Internet and telephones are only means of communication
10	Are there any alternative means of communication	No
11	Is basic office equipment for DDMA available/ provided	There is no DDMA equipment
12	Is proper/dedicated space allocated for DDMA office	Not satisfied with office space allocated for DDMA
13	Resource allocation sufficient	Resource allocation is not enough
14	Proper early warning system exist	There is no early warning system in the District
15	What is the system to determine damage/loss	During the assessment no such system/mechanism was found
16	Proper GIS mechanism	No GIS mechanism exists
17	Do you carry out DRR/CBDRM trainings in your Districts	No such trainings are conducted in the District
18	What is the status of public education campaigns	Public education campaigns are being carried out
19	Are there any awareness raising activities being carried out In your District	Yes, awareness raising campaigns are carried out
20	Do you think BCC materials and equipment are sufficient	Material and equipment are not sufficient.

21	Do you have sufficient funds for capacity building of staff	Due to insufficient funds, the District was unable to build capacity of the current staff. Funds need to be allocated for such activities
22	Well defined local level evacuation areas/ routes/shelters	Evacuation areas, routes and shelters are defined
23	Do you have any resource team for trainings	Resource persons for trainings are available, still can be improved
24	Is sufficient rescue relief & search equipment available	Yes
25	Do you have sufficient HR to manage disaster	No dedicated staff for DDMA, management has to seek help from other departments in times of disasters
26	Are you using any tool to measure performance of staff	No such mechanism found
27	Is Government providing any sort of insurance facility to the community	Currently no such facility is being provided to the community
28	Do you have a proper capacity building policy	There is no capacity building policy
29	Do you have well equipped IT department in your District	IT department needs to be established
30	What sort of qualification and skills are required by your staff	Qualification and skills are required
31	Are you satisfied with the governance structure of DDMA	No
32	Are the job descriptions of staff well defined	There are no well-defined JD's for the staff

## Recommendations

Following is the list of proposed basic search rescue and relief equipment;

Sr.	Items	Available	Required
1	Life Jackets	N/A	2500
2	De-watering Machines	21	50
3	Scuba	N/A	5
4	Torches	N/A	300
5	Life Bouys	N/A	200
6	Life Rings	N/A	200
7	Life Line	N/A	200
8	Nylon Rope	N/A	100
9	Tents	500	20000
10	First aid Box	N/A	1000
11	Dry Suit	N/A	10
12	Jerry Can	500	N/A
13	Cess Pool	N/A	N/A
14	Portable Generators	N/A	20
15	Folding Chairs	N/A	500
16	Folding tables	N/A	100
17	Floating Ropes	N/A	150
18	Mosquito Nets	500	15000

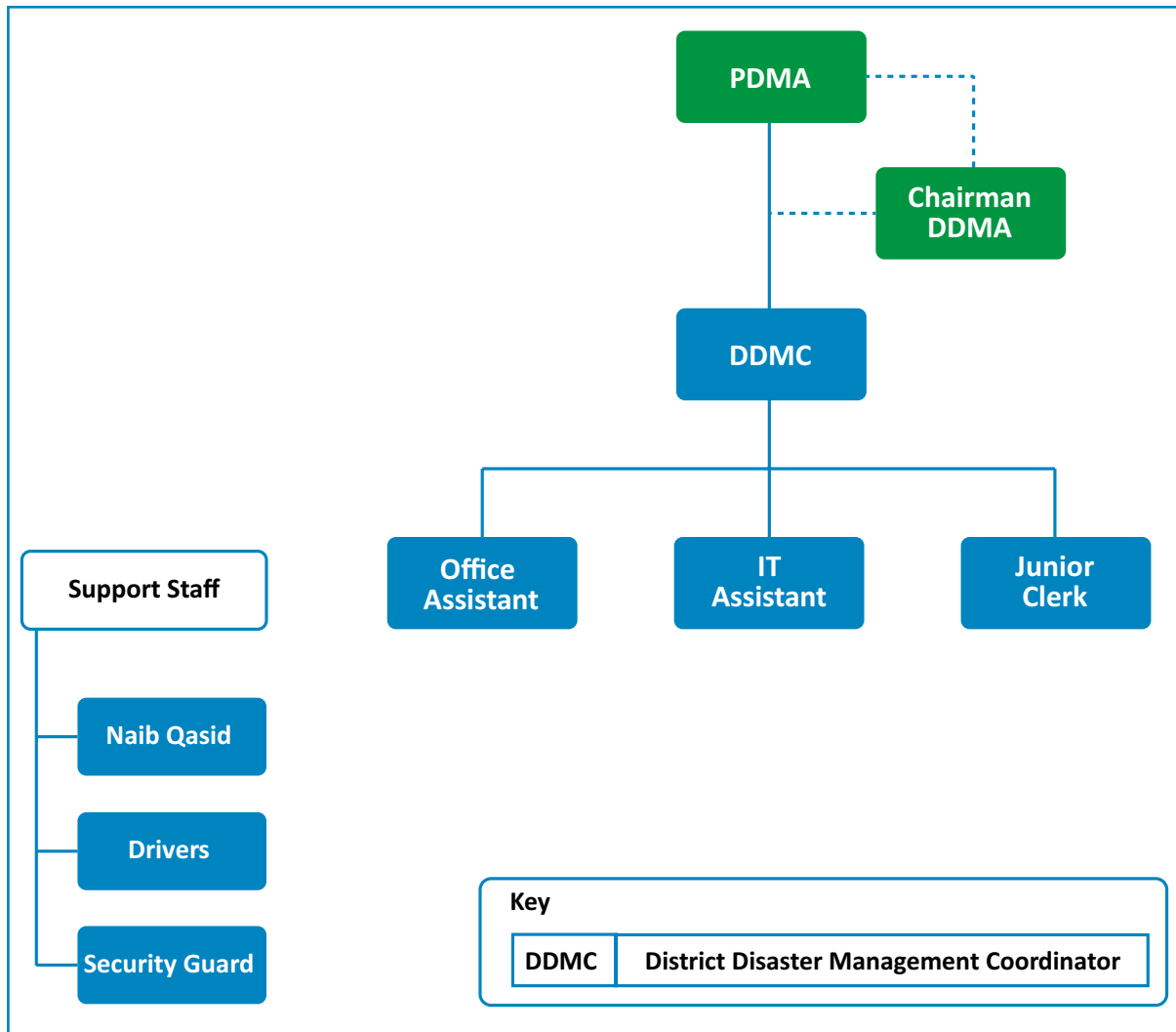
19	Rope Throwing Guns with Accessories	N/A	1
20	Pedestal Fans	N/A	100
21	Fumigation Machine	N/A	20
22	Boats	N/A	20
23	Mega Phone	N/A	20
24	Hand Moving Trolleys	N/A	150
25	Shovel/Karahi & Kahi/ Hammer/ Chisel (set)	N/A	75
26	Gas Mask (Multi-Purpose)	N/A	5
27	Snake Cather Stick	N/A	20
28	Darryan (Solid like Carpets)	300	500
29	Steel Daggers	N/A	50
30	Steel safety Helmets	N/A	50
31	Under water Plastic Shoes for Boat Operators	N/A	10
32	Water Filters	5000	N/A
<b>Proposed Rescue Vehicles</b>			
33	Life Care Ambulance	N/A	02
34	Fire Fighting Vehicles	N/A	02
35	Water Bowser	N/A	02

- It is suggested that a new DDMA structure should be introduced along with dedicated staff, space and basic office equipment. Basic office equipment like (tables, office chairs, generators or solar system, GPS devices, desktop computers, communication devices, etc) have already been proposed for each DDMA.
- Institutional mandates should be revisited and writing staff ToRs to ensure the inclusion of DRR/DRM.
- Disaster management plans should be developed every year by DDMA with consent of line departments and stake holders.
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- Coordination among key stakeholders should be strengthened for the implementation of disaster risk reduction measures and effective emergency response through assignment of responsibility to each stakeholder. Stakeholders must have joint meetings to address the issues faced by them.
- Basic search, rescue and relief equipment should be provided to each District.
- Proper financial management system should be developed in the District for the transfer of funds in the event of disaster or in the phase of normal circumstances.
- Strengthening logistical capacity to facilitate networking between stakeholders.
- Placing staff on longer-term contracts to strengthen institutional knowledge and linkages.
- The Government and NGOs should invest in DRR sector and should corporate DRR measures in improving school buildings as these can be used as shelter and evacuation centers in case of emergency.
- Awareness programs should be organized by District Disaster Management Authority about the need of land use planning and building codes so that it can be followed by all the stakeholders, to avoid future threats.
- To minimize the flood risk, communities should be trained on rain water harvesting

through microcatchments and roof top rain water harvesting as these practices will help them to store water for future productive use.

- Active people from the community can be used for disseminating early warning for the local endangered communities because people have lot of trust in informal and locally influential sources of information; e.g. a religious leader, a teacher, an NGO worker or a local Government official. But firstly, these active people should also be trained on EWS.
- Radio can be a very important part of Early Warning System (EWS) but care should be taken while transmitting early warnings. It should be in clear words and confirmed through reliable sources to avoid false reports and unnecessary panic.
- Media in District should expand its role as a watchdog during monitoring and handling of donations in the post-disaster phase so that the funds are given to the affected people of the District rather than self interest groups.
- A logistic system should be placed for determining the requirement of medicines, maintaining inventory, storing and stocking, issuing and controlling the use of commodities, stockpile of emergency medicine and supplies, special arrangement with vendors and suppliers for emergency purchases in time of disaster.
- DRR measures should be incorporated in the construction of sewerage system in order to minimize the possibility of overflowing of sewage water in rainy days and to mitigate the hygiene issues.
- District Disaster Management Authority should coordinate with the NGOs working in different sectors to address the problems of people. The NGOs working on different projects can be invited and can be asked for initiation of DRR projects in the vulnerable areas of the District.

### Proposed Structure of DDMA





## District Shikarpur



## District Shikarpur

Area	2512 Km <sup>2</sup>
Population	1,231,481
Population Density	350.5 Per km <sup>2</sup>
Rural / Urban	75.42% / 24.08%

Shikarpur District is a plain formed by the River Indus. There are no mountains or hill formations in Shikarpur District. The land gently slopes from North-West to South East. The general elevation of the land surface varies from about 50 to 100 meters above sea level.

The District witness's extremes of climate. The summer season commences from April and continues till October. May, June and July are the hottest months. The mean maximum and minimum temperatures during this period are about 42° C and 28° C respectively.

District Shikarpur is prone to various kinds of natural hazards especially to the floods. River Indus which flows on the North East side has inundated and hit hard Shikarpur in 2010 floods. Disasters of different kinds are reported in the previous decade. Earthquake was reported in 2001. Heavy rains and seasonal monsoon were reported in 2003, 2010 and 2011. Riverine and flash floods are reported in 2003, 2005, 2010, 2011 and 2012.

### *Hazard matrix of District Shikarpur*

Hazard	Frequency	Area affected	Severity/ Force	Year
Floods	Monsoon	Entire District	High	2012, 2011, 2010, 2005, 2003
Heavy Rains	Seasonal/ Monsoon	Entire District	High	2011, 2010, 2003
Earthquake		Entire District	Low	2001
Epidemics	Seasonal	Entire District	Low	Every Year
Transport accidents	Often	Entire District	Low	Every Year

Along with the above mentioned disasters, a list of potential future hazards can be seen below;

Depleting water resources
Clean drinking water
Increasing un-irrigated lands
Health epidemics and pandemics
Heavy chemical discharges/emissions
High rate of morbidity and mortality
Over exploitation of natural resources
Dense urbanization
Decreasing livestock
Sea and river intrusions
De-forestation of mangroves and other species
Water-logging and salinities
Nutritional stunting

Food insecurities
Forest fires
Industrial Fires

### Summary of data received from District

During the field survey data was collected with the help of a detailed questionnaire that was filled by concerned District authorities, the summary of data received can be seen in the table below;

Sr.	Description	Details
1	What are the crops being cultivated in your District	Wheat, vegetable, fodder, rice, pulses
2	What are most vulnerable services in your District	Education, Health, Transport, Electricity, Roads
3	Do you receive any support from PDMA	PDMA Sindh provides funds and other necessary equipment on request
4	Do you receive any support from line departments	All line departments provide help during disaster
5	Availability and quality of Disaster Management Plan	Disaster management plan is formulated and updated regularly
6	Availability and quality of Contingency plan	Contingency plan is available and updated regularly
7	Does proper DDMA setup exist	DDMA exists as per Government notification, but there is no dedicated team for DDMA
8	Is there any proper coordination mechanism established between DDMA and line departments	Yes coordination mechanism is established at District level
9	What are the existing means of communication being used	Telephone, radio and internet is being used as mean of communication
10	Are there any alternative means of communication	N/A
11	Is basic office equipment for DDMA available/ provided	N/A
12	Is proper/dedicated space allocated for DDMA office	Office space for DDMA is allocated and it is adequate
13	Resource allocation sufficient	Resource allocation in terms of staff and place is available, machinery and equipment is not sufficient
14	Proper early warning system exist	Warnings are sent through, District emergency control room and revenue department
15	What is the system to determine damage/loss	Damage assessments are conducted regularly
16	Proper GIS mechanism	GIS is at initial level
17	Do you carry out DRR/CBDRM trainings in your Districts	Yes such trainings are conducted
18	What is the status of public education campaigns	Such campaigns are part of Districts agenda and are being carried out
19	Are there any awareness raising activities being carried out In your District	Yes, through education and other departments
20	Do you think BCC material and equipment is sufficient	Yes, material is provided by Social Welfare department and Civil Defense

21	Do you have sufficient funds for capacity building of staff	Due to insufficient funds, the District was unable to build capacity of the current staff. Funds need to be allocated for such activities
22	Well defined local level evacuation areas/ routes/shelters	Evacuation areas, routes and shelters are defined at tehsil level
23	Do you have any resource team for trainings	Yes
24	Is sufficient rescue relief & search equipment available	Yes
25	Do you have sufficient HR to manage disaster	There is no dedicated rescue and relief HR in District, staff from other Government departments is used during disaster
26	Are you using any tool to measure performance of staff	Performance of staff is measured as per Government rule
27	Is Government providing any sort of insurance facility to the community	Currently no such facility is being provided to the community
28	Do you have a proper capacity building policy	N/A
29	Do you have well equipped IT department in your District	No, IT department should be established to cope disaster
30	What sort of qualification and skills are required by your staff	Qualification and skills are required
31	Are you satisfied with the governance structure of DDMA	Governance structure is satisfactory, but needs development in terms of coordination
32	Are the job descriptions of staff well defined	N/A

## Recommendations

Following is the list of proposed basic search rescue and relief equipment;

Sr.	Items	Available	Required
1	Life Jackets	N/A	500
2	De-watering Machines	20	50
3	Scuba	N/A	2
4	Torches	N/A	200
5	Life Bouys	N/A	100
6	Life Rings	N/A	100
7	Life Line	N/A	100
8	Nylon Rope	N/A	500
9	Tents	20000	40000
10	First aid Box	N/A	1500
11	Dry Suit	N/A	5
12	Jerry Can	200	N/A
13	Cess Pool	N/A	N/A
14	Portable Generators	N/A	20
15	Folding Chairs	N/A	500
16	Folding tables	N/A	100
17	Floating Ropes	N/A	50
18	Mosquito Nets	N/A	20000
19	Rope Throwing Guns with Accessories	N/A	1

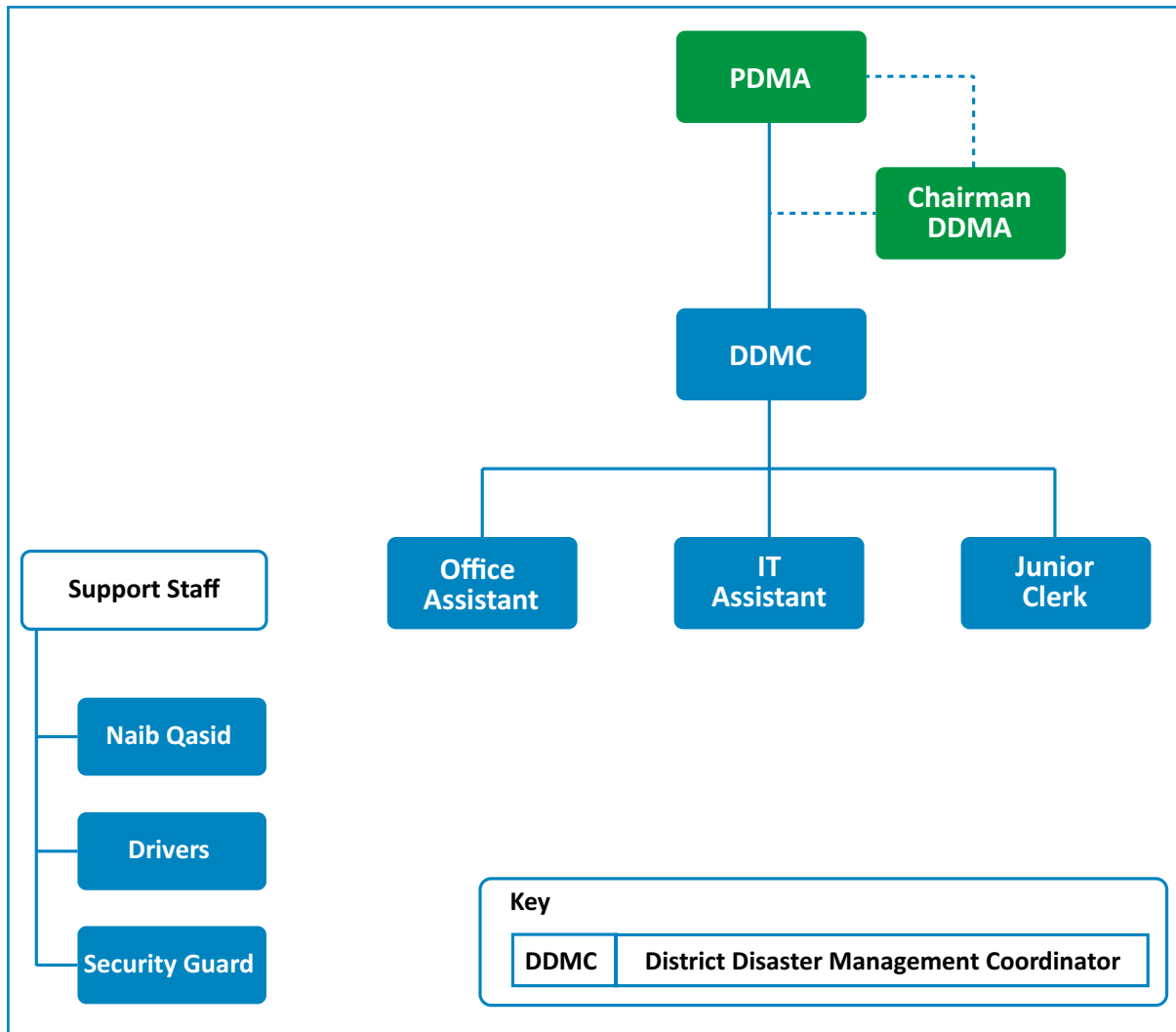
20	Pedestal Fans	N/A	150
21	Fumigation Machine	N/A	20
22	Boats	12	25
23	Mega Phone	N/A	20
24	Hand Moving Trolleys	N/A	100
25	Shovel/Karahi & Kahi/ Hammer/ Chisel (set)	N/A	50
26	Gas Mask (Multi-Purpose)	N/A	20
27	Snake Cather Stick	N/A	5
28	Darryan (Solid like Carpets)	N/A	500
29	Steel Daggers	N/A	50
30	Steel safety Helmets	N/A	50
31	Under water Plastic Shoes for Boat Operators	N/A	20
32	Water Filters	N/A	50
<b>Proposed Rescue Vehicles</b>			
33	Life Care Ambulance	N/A	02
34	Fire Fighting Vehicles	N/A	02
35	Water Bowser	N/A	02

- It is suggested that a new DDMA structure should be introduced along with dedicated staff, space and basic office equipment. Basic office equipment like (tables, office chairs, generators or solar system, GPS devices, desktop computers, communication devices, etc) have already been proposed for each DDMA.
- Institutional mandates should be revisited and writing staff ToRs to ensure the inclusion of DRR/DRM.
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- Basic search, rescue and relief equipment should be provided to each District.
- Proper financial management system should be developed in the District for the transfer of funds in the event of disaster or in the phase of normal circumstances.
- Strengthening logistical capacity to facilitate networking between stakeholders.
- Placing staff on longer-term contracts to strengthen institutional knowledge and linkages.
- The Government and NGOs should invest in DRR sector and should corporate DRR measures in improving school buildings as these can be used as shelter and evacuation centers in case of emergency.
- Awareness programs should be organized by District Disaster Management Authority about the need of land use planning and building codes so that it can be followed by all the stakeholders, to avoid future threats.
- To minimize the flood risk, communities should be trained on rain water harvesting through microcatchments and roof top rain water harvesting as these practices will

help them to store water for future productive use.

- Active people from the community can be used for disseminating early warning for the local endangered communities because people have lot of trust in informal and locally influential sources of information; e.g. a religious leader, a teacher, an NGO worker or a local Government official. But firstly, these active people should also be trained on EWS.
- Radio can be a very important part of Early Warning System (EWS) but care should be taken while transmitting early warnings. It should be in clear words and confirmed through reliable sources to avoid false reports and unnecessary panic.
- Media in District should expand its role as a watchdog during monitoring and handling of donations in the post-disaster phase so that the funds are given to the affected people of the District rather than self interest groups.
- A logistic system should be placed for determining the requirement of medicines, maintaining inventory, storing and stocking, issuing and controlling the use of commodities, stockpile of emergency medicine and supplies, special arrangement with vendors and suppliers for emergency purchases in time of disaster.
- DRR measures should be incorporated in the construction of sewerage system in order to minimize the possibility of overflowing of sewage water in rainy days and to mitigate the hygiene issues.
- District Disaster Management Authority should coordinate with the NGOs working in different sectors to address the problems of people. The NGOs working on different projects can be invited and can be asked for initiation of DRR projects in the vulnerable areas of the District.

### Proposed Structure of DDMA



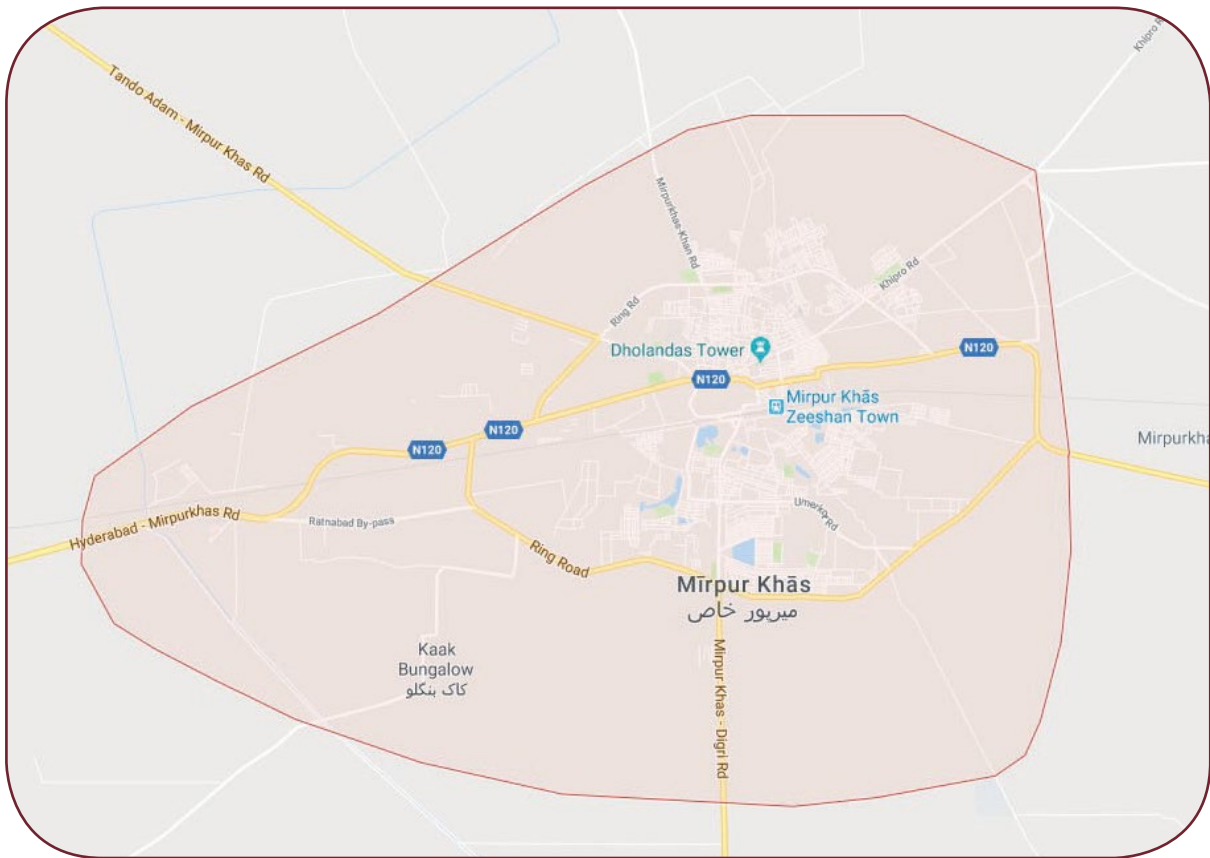




# Mirpur Khas Division



## District Mirpur Khas



## District Mirpur Khas

Area	3,343 Km <sup>2</sup>
Population	1,505,876
Population Density	477 Per km <sup>2</sup>
Rural / Urban	67% / 33%

District Mirpur Khas is bounded by District Umerkot on the East, District Sanghar on the North, District Tando Allahyar on the West, District Badin on the South-West and District Tharparkar & Badin on the South. The climate of the District is extreme, both in winters and summers. The summer heats are considerably neutralized by constant sea breeze from the South-West. The land structure of this District comprises of plane fertile lands suitable for agriculture. Due to a well-organized canal system, the whole District has water availability, resulting in the grasslands and irrigated crop lands.

Mirpurkhas is a non-riverine District; there is no threat of floods on accounts of breaches in bunds of rivers. However, District Mirpurkhas is vulnerable to heavy rainfalls. In 2012, rain/flood a crop area of 550 acres was affected, while 01 death and 02 injuries were reported. In 2011 rains/floods, 3,178 villages/settlements of 51 union councils were affected. There were 61 casualties and 230 injuries.

### *Hazard matrix of District Mirpur Khas*

Hazard	Frequency	Area affected/ Union Council	Severity/ Force	Year
Rain/Flood	Monsoon	Entire District	Medium	2006, 2007, 2008, 2009, 2010, 2011, 2012
Epidemics	Seasonal	Entire District	Low	Every Year
Earthquake	Rare	Entire District	Low	2013
Transport Accidents/ Fire	Rare	Entire District	Low	Through Out

Along with the above mentioned disasters, a list of potential future hazards can be seen below;

Depilating water resources
Clean drinking water
Increasing un-irrigated lands
Health epidemics and pandemics
Heavy chemical discharges/emissions
High rate of morbidity and mortality
Over exploitation of natural resources
Dense urbanization
Decreasing livestock
Sea and river intrusions
De-forestation of mangroves and other species
Water-logging and salinities

Nutritional stunting
Food insecurities
Forest fires
Industrial Fires

### Summary of data received from District

During the field survey data was collected with the help of a detailed questionnaire that was filled by concerned District authorities, the summary of data received can be seen in the table below;

Sr.	Description	Details
1	What are the crops being cultivated in your District	Wheat, Sugarcane, Cotton, Vegetable, Pulses, Fodder, Orchards
2	What are most vulnerable services in your District	Education, Health, Transport, Electricity, Roads
3	Do you receive any support from PDMA	PDMA Sindh provides equipment to some extent
4	Do you receive any support from line departments	All line departments support during disaster
5	Common epidemic diseases in District	Malaria, Gastro, Diarrhoea
6	Availability and quality of Disaster Management Plan	Yes, Reviewed with coordination b/w stakeholders and line departments
7	Availability and quality of Contingency plan	Contingency plan is made based on geographical information and available resources
8	Does proper DDMA setup exist	DDMA exists as per Government notification, but there is no dedicated staff for DDMA
9	Is there any proper coordination mechanism established between DDMA and line departments	Yes coordination mechanism is established at District level
10	What are the existing means of communication being used	Telecommunication, wireless, fax, email, WhatsApp
11	Are there any alternative means of communication	N/A
12	Is basic office equipment for DDMA available/ provided	Basic furniture of average quality is available
13	Is proper/dedicated space allocated for DDMA office	Office space for DDMA is satisfactory
14	Resource allocation sufficient	All resources are available, Meteorological equipment is required
15	Proper early warning system exists	Yes, Control room is responsible for sending warnings
16	What is the system to determine damage/loss	Proper damage assessments are conducted
17	Proper GIS mechanism	GIS is at initial level
18	Do you carry out DRR/CBDRM trainings in your Districts	Yes, with the help of Government and NGOs
19	What is the status of public education campaigns	Public education campaigns are running in the District
20	Are there any awareness raising activities being carried out In your District	Yes with the help of education department
21	Do you think BCC material and equipment is sufficient	Civil Defense and Social Welfare department provides the material

22	Do you have sufficient funds for capacity building of staff	No
23	Well defined local level evacuation areas/ routes/shelters	Evacuation areas are defined at all levels
24	Do you have any resource team for trainings	Yes
25	Is sufficient rescue relief & search equipment available	Sufficient equipment is available
26	Do you have sufficient HR to manage disaster	No dedicated HR for DDMA, staff from other departments is used during any emergency or disaster
27	Are you using any tool to measure performance of staff	Yes, as per Government policy
28	Is Government providing any sort of insurance facility to the community	Currently no such facility is being provided to the community
29	Do you have a proper capacity building policy	N/A
30	Do you have well equipped IT department in your District	IT department does not exist
31	What sort of qualification and skills are required by your staff	Skilled HR is required
32	Are you satisfied with the governance structure of DDMA	Yes, satisfied with the governance structure of DDMA
33	Are the job descriptions of staff well defined	N/A

## Recommendations

Following is the list of proposed basic search rescue and relief equipment;

Sr.	Items	Available	Required
1	Life Jackets	N/A	2500
2	De-watering Machines	40	80
3	Scuba	N/A	2
4	Torches	N/A	200
5	Life Bouys	N/A	100
6	Life Rings	N/A	100
7	Life Line	N/A	100
8	Nylon Rope	N/A	50
9	Tents	N/A	20,000
10	First aid Box	N/A	250
11	Dry Suit	N/A	5
12	Jerry Can	N/A	250
13	Cess Pool	N/A	N/A
14	Portable Generators	N/A	10
15	Folding Chairs	N/A	250
16	Folding tables	N/A	50
17	Floating Ropes	N/A	25
18	Mosquito Nets	N/A	20000
19	Rope Throwing Guns with Accessories	N/A	2
20	Pedestal Fans	N/A	150
21	Fumigation Machine	N/A	5

22	Boats	N/A	10
23	Mega Phone	N/A	20
24	Hand Moving Trolleys	196	150
25	Shovel/Karahi & Kahi/ Hammer/ Chisel (set)	N/A	100
26	Gas Mask (Multi-Purpose)	N/A	20
27	Snake Cather Stick	N/A	5
28	Darryan (Solid like Carpets)	N/A	200
29	Steel Daggers	N/A	20
30	Steel safety Helmets	N/A	50
31	Under water Plastic Shoes for Boat Operators	N/A	10
32	Water Filters	N/A	N/A
<b>Proposed Rescue Vehicles</b>			
33	Life Care Ambulance	N/A	02
34	Fire Fighting Vehicles	N/A	02
35	Water Bowser	N/A	02

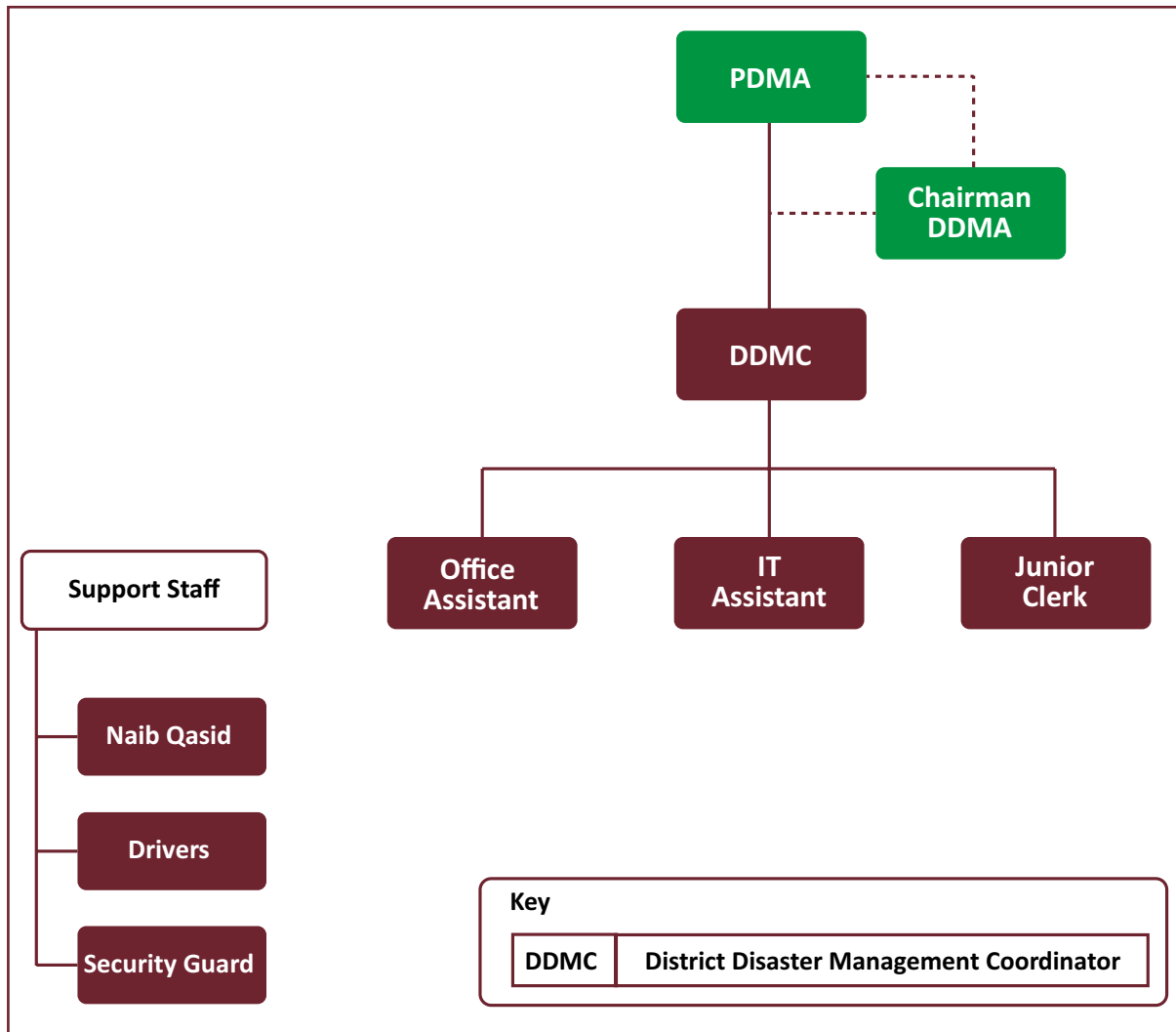
- It is suggested that a new DDMA structure should be introduced along with dedicated staff, space and basic office equipment. Basic office equipment like (tables, office chairs, generators or solar system, GPS devices, desktop computers, communication devices, etc) have already been proposed for each DDMA.
- Institutional mandates should be revisited and writing staff ToRs to ensure the inclusion of DRR/DRM.
- Disaster management plans should be developed every year by DDMA with consent of line departments and stake holders.
- Contingency plans should also be developed at District level and shall be updated regularly.
- A proper Early Warning System (EWS) should be introduced in the District.
- Coordination among key stakeholders should be strengthened for the implementation of disaster risk reduction measures and effective emergency response through assignment of responsibility to each stakeholder. Stakeholders must have joint meetings to address the issues faced by them.
- Basic search, rescue and relief equipment should be provided to each District.
- Proper financial management system should be developed in the District for the transfer of funds in the event of disaster or in the phase of normal circumstances.
- Strengthening logistical capacity to facilitate networking between stakeholders.
- Placing staff on longer-term contracts to strengthen institutional knowledge and linkages.
- The Government and NGOs should invest in DRR sector and should corporate DRR measures in improving school buildings as these can be used as shelter and evacuation centers in case of emergency.
- Awareness programs should be organized by District Disaster Management Authority about the need of land use planning and building codes so that it can be followed by all the stakeholders, to avoid future threats.
- To minimize the flood risk, communities should be trained on rain water harvesting through microcatchments and roof top rain water harvesting as these practices will help them to store water for future productive use.
- Active people from the community can be used for disseminating early warning for the

local endangered communities because people have lot of trust in informal and locally influential sources of information; e.g. a religious leader, a teacher, an NGO worker or a local Government official. But firstly, these active people should also be trained on EWS.

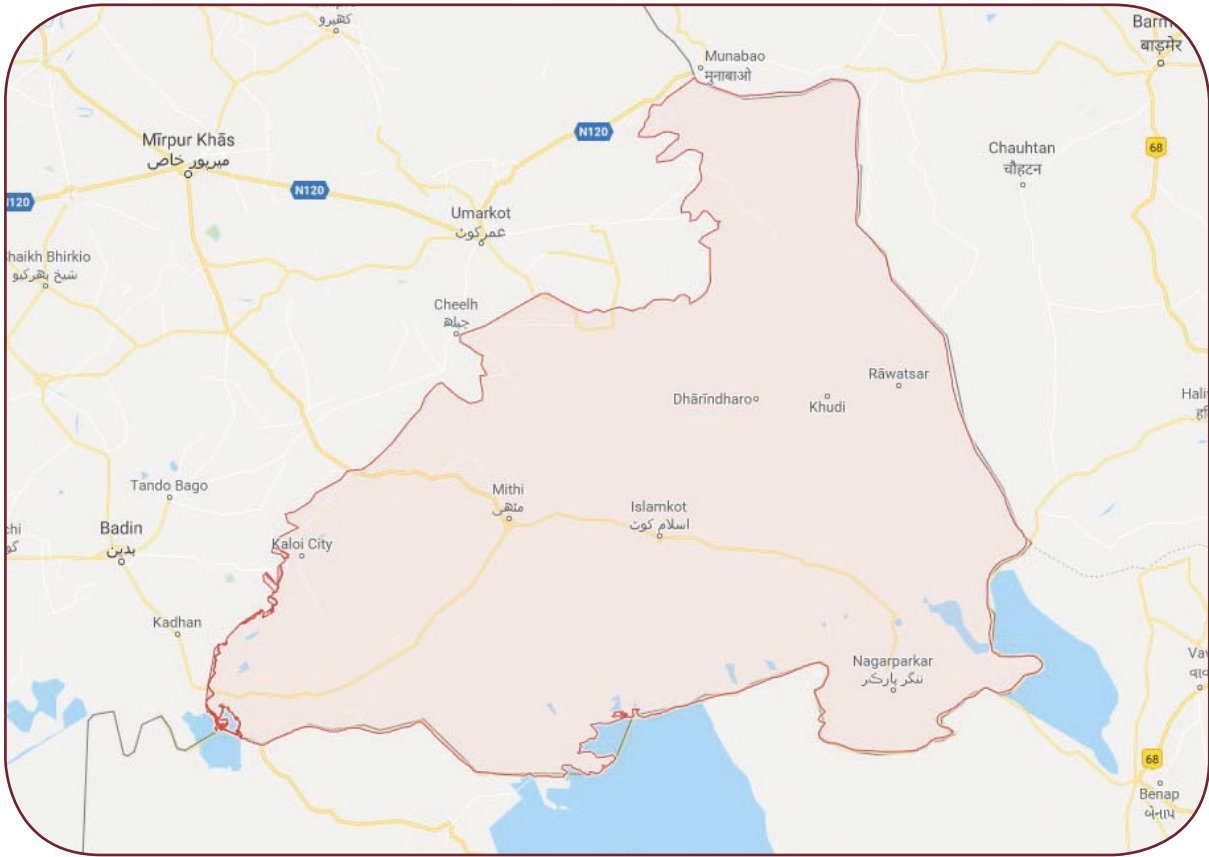
- Radio can be a very important part of Early Warning System (EWS) but care should be taken while transmitting early warnings. It should be in clear words and confirmed through reliable sources to avoid false reports and unnecessary panic.
- Media in District should expand its role as a watchdog during monitoring and handling of donations in the post-disaster phase so that the funds are given to the affected people of the District rather than self interest groups.
- A logistic system should be placed for determining the requirement of medicines, maintaining inventory, storing and stocking, issuing and controlling the use of commodities, stockpile of emergency medicine and supplies, special arrangement with vendors and suppliers for emergency purchases in time of disaster.
- DRR measures should be incorporated in the construction of sewerage system in order to minimize the possibility of overflowing of sewage water in rainy days and to mitigate the hygiene issues.
- District Disaster Management Authority should coordinate with the NGOs working in different sectors to address the problems of people. The NGOs working on different projects can be invited and can be asked for initiation of DRR projects in the vulnerable areas of the District.



### Proposed Structure of DDMA



## District Tharparker



## District Tharparker

Area	19,799 Km <sup>2</sup>
Population	1,649,661
Population Density	66 Per km <sup>2</sup>
Rural / Urban	96% / 4%

This region is part of the great Thar Desert, which is spread over parts of India and Pakistan. This District is bounded by India on the East, Rann of Kuch on the South, District Umerkot on the North and District Badin and Mirpurkhas on the West. The District is mostly deserted and consists of barren tracts of sand dunes covered with thorny shrubs. Since the District is a desert, sweet water is scarce and is available only in some areas of Nagarparkar and Chachro while, in rest of the areas, people consume brackish water. The taluka of Nagarparkar is relatively fertile. The District has a tropical desert climate. In summers, it is extremely hot during the day, but nights are remarkably cooler.

In 2001, the District along with the bordering District of Badin was hit by an earthquake. Due to this earthquake, 12 people lost their lives and 115 person were injured. Besides, 1,989 houses were destroyed and 43,643 houses were partially damaged. The public infrastructural loss was counted up to 1,406 buildings. The financial value of the overall loss was 2.4 billion rupees. A decade after the earthquake, the District was again hit by heavy rains in 2011.

District Tharparker is prone to disasters like droughts, flash floods, desert storms and earthquakes. Storms are frequent but the intensity of droughts is much more in damaging the socio-economic fabric of the District. Floods of 2011 and recent droughts of 2014 affected almost all the population of the District.

### *Hazard matrix of District Tharparker*

Hazard	Frequency	Area affected	Severity/ Force	Year
Drought	Frequently	Whole District	High	1987-88, 1991-92, 1999-2000, 2002-03, 2005, 2013-14
Flash Floods	Monsoon	Whole District	Medium	1993, 2003, -04, 2006
Desert Storms	Frequently	Whole District	Low	Every year
Earthquake	Rare	Whole District	Low	1982, 2001, 2005, 2009
Epidemics	Seasonal	Whole District	Low	Every year
Fire	Rare	Whole District	Low	Every year
Locust Attack	Seasonal	Whole District	Low	179, 193-94

Along with the above mentioned disasters, a list of potential future hazards can be seen below;

Depleting water resources
Clean drinking water
Increasing un-irrigated lands
Health epidemics and pandemics
Heavy chemical discharges/emissions
High rate of morbidity and mortality

Over exploitation of natural resources
Dense urbanization
Decreasing livestock
Sea and river intrusions
De-forestation of mangroves and other species
Water-logging and salinities
Nutritional stunting
Food insecurities
Forest fires
Industrial Fires

### Summary of data received from District

During the field survey data was collected with the help of a detailed questionnaire that was filled by concerned District authorities, the summary of data received can be seen in the table below;

Sr.	Description	Details
1	What are the crops being cultivated in your District	Cotton, rice and sugarcane are being cultivated in some parts of the District
2	What are most vulnerable services in your District	Education, Health, Transport, Roads, Electricity
3	Do you receive any support from PDMA	No
4	Do you receive any support from line departments	All line departments help at time of disaster to whatever extent they can
5	Does epidemic diseases occur in your District	Malaria, Diarrhoea, Scabies, Cholera, Smallpox & Typhoid
6	District Level Legal Framework	There is no proper District level legal framework currently being followed
7	Details about partnership with any local NGOs	PPHI is currently working on health project
8	Availability and quality of Disaster Management Plan	No disaster management plan is available
9	Availability and quality of Contingency Plan	Contingency plan does exist
10	Does proper DDMA setup exist	There is no proper functional structure of DDMA in the District
11	Details of logistical support provided by PDMA	No, lack of planning
12	Is there any proper coordination mechanism established between DDMA and line departments	There is no proper coordination mechanism between DDMA and line departments
13	What are the existing means of communication being used	Radio, Internet and telephones are only means of communication
14	Are there any alternative means of communication	No
15	Is basic office equipment for DDMA available/ provided	Due to no proper DDMA setup, District lacks any sort of basic DDMA equipment
16	Is proper/dedicated space allocated for DDMA office	No space is allocated for DDMA
17	Is Resource allocation sufficient	Resource allocation is not sufficient to run DDMA
18	Proper early warning system exist	Early warning system does not exist

19	What is the system to determine damage/loss	There is no such proper mechanism, and it needs to be established
20	Geographic Information System	Basic GPS equipment is being used for location mapping but it requires improvement
21	Mechanism to purchase disaster relief supplies	Without DDMA setup no such mechanism can be established
22	Do you carry out DRR/CBDRM trainings in your Districts	No such trainings are conducted in the District
23	What is the status of public education campaigns	Yes, such campaigns are being run in the District
24	Are there any awareness raising activities being carried out In your District	No awareness raising programs has been conducted yet
25	Do you think BCC material and equipment is sufficient	Due to unavailability of support and resources no such material and equipment is present
26	Do you have sufficient funds for capacity building of staff	Due to insufficient funds, the District was unable to build capacity of the current staff
27	Well defined local level evacuation areas/ routes/shelters	Currently, there are no such evacuation plans, the District needs various studies to define such routes or evacuation plans
28	Do you have any resource team for trainings	As there is no dedicated staff for DDMA, resource persons for trainings are required.
29	Is sufficient rescue relief & search equipment available	District even lacks basic search, rescue and relief equipment
30	Do you have sufficient HR to manage disasters	No dedicated staff to manage disasters
31	Are you using any tool to measure performance of staff	No such mechanism found
32	Is Government providing any sort of insurance facility to the community	Currently, no such facility is being provided to the community
33	Do you have a proper capacity building policy	There is no capacity building policy
34	Do you have well equipped IT department in your District	Currently District has no such department, IT department needs to be established
35	What sort of qualification and skills are required by your staff	Skills and trainings need to be provided in technical and disaster related fields
36	Are you satisfied with the governance structure of DDMA	Governance structure needs to be approved
37	Are the job descriptions of staff well defined	There are no well-defined JD's for the staff

## Recommendations

Following is the list of proposed basic search rescue and relief equipment;

Sr.	Items	Available	Required
1	Life Jackets	N/A	25
2	De-watering Machines	32	50
3	Scuba	N/A	N/A
4	Torches	N/A	100
5	Life Bouys	N/A	10
6	Life Rings	N/A	10
7	Life Line	N/A	10
8	Nylon Rope	N/A	25

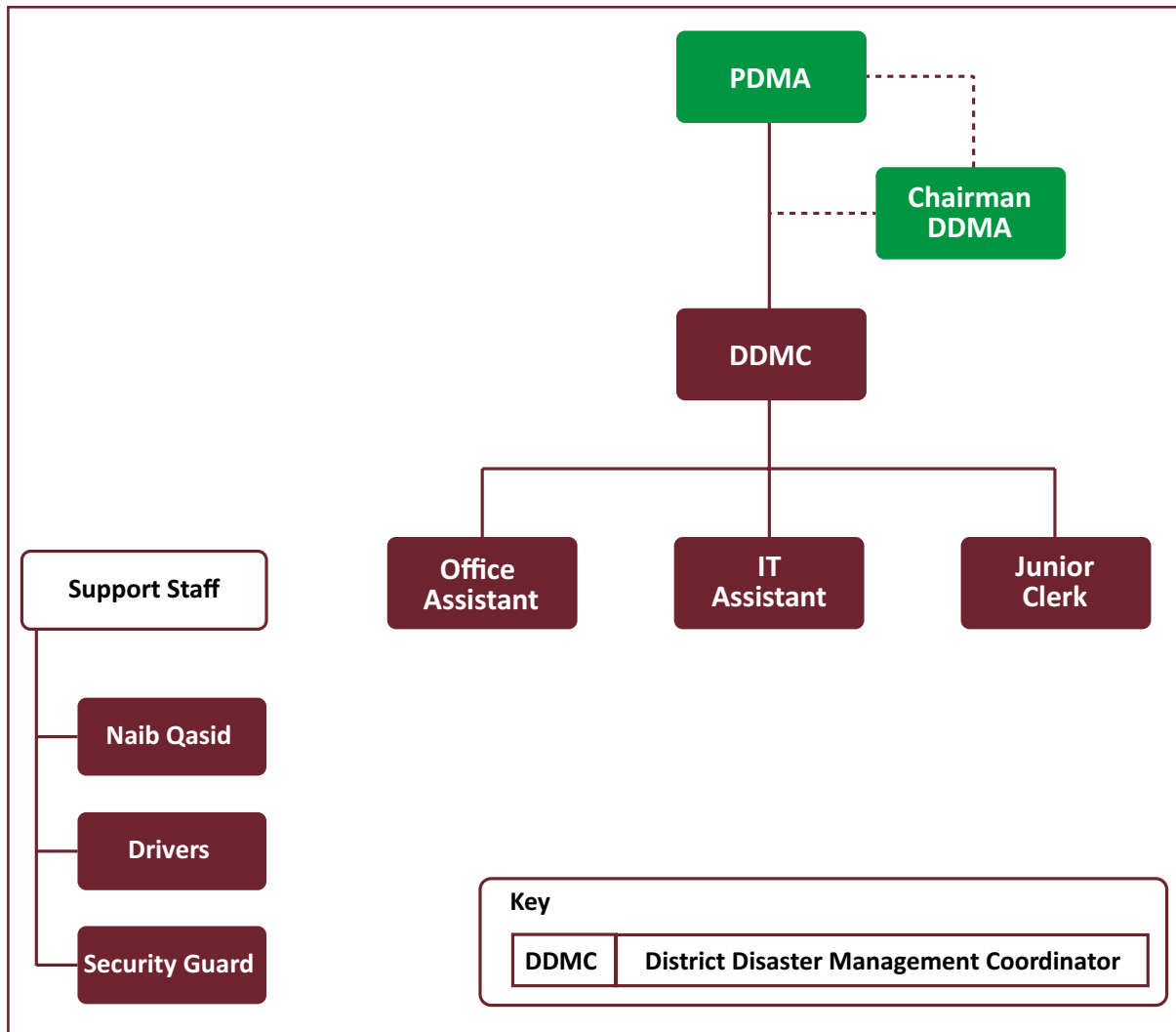
9	Tents	N/A	20,000
10	First aid Box	N/A	1000
11	Dry Suit	N/A	N/A
12	Jerry Can	N/A	2000
13	Cess Pool	2	500
14	Portable Generators	N/A	20
15	Folding Chairs	N/A	500
16	Folding tables	N/A	100
17	Floating Ropes	N/A	5
18	Mosquito Nets	N/A	20000
19	Rope Throwing Guns with Accessories	N/A	N/A
20	Pedestal Fans	N/A	150
21	Fumigation Machine	N/A	5
22	Boats	N/A	N/A
23	Mega Phone	N/A	50
24	Hand Moving Trolleys	105	300
25	Shovel/Karahi & Kahi/ Hammer/ Chisel (set)	N/A	50
26	Gas Mask (Multi-Purpose)	N/A	10
27	Snake Cather Stick	N/A	25
28	Darryan (Solid like Carpets)	N/A	500
29	Steel Daggers	N/A	50
30	Steel Safety Helmets	N/A	25
31	Under water Plastic Shoes for Boat Operators	N/A	N/A
32	Water Filters	N/A	2000
<b>Proposed Rescue Vehicles</b>			
33	Life Care Ambulance	N/A	02
34	Fire Fighting Vehicles	N/A	02
35	Water Bowser	N/A	02

- It is suggested that a new DDMA structure should be introduced along with dedicated staff, space and basic office equipment. Basic office equipment like (tables, office chairs, generators or solar system, GPS devices, desktop computers, communication devices, etc) have already been proposed for each DDMA.
- Institutional mandates should be revisited and writing staff ToRs to ensure the inclusion of DRR/DRM.
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transfer of funds in the event of disaster or in the phase of normal circumstances.

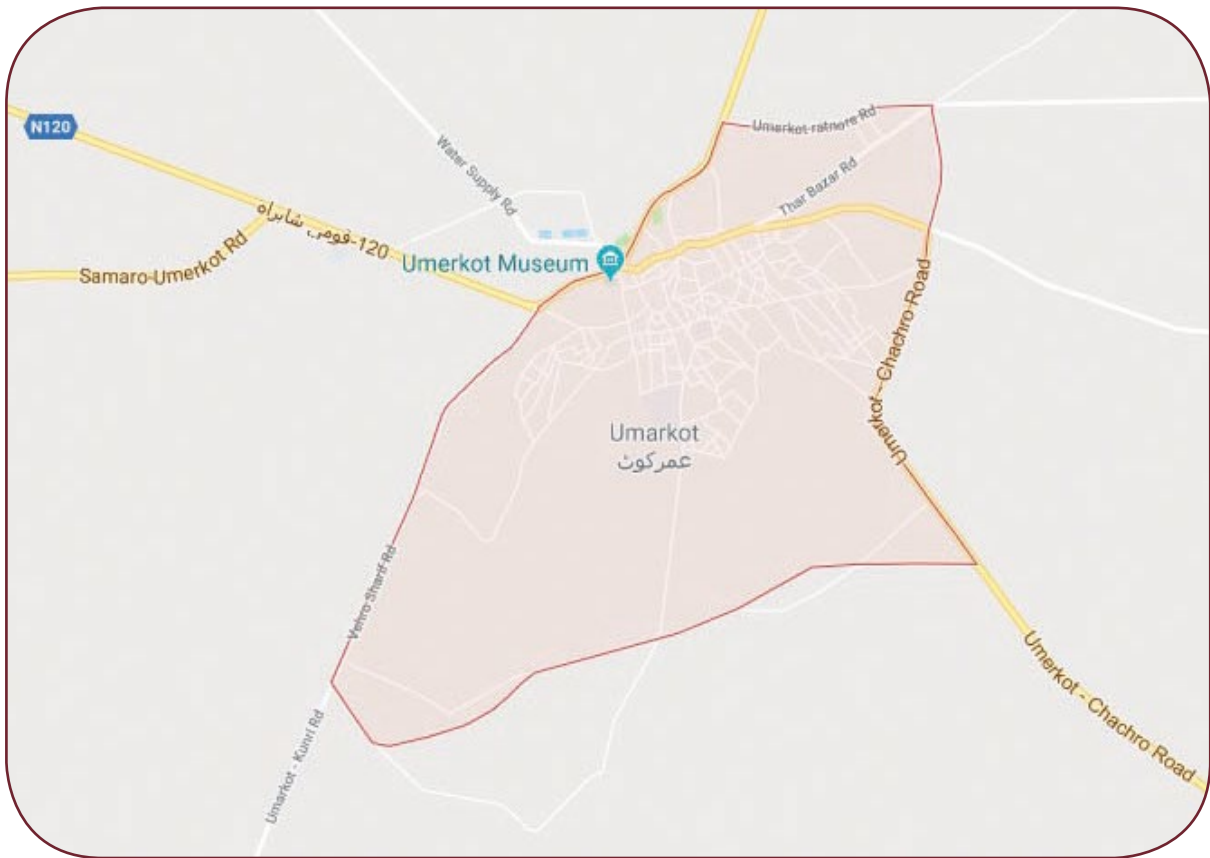
- Strengthening logistical capacity to facilitate networking between stakeholders.
- Placing staff on longer-term contracts to strengthen institutional knowledge and linkages.
- The Government and NGOs should invest in DRR sector and should incorporate DRR measures in improving school buildings as these can be used as shelter and evacuation centers in case of emergency.
- Awareness programs should be organized by District Disaster Management Authority about the need of land use planning and building codes so that it can be followed by all the stakeholders, to avoid future threats.
- To minimize the flood risk, communities should be trained on rain water harvesting through microcatchments and roof top rain water harvesting as these practices will help them to store water for future productive use.
- Active people from the community can be used for disseminating early warning for the local endangered communities because people have lot of trust in informal and locally influential sources of information; e.g. a religious leader, a teacher, an NGO worker or a local Government official. But firstly, these active people should also be trained on EWS.
- Radio can be a very important part of Early Warning System (EWS) but care should be taken while transmitting early warnings. It should be in clear words and confirmed through reliable sources to avoid false reports and unnecessary panic.
- Media in District should expand its role as a watchdog during monitoring and handling of donations in the post-disaster phase so that the funds are given to the affected people of the District rather than self interest groups.
- A logistic system should be placed for determining the requirement of medicines, maintaining inventory, storing and stocking, issuing and controlling the use of commodities, stockpile of emergency medicine and supplies, special arrangement with vendors and suppliers for emergency purchases in time of disaster.
- DRR measures should be incorporated in the construction of sewerage system in order to minimize the possibility of overflowing of sewage water in rainy days and to mitigate the hygiene issues.
- District Disaster Management Authority should coordinate with the NGOs working in different sectors to address the problems of people. The NGOs working on different projects can be invited and can be asked for initiation of DRR projects in the vulnerable areas of the District.

### Proposed Structure of DDMA





## District Umerkot



## District Umerkot

Area	5,503 Km <sup>2</sup>
Population	1,073,146
Population Density	195 Per km <sup>2</sup>
Rural/Urban	77.3% / 22.7%

District Umerkot is a historically important administrative unit that plays an important role in the economy and trade of Eastern Sindh. This District is bounded by Tharparkar on the East and South, District Sanghar and India on the North and District Badin on the West.

Umerkot has a disaster history of heavy rain fall, earthquakes, floods, and droughts, but droughts remain more frequent. Heavy rainfall seems to be less frequent. The District was severely hit in 2011 by rains/floods. Overall 78.31% of the population was affected due to rains/floods in all 27 union councils of the District. However, according to the PDMA Sindh's assessments, after floods 2010, the District falls under the category of very low risk Districts. The extent of damage in the District, comparatively, remained substantially low in the District during the recent floods of 2012. A total of 1,200 people were affected and 06 casualties were reported by the concerned authorities. A total of 331 housing units were partially affected in 93 villages and a crop area of 1,262 acres was inundated by rains/floods.

### *Hazard matrix of District Tharparkar*

Hazard	Frequency	Area affected	Severity/ Force	Year
Floods	Monsoon	Entire District excluding southern side (which is white District)		2011, 2012
Heavy Rains	Monsoon	Whole District	High	2011, 2012
Epidemics	Seasonal	Entire District	Low	Every year
Drought	Rare	Whole District	Low	1999- 2002
Dust Storms	Frequent	Whole District	Low	Through out
Earthquake	Rare	Whole District	Low	

Along with the above mentioned disasters, a list of potential future hazards can be seen below;

Depilating water resources
Clean drinking water
Increasing un-irrigated lands
Health epidemics and pandemics
Heavy chemical discharges/emissions
High rate of morbidity and mortality
Over exploitation of natural resources
Dense urbanization
Decreasing livestock
Sea and river intrusions
De-forestation of mangroves and other species

Water-logging and salinities
Nutritional stunting
Food insecurities
Forest fires
Industrial Fires

### Summary of data received from District

During the field survey data was collected with the help of a detailed questionnaire that was filled by concerned District authorities, the summary of data received can be seen in the table below;

Sr.	Description	Details
1	What are the crops being cultivated in your District	Cotton, rice and sugarcane are being cultivated
2	What are most vulnerable services in your District	Education, Health, Transport, Roads, Electricity
3	Do you receive any support from PDMA	No
4	Do you receive any support from line departments	Irrigation, Health, logistics, Civil Defense, Fire brigade & Local govt. provide support at time of disaster
5	Does epidemic diseases occur in your District	Gastro, Malaria, Diarrhoea, Typhoid, Dengue, Cholera
6	District Level Legal Framework	There is no proper District level legal framework currently being followed
7	Availability and quality of Disaster Management Plan	No disaster management plan is available
8	Availability and quality of Contingency Plan	Contingency plan does exist
9	Does proper DDMA setup exist	There is no proper functional structure of DDMA in the District
10	Is there any proper coordination mechanism established between DDMA and line departments	There is no proper coordination mechanism
11	What are the existing means of communication being used	Radio, Internet and telephones are only means of communication
12	Are there any alternative means of communication	No
13	Is basic office equipment for DDMA available/ provided	Due to no proper DDMA setup, District lacks any sort of basic DDMA equipment
14	Is proper/dedicated space allocated for DDMA office	Yes, space is allocated for DDMA and is adequate
15	Is Resource allocation sufficient	No, the resource allocation is not sufficient.
16	Proper early warning system exist	Early warning system does not exist
17	What is the system to determine damage/loss	Currently, there is no such system to determine damage loss
18	Geographic Information System	Basic GPS equipment is being used for location mapping but it requires improvement
19	Mechanism to purchase disaster relief supplies	Disaster relief supplies are arranged on spot, proper mechanism is required to make it more effective
20	Do you carry out DRR/CBDRM trainings in your Districts	No such trainings are being conducted in the District

21	What is the status of public education campaigns	Yes, such campaigns are being run in the District
22	Are there any awareness raising activities being carried out In your District	No awareness raising programs have been conducted yet
23	Do you think BCC materials and equipment are sufficient	Due to unavailability of support and resources no such materials and equipment are available
24	Do you have sufficient funds for capacity building of staff	Due to insufficient funds, the District was unable to build capacity of the current staff
25	Well defined local level evacuation areas/ routes/shelters	Currently there are no such evacuation plans , The District needs various studies to define such routes or evacuation plans
26	Do you have any resource team for trainings	As there is no dedicated staff for DDMA, resource person for trainings are required.
27	Is sufficient rescue relief & search equipment available	District even lacks basic search, rescue and relief equipment
28	Do you have sufficient HR to manage disaster	Yes, HR to manage disaster is sufficient but trainings are required
29	Are you using any tool to measure performance of staff	No such mechanism is found
30	Is Government providing any sort of insurance facility to the community	Currently, no such facility is being provided to the community
31	Do you have a proper capacity building policy	There is no capacity building policy
32	Do you have well equipped IT department in your District	Currently, District has no such department, IT department needs to be established
33	What sort of qualification and skills are required by your staff	Relevant and proficient skills to manage disasters
34	Are you satisfied with the governance structure of DDMA	Governance structure needs to be approved
35	Are the job descriptions of staff well defined	JD's are irrelevant

## Recommendations

Following is the list of proposed basic search rescue and relief equipment;

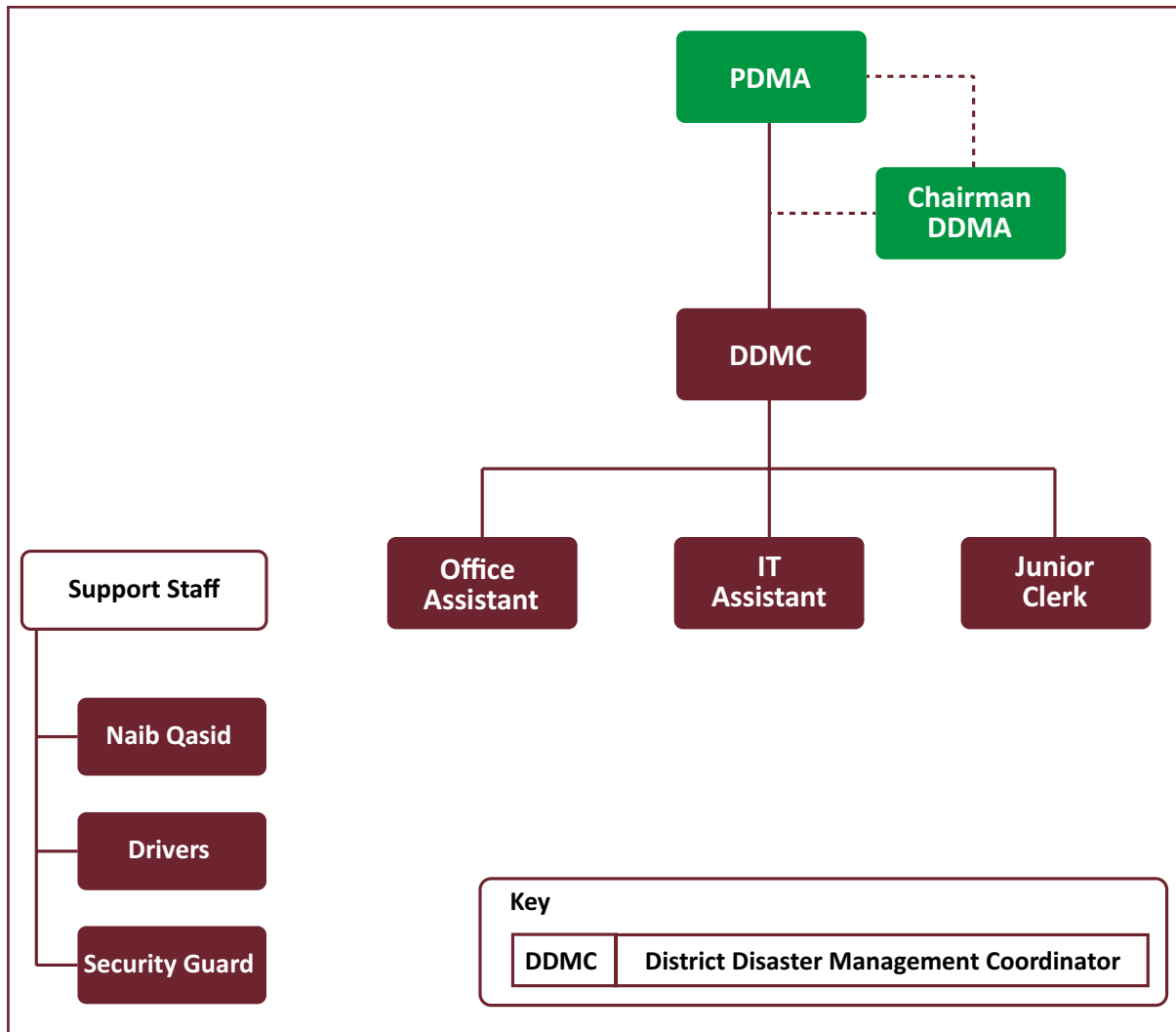
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4	Torches	N/A	250
5	Life Bouys	N/A	50
6	Life Rings	N/A	50
7	Life Line	N/A	50
8	Nylon Rope	N/A	50
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10	First aid Box	N/A	1000
11	Dry Suit	N/A	5
12	Jerry Can	N/A	250
13	Cess Pool	6	20
14	Portable Generators	4	20

15	Folding Chairs	N/A	500
16	Folding tables	N/A	100
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18	Mosquito Nets	N/A	10,000
19	Rope Throwing Guns with Accessories	N/A	1
20	Pedestal Fans	N/A	200
21	Fumigation Machine	N/A	10
22	Boat	N/A	5
23	Mega Phone	N/A	20
24	Hand Moving Trolleys	105	250
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26	Gas Mask (Multi-Purpose)	N/A	20
27	Snake Cather Stick	N/A	50
28	Darryan (Solid like Carpets)	N/A	500
29	Steel Daggers	N/A	100
30	Steel safety Helmets	N/A	50
31	Under water Plastic Shoes for Boat Operators	N/A	5
32	Water Filters	N/A	1000
<b>Proposed Rescue Vehicles</b>			
33	Life Care Ambulance	N/A	02
34	Fire Fighting Vehicles	N/A	02
35	Water Bowser	N/A	02

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- A logistic system should be placed for determining the requirement of medicines, maintaining inventory, storing and stocking, issuing and controlling the use of commodities, stockpile of emergency medicine and supplies, special arrangement with vendors and suppliers for emergency purchases in time of disaster.
- DRR measures should be incorporated in the construction of sewerage system in order to minimize the possibility of overflowing of sewage water in rainy days and to mitigate the hygiene issues.
- District Disaster Management Authority should coordinate with the NGOs working in different sectors to address the problems of people. The NGOs working on different projects can be invited and can be asked for initiation of DRR projects in the vulnerable areas of the District.

### Proposed Structure of DDMA



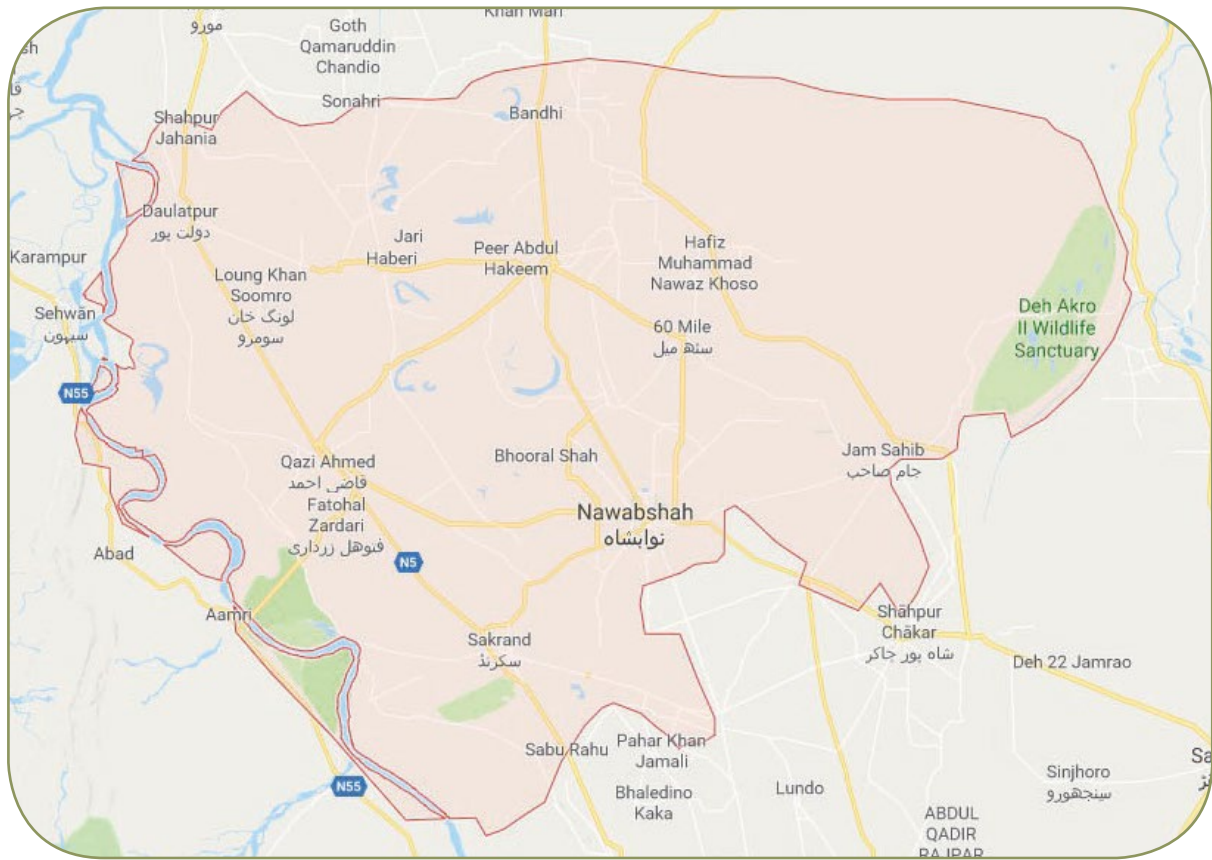




**Shaheed Benazirabad Division**



## District Shaheed Benazirabad



## District Shaheed Benazirabad

Area	4,618 Km <sup>2</sup>
Population	1,612,847
Population Density	349.2 Per km <sup>2</sup>
Rural/Urban	69.7% / 30.3%

Shaheed Benazirabad District was formerly known as Nawabshah District. It was renamed in April 2008 after the assassination of Benazir Bhutto. The District lies in 67° 52" to 68° 27" 2' East longitudes to 25° 59" to 26° 38" 5' North latitudes. The District is bounded by District Khairpur and Sanghar on the East, District Jamshoro on the West, District Khairpur and Naushehro Feroze on the North and District Matiari on the South. Indus River flows on the left bank of the District. The climate of Shaheed Benazirabad is extremely hot during the summers and cold/foggy during the winters.

District Shaheed Benazirabad is one of the oldest regions of Sindh. It was hit by 2010/2011/2012 rains/riverine floods. District Shaheed Benazirabad was moderately hit by floods in 2010, but was severely hit in 2011 by rains/floods. After 2010 floods, the District fell under the category of medium risk Districts, as declared by PDMA Sindh, but in 2011 rains/floods, the extent of damage was not moderate at all as assessments showed that 4,104 villages/settlements of 51 union councils in all the 04 talukas were affected. A population of 900,000 persons was affected and there were 03 casualties and 05 injuries. In total, 200,000 houses were damaged. Geographically the whole District was inundated and 64 percent of the sown area was affected due to these rains/floods.

### *Hazard matrix of District Shaheed Benazirabad*

Hazard	Frequency	Area affected	Severity/ Force	Year
Riverine Floods	Monsoon		Medium	1973, 1976, 1992, 2010
Heavy Rainfall	Monsoon	Entire District	Medium	2011, 2013
Epidemics	Seasonal	Entire District	Medium	Every year
Drought	Frequent		High	1999-2002
Earthquake	Rare	Entire District	Very Low	2013
Transport accidents	Frequent	Entire District	Low	Throughout
Fire	Rare	Entire District	Low	Every year

Along with the above mentioned disasters, a list of potential future hazards can be seen below;

Depleting water resources
Clean drinking water
Increasing un-irrigated lands
Health epidemics and pandemics
Heavy chemical discharges/emissions
High rate of morbidity and mortality
Over exploitation of natural resources
Dense urbanization

Decreasing livestock
Sea and river intrusions
De-forestation of mangroves and other species
Water-logging and salinities
Nutritional stunting
Food insecurities
Forest fires
Industrial Fires

### Summary of data received from District

During the field survey data was collected with the help of a detailed questionnaire that was filled by concerned District authorities, the summary of data received can be seen in the table below;

Sr.	Description	Details
1	What are the crops being cultivated in your District	Wheat, rice, cotton and sugarcane are being cultivated
2	What are most vulnerable services in your District	Education, Health, Transport, Roads, Electricity
3	Do you receive any support from PDMA	Yes, Support is received in areas of planning, funds, infrastructure and rehabilitation
4	Do you receive any support from line departments	Support received from these line departments, Irrigation, Health, Education, Livestock, Army, Rangers, NDMA, Police & Local Govt.
5	Does epidemic diseases occur in your District	Malaria, Cholera, Small Pox, Diarrhoea
6	District Level Legal Framework	There is no proper District level legal framework currently being followed
7	Availability and quality of Disaster Management Plan	No disaster management plan is available
8	Availability and quality of Contingency Plan	Contingency plan does not exist
9	Does proper DDMA setup exist	DDMA office exist in these sectors Irrigation, Education, Health, Livestock
10	Is there any proper coordination mechanism established between DDMA and line departments	Yes, coordination mechanism has been established
11	What are the existing means of communication being used	Telecommunication, Internet, Fax, E-mail, WhatsApp, Postal Services
12	Are there any alternative means of communication	No
13	Is basic office equipment for DDMA available/ provided	All equipment is there but there quality is average
14	Is proper/dedicated space allocated for DDMA office	Yes, space is allocated for DDMA and is adequate
15	Is Resource allocation sufficient	All resources are available
16	Proper early warning system exist	Yes, District Emergency Control/Revenue Department DC/AC
17	GIS	Yes

18	Mechanism to purchase disaster relief supplies	Disaster relief supplies are procured as per Provincial Government policy
19	Do you carry out DRR/CBDRM trainings in your Districts	Yes, trainings are being conducted
20	What is the status of public education campaigns	Yes, such campaigns are being run in the District
21	Are there any awareness raising activities being carried out In your District	Yes
22	Do you think BCC material and equipment is sufficient	Yes material is enough and sufficient
23	Do you have sufficient funds for capacity building of staff	Yes
24	Well defined local level evacuation areas/ routes/shelters	Such routes are defined
25	Do you have any resource team for trainings	Resource team for training is available
26	Is sufficient rescue relief & search equipment available	Such equipment is sufficient
27	Do you have sufficient HR to manage disaster	Yes, staff from all Government departmnet is available
28	Are you using any tool to measure performance of staff	Yes, performance of staff is measured as per Government policy
29	Is Government providing any sort of insurance facility to the community	Currently, no such facility is being provided to the community
30	Do you have a proper capacity building policy	There is no capacity building policy
31	Do you have well equipped IT department in your District	Currently, District has no such department, IT department needs to be established
32	What sort of qualification and skills are required by your staff	Proper training should be given to staff to manage the disaster situation
33	Are you satisfied with the governance structure of DDMA	Governance structure needs to be improved
34	Are the job descriptions of staff well defined	No

## Recommendations

Following is the list of proposed basic search rescue and relief equipment;

Sr.	Items	Available	Required
1	Life Jackets	N/A	500
2	De-watering Machines	100	150
3	Scuba	N/A	5
4	Torches	N/A	250
5	Life Bouys	N/A	250
6	Life Rings	N/A	250
7	Life Line	N/A	250
8	Nylon Rope	N/A	100
9	Tents	N/A	30,000
10	First aid Box	N/A	2000
11	Dry Suit	N/A	5
12	Jerry Can	N/A	250
13	Cess Pool	N/A	N/A

14	Portable Generators	N/A	20
15	Folding Chairs	N/A	1000
16	Folding tables	N/A	250
17	Floating Ropes	N/A	50
18	Mosquito Nets	N/A	10,000
19	Rope Throwing Guns with Accessories	N/A	2
20	Pedestal Fans	N/A	250
21	Fumigation Machine	N/A	20
22	Boat with OBM	N/A	5
23	Mega Phone	N/A	20
24	Hand Moving Trolleys	105	250
25	Shovel/Karahi & Kahi/ Hammer/ Chisel (set)	N/A	100
26	Gas Mask (Multi-Purpose)	N/A	15
27	Snake Cather Stick	N/A	50
28	Darryan (Solid like Carpets)	N/A	500
29	Steel Daggers	N/A	50
30	Steel safety Helmets	N/A	50
31	Under water Plastic Shoes for Boat Operators	N/A	20
32	Water Filters	N/A	50
<b>Proposed Rescue Vehicles</b>			
33	Life Care Ambulance	N/A	02
34	Fire Fighting Vehicles	N/A	02
35	Water Bowser	N/A	02

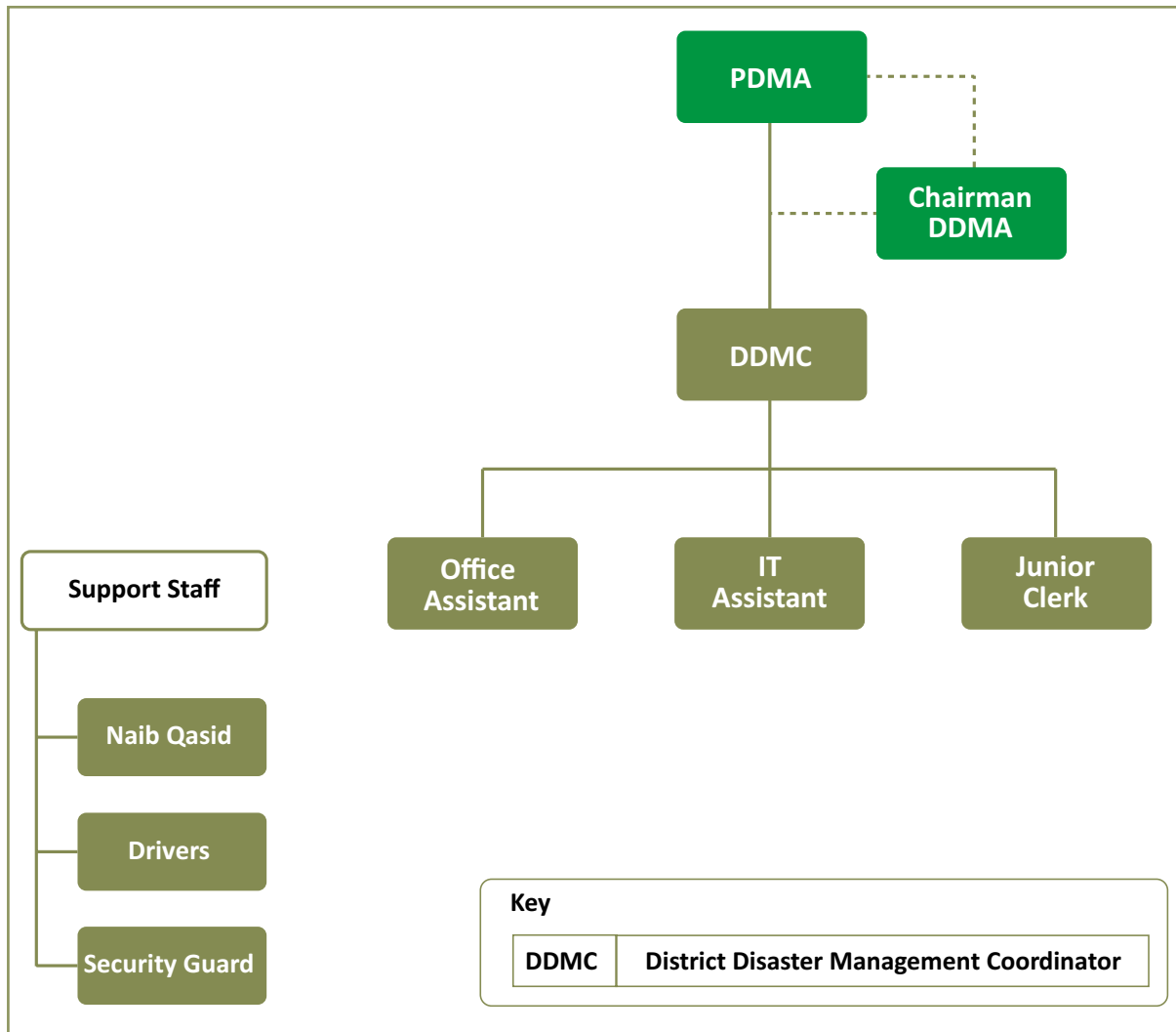
- It is suggested that a new DDMA structure should be introduced along with dedicated staff, space and basic office equipment. Basic office equipment like (tables, office chairs, generators or solar system, GPS devices, desktop computers, communication devices, etc) have already been proposed for each DDMA.
- Institutional mandates should be revisited and writing staff ToRs to ensure the inclusion of DRR/DRM.
- Disaster management plans should be developed every year by DDMA with consent of line departments and stake holders.
- Contingency plans should also be developed at District level and shall be updated regularly.
- A proper Early Warning System (EWS) should be introduced in the District.
- Coordination among key stakeholders should be strengthened for the implementation of disaster risk reduction measures and effective emergency response through assignment of responsibility to each stakeholder. Stakeholders must have joint meetings to address the issues faced by them.
- Basic search, rescue and relief equipment should be provided to each District.
- Proper financial management system should be developed in the District for the transfer of funds in the event of disaster or in the phase of normal circumstances.
- Strengthening logistical capacity to facilitate networking between stakeholders.
- Placing staff on longer-term contracts to strengthen institutional knowledge and linkages.
- The Government and NGOs should invest in DRR sector and should corporate DRR

measures in improving school buildings as these can be used as shelter and evacuation centers in case of emergency.

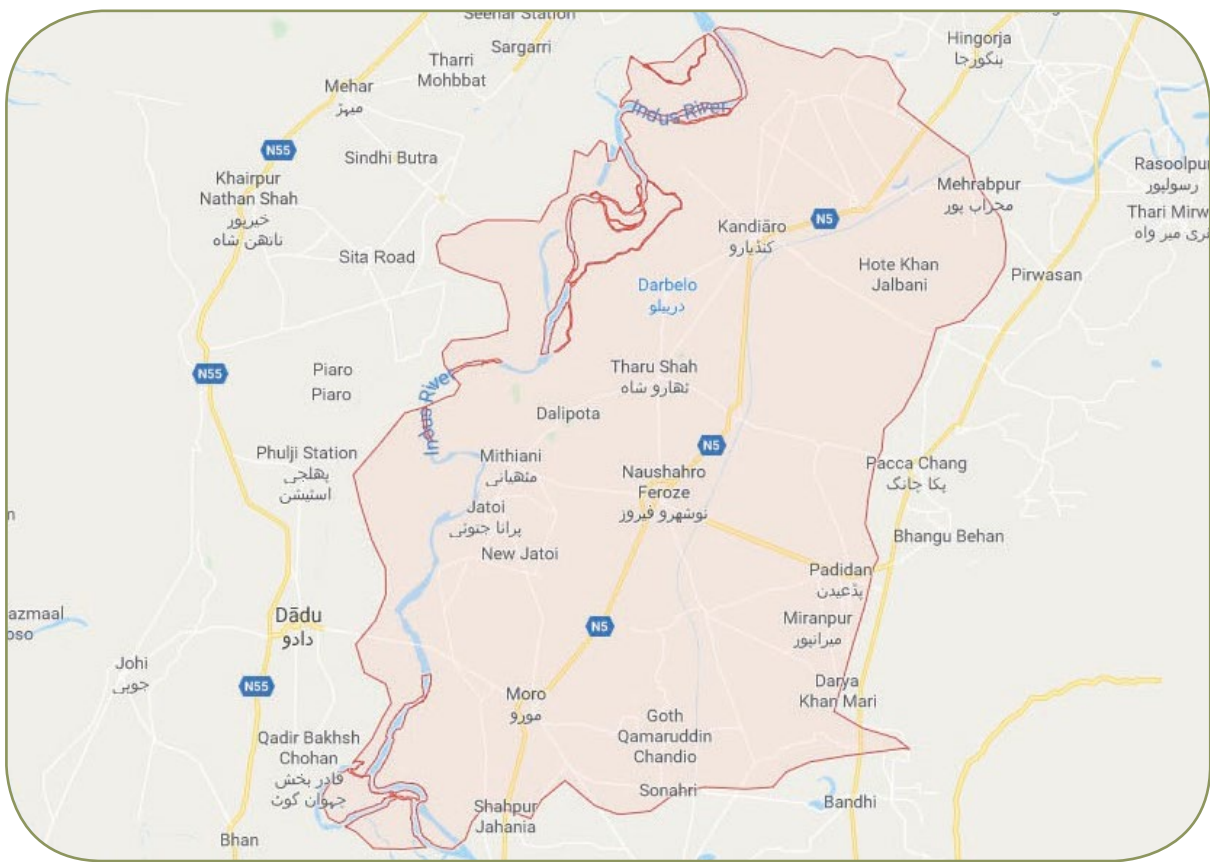
- Awareness programs should be organized by District Disaster Management Authority about the need of land use planning and building codes so that it can be followed by all the stakeholders, to avoid future threats.
- To minimize the flood risk, communities should be trained on rain water harvesting through microcatchments and roof top rain water harvesting as these practices will help them to store water for future productive use.
- Active people from the community can be used for disseminating early warning for the local endangered communities because people have lot of trust in informal and locally influential sources of information; e.g. a religious leader, a teacher, an NGO worker or a local Government official. But firstly, these active people should also be trained on EWS.
- Radio can be a very important part of Early Warning System (EWS) but care should be taken while transmitting early warnings. It should be in clear words and confirmed through reliable sources to avoid false reports and unnecessary panic.
- Media in District should expand its role as a watchdog during monitoring and handling of donations in the post-disaster phase so that the funds are given to the affected people of the District rather than self interest groups.
- A logistic system should be placed for determining the requirement of medicines, maintaining inventory, storing and stocking, issuing and controlling the use of commodities, stockpile of emergency medicine and supplies, special arrangement with vendors and suppliers for emergency purchases in time of disaster.
- DRR measures should be incorporated in the construction of sewerage system in order to minimize the possibility of overflowing of sewage water in rainy days and to mitigate the hygiene issues.
- District Disaster Management Authority should coordinate with the NGOs working in different sectors to address the problems of people. The NGOs working on different projects can be invited and can be asked for initiation of DRR projects in the vulnerable areas of the District.



### Proposed Structure of DDMA



## District Naushahro Feroze



## District Naushahro Feroze

Area	3027 Km <sup>2</sup>
Population	1,612,373
Population Density	532.6 Per km <sup>2</sup>
Rural / Urban	76.4% / 23.6%

District Naushahro Feroze lies in 67° 48" 2' to 68° 26" 51' East longitudes and 26° 32" 45' to 27° 13" 36' North latitudes. This District is bounded by District Khairpur on the East, District Larkana on the North, District Dadu on the West, and District Jamshoro and Shaheed Benazirabad on the South. Indus Rivers flows alongside the Western boundary of the District. The climate of the District is extreme, both in winters and summers.

District Naushahro Feroze was moderately hit by floods in 2010; whereas it was again severely hit in 2011, 2012 and 2013 by rains/floods. The extent of damage was not moderate 1,512 houses were damaged in 2010, in 2011 total the number of total houses affected was 34,393 and in 2013 the number was 3,103. Along with the demographic losses, due to floods 2011, the loss to agriculture sector exacerbated the sources of livelihood for the people of this District.

### *Hazard matrix of District Shaheed Benazirabad*

Hazard	Frequency	Area affected	Severity/ Force	Year
Riverine Floods	Monsoon	Western Taluka	High	1973, 1976, 2010, 2011, 2012, 2013
Rain floods	Monsoon	Entire District	High	2011, 2012, 2013
Epidemics	Seasonal	Entire District	Low	Every year
Earthquakes	Rare	Entire District	Low	
Accidents/Fire	Frequently	Entire District	Low	Through Out

Along with the above mentioned disasters, a list of potential future hazards can be seen below;

Depleting water resources
Clean drinking water
Increasing un-irrigated lands
Health epidemics and pandemics
Heavy chemical discharges/emissions
High rate of morbidity and mortality
Over exploitation of natural resources
Dense urbanization
Decreasing livestock
Sea and river intrusions
De-forestation of mangroves and other species
Water-logging and salinities
Nutritional stunting
Food insecurities
Forest fires

## Industrial Fires

**Summary of data received from District**

During the field survey data was collected with the help of a detailed questionnaire that was filled by concerned District authorities, the summary of data received can be seen in the table below;

Sr.	Description	Details
1	What are the crops being cultivated in your District	Wheat, Vegetables, Pulses, Rice, Sugarcane and cotton
2	What are most vulnerable services in your District	Education, Health, Transport, Roads, Electricity
3	Do you receive any support from PDMA	Support is received from PDMA in all aspects on request
4	Do you receive any support from line departments	All line departments support in the time of disaster
5	Does epidemic diseases occur in your District	Malaria, Diarrhoea, Cholera, Typhoid
6	District Level Legal Framework	Yes
7	Availability and quality of Disaster Management Plan	Disaster management plan is available and is reviewed regularly through coordination with all committee members, stakeholders and line departments
8	Availability and quality of Contingency Plan	Contingency plan is made regularly and is satisfying
9	Does proper DDMA setup exist	DDMA is established as per the Government notification, it is led by DC with coordination with all line departments
10	Is there any proper coordination mechanism established between DDMA and line departments	Yes, coordination mechanism has been established
11	What are the existing means of communication being used	Radio, Internet, Telephone, Mobile, Print & Electronic Media
12	Are there any alternative means of communication	Internet, Telephone, Radio
13	Is basic office equipment for DDMA available/ provided	Sitting chairs, tables and computers are available
14	Is proper/dedicated space allocated for DDMA office	Yes, space is allocated for DDMA and is adequate
15	Is resource allocation sufficient	Resources are allocated and are found to be sufficient
16	Proper early warning system exist	Early warning system exist
17	What is the system to determine damage/loss	Yes, damage assessments are conducted
18	GIS	Yes
19	Mechanism to purchase disaster relief supplies	Disaster relief supplies are procured as per Provincial Government policy
20	Do you carry out DRR/CBDRM trainings in your Districts	Yes, trainings are being conducted
21	What is the status of public education campaigns	Yes, such campaigns are being carried out in the District
22	Are there any awareness raising activities being carried out In your District	Yes

23	Do you think BCC material and equipment is sufficient	Yes material is enough and sufficient
24	Do you have sufficient funds for capacity building of staff	No
25	Well defined local level evacuation areas/ routes/shelters	Such routes are not yet identified
26	Do you have any resource team for trainings	There is no such team for trainings
27	Is sufficient rescue relief & search equipment available	Rescue relief and search equipment is available
28	Do you have sufficient HR to manage disaster	HR is sufficient to manage disaster
29	Are you using any tool to measure performance of staff	No, there is no such tool
30	Is Government providing any sort of insurance facility to the community	Currently, no such facility is being provided to the community
31	Do you have a proper capacity building policy	Yes
32	Do you have well equipped IT department in your District	Currently, District has no such department, IT department needs to be established
33	What sort of qualification and skills are required by your staff	Proper training should be given to staff to manage the disaster situation
34	Are you satisfied with the governance structure of DDMA	No, Governance structure needs to be improved
35	Are the job descriptions of staff well defined	No

## Recommendations

Following is the list of proposed basic search rescue and relief equipment;

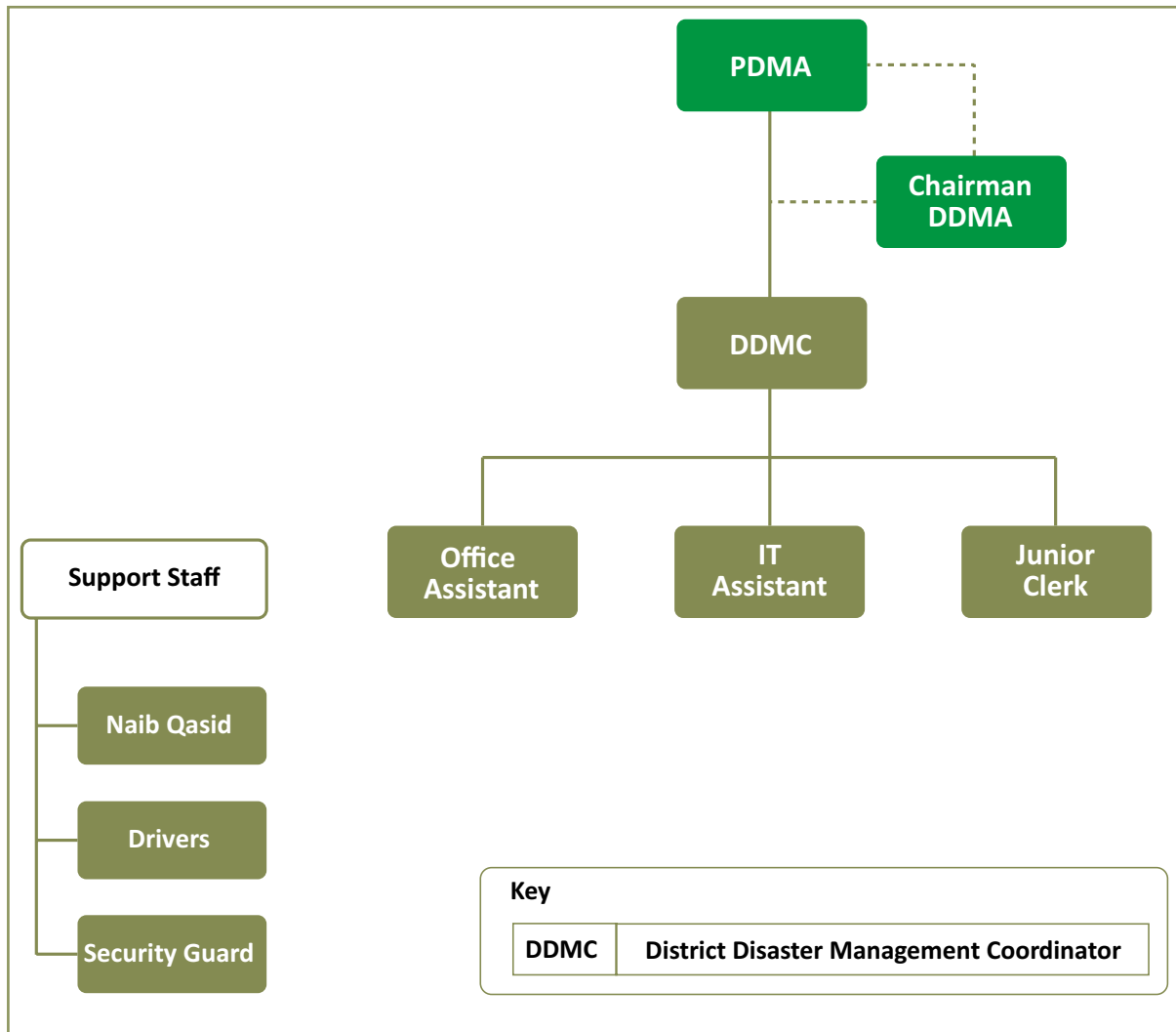
Sr.	Items	Available	Required
1	Life Jackets	N/A	500
2	De-watering Machines	63	100
3	Scuba	N/A	10
4	Torches	N/A	200
5	Life Bouys	N/A	50
6	Life Rings	N/A	50
7	Life Line	N/A	50
8	Nylon Rope	N/A	50
9	Tents	N/A	10,000
10	First aid Box	N/A	1000
11	Dry Suit	N/A	10
12	Jerry Can	N/A	250
13	Cess Pool	N/A	10
14	Portable Generators	N/A	20
15	Folding Chairs	N/A	500
16	Folding tables	N/A	100
17	Floating Ropes	N/A	50
18	Mosquito Nets	N/A	5,000
19	Rope Throwing Guns with Accessories	N/A	2
20	Pedestal Fans	N/A	100

21	Fumigation Machine	N/A	10
22	Boats	N/A	10
23	Mega Phone	N/A	10
24	Hand Moving Trolleys	N/A	100
25	Shovel/Karahi & Kahi/ Hammer/ Chisel (set)	N/A	100
26	Gas Mask (Multi-Purpose)	N/A	15
27	Snake Cather Stick	N/A	20
28	Darryan (Solid like Carpets)	N/A	500
29	Steel Daggers	N/A	50
30	Steel Safety Helmets	N/A	100
31	Under water Plastic Shoes for Boat Operators	N/A	20
32	Water Filters	N/A	50
<b>Proposed Rescue Vehicles</b>			
33	Life Care Ambulance	N/A	02
34	Fire Fighting Vehicles	N/A	02
35	Water Bowser	N/A	02

- It is suggested that a new DDMA structure should be introduced along with dedicated staff, space and basic office equipment. Basic office equipment like (tables, office chairs, generators or solar system, GPS devices, desktop computers, communication devices, etc) have already been proposed for each DDMA.
- Institutional mandates should be revisited and writing staff ToRs to ensure the inclusion of DRR/DRM.
- Disaster management plans should be developed every year by DDMA with consent of line departments and stake holders.
- Contingency plans should also be developed at District level and shall be updated regularly.
- A proper Early Warning System (EWS) should be introduced in the District.
- Coordination among key stakeholders should be strengthened for the implementation of disaster risk reduction measures and effective emergency response through assignment of responsibility to each stakeholder. Stakeholders must have joint meetings to address the issues faced by them.
- Basic search, rescue and relief equipment should be provided to each District.
- Proper financial management system should be developed in the District for the transfer of funds in the event of disaster or in the phase of normal circumstances.
- Strengthening logistical capacity to facilitate networking between stakeholders.
- Placing staff on longer-term contracts to strengthen institutional knowledge and linkages.
- The Government and NGOs should invest in DRR sector and should corporate DRR measures in improving school buildings as these can be used as shelter and evacuation centers in case of emergency.
- Awareness programs should be organized by District Disaster Management Authority about the need of land use planning and building codes so that it can be followed by all the stakeholders, to avoid future threats.
- To minimize the flood risk, communities should be trained on rain water harvesting through microcatchments and roof top rain water harvesting as these practices will help them to store water for future productive use.

- Active people from the community can be used for disseminating early warning for the local endangered communities because people have lot of trust in informal and locally influential sources of information; e.g. a religious leader, a teacher, an NGO worker or a local Government official. But firstly, these active people should also be trained on EWS.
- Radio can be a very important part of Early Warning System (EWS) but care should be taken while transmitting early warnings. It should be in clear words and confirmed through reliable sources to avoid false reports and unnecessary panic.
- Media in District should expand its role as a watchdog during monitoring and handling of donations in the post-disaster phase so that the funds are given to the affected people of the District rather than self interest groups.
- A logistic system should be placed for determining the requirement of medicines, maintaining inventory, storing and stocking, issuing and controlling the use of commodities, stockpile of emergency medicine and supplies, special arrangement with vendors and suppliers for emergency purchases in time of disaster.
- DRR measures should be incorporated in the construction of sewerage system in order to minimize the possibility of overflowing of sewage water in rainy days and to mitigate the hygiene issues.
- District Disaster Management Authority should coordinate with the NGOs working in different sectors to address the problems of people. The NGOs working on different projects can be invited and can be asked for initiation of DRR projects in the vulnerable areas of the District.

### Proposed Structure of DDMA





## District Sanghar



## District Sanghar

Area	10,259 Km <sup>2</sup>
Population	2,057,057
Population Density	200.5 Per km <sup>2</sup>
Rural / Urban	71.4% / 28.6%

District Sanghar lies in 68° 28" 18' to 70° 12" 49' East longitudes and 25° 29" 42' to 26° 28" 1' North latitudes. This District is bounded by Indian state of Rajasthan on the East, District Khairpur and Shaheed Benazirabad on the North, District Matiari and Tando Allahyar on the west, and District Umerkot and Mirpur Khas on the South. Indus River flows on the Western side of this District, in the vicinity of District Matiari. Like most other Districts of interior Sindh, Sanghar has an extreme climate – very cold in winters and very hot in summers.

District Sanghar was severely hit by rains/floods in 2010, 2011 and 2012. Yet, the extent of damage was more severe in 2011 as compared to 2010 and 2012. After 2010 floods, the District was categorized as a very low risk Districts by PDMA Sindh, but in 2011 rains/floods, the extent of damage was severe as assessments showed that all the 361 mouzas of 55 union councils were affected. A population of 1, 237,432 (67% of the total population) persons was affected and there were 39 casualties and 93 injuries. In total, 312,928 houses were damaged. Geographically, a total of 927,201 acres of area was inundated in all talukas of the District.

Along with the aforementioned floods, drought hit this District in 1997 and in 2000. 2013-14 drought affected Sanghar along with Tharparkar, Umerkot and Khairpur Districts. Epidemics, casualties due to accidents and environmental degradation occur on yearly basis.

### *Hazard matrix of District Sanghar*

Hazard	Frequency	Area affected	Severity/ Force	Year
Rain Floods	Monsoon	Entire District	High	2006, 2007, 2011, 2012
Epidemics	Seasonal	Entire District	Low	Every year
Drought	Common	Eastern part of District	Low	1997-2000, 2013-2014
Earthquakes	Rare	Entire District	Low	2013
Water Logging & Salinity	Common	Entire District		Throughout
Desert Storm	Frequent	Taluka Khipro	Low	Throughout
Fire/ transport Accidents	Frequent	Entire District	Low	Every year

Along with the above mentioned disasters, a list of potential future hazards can be seen below;

Depleting water resources
Clean drinking water
Increasing un-irrigated lands
Health epidemics and pandemics
Heavy chemical discharges/emissions

High rate of morbidity and mortality
Over exploitation of natural resources
Dense urbanization
Decreasing livestock
Sea and river intrusions
De-forestation of mangroves and other species
Water-logging and salinities
Nutritional stunting
Food insecurities
Forest fires
Industrial Fires

### Summary of data received from District

During the field survey data was collected with the help of a detailed questionnaire that was filled by concerned District authorities, the summary of data received can be seen in the table below;

Sr.	Description	Details
1	What are the crops being cultivated in your District	Cotton, rice, sugarcane and wheat
2	What are most vulnerable services in your District	Education, Health, Transport, Roads, Electricity
3	Do you receive any support from PDMA	Support is received but is not as per expectations
4	Do you receive any support from line departments	Yes, Irrigation, Health, logistics and fire brigade
5	Does epidemic diseases occur in your District	Malaria, Diarrhea, Gastro, Fever , eye and skin diseases
6	District Level Legal Framework	No, Proper framework is required
7	Availability and quality of Disaster Management Plan	There is no disaster management plan in the District
8	Availability and quality of Contingency Plan	Contingency plan is available
9	Does proper DDMA setup exists	DDMA is not functional
10	Is there any proper coordination mechanism established between DDMA and line departments	No such mechanism has been established yet
11	What are the existing means of communication being used	Telephone
12	Are there any alternative means of communication	Radio, Internet
13	Is basic office equipment for DDMA available/ provided	No DDMA equipment is available
14	Is proper/dedicated space allocated for DDMA office	Space is allocated for DDMA office
15	Is resource allocation sufficient	Allocated resources are not sufficient, all organizational resources are required
16	Proper early warning system exist	There is no proper EWS in the District
17	What is the system to determine damage/loss	There is no such system
18	GIS	No

19	Mechanism to purchase disaster relief supplies	Yes
20	Do you carry out DRR/CBDRM trainings in your Districts	No
21	What is the status of public education campaigns	Yes, such campaigns are being run in the District
22	Are there any awareness raising activities being carried out In your District	Yes
23	Do you think BCC material and equipment is sufficient	No, material is not sufficient
24	Do you have sufficient funds for capacity building of staff	No, funds are required
25	Well defined local level evacuation areas/ routes/shelters	No such routes are defined
26	Do you have any resource team for trainings	Resource team is available for training
27	Is sufficient rescue relief & search equipment available	Equipment is not available
28	Do you have sufficient HR to manage disaster	HR is sufficient but needs to be trained
29	Are you using any tool to measure performance of staff	There is no such tool
30	Is Government providing any sort of insurance facility to the community	Currently, no such facility is being provided to the community
31	Do you have a proper capacity building policy	Yes
32	Do you have well equipped IT department in your District	Currently, District has no such department, IT department needs to be established
33	What sort of qualification and skills are required by your staff	Proper training should be given to staff to manage the disaster situation
34	Are you satisfied with the governance structure of DDMA	No, need to expand services as per ground realities
35	Are the job descriptions of staff well defined	No

## Recommendations

Following is the list of proposed basic search rescue and relief equipment;

Sr.	Items	Available	Required
1	Life Jackets	N/A	500
2	De-watering Machines	144	250
3	Scuba	N/A	5
4	Torches	N/A	300
5	Life Bouys	N/A	100
6	Life Rings	N/A	100
7	Life Line	N/A	100
8	Nylon Rope	N/A	50
9	Tents	N/A	50,000
10	First aid Box	N/A	1,000
11	Dry Suit	N/A	10
12	Jerry Can	N/A	500
13	Cess Pool	N/A	N/A

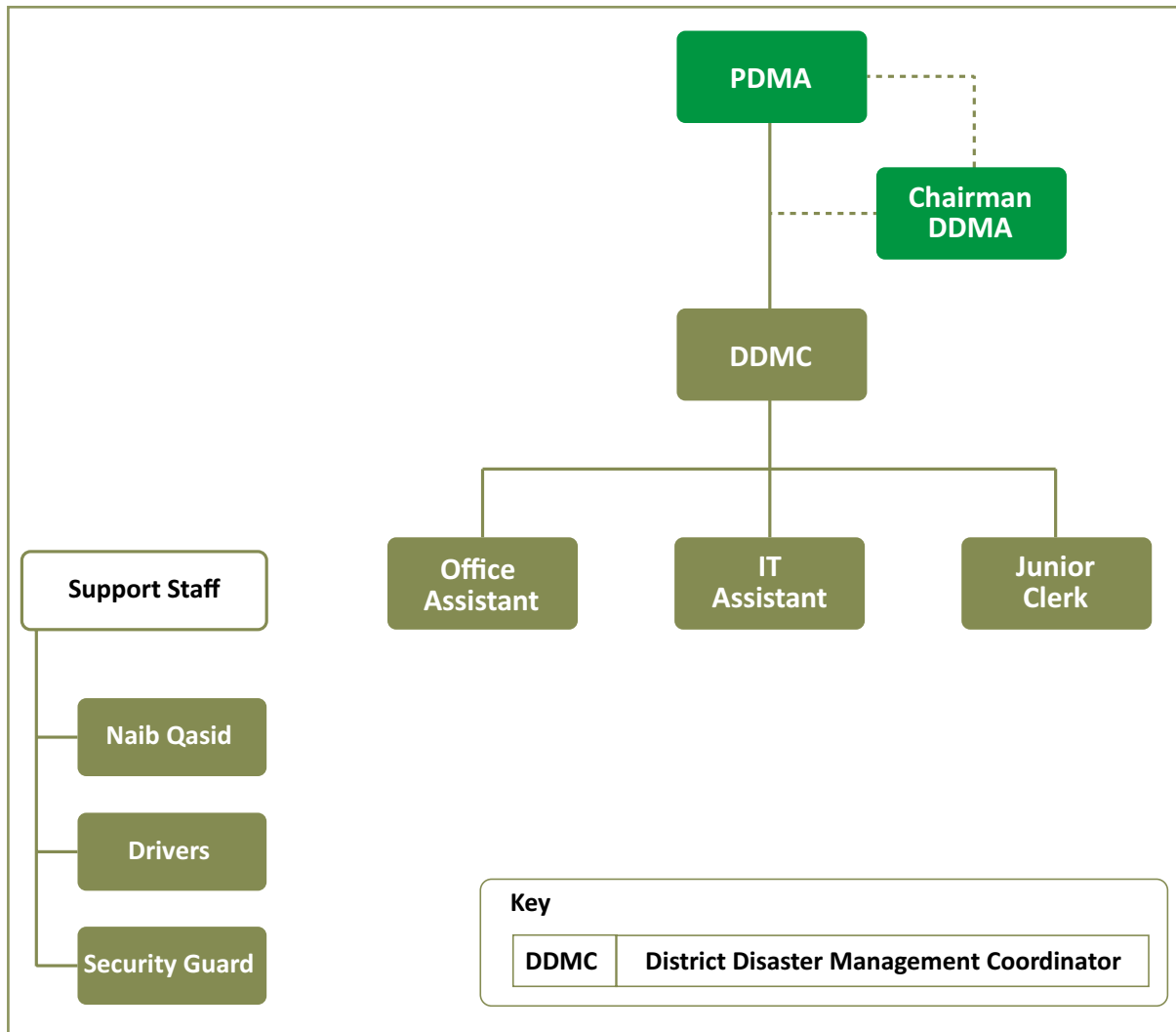
14	Portable Generators	2	30
15	Folding Chairs	N/A	500
16	Folding tables	N/A	100
17	Floating Ropes	N/A	50
18	Mosquito Nets	N/A	50,000
19	Rope Throwing Guns with Accessories	N/A	5
20	Pedestal Fans	N/A	250
21	Fumigation Machine	2	20
22	Boat	N/A	20
23	Mega Phone	N/A	50
24	Hand Moving Trolleys	105	200
25	Shovel/Karahi & Kahi/ Hammer/ Chisel (set)	N/A	100
26	Gas Mask (Multi-Purpose)	N/A	20
27	Snake Cather Stick	N/A	2
28	Darryan (Solid like Carpets)	N/A	500
29	Steel Daggers	N/A	100
30	Steel safety Helmets	N/A	50
31	Under water Plastic Shoes for Boat Operators	N/A	20
32	Water Filters	N/A	100
<b>Proposed Rescue Vehicles</b>			
33	Life Care Ambulance	N/A	02
34	Fire Fighting Vehicles	N/A	02
35	Water Bowser	N/A	02

- It is suggested that a new DDMA structure should be introduced along with dedicated staff, space and basic office equipment. Basic office equipment like (tables, office chairs, generators or solar system, GPS devices, desktop computers, communication devices, etc) have already been proposed for each DDMA.
- Institutional mandates should be revisited and writing staff ToRs to ensure the inclusion of DRR/DRM.
- Disaster management plans should be developed every year by DDMA with consent of line departments and stake holders.
- Contingency plans should also be developed at District level and shall be updated regularly.
- A proper Early Warning System (EWS) should be introduced in the District.
- Coordination among key stakeholders should be strengthened for the implementation of disaster risk reduction measures and effective emergency response through assignment of responsibility to each stakeholder. Stakeholders must have joint meetings to address the issues faced by them.
- Basic search, rescue and relief equipment should be provided to each District.
- Proper financial management system should be developed in the District for the transfer of funds in the event of disaster or in the phase of normal circumstances.
- Strengthening logistical capacity to facilitate networking between stakeholders.
- Placing staff on longer-term contracts to strengthen institutional knowledge and linkages.
- The Government and NGOs should invest in DRR sector and should corporate DRR

measures in improving school buildings as these can be used as shelter and evacuation centers in case of emergency.

- Awareness programs should be organized by District Disaster Management Authority about the need of land use planning and building codes so that it can be followed by all the stakeholders, to avoid future threats.
- To minimize the flood risk, communities should be trained on rain water harvesting through microcatchments and roof top rain water harvesting as these practices will help them to store water for future productive use.
- Active people from the community can be used for disseminating early warning for the local endangered communities because people have lot of trust in informal and locally influential sources of information; e.g. a religious leader, a teacher, an NGO worker or a local Government official. But firstly, these active people should also be trained on EWS.
- Radio can be a very important part of Early Warning System (EWS) but care should be taken while transmitting early warnings. It should be in clear words and confirmed through reliable sources to avoid false reports and unnecessary panic.
- Media in District should expand its role as a watchdog during monitoring and handling of donations in the post-disaster phase so that the funds are given to the affected people of the District rather than self interest groups.
- A logistic system should be placed for determining the requirement of medicines, maintaining inventory, storing and stocking, issuing and controlling the use of commodities, stockpile of emergency medicine and supplies, special arrangement with vendors and suppliers for emergency purchases in time of disaster.
- DRR measures should be incorporated in the construction of sewerage system in order to minimize the possibility of overflowing of sewage water in rainy days and to mitigate the hygiene issues.
- District Disaster Management Authority should coordinate with the NGOs working in different sectors to address the problems of people. The NGOs working on different projects can be invited and can be asked for initiation of DRR projects in the vulnerable areas of the District.

### Proposed Structure of DDMA



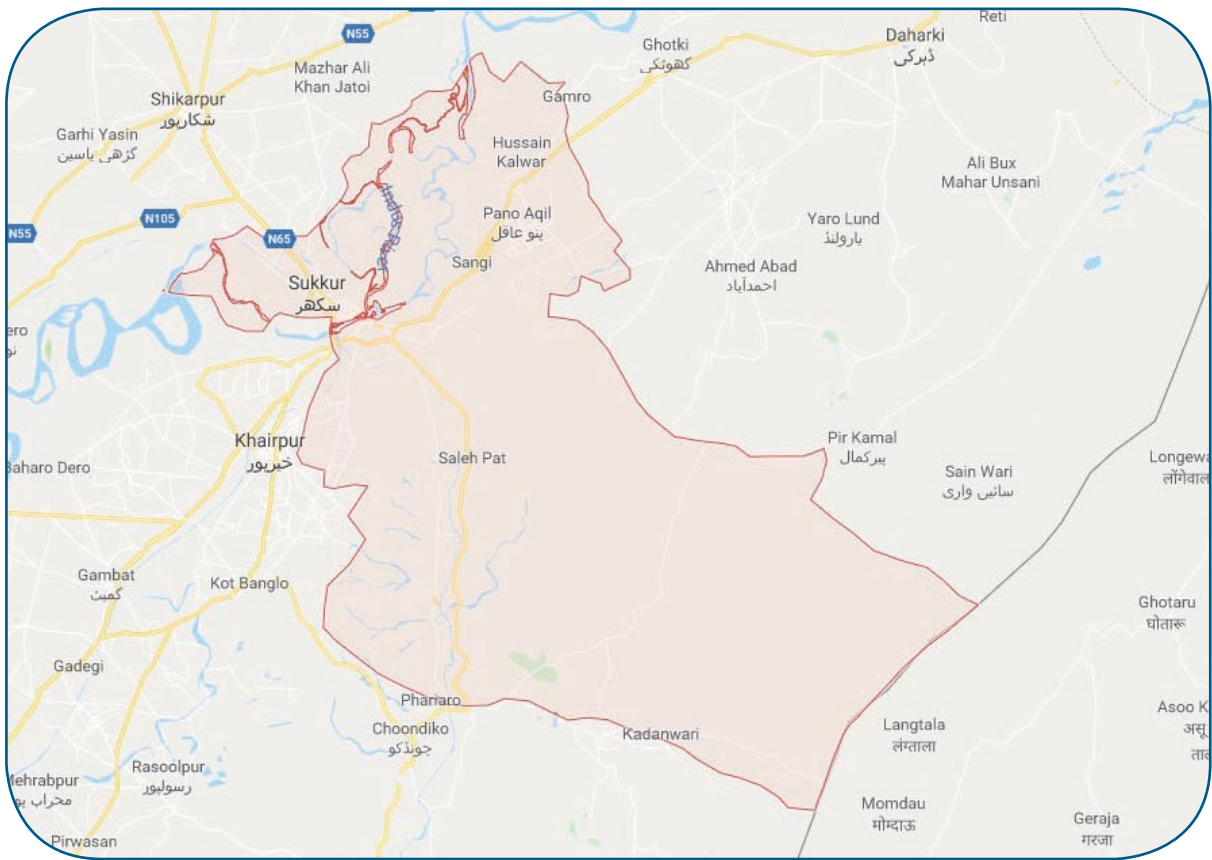




**Sukkur Division**



## District Sukkur



## District Sukkur

Area	5216 Km <sup>2</sup>
Population	1,487,903
Population Density	285.3 Per km <sup>2</sup>
Rural / Urban	51.6% / 48.8%

District Sukkur lies in 68° 35" 30' to 69° 48" 0' East longitudes and 27° 04" 0' to 28° 02" 15' North latitudes. This District is bounded by District Ghotki and India on the East, District Kashmore on the North, District Shikarpur on the North-West, and District Khairpur on the West and South. Indus River flows on the North-Western side of this District. Sukkur is the narrowest part of the Indus River course. The climate of this District is hot during summer while dry and cold in winter.

District Sukkur is vulnerable to riverine floods. River Indus runs through the District. Besides, there are canals on both sides of the river emerging from Sukkur Barrage. In 2010 river Indus run over 130 villages/settlements of the District. A total of 247,913 person were affected in this flood. District Sukkur is also affected by heavy rains of 2011 and 2012.

### *Hazard matrix of District Sukkur*

Hazard	Frequency	Area affected	Severity/ Force	Year
Riverine Floods	Monsoon		High	1973, 1976, 2010, 2012
Heavy Rains	Monsoon	Entire District	Medium	2003, 2011, 2012
Epidemics	Seasonal	Entire District	Low	Every Year
Droughts	Rare	Eastern Part of District	Low	1999 - 2002
Earthquake	Rare	Entire District	Low	
Transport Accidents	frequent	Entire District	Low	Every Year

Along with the above mentioned disasters, a list of potential future hazards can be seen below;

Depleting water resources
Clean drinking water
Increasing un-irrigated lands
Health epidemics and pandemics
Heavy chemical discharges/emissions
High rate of morbidity and mortality
Over exploitation of natural resources
Dense urbanization
Decreasing livestock
Sea and river intrusions
De-forestation of mangroves and other species
Water-logging and salinities
Nutritional stunting
Food insecurities

Forest fires
Industrial Fires

### Summary of data received from District

During the field survey data was collected with the help of a detailed questionnaire that was filled by concerned District authorities, the summary of data received can be seen in the table below;

Sr.	Description	Details
1	What are the crops being cultivated in your District	Wheat, Sugarcane, Cotton, Vegetable, Pulses, Rice
2	What are most vulnerable services in your District	Education, Health, Transport, Electricity, Roads
3	Do you receive any support from PDMA	N/A
4	Do you receive any support from line departments	N/A
5	Availability and quality of Disaster Management Plan	No
6	Availability and quality of Contingency plan	Contingency plan was not found in the District
7	Does proper DDMA setup exist	No, new PDMA is working on it
8	Is there any proper coordination mechanism established between DDMA and line departments	Currently there is no proper coordination mechanism in the District, this system should be functional
9	What are the existing means of communication being used	Telephone, mobile and fax
10	Are there any alternative means of communication	Internet
11	Is basic office equipment for DDMA available/ provided	No equipment found
12	Is proper/dedicated space allocated for DDMA office	Office space for DDMA is allocated and it is adequate
13	Resource allocation sufficient	No resources are allocated for DDMA
14	Proper early warning system exist	No mechanism found
15	What is the system to determine damage/loss	Yes, still needs improvement
16	Proper GIS mechanism	No
17	Mechanism for purchase of disaster relief supplies	Yes, subordinate offices are directed for the purpose
18	Do you carry out DRR/CBDRM trainings in your Districts	No
19	What is the status of public education campaigns	No
20	Are there any awareness raising activities being carried out In your District	No
21	Do you think BCC material and equipment is sufficient	No
22	Do you have sufficient funds for capacity building of staff	Funds are not sufficient
23	Well defined local level evacuation areas/ routes/shelters	Evacuation areas, routes and shelters are defined

24	Do you have any resource team for trainings	Yes
25	Is sufficient rescue relief & search equipment available	Yes
26	Do you have sufficient HR to manage disaster	There is no dedicated rescue and relief HR in District, staff from other Government departments is used during disaster
27	Are you using any tool to measure performance of staff	No
28	Is Government providing any sort of insurance facility to the community	Currently, no such facility is being provided to the community
29	Do you have a proper capacity building policy	N/A
30	Do you have well equipped IT department in your District	Yes, but it needs improvement
31	What sort of qualification and skills are required by your staff	Experience qualified and vibrant staff is required
32	Are you satisfied with the governance structure of DDMA	No, it needs improvement
33	Are the job descriptions of staff well defined	N/A

### Recommendations

Following is the list of proposed basic search rescue and relief equipment;

Sr.	Items	Available	Required
1	Life Jackets	N/A	2500
2	De-watering Machines	31	200
3	Scuba	N/A	10
4	Torches	N/A	300
5	Life Bouys	N/A	100
6	Life Rings	N/A	100
7	Life Line	N/A	100
8	Nylon Rope	N/A	50
9	Tents	N/A	40000
10	First aid Box	N/A	1500
11	Dry Suit	N/A	10
12	Jerry Can	N/A	250
13	Cess Pool	N/A	N/A
14	Portable Generators	N/A	25
15	Folding Chairs	N/A	500
16	Folding tables	N/A	100
17	Floating Ropes	N/A	150
18	Mosquito Nets	N/A	25000
19	Rope Throwing Guns with Accessories	N/A	10
20	Pedestal Fans	N/A	150
21	Fumigation Machine	N/A	25
22	Boats	44	20
23	Mega Phone	N/A	25
24	Hand Moving Trolleys	N/A	100

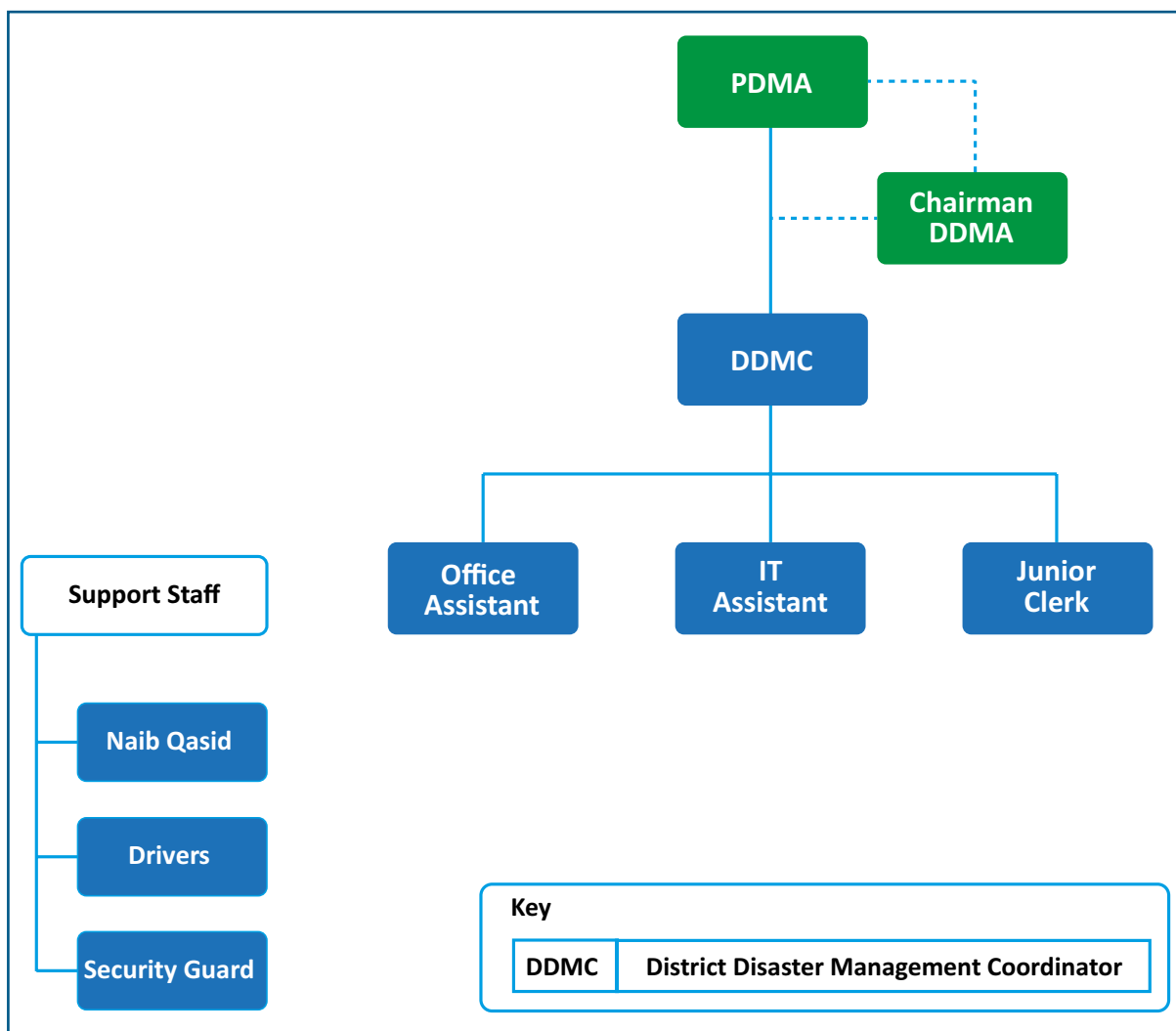
25	Shovel/Karahi & Kahi/ Hammer/ Chisel (set)	N/A	100
26	Gas Mask (Multi-Purpose)	N/A	20
27	Snake Cather Stick	N/A	2
28	Darryan (Solid like Carpets)	N/A	1000
29	Steel Daggers	N/A	50
30	Steel safety Helmets	N/A	50
31	Under water Plastic Shoes for Boat Operators	N/A	25
32	Water Filters	N/A	150
<b>Proposed Rescue Vehicles</b>			
33	Life Care Ambulance	N/A	02
34	Fire Fighting Vehicles	N/A	02
35	Water Bowser	N/A	02

- It is suggested that a new DDMA structure should be introduced along with dedicated staff, space and basic office equipment. Basic office equipment like (tables, office chairs, generators or solar system, GPS devices, desktop computers, communication devices, etc) have already been proposed for each DDMA.
- Institutional mandates should be revisited and writing staff ToRs to ensure the inclusion of DRR/DRM.
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- Strengthening logistical capacity to facilitate networking between stakeholders.
- Placing staff on longer-term contracts to strengthen institutional knowledge and linkages.
- The Government and NGOs should invest in DRR sector and should corporate DRR measures in improving school buildings as these can be used as shelter and evacuation centers in case of emergency.
- Awareness programs should be organized by District Disaster Management Authority about the need of land use planning and building codes so that it can be followed by all the stakeholders, to avoid future threats.
- To minimize the flood risk, communities should be trained on rain water harvesting through microcatchments and roof top rain water harvesting as these practices will help them to store water for future productive use.
- Active people from the community can be used for disseminating early warning for the local endangered communities because people have lot of trust in informal and locally influential sources of information; e.g. a religious leader, a teacher, an NGO worker or a local Government official. But firstly, these active people should also be trained on

EWS.

- Radio can be a very important part of Early Warning System (EWS) but care should be taken while transmitting early warnings. It should be in clear words and confirmed through reliable sources to avoid false reports and unnecessary panic.
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- DRR measures should be incorporated in the construction of sewerage system in order to minimize the possibility of overflowing of sewage water in rainy days and to mitigate the hygiene issues.
- District Disaster Management Authority should coordinate with the NGOs working in different sectors to address the problems of people. The NGOs working on different projects can be invited and can be asked for initiation of DRR projects in the vulnerable areas of the District.

### Proposed Structure of DDMA





## District Ghotki



## District Ghotki

Area	6432.59 Km <sup>2</sup>
Population	1,646,318
Population Density	226 Per km <sup>2</sup>
Rural / Urban	84% / 16%

District Ghotki is located in upper Sindh and is bounded on the North-West by District Kashmore, on the East by District Rahimyar Khan of Punjab, on the South-East by Indian State of Rajhistan and on the West by District Sukkur. River Indus flows from North-East to South-West of the District. The length of riverine tract is 87 kms. The flood plain is called Katcha and is bounded by safety bunds.

Ghotki District has a history of disasters. It was consecutively hit by heavy floods in 2010, 2011 and again in 2012. The relative severity of floods was ranked as medium in District Ghotki.

### *Hazard matrix of District Ghotki*

Hazard	Frequency	Area affected/ Union Council	Severity/ Force	Year
Riverine Floods	Monsoon	Entire District Excluding southern side which is white desert	High	2010, 2011, 2012
Heavy Rains	Monsoon	Whole District	High	2010, 2011, 2012, 2013, 2015
Epidemics	Seasonal	Entire District	Low	Every Year
Droughts	Rare	Southern part of the District	Low	2002
Earthquake	Rare	Whole District	Low	
Transport Accidents	Often	Entire District	Low	Every Year

Along with the above mentioned disasters, a list of potential future hazards can be seen below;

Depilating water resources
Clean drinking water
Increasing un-irrigated lands
Health epidemics and pandemics
Heavy chemical discharges/emissions
High rate of morbidity and mortality
Over exploitation of natural resources
Dense urbanization
Decreasing livestock
Sea and river intrusions
De-forestation of mangroves and other species
Water-logging and salinities
Nutritional stunting
Food insecurities

Forest fires
Industrial Fires

### Summary of data received from District

During the field survey data was collected with the help of a detailed questionnaire that was filled by concerned District authorities, the summary of data received can be seen in the table below;

Sr.	Description	Details
1	What are the crops being cultivated in your District	Wheat, Rice, Cotton
2	What are most vulnerable services in your District	Education, Health, Transport, Electricity, Roads
3	Do you receive any support from PDMA	No
4	Do you receive any support from line departments	No
5	Availability and quality of Disaster Management Plan	Disaster management plan is available in the District
6	Availability and quality of Contingency plan	Contingency plan is available and is of fair quality. But also needs improvement
7	Does proper DDMA setup exist	DDMA does exist, but there is no dedicated staff for it
8	Is there any proper coordination mechanism established between DDMA and line departments	Coordination mechanism is established, Provincial to District and UC level
9	What are the existing means of communication being used	Radio, internet and telephones are only means of communication
10	Are there any alternative means of communication	No
11	Is basic office equipment for DDMA available/ provided	There is no DDMA equipment
12	Is proper/dedicated space allocated for DDMA office	Office space for DDMA is adequate but there are no facilities
13	Resource allocation sufficient	Resource allocation needs to be improved, currently the resources are not sufficient
14	Proper early warning system exist	No
15	What is the system to determine damage/loss	Yes, damage loss is determined with the help of field staff. Proper damage/loss system needs to be established
16	Proper GIS mechanism	No
17	Do you carry out DRR/CBDRM trainings in your Districts	No
18	What is the status of public education campaigns	Public education campaigns are being carried out
19	Are there any awareness raising activities being carried out In your District	Yes, awareness raising campaigns are carried out in schools and communities
20	Do you think BCC materials and equipment are sufficient	Materials and equipment are not sufficient.

21	Do you have sufficient funds for capacity building of staff	Due to insufficient funds, the District was unable to build capacity of the current staff. Funds need to be allocated for such activities
22	Well defined local level evacuation areas/ routes/shelters	Evacuation areas, routes and shelters are defined
23	Do you have any resource team for trainings	Yes, but not dedicated for trainings only
24	Is sufficient rescue relief & search equipment available	yes
25	Do you have sufficient HR to manage disaster	No
26	Are you using any tool to measure performance of staff	No
27	Is Government providing any sort of insurance facility to the community	Currently, no such facility is being provided to the community
28	Do you have a proper capacity building policy	There is no capacity building policy
29	Do you have well equipped IT department in your District	IT department needs to be established
30	What sort of qualification and skills are required by your staff	Qualification and skills are required
31	Are you satisfied with the governance structure of DDMA	No. a proper mechanism/structure needs to be introduced at District level
32	Are the job descriptions of staff well defined	N/A

### Recommendations

Following is the list of proposed basic search rescue and relief equipment;

Sr.	Items	Available	Required
1	Life Jackets	N/A	2500
2	De-watering Machines	50	100
3	Scuba	N/A	10
4	Torches	N/A	400
5	Life Bouys	N/A	200
6	Life Rings	N/A	200
7	Life Line	N/A	200
8	Nylon Rope	N/A	100
9	Tents	N/A	20000
10	First aid Box	N/A	1000
11	Dry Suit	N/A	10
12	Jerry Can	N/A	250
13	Cess Pool	N/A	N/A
14	Portable Generators	1	25
15	Folding Chairs	N/A	750
16	Folding tables	N/A	200
17	Floating Ropes	N/A	200
18	Mosquito Nets	N/A	30000
19	Rope Throwing Guns with Accessories	N/A	10
20	Pedestal Fans	N/A	150
21	Fumigation Machine	N/A	20

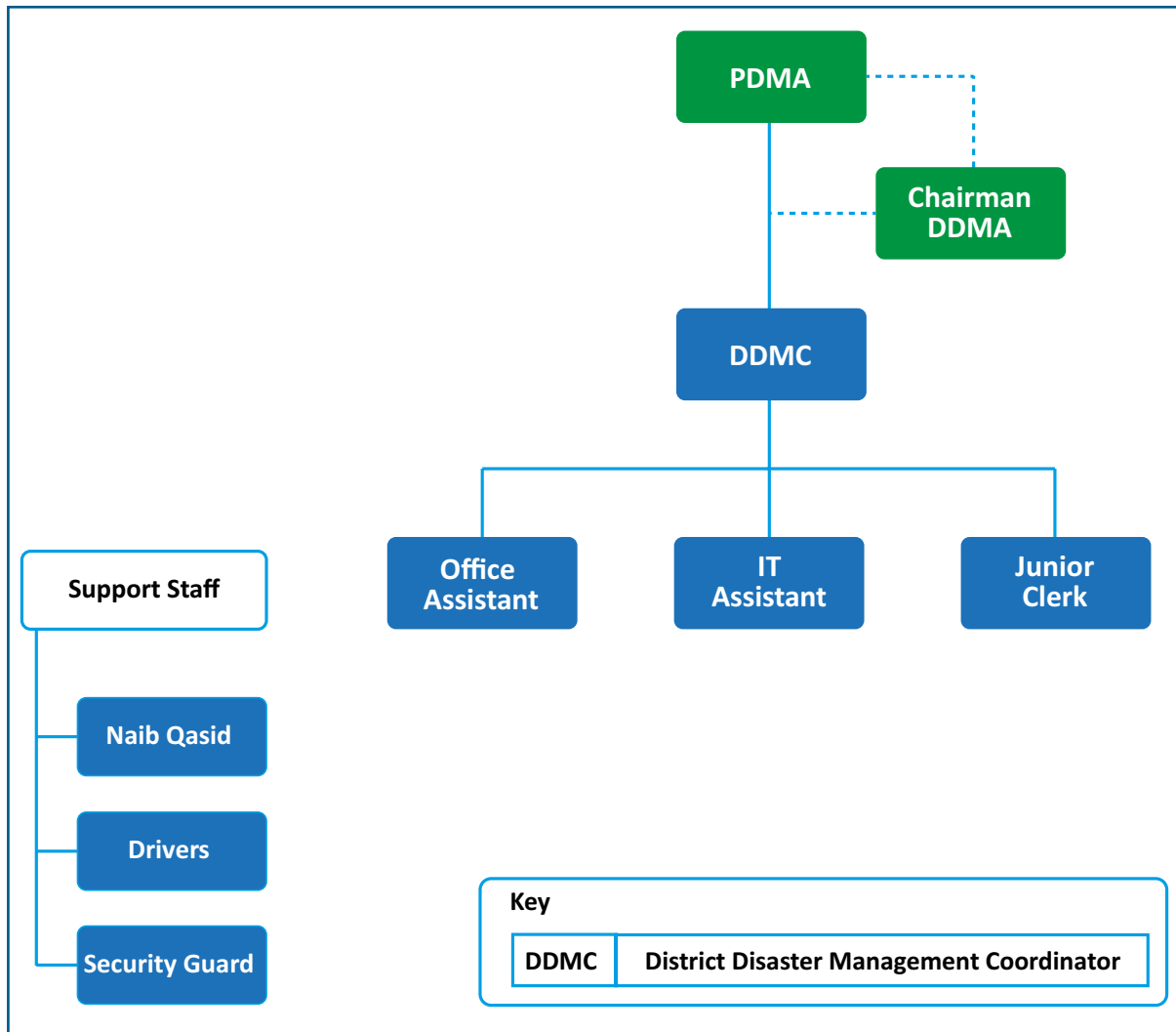
22	Boats	N/A	20
23	Mega Phone	N/A	25
24	Hand Moving Trolleys	N/A	150
25	Shovel/Karahi & Kahi/ Hammer/ Chisel (set)	N/A	100
26	Gas Mask (Multi-Purpose)	N/A	10
27	Snake Cather Stick	N/A	20
28	Darryan (Solid like Carpets)	N/A	1000
29	Steel Daggers	N/A	100
30	Steel safety Helmets	N/A	50
31	Under water Plastic Shoes for Boat Operators	N/A	20
32	Water Filters	N/A	1000
<b>Proposed Rescue Vehicles</b>			
33	Life Care Ambulance	N/A	02
34	Fire Fighting Vehicles	N/A	02
35	Water Bowser	N/A	02

- It is suggested that a new DDMA structure should be introduced along with dedicated staff, space and basic office equipment. Basic office equipment like (tables, office chairs, generators or solar system, GPS devices, desktop computers, communication devices, etc) have already been proposed for each DDMA.
- Institutional mandates should be revisited and writing staff ToRs to ensure the inclusion of DRR/DRM.
- Disaster management plans should be developed every year by DDMA with consent of line departments and stake holders.
- Contingency plans should also be developed at District level and shall be updated regularly.
- A proper Early Warning System (EWS) should be introduced in the District.
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- Basic search, rescue and relief equipment should be provided to each District.
- Proper financial management system should be developed in the District for the transfer of funds in the event of disaster or in the phase of normal circumstances.
- Strengthening logistical capacity to facilitate networking between stakeholders.
- Placing staff on longer-term contracts to strengthen institutional knowledge and linkages.
- The Government and NGOs should invest in DRR sector and should corporate DRR measures in improving school buildings as these can be used as shelter and evacuation centers in case of emergency.
- Awareness programs should be organized by District Disaster Management Authority about the need of land use planning and building codes so that it can be followed by all the stakeholders, to avoid future threats.
- To minimize the flood risk, communities should be trained on rain water harvesting through microcatchments and roof top rain water harvesting as these practices will help them to store water for future productive use.
- Active people from the community can be used for disseminating early warning for the

local endangered communities because people have lot of trust in informal and locally influential sources of information; e.g. a religious leader, a teacher, an NGO worker or a local Government official. But firstly, these active people should also be trained on EWS.

- Radio can be a very important part of Early Warning System (EWS) but care should be taken while transmitting early warnings. It should be in clear words and confirmed through reliable sources to avoid false reports and unnecessary panic.
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- A logistic system should be placed for determining the requirement of medicines, maintaining inventory, storing and stocking, issuing and controlling the use of commodities, stockpile of emergency medicine and supplies, special arrangement with vendors and suppliers for emergency purchases in time of disaster.
- DRR measures should be incorporated in the construction of sewerage system in order to minimize the possibility of overflowing of sewage water in rainy days and to mitigate the hygiene issues.
- District Disaster Management Authority should coordinate with the NGOs working in different sectors to address the problems of people. The NGOs working on different projects can be invited and can be asked for initiation of DRR projects in the vulnerable areas of the District.

### Proposed Structure of DDMA



## District Khairpur





## District Khairpur

Area	15,910 Km <sup>2</sup>
Population	2,404,334
Population Density	146 Per km <sup>2</sup>
Rural / Urban	76.38% / 23.61%

Khairpur District is located in North-Eastern Sindh and is bounded on the North by Shikarpur and Sukkur, on the East by India, on the South by Sanghar and Shaheed Benzeerabad and on the West by Larkana and Noshero Feroz.

The District is prone to natural hazards like floods, heavy rains and droughts. River Indus flows in the North-West of District which increases the susceptibility of the vulnerable people against flood hazard, in monsoon. Khairpur was consecutively hit by heavy rains in 2010, floods in 2011 and 2012. The relative severity of floods was ranked as medium in District Khairpur. Along with the aforementioned floods, Khairpur is also prone to drought, the North-Western part of Thar Desert lies in District.

### Hazard matrix of District Ghotki

Hazard	Frequency	Area affected/ Union Council	Severity/ Force	Year
Floods/ Rains	Monsoon	All 8 talukas (38 out 76 U.Cs) (2011) All T8 alkuas (1795 Villages) 2012	High	2010, 2011, 2012, 2014
Epidemics	Seasonal	Entire District	Low	Every year
Droughts	Infrequent	Eastern part of the District	Low	1999-2002
Earthquake	Infrequent	Whole District	Low	
Transport Accidents/ Fires	Often	Entire District	Low	Every year

Along with the above mentioned disasters, a list of potential future hazards can be seen below;

Depilating water resources
Clean drinking water
Increasing un-irrigated lands
Health epidemics and pandemics
Heavy chemical discharges/emissions
High rate of morbidity and mortality
Over exploitation of natural resources
Dense urbanization
Decreasing livestock
Sea and river intrusions
De-forestation of mangroves and other species
Water-logging and salinities
Nutritional stunting
Food insecurities

Forest fires
Industrial Fires

### Summary of data received from District

During the field survey data was collected with the help of a detailed questionnaire that was filled by concerned District authorities, the summary of data received can be seen in the table below;

Sr.	Description	Details
1	What are the crops being cultivated in your District	Wheat, Sugarcane, Rice, Orchards, Cotton, Vegetable
2	What are most vulnerable services in your District	Education, Health, Transport, Electricity, Roads
3	Do you receive any support from PDMA	PDMA Sindh provides equipment and legislation to some extent
4	Do you receive any support from line departments	No, lack of support from all other line departments in District
5	Availability and quality of Disaster Management Plan	Yes, but it is not updated regularly and is mostly at initial stage
6	Availability and quality of Contingency plan	Contingency plan is available but quality is not satisfactory
7	Does proper DDMA setup exist	DDMA exist as per Government notification, but there is no dedicated staff for DDMA
8	Is there any proper coordination mechanism established between DDMA and line departments	Yes coordination mechanism is established at District level
9	What are the existing means of communication being used	Radio and mobile are being used as means of communication
10	Are there any alternative means of communication	N/A
11	Is basic office equipment for DDMA available/ provided	There is no DDMA equipment in District
12	Is proper/dedicated space allocated for DDMA office	Office space for DDMA is not satisfactory
13	Resource allocation sufficient	Resource allocation for DDMA is poor, all resources are required
14	Proper early warning system exists	No such mechanism is found
15	What is the system to determine damage/loss	There is no proper mechanism for this
16	Proper GIS mechanism	GIS mechanism is available at initial level
17	Do you carry out DRR/CBDRM trainings in your Districts	No trainings are being carried out
18	What is the status of public education campaigns	No such campaigns are running in the District
19	Are there any awareness raising activities being carried out In your District	No
20	Do you think BCC material and equipment is sufficient	There is no material due to insufficient resources

21	Do you have sufficient funds for capacity building of staff	Due to insufficient funds, the District was unable to build capacity of the current staff. Funds need to be allocated for such activities
22	Well defined local level evacuation areas/ routes/shelters	Evacuation areas are not defined at any level
23	Do you have any resource team for trainings	No
24	Is sufficient rescue relief & search equipment available	There is no rescue and relief equipment in District
25	Do you have sufficient HR to manage disaster	No dedicated HR for DDMA
26	Are you using any tool to measure performance of staff	No such mechanism is being used
27	Is Government providing any sort of insurance facility to the community	Currently, no such facility is being provided to the community
28	Do you have a proper capacity building policy	N/A
29	Do you have well equipped IT department in your District	IT department does not exist
30	What sort of qualification and skills are required by your staff	Skilled HR is required
31	Are you satisfied with the governance structure of DDMA	Not satisfied by the current governance structure of DDMA
32	Are the job descriptions of staff well defined	N/A

### Recommendations

Following is the list of proposed basic search rescue and relief equipment;

Sr.	Items	Available	Required
1	Life Jackets	N/A	1500
2	De-watering Machines	106	100
3	Scuba	N/A	10
4	Torches	N/A	400
5	Life Bouys	N/A	200
6	Life Rings	N/A	200
7	Life Line	N/A	200
8	Nylon Rope	N/A	250
9	Tents	N/A	25000
10	First aid Box	N/A	1500
11	Dry Suit	N/A	10
12	Jerry Can	N/A	100
13	Cess Pool	N/A	N/A
14	Portable Generators	1	20
15	Folding Chairs	N/A	500
16	Folding tables	N/A	100
17	Floating Ropes	N/A	50
18	Mosquito Nets	N/A	30000
19	Rope Throwing Guns with Accessories	N/A	5
20	Pedestal Fans	N/A	150
21	Fumigation Machine	81	N/A

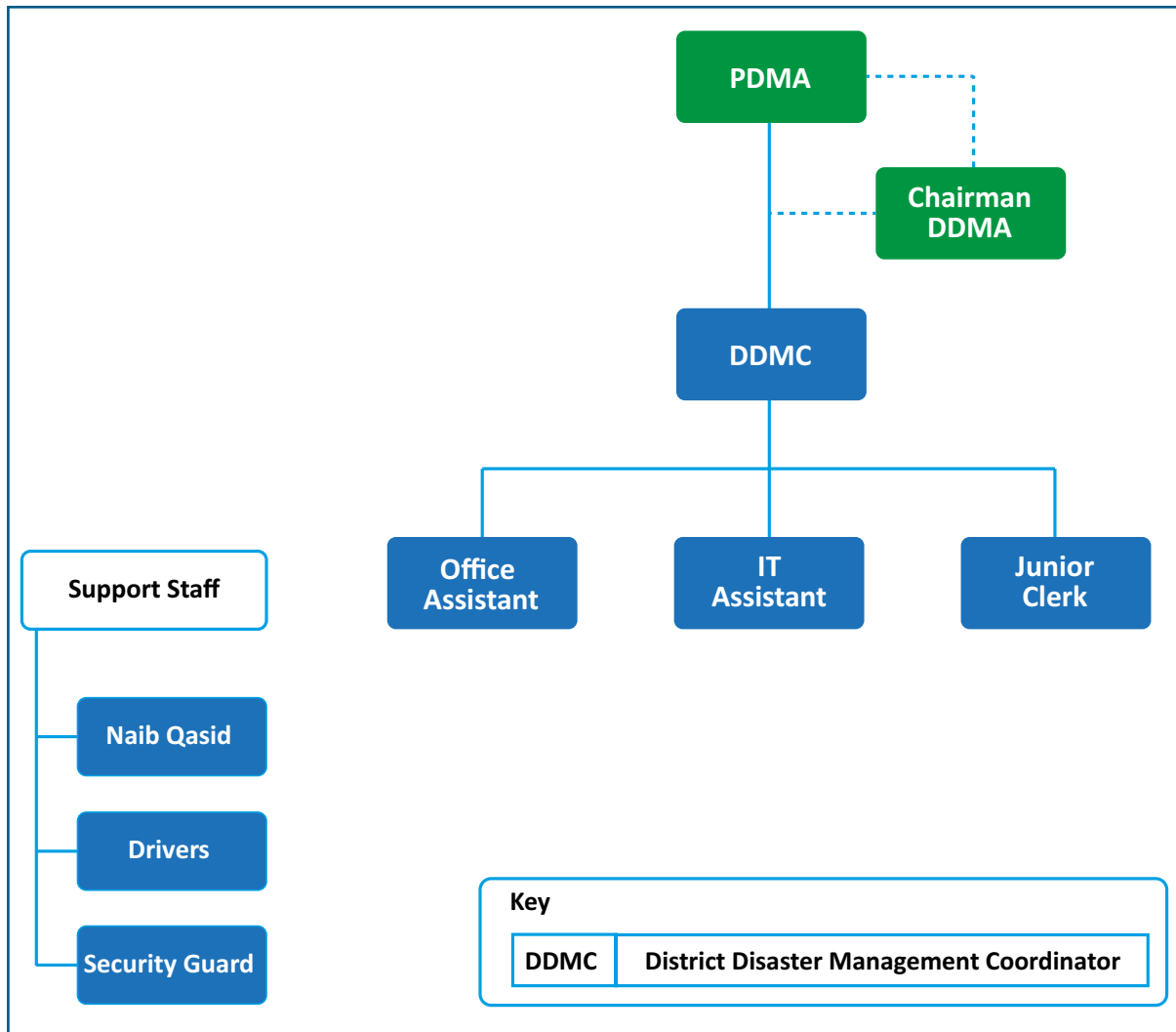
22	Boats	N/A	20
23	Mega Phone	N/A	20
24	Hand Moving Trolleys	N/A	150
25	Shovel/Karahi & Kahi/ Hammer/ Chisel (set)	N/A	100
26	Gas Mask (Multi-Purpose)	N/A	10
27	Snake Cather Stick	N/A	10
28	Darryan (Solid like Carpets)	N/A	1000
29	Steel Daggers	N/A	50
30	Steel safety Helmets	N/A	100
31	Under water Plastic Shoes for Boat Operators	N/A	10
32	Water Filters	N/A	2500
<b>Proposed Rescue Vehicles</b>			
33	Life Care Ambulance	N/A	02
34	Fire Fighting Vehicles	N/A	02
35	Water Bowser	N/A	02

- It is suggested that a new DDMA structure should be introduced along with dedicated staff, space and basic office equipment. Basic office equipment like (tables, office chairs, generators or solar system, GPS devices, desktop computers, communication devices, etc) have already been proposed for each DDMA.
- Institutional mandates should be revisited and writing staff ToRs to ensure the inclusion of DRR/DRM.
- Disaster management plans should be developed every year by DDMA with consent of line departments and stake holders.
- Contingency plans should also be developed at District level and shall be updated regularly.
- A proper Early Warning System (EWS) should be introduced in the District.
- Coordination among key stakeholders should be strengthened for the implementation of disaster risk reduction measures and effective emergency response through assignment of responsibility to each stakeholder. Stakeholders must have joint meetings to address the issues faced by them.
- Basic search, rescue and relief equipment should be provided to each District.
- Proper financial management system should be developed in the District for the transfer of funds in the event of disaster or in the phase of normal circumstances.
- Strengthening logistical capacity to facilitate networking between stakeholders.
- Placing staff on longer-term contracts to strengthen institutional knowledge and linkages.
- The Government and NGOs should invest in DRR sector and should corporate DRR measures in improving school buildings as these can be used as shelter and evacuation centers in case of emergency.
- Awareness programs should be organized by District Disaster Management Authority about the need of land use planning and building codes so that it can be followed by all the stakeholders, to avoid future threats.
- To minimize the flood risk, communities should be trained on rain water harvesting through microcatchments and roof top rain water harvesting as these practices will help them to store water for future productive use.
- Active people from the community can be used for disseminating early warning for the

local endangered communities because people have lot of trust in informal and locally influential sources of information; e.g. a religious leader, a teacher, an NGO worker or a local Government official. But firstly, these active people should also be trained on EWS.

- Radio can be a very important part of Early Warning System (EWS) but care should be taken while transmitting early warnings. It should be in clear words and confirmed through reliable sources to avoid false reports and unnecessary panic.
- Media in District should expand its role as a watchdog during monitoring and handling of donations in the post-disaster phase so that the funds are given to the affected people of the District rather than self interest groups.
- A logistic system should be placed for determining the requirement of medicines, maintaining inventory, storing and stocking, issuing and controlling the use of commodities, stockpile of emergency medicine and supplies, special arrangement with vendors and suppliers for emergency purchases in time of disaster.
- DRR measures should be incorporated in the construction of sewerage system in order to minimize the possibility of overflowing of sewage water in rainy days and to mitigate the hygiene issues.
- District Disaster Management Authority should coordinate with the NGOs working in different sectors to address the problems of people. The NGOs working on different projects can be invited and can be asked for initiation of DRR projects in the vulnerable areas of the District.

### Proposed Structure of DDMA







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