DISASTER MANAGEMENT PLAN

2019-20

HOOGHLY

GOVERNMENT OF WEST BENGAL

OFFICE OF THE DISTRICT MAGISTRATE AND COLLECTOR

HOOGHLY

DEPARTMENT OF DISASTER MANAGEMENT

F O R E W O R D

The district of Hooghly has been identified as the plan district in view to its vulnerability to major natural and man-made disasters such as flood, draught, cyclone, fire etc. The natural disasters especially cyclones and floods affect this district every year. This district experienced flood in the month of July, -August, 2017.

The incessant and heavy rainfall and the consequent abundant discharge of water from different barrage/dam hugely disturb the normal life in the catchment areas resulting in huge loss of life and property. The geographic location of the principally-affected areas especially Arambagh Sub-division is such that until and unless some special and long-term measures are taken, they shall continue to be similarly affected by the flood every year. The issue has already been discussed at the higher level and the State Government is learnt to be taking necessary initiative for the long-term solution of the problem.

During the period flood, large tracts of land in the district get disconnected from the mainland; Villages get swept away by gushing river. People get dislodged from their homes and suffer indescribable hardships and miseries. Normal economic activities including agriculture are negatively impacted in a big way during this period which last almost for about three months. The deep routed impact of draught also plays a little negative role sometimes inrespect of the livelihood measures to the poorest of the poor. Simultaneously the alternative measured is also been taken.

Even though the hazard itself can not be avoided, but the extent and expanse of its impact on life and property can definitely be mitigated through proper management and preparedness. The proposed multi-hazard plan is divided into three parts, namely the pre-disaster preventive measures, the action plan during occurrence of the disaster and post-disaster response measures. Here, a clear-cut action plan involving a wellsynergized coordination with all the concerned line departments has always proved useful and, therefore, we have always attached great importance to the same and have accordingly succeeded in realization of our goals.Again, this is to be reviewed in the extended meeting both all line officers from different deptt. The disaster management plan of Hooghly District is updated every year and is a useful tool in disaster management. I hope that this document will prove useful, as always, to all those engaged in disaster preparedness, relief and rehabilitation measures.

(Sri Jagdish Prasad Meena, I.A.S.)
DistrictMagistrate,
Hooghly

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1 Introduction

1.1Rationale

The District Disaster Management Plan (DDMP) provides a framework and direction to the government agencies for all phases of disaster management cycle. It is in accordance with the provisions of the Disaster Management Act 2005 and the established practices. Relevant agencies – central, state or district – will carry out disaster management activities in different phases in the disaster-affected areas depending on the type and scale of disaster.

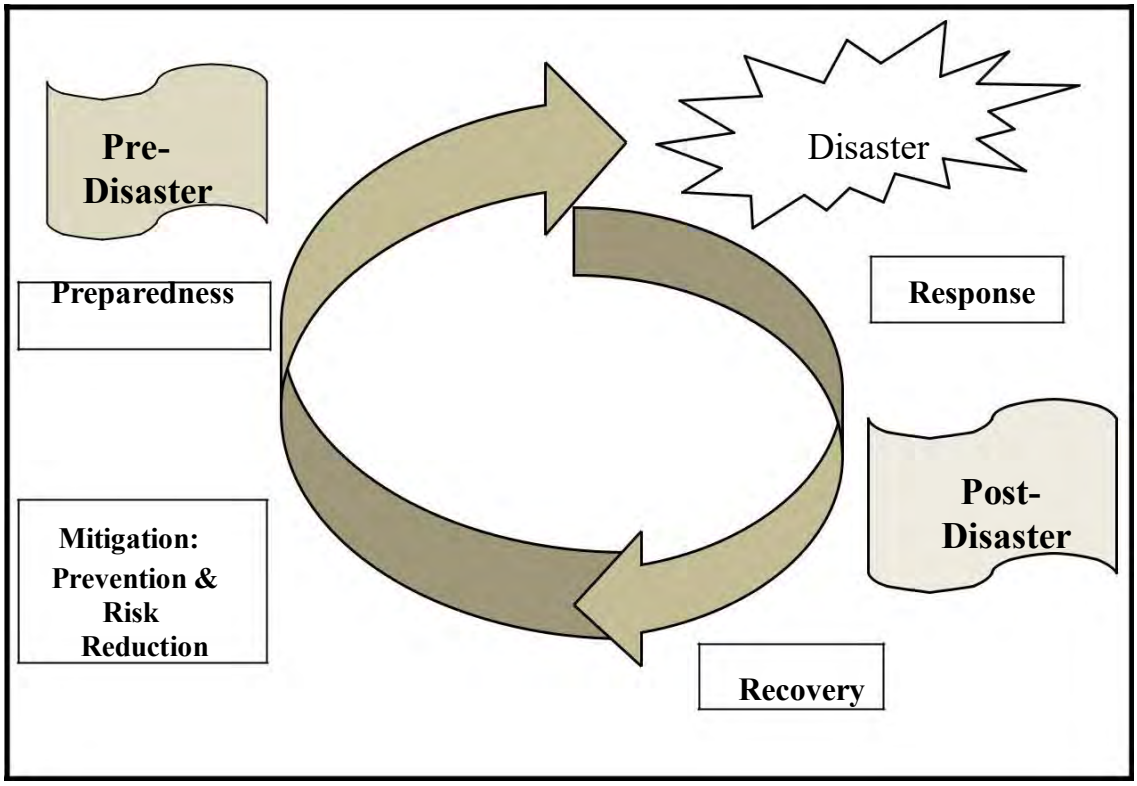

Figure 1-1: Disaster management cycle

The DDMP provides a framework covering all aspects of the disaster management cycle. It covers disaster risk reduction, mitigation, preparedness, response, recovery, and betterment reconstruction. It recognises that effective disaster management necessitates a comprehensive framework encompassing multiple hazards. The DDMP incorporates an integrated approach that ensures the involvement of government agencies, numerous other relevant organisations, private sector participants, and local communities.

The DDMP recognizes the need to minimize, if not eliminate, any ambiguity in the responsibility framework. It, therefore, specifies who is responsible for what at different stages of managing disasters. The DDMP is envisaged as ready for activation at all times in response to an emergency in any part of the district. It is designed in such a way that it can be implemented as needed on a flexible and scalable manner in all phases of disaster management: a) mitigation (prevention and risk reduction), b) preparedness, c) response and d) recovery (immediate restoration to long-term betterment reconstruction).

The DDMP provides a framework with role clarity for rapid mobilization of resources and effective disaster management in the district. While it focuses primarily on the needs of the government agencies, it envisages all those involved in disaster management including communities and non-government agencies as potential users. The DDMP provides a well-defined framework for disaster management covering scope of work and roles of relevant agencies along with their responsibilities and accountability necessary to ensure effective mitigation, develop preparedness, and mobilize adequate response.

1.2 Scope

As per the DM Act 2005, the National Plan shall include:

a. Measures to be taken for prevention of disasters or the mitigation of their effects
b. Measures to be taken for the integration of mitigation measures in the development plans
c. Measures to be taken for preparedness and capacity building to effectively respond to any threatening disaster situations or disaster
d. Roles and responsibilities of different Departments of the districts in respect of measures of the three aspects mentioned above.

Disaster management, covering prevention, preparedness, response, and recovery, necessarily involves multiple agencies. Hence, the inter-agency coordination and collaboration among stakeholders are of utmost importance for the successful implementation of the DDMP and in ensuring effective risk reduction, response and recovery.

The plan is based on detailed hazard-specific guidelines (Annexure-I) prepared by the NDMA. The GoI has notified certain central ministries and departments for hazard-specific nodal responsibilities for overall coordination of disaster management for the particular hazard. In addition, GoI has notified certain ministries disaster-wise for coordinating immediate post-disaster response. These notified ministries / departments have to prepare detailed DM plans to carry out the roles assigned to them.

1.3 Objectives

Along with the mandate given in the DM Act 2005, the national plan has incorporated the national commitment towards the Sendai Framework. Accordingly, the broad objectives of the DDMP are:

1) Improve the understanding of disaster risk, hazards, and vulnerabilities
2) Strengthen disaster risk governance at all levels from local to centre
3) Invest in disaster risk reduction for resilience through structural, non-structural and financial measures, as well as comprehensive capacity development
4) Enhance disaster preparedness for effective response
5) Promote “Build Back Better” in recovery, rehabilitation and reconstruction
6) Prevent disasters and achieve substantial reduction of disaster risk and losses in lives, livelihoods, health, and assets (economic, physical, social, cultural and environmental)
7) Increase resilience and prevent the emergence of new disaster risks and reduce the existing risks
8) Promote the implementation of integrated and inclusive economic, structural, legal, social, health, cultural, educational, environmental, technological, political and institutional measures to prevent and reduce hazard exposure and vulnerabilities to disaster
9) Empower both local authorities and communities as partners to reduce and manage disaster risks
10) Strengthen scientific and technical capabilities in all aspects of disaster management
11) Capacity development at all levels to effectively respond to multiple hazards and for community-based disaster management
12) Provide clarity on roles and responsibilities of various Ministries and Departments involved in different aspects of disaster management

13) Promote the culture of disaster risk prevention and mitigation at all levels
14) Facilitate the mainstreaming of disaster management concerns into the developmental planning and processes

1.4 Sendai Framework

The DDMP is consistent with the approaches promoted globally by the United Nations, in particular the Sendai Framework for Disaster Risk Reduction 2015-2030 (hereafter "Sendai Framework") adopted at the Third UN World Conference in Sendai, Japan, on March 18, 2015 (UNISDR 2015a) as the successor instrument to the Hyogo Framework for Action 2005-2015. It is a non-binding agreement, which the signatory nations, including India, will attempt to comply with on a voluntary basis. However, India will make all efforts to contribute to the realization of the global targets by improving the entire disaster management cycle in India by following the recommendations in the Sendai Framework and by adopting globally accepted best practices.

The four priorities for action under the Sendai Framework are:

1. Understanding disaster risk
2. Strengthening disaster risk governance to manage disaster risk
3. Investing in disaster risk reduction for resilience
4. Enhancing disaster preparedness for effective response and to "Build Back Better" in recovery, rehabilitation and reconstruction

India is a signatory to the Sendai Framework for a 15-year, voluntary, non-binding agreement which recognizes that the State has the primary role to reduce disaster risk but that responsibility should be shared with other stakeholders including local government, the private sector and other stakeholders. It aims for the "substantial reduction of disaster risk and losses in lives, livelihoods, and health and in the economic, physical, social, cultural, and environmental assets of persons, businesses, communities, and countries.
ligence which results in substantial loss of life or human suffering or damage to, and destruction of, property, or damage to, or degradation of, environment, and is of such a nature or magnitude as to be beyond the coping capacity of the community of the affected area."

1.5 Institutional Framework

The West Bengal Disaster Management Department develops policies and principles that guide and govern the disaster management activities in the state. This department is the nodal department for Disaster Management efforts of the government. SDMA and DDMA have been formed following the Disaster Management Act.

Government Departments:
Functionaries of various Government Departments will carry out Disaster Management activities and relief operations as per disaster management plans developed, under the overall supervision of the district Magistrate. The respective district departmental heads from the various Government Departments shall report to the District Magistrate for the activities of Disaster Management.

Local Authorities:
Local Authorities of Municipal Corporations, Municipalities, ZillaParishads, PanchayatSamities, Gram Panchayats etc. would follow appropriate guidelines and procedures in undertaking Disaster Management and emergency relief measures and relief activities, under the overall supervision and direction of the State Relief Commissioner or the District Magistrates.

Private Sector:

Disasters disrupt business activities on which the local population depends, affecting livelihood recovery and means to earn a living. Disaster management should therefore be seen also as a strategy to protect the growth potential of communities. A much closer interaction between business and government is needed to ensure appropriate risk reduction strategies. Role of the private sector in disaster management is a multi-faceted and multi-disciplinary one, including those listed below:

- In improving access to accurate information and basic communication, energy and water systems by facilitating appropriate technology. In training, equipping and achieving proficiency for effective response capacity
- In assessing institutional needs, developing and implementing programmes to assist key organizations with sustainability issues and measures
- In improving disaster consciousness of the general population.

The private sector would participate in the emergency rescue, relief and rehabilitation measures and relief operations under the overall supervision and direction of the District Magistrate. Based on the training and other capacity-building inputs received from the District Magistrates and other authorities, they should be able to mobilize resources immediately and commence emergency relief measures at the earliest, if required. They should also co-operate with relevant authorities in the conduct of a preliminary damage assessment etc. if required.

Community Groups and Voluntary agencies:

Local community and voluntary agencies including NGOs play important roles in different phases of Disaster Management. They have the great field presence and are usually the first responders in the aftermath of a disaster. The community and voluntary agencies undertake rescue and relief measures immediately, to the extent possible, on their own. Their role is to complement the Government effort in reaching out to the communities to be better prepared for responding to disasters. After the intervention of the district administration they also continue the works of rescue and relief under the overall direction and supervision of the the District Magistrate. They work in close coordination with the District Magistrate to avoid duplication and ensure equity. They take a pro-active role in assisting the victims of disaster and should provide inputs to relevant authorities as to the magnitude of effect of disaster, need for additional resources etc.

1.5.1 District Disaster Management Authority (DDMA)

As per provisions in Chapter-IV of the DM Act, each State Government shall establish a District Disaster Management Authority for every district in the State with such name as may be specified in that notification. The DDMA will be headed by the District Collector, Deputy Commissioner, or District Magistrate as the case may be, with the elected representative of the local authority as the Co-Chairperson. The State Government shall appoint an officer not below the rank of Additional Collector or Additional District Magistrate or Additional Deputy Commissioner, as the case may be, of the district to be the Chief Executive Officer of the District Authority. The DDMA will act as the planning, coordinating and implementing body for DM at the District level and take all necessary measures for the purposes of DM in accordance with the guidelines laid down by the NDMA and SDMA. It will, inter alia, prepare the DM plan for the District and monitor the implementation of the all relevant national, state, and district policies and plans. The DDMA will also ensure that the guidelines for prevention, mitigation,

preparedness, and response measures laid down by the NDMA and the SDMA are followed by all the district-level offices of the various departments of the State Government.

1.5.2 Nodal Ministry for Management / Mitigation of Different Disasters at Central Level

	Disaster	Nodal Ministry/ Department
1	Biological	Min. of Health and Family Welfare (MoHFW)
2	Chemical and Industrial	Min. of Environment, Forest sand Climate Change (MoEFCC)
3	Civil Aviation Accidents	Min. of Civil Aviation (MoCA)
4	Cyclone/Tornado	Min. of Earth Sciences (MoES)
5	Tsunami	Min. of Earth Sciences (MoES)
6	Drought/Hailstorm/Cold Wave and Frost/Pest Attack	Min. of Agriculture and Farmers Welfare (MoAFW)
7	Earthquake	Min. of Earth Sciences (MoES)
8	Flood	Min. of Water Resources (MoWR)
9	Forest Fire	Min. of Environment, Forests, and Climate Change (MoEFCC)
10	Landslides	Min. of Mines (MoM)
11	Avalanche	Min. of Defence (MoD)
12	Nuclear and Radiological Emergencies	Dept. of Atomic Energy (DAE)
13	Rail Accidents	Min. of Railways (MoR)
14	Road Accidents	Min. of Road Transport and Highways (MoRTH)
15	Urban Floods	Min. of Urban Development (MoUD)

2 Hazard Risk and Vulnerability

Background

INTRODUCTION:

Hazards are physical phenomenon all over the world common to dynamics of nature. The unique geo-climate conditions of the Indian sub-continent make this region one of the most vulnerable to natural hazard prone area of the world. These hazards are likely to have devastating impacts on the economic and social fronts especially in the developing countries like ours, if not addressed properly. The objective of disaster management is to minimise and reduce the impacts on one hand, and on the other hand to have adequate preparedness arrangement for humanitarian respone.

The outcome of any hazard is disaster, if not addressed, which arises because of the sudden disruption in the lives of people, their socio-economic activity. Hooghly district is typically exposed to natural hazards like flood, cyclone, hailstorm, earthquake etc. The industrial areas of the district tend to cause risks for chemical and industrial hazards and fire. Also, there are incidences of erosion in the bank of Ganges. The impact of a hazard multiplies due to vulnerability of the people and the system. Therefore, it becomes essential to build on the capacity and reduce vulnerabilty of the people and put in a place a vibrant system to mitigate the impact of the hazards and respond more effectively.

Now, there is a notable change in the process of 'disaster management'. All the line departments, the PRI bodies, NGOs and other stakeholders share the responsibilities of handling hazards, preparation of disaster management plan and capacity building of stakeholders at various level. Stakeholders may also like to benefit from these guidelines for the development of district disaster risk management plans.

This document will be useful to serve it's purpose during any crisis like situation.

Overview of the District

The district Hooghly is located in between 23° 01′ 20"N to 22° 39′32"N and 87 °30′ 20" E to 88° 30′ 15" E. The total area of this district is 3149 sq.km. (1216sq. mile) which is 3.55 percent of the total geographical area of the state.

The boundary of Hooghly district is covered by the Hooghly river (sharing with Nadia in the east & north 24 parganas in the south-east) in the east, Bardhaman in the north. Howrah in the south, Paschim Medinipur in the west, Bankura in the north – west.

History: Hooghly district is one of the districts of the state of west Bengal in India. The district of Hooghly derived its name from the town of Hooghly situated on the west bank of Hooghly river about 40 k.m north to Kolkata

Relief features: The district is a completely flat land with no place having more than an elevation of 200mt.According to genesis and evolution of landforms, the district can broadly have divided into two divisions i.e.;

i. Old alluvial plains to the west of river Dwarakeswar

ii. The monotonous level alluvial plains in the east which can be further divided into

a. Natural levee
b. Meander floor plain
c. Alluvial plain.

Geology: Geology, the entire district is established with alluvium. Sub-surface lithologies down to a depth of 150mt from surface consist mainly of slit, clay and sand of different grades varying from fine to coarse. The eastern parts are clayey and deep; while the western part of the district are loamy.

Climate: Hooghly district has a Tropical Savana climate.

i) Temperature-The district does not suffer from the extreme of temperature which remains with in favourable range for cropping and other resource use. The annual mean temperature is 26.8 c although mean temperature range from 16 c to 33 c and maximum temperature in Hooghly often exceed 38 c.

ii) Rainfall-Rainfall is the most important factor which directly affect the cropping pattern and the nature & sequence of agricultural operation. Maximum rainfall occurs during the monsoon in august and the average annual total rainfall is above 1400mm.

Hooghly - General profile

Area	3149 Sq KM
Head Quarter	Chinsurah
District Language	Bengali
No. of Sub-Division	4
No. of Blocks	18
No. of Municipality	12
No. of Municipal Corporation	1
No. of Police Stations	23
No. of Village	1886
No. of Gram Panchayat	210
No. of Mouza	1999
No. of Gram Sansad	2364
No. of Municipality ward	292
Male Population	3003163
Female Population	2838352
Total Population	5841515
Population in Rural Area	68.81%
Population in Urban Area	31.19%
Population Density	1833
Literacy (Male)	83.23
Literacy (Female)	68.93
Smallest Block (Area)	Serampur-Uttarpara
Smallest Block (Population)	Serampur-Uttarpara
Largest Block (Area)	Polba-Dadpur
Largest Block (Population)	Dhaniakhali
Block (Lowest Density)	Goghat-I
Block (Highest Density)	Chinsurah-Mogra
Lowest Gender Ratio	Chinsurah-Mogra
Highest Gender Ratio	Chanditala-I
Lowest Literate Block	Pursurah
Highest Literate Block	Khanakul-II

Infrastructural Facilities: It is a comprehensive term covering such items as transport and communication systems, health and education services etc.

Transport: Transport plays an important role in economic development. Road, railways and waterways are the major means of transport in the district. National highway 57 k.m, State

highway 234 k.m, District road 313 k.m,1210 k.m of other district road, 8169 k.m of village roads and 447.6 k.m of Prime minister's Gramin Sarak Yojana road covered the road communication of this district.

The railway communication of the district especially all the suburban area is very developed. Bandel is the railway headquarter of the district. There are four junction of Hooghly and these are; Bandel junction, Dankuni junction, Kamarkundu junction and Seoraphuli junction. The railway of the district is under Howrah division. There are so many block in this district covered by waterways. Hooghly, Damodar and Darakeswar rivers connected the different blocks by waterways.

Power resource: Power is an important source of energy and it influences the economic life of a country in many ways . Hooghly district occupies a preeminent position in power generation. It has a large scale development of electricity and thus plays an important role in the country.

Education: Education is the one of the key components of human development. Education plays an important role in the economic development of an area as it helps in the development of the resources. According to 2011 census 82.55 percent of the population was literate which is greater than to the state average (77. 08%). There is spatial variation of literacy in the different blocks of the district. The number of primary schools are 3028, middle schools are 61, high schools

Health services: There are 60 primary health centre (PHC)162 sub-health centres & 6 sadar hospital in the district (2011 census).

Banking services: The growth of banking is related to the rise in the level of economic development. It is an important indicator of economic growth of any region.There are 192 commercial and 33 gramin bank at the end of December 2011.The average population served by an office of commercial and gramin bank works out to be 17111 persons.

Water Resource: Water is an essential resource for human life. Supply of fresh drinking water and development resources for irrigation and industrial purpose an important aspect of any development plan. The primary source of water is precipitation.

Surface stream-About one third of the annual rain water flows on the surface through small and big streams. The district is drained mostly by Damodar, Darakeswar and Hooghly river.

Forest Resource Forest are one of the renewable resources which may increase or decrease with time depending on natural conditions and the rate of exploitation. Tropical forests are found in the district. According to the records of the forest department the total forest area as per 2011-12 is 299.41 hectare, (including reserve forest. Protected forest and un-classed state forest). Apart from the social forestry, small patches of forest land are located at Arambag range (chandur forest) and Goghat -1 (Bhadur forest) in Hooghly district. The forest region under plantation extends over three types of areas; these are; a) Areas which are on the river bank, have sandy soil, are subject to inundation, as well as dry patch, high soil temperature during summer. b) Areas which are exposed to large scale inundation during rains, mostly in pardra and bhadur. c)Highlands with established crops of teak or other different species in areas like pardra and bhadur mouza.

Land and Livestock Resources Soil is the most important and ubiquitous resource of the earth. The soil of Hooghly district is fertile, therefore the development of agriculture practice increasing day by day. The soils of Hooghly district are classified into three; these are as follows; Clayey soil-belongs to 64.84(000ha)area which is 29 percent of the total area of the district. Clayey loam soil-The proportion of 36 percent of area is under clayey loam soil generally found in the eastern part of the district. Loamy soil-Such type of soil located in eastern and western part of the district. The soil is very much fertile.

Landuse: Based on the classification scheme of the "Directorate of agriculture govt .of W.B"landuse of the area may be divided into following.

Land use	Area in thousand hectares (2011-12)
Forest	0.53

uncultivated Barren &land	96.61
Area under non-agricultural use	0.17
Permanent pastures & grazing land	0.03
Cultivated wasteland	1.47
Net sown area	211.27
Current fallow land	0.71

Source: Directorate of agriculture, W.B

Cropping pattern: The principal crops in the Hooghly districts are paddy, wheat, potato, jute, chilies, oil seeds and ginger. fruits and vegetables are also cash crops of the districts. It covers 66.29 thousand hectares of area. The main vegetables are produced in the districts are tomato, cabbage, cauliflower, peas, brinjal, onion, ladies finger and radish.

Human Resource:

Distribution of population-The total population of the district is 5520389 which are distributed in 18th development blocks over an area 3149 sq. km. Distribution of population are divided into two; Rural population & Urban population. The total no. of male population is 2814653 and female population is 2705736.The no. of male and female population lived in rural areas is 3390646(61.42%).the rest 2129749(38.58%) lived in an urban areas mainly Serampore and Chandannagore sub- division. Higher concentration of rural population in Hooghly district is due to extensive fertile agricultural land.

Density of population- The density of population in Hooghly district is 1753/sq. k.m which is more than the state population density (1029/sq. k.m). There is marked spatial variation in the density of population. The highest density of population found in Serampore sub-division (3479/sq. k.m) and lowest density of population is found in Arambag sub –division. There are many factors are responsible for the variation of density of population; such as agricultural, industrial development and the problem of flood in major areas of and Arambag sub- division.

Occupational structure: Analysis of the occupational structure of population forms an important component of human resource assessment. The working population of the district has been grouped in two broad categories; total workers (39.01%) & non-workers (60. 99%).Total workers included cultivators (12.06%), agricultural labourers(27.10%), household workers (5.19%) and other workers (55.65%). Distribution of population over different categories of workers (number) & non-workers in the district Hooghly, 2011

Sub - division	Total workers	Cultivators	Agricultural labourers	Household workers	Other workers	Non-workers
Sadar sub-division	700721	82685	270518	26828	320690	956797
Chandannagor	428460	51081	89685	21678	266016	698716
Serampore	551235	24649	51375	36518	43869	918614
Arambag	472454	101265	171802	26804	172583	792148
District total	215280	259680	583380	111828	1197982	3366275

Source: Census of india,2011

Industries Industrialization is an important part of resource development. It is most important aspect of resource. Hooghly district has been famous for agro-based industries. The largescale industries of the district were established after independence. The industries of the district may be divided in the following categories; i. Agro –based industries ii. Forest based industries iii.

Livestock based industries iv. Chemical industries v. Local demand based industries vi. Others industries. During the year of 2011-12 the number of micro and small industrial unit is 3440 and the total employment in these enterprises amounts to 41793 persons. The total no. of employment in large and medium industries is 100597.

HIGHLY VULNERABLE AREAS UNDER DIFFERENT BLOCKS

SUB-DIVISION **ARAMBAGH**

BLOCK DEVELOPMENT OFFICE, ARAMBAGH

4	Harinkhola-I	Sayangram sarkarpara	Damage of River Embankment
5	Harinkhola-I	Arunbaira Purba	Damage of River Embankment
6	Harinkhola-I	Purba Krishanpur weak Embankment	Damage of River Embankment
7	Harinkhola-I	Weak Embankment at Kulharaditya RLI House Weak Mojaffarpur Sansad	Damage of River Embankment
8	Harinkhola-I	Weak Embankment at Kul Haraditya	Damage of River Embankment
9	Harinkhola-	Darji Pota near Primary School	Damage of River Embankment
10	Moloypur -I	Horipur Balikhad hana	Damage of River Embankment
11	Moloypur -I	Balia Mouza Dolui papra	Damage of River Embankment
12	Moloypur -I	Bachanari mouza	Damage of River Embankment
13	Moloypur-I	Basanarparar Dakshin Side in front of balikhad River Mundeswari	Damage of River Embankment
14	Moloypur-I	Basanarparar Dakshin Side in front of Das Para River Mundeswari	Damage of River Embankment
15	Arandi-II	Raipur & Dakhin Narayanpur River Mundeswari	Damage of River Embankment
16	Arandi –II	Hiat River Mundeswari pur & Kismat khadail River Mundeswari	Damage of River Embankment
17	Arandi –II	Tilkchak River Mundeswari	Damage of River Embankment
18	Salepur-I	Raipur River pump to Raipur Suice Gate River Darakeswar	Damage of River Embankment
19	Salepur-I	Salepur river pump to jubidhaha damp	Damage of River Embankment
20	Moloypur-II	Chak Bense Feri Ghat to Keshabpur Dhonkpara Ghat in the West Bank of River Mundeswari	Damage of River Embankment
21	Moloypur-II	Keshabpur Dhonk Para Ghat to Keshabpur Feri Ghat in the West Bank of River Mundeswari	Damage of River Embankment
22	Moloypur-II	Keshabpur Feri Ghat to Dihalpara Asanpur Boarder in the West Bank of River Mundeswari	Damage of River Embankment

23	Moloypur-II	Keshabpur Feri Ghat to Ist River Pump in the East Bank of River Mundeswari	Damage of River Embankment
24	Moloypur-II	Banamalipur Boundary River Mundeswari	Damage of River Embankment
25	Moloypur-I	Ghorgohal Akbari Khal to River Pump to Uttar Chhatim Tala River Mundeswari	Damage of River Embankment
26	Moloypur-I	Basanaparer Uttar side River Mundeswari	Damage of River Embankment
27	Moloypur-I	Balia Dakshin Para in front of Krishna Porel house River Mundeswari	Damage of River Embankment
28	Moloypur-I	Balia river pump to Haripur River Mundeswari	Damage of River Embankment
29	Salepur-I	Salepur river pump to jubidhaha band at river Darakeswar	Damage of River Embankment
30	Salepur-I	Roypur Pratihar Para to Manikpat Kalitala river Darakeswar	Damage of River Embankment
31	Salepur-I	Girjatala Eastern side to Manikpat South Ghosh Para river Darakeswa	Damage of River Embankment
32	Salepur-I	Roypur Pratihar Para to Manikpat Kalitala river Darakeswa	Damage of River Embankment
33	Madhabapur	Selalpur River nearest Football ground Kanadarakeswar	Damage of River Embankment
34	Madhabapur	Roy Selalpur Majhi Para Kanadarakeswar	Damage of River Embankment
35	Madhabapur	Hamirbati Kuko River Kanadarakeswar	Damage of River Embankment
36	Madhabapur	Pandugram Stoppage nearest Bridge Kanadarakeswar	Damage of River Embankment
37	Harinkhola-II	Kable Khal Panpit Bag para Jatra Siddhi tala	Damage of River Embankment
38	Harinkhola-II	Kable Khal Sahapur Das Para and De Para	Damage of River Embankment
39	Harinkhola-II	Kable Khal dakshin Rasulpur Uttar	Damage of River Embankment
40	Harinkhola-II	Kable Khal at Sahapur Malik para	Damage of River Embankment
41	Moloypur-I	Purbaharipur Balikhal to Hanarmukh river Munderswari	Damage of River Embankment
42	Salepur – II	Shekpur and Rangtakhali Darakeswa River	Damage of River Embankment

G.P. WISE WATER LOGGING AREAS UNDER ARAMBAGH BLOCK

Sl No.	**Name of Gram Panchayat**	No & Name of Village water logged
1	**Arandi-I**	4(Pratapnagar, Sitalpur,Arandi, Satmasa)
2	**Arandi-II**	6(Laghuchak, Tilakchak, Chandraban,Siyara, Hiyatpur)
3	**Batanal**	4(Bhalia ,Narayanpur , Telua, Batanal,)

4	**Gourhati-I**	5(Kapsit, Bhabanipur,Ratanpur,parabagnan, dihibagnan)
5	**Gourhati-II**	2(Gourhati, Fatechak)
6	**Harinkhola-I**	5(sayerpara, Madhurpur, shyamgram, haraditya, Bakharchak)
7	**Harinkhola-II**	6(Amgram, Birati, Tajpur,Katabani, Sultanpur panpith)
8	**Madhabpur**	8(Hamirbati,paira, Hariharbati pandugram, Joysingchak, selalpur badsulichak, ranhat)
9	**Maloypur-I**	6(Moloypur,Haripur,tala, Balia, bachnari, Ghargohal)
10	**Maloypur-II**	6(Purba Keshabpur, Chakanar,chakbense Dihalpara,banamalipur)
11	**Mayapur-I**	6(Adambandh, Mayapur, Mohanpur, Balarampur Malipukur, Susnipara)
12	**Mayapur-II**	5(Bolundi, Mahespur, kashtadahi,Keledona, Dihiboyra)
13	**Salepur-I**	4(Salepur Paschimpara,manikpat,sekhpur)
14	**Salepur-II**	4(Daharkundu, Rangtakhali,basantabati, dongal)
15	**Tirol**	7(Chandibati, Bora ,tiro,lKarui,Puin,Tirol, Moigram)
TOTAL		78

BLOCK DEVLOPMENT PURSURAH

River System: The Damodar and The Mundeswari passes both sides of the block are the main river syster of Pursurah. The Damodar originating from Palamau hill of Jharkhand and bifurcates into two channels at Beguahana. The main flow passes through Mundeswari channel and falls into the Rupnarayan. The other one is Amta channel carries discharge during high flood and outfalls into Hooghly district mainly on the right bank of the river below Beguahana.A thin channel called Singer khal also originate from Mundeswari acts as Main Drainage system of this block.

River	Gauge Station	D.L	E.D.L	Remarks
Damodar	Champadanga	12.89	13.50	
Mundeswari	Harinkhola	12.80	13.41	

Vulnerable Areas: If we measure the previous flood history of this block we may call that The Entire block is vulnerable during flood and heavy Monsoon.

BLOCK DEVELOPMENT GOGHAT-II

Name of the Gram Panchayat	Flood Prone areas
1. Kumarganj	Purba & Paschim Chakla, Kamla,Riya;Rayan; Ashudhola, Puina, Pundahit, Ashpur, Jitarpjur & Mashidbera.
2. Bengai	Saljhar, Samantakhanda, Agai, Senai, Bengai, Narasinghabati & Gouripur.

3. Kamarpukur	Kamarpukur, Horisova, P. Amarpur. Pukuria Dwariapur Subirchak & Madhubati.
4. Mandaran	Betboni, Naldubi, Kajla, Rangamati & Garh-Mandaran
5. Hazipur	Harihar, Paba, Bahagol, Hazipur, Mandala & Debkhanda.
6. aschimpara	Kultala, Bhatsala, Paschimpara, Gurulia, Sundarpur
7. Shyambazar	Khejurbandi, Pandugram, Mamudpur & Laskarpukur
8. Badanganj Fului – I	Fului
9. Badanganj Fului – II	Betra, Majuria & Selampur

BLOCK DEVELOPMENT OFFICE GOGHAT-I

Vulnerability and vulnerable areas to various Hazards:-

Sl. No.	Name of GP	Vulnerable for	Cause of Vulnerability	Name of Vulnerable Mouza	Vulnerable for Cyclone(Y/N)
1	Nakunda	Flood Flood	Tarajuli Khal	Dewanchawk, Kulia, Kota, Rawtara	YES
			Amodar River	Darinakunda, Nakunda, Gohalpota, Dumurpara	
2	Bali	Flood	Darakeswar	Dighra, Bali, Jagatpur, Penchera, Shyamballavpur, Damodarpur, Mirzapur, Udayrajpur, Kalagachia, Khilgram, Kanaipur,	YES
3	Bhadur	Flood	Darakeswar	Mandal ganti, Adra, Peari-Nagar, Birampur, Surjapur, Methul, Bhanjapara & Beli.	YES
4	Kumursha	Flood	Darakeswar	Balibela, Hariharpur, Mathura, Shyambati, Ballavbati & Purba-Amarpur	YES
5	Saora	Flood	Darakeswar	Saorah, Goalpara, Jyot-Mohabbat, Muktarpur, Dakshin Balarampur & Blelekusma	YES
6	Raghubati	Flood	Rain Water	Sulut, Khatogram, Bijolkona, Rajgram, Bajua & Santoshpur	YES
7	Goghat	Flood	Rain Water	Dahiakanda, Kurmona, Sunia, Solepur, Chuturia	YES

BLOCK DEVELOPMENT OFFICE KHANAKUL-I

- **HIGHLY VULNERABLE AREA**

Sl. No.	Name of G.P.	Name of Vulnerable Village	Reason of vulnerability
1	Balipur	Daspur (410.21acre)	Low land
		Purba-Radhanagar(627.87acre)	River embankment
2	Tantisal	Udna(546.68acre)	River embankment/Erosion
3	Arunda	Garbere(184.96acre)	Low land
		Dharashimul(467.05acre)	Low land
		Par-Chabbispur(543.66acre)	Low land
		Bandaipur(310.00acre)	Low land
		Solasta(198.52acre)	River embankment
		Uttar-Sudamchak(120.72acre)	River embankment
		Chak-Jalkar(184.84acre)	River embankment
		Jogikundu(155.77acre)	River embankment
		Joiramchak(189.44acre)	River embankment
		Kabilpur(596.92acre)	River embankment
4	Kishorepur-I	Kishorepur(421.40acre)	River embankment
		Niranjanbati(400.42acre)	River embankment
		Bamankhana(405.55acre)	River embankment
5	Thakuranichak	Paschim Thakuranichak(1049.19acre)	River embankment
		Purba Thakuranichak(626.62acre)	River embankment
		Mainan(1000.29acre)	Low land
6	Ghoshpur	Paschim Ghoshpur(346.02acre)	River embankment
		Madhabkundu(168.92acre)	River embankment
7	Pole-II	Saibona(241.55acre)	Low land
		Chakveduya(390.52acre)	Low land
		Patul(1039.46acre)	Low land
8	Pole – I	Shulut(255.40acre)	Low land
9	Rammohan-I	Sarda(465.92acre)	River embankment
		Jakri(213.15acre)	River embankment
10	Khanakul – II	Dharampur(442.24acre)	Low land
		Joygolanandapur(126.54acre)	Low land
		Kamdebpur(147.51acre)	Low land

VULNERABLE AREA

Sl. No.	Name of G.P.	Name of Mouzas	Reason of vulnerability
1	Tantisal	Durgapur(342.56acre)	River embankment
2	Arunda	Chabbispur(513.44acre)	Low land
		Arunda(699.74acre)	Low land
		Lawsar(184.98acre)	Low land
3	Khanakul-ll	Ramnagar(479.06acre)	Low land
		Nabasan(425.52acre)	Low land
4	Rammohan-l	Amarpur(176.79acre)	River embankment
		Paschim-Radhanagar(447.36acre)	Low land

5	Rammohan-II	Khamargori(441.85acre)	River embankment
6	Kishorepur-ll	Bandipur(467.02acre)	Low land
		Madanbati(311.79acre)	Low land
		Gujrat(396.59acre)	Low land
		Chuadanga(312.36acre)	Low land
7	Pole-l	Pole(2816.85acre)	Low land
8	Pole - II	Ganeshbazar(121.17acre)	Low land
		Saibona(241.55acre)	Low land
9	Khanakul-l	Dainan-Anantanagar(522.08acre)	Low land
		Sonatickry(471.66acre)	Low land
		Chkrapur(390.36acre)	Low land
		Udaypur(503.68acre)	Low land

KHANAKUL II DEVELOPMENT BLOCK

.Name of G.P. likely to be affected during flood & water logging:

Fully affected G.P.	Partly affected G.P.
Marokhana	Rajhati - II
Jagatpur	Natibpur – I
Dhanyaghori	Natibpur – II
Rajhati – I	Palaspai – I
Sabalsinghapur	Palaspai – II
Chingra	

Vulnerable Areas :

Place	**Khanakul –II**	**Nature of Vulnerability**
Gram Panchayat	**Village**	
Chingra	Chingra, Ketedal, Ranjitbati, Dosuti	Most vulnerable
Dhanyaghori	Dhanyaghori, Kaknan, Bandar, Ghoradaha, Kaknan	Most vulnerable
Jagatpur	Jagatpur, Bar-Nandanpur, Nandanpur, Jalpata, Basabati	Most vulnerable
Marokhana	Marokhana, Dhaldanga, Sundarpur, Chandkundu, Hanua, Sosapota, Kamdebchak	Most vulnerable
Natibpur –I	Joyrampur, Mandarchak, Tentulia, Routhkhana	Vulnerable
	Ganeshpur, Baligori	Most vulnerable
Natibpur –II	Natibpur, Balpai, Doulatchak	Most vulnerable
Sabalsinghapur	Sabalsinghapur, Harischak, Par-Harischak	Most vulnerable

Palaspai –I	Palaspai, Magri, Mostafapur, Chak-Magri, Katasia, Barboun, Champanagari	Most vulnerable
Palaspai –II	Hayatpur, Chak-Hayatpur, Narendrapur, Khuniachak, Bhairabpur	Most vulnerable
Rajhati –I	Kumarhat	Vulnerable
	Ramchandrapur, Hirapur, Kushali, Radhakrishnapur, Khantara	Most vulnerable
Rajhati –II	Rajhati (Part), Senhat	Vulnerable
	Rajhati (Part), Mamakpur, Sripur, Madhyaranga	Most vulnerable

SUB-DIVISION CHANDANNOGAR

BLOCK DEVELOPMENT OFFICE,TARAKESWAR

Vulnerability Assessment :

Issues causing vulnerability :

1. Flooding due to heavy release of water (of River Damodar) from Durgapur Barrage, the reason for which is heavy rainfall in Jharkhand. Usually a deep depression that moves towards Jharkhand from Bay of Bengal through Gangetic West Bengal makes the situation alarming.

STATUS REPORT OF EMBANKMENT UNDER TARAKESWAR DEV. BLOCK

SL NO	**1**	**2**	**3**	**4**
NAME OF THE EMBANKMENT	East Embankment of River Damodar	East Embankment of River Damodar	East Embankment of River Damodar	East Embankment of River Damodar
LENGTH OF THE EMBANKMENT	2.60 Km	5.00 Km	4.40 Km	
GRAM PANCHAYAT JURISDICTION	SANTOSHPUR	KESHABCHAK	TALPUR	CHAMPADANGA
VULNERABLE PART/STRETCH	Near Jiara Point Temple	Nil	Near Kulteghari Bat-tala	Binogram,Near Jaleswar temple, About 500 m to 700 m Stretch
VULNERABILITY	Very steep emabankment, earth work of opposite side of the river is degrading , History of seepage is there	Nil	Earth work of the Embankment is degrading ,	Steep emabankment, earth work is degrading , History of seepage is there, A lock gate at the Ring-Bandh has been damaged

Highly Vulnerable Locations in connection with this issue

Sl No	Name of the G.P.	No. of Vulnerable Gram Sansads	Vulnerable Area/Locality/Pocket	No. of Family will be affected	Nature of Threat
1	Keshabchak (Part)	9 Nos.	Kanaria, Nachipur Purba, Nachipur Paschim, Mohanbati, Keshabchak Purba, Keshabchak Paschim	770	Flooding due to heavy release of water (of River Damodar)from Durgapur Barrage
2	Talpur (Part)	3 Nos.	Naskarpur	135	Flooding due to heavy release of water (of River Damodar)from Durgapur Barrage
3	Champadanga (Part)	4 Nos.	Sahachak, Binogram, Ramnagore, Champadanga,	130	Flooding due to heavy release of water (of River Damodar)from Durgapur Barrage
4	Santoshpur (Part)	1 No.	Santoshpur	54	Flooding due to heavy release of water (of River Damodar)from Durgapur Barrage

2. Water logging/Flooding due to heavy & continuous rainfall.
Usually a deep depression over Gangetic West Bengal that causes continuous rainfall for more than four/five days, leads to overflowing of the following Rivers/ Irrigation Canals/Drainage Channels and makes the situation alarming.

I. **Raner Khal :-** Most important drainage channel coming from adjacent Dhaniakhali Block and passing through Bhanjipur GP, Tarakeswar Municiplaity, Purba Ramnagar GP, Astara-Dattapur GP, Champadanga GP, & Naita-Malpaharpur GP and finally enters into the Jangipara Block Area.
There is history of massive flooding/water logging due to overflowing of this Drainage Channel

II. **Kana Damodar River :-** Very important old river channel coming from adjacent Dhaniakhali Block and passing through Baligori-I GP and Purba Ramnagar GP and finally enters into the Jangipara Block Area.
There is history of massive flooding/water logging due to overflowing of this Old River Channel

III. **Dakatiya Khal :-** An Important Irrigation Channel.
There is history of massive flooding/water logging due to overflowing of this Drainage Canal

Vulnerable Locations in connection with this issue

Sl No	Name of the G.P.	No. of Vulnerable Gram Sansads	Vulnerable Areas	No. of Family will be affected	Nature of Threat
1	Bhanjipur	9 Nos.	Purba Hauli, Sainta, Madhya Hauli, Purba Dhallyan, Natungram, Bhanjipur, Bajitpur	1800	Very serious water logging in habitable areas
2	Purba Ramnagar	3 Nos. 10 Nos.	Bhabanipur, Kunjaban, Shyampur, Khemonpur (Mannapara)	80	Minor water logging in habitable areas but Very serious inundation of Agricultural Land
3	Astara-Dattapur	4 Nos.	Daluipara (Colony), Adangachi, Chakdaha	55	Minor water logging in habitable areas
4	Champadanga	4 Nos.	Sahachak, Binogram, Beremul, Ramnagar	20	Agri Minor water logging in habitable areas but serious inundation of Agricultural Land
5	Naita-Malpaharpur	7 Nos.	Aima-paharpur, Jagannathpur, Belbandh, Ranabandh, Ramchandrapur, Panchgachia, Timna, Malpaharpur	1600	Very serious water logging in habitable areas
6	Baligori-I	9 Nos	Baidyapur Uttar, Baidyapur Dakshin,Mirzapur, Bajitpur, Basudebpur, Aligori, Jyotsambhu, Baligori, Akhnapur, Joynagar	170	Minor water logging in habitable areas
7	Baligori-II	4 Nos.	Kalapukur, Madpur, Kanaipur, Sardarpur	1457	Very serious water logging in habitable areas

TARAKESWAR MUNICIPALITY

VULNERABILITY ANALYSIS

Seasonality of Hazard:

Type of Hazards	April-June			July-Sept			Oct-Dec			Jan-March		
	H	A	I	H	A	I	H	A	I	H	A	I
Flood				Y	Y	Y	Y	Y	Y			
Storm	Y	Y	Y	Y	Y	Y						
Dengue	Y			Y			Y			Y		
Dayaria				Y								

H: Human, A: Animals, I: Infrastructure

Distance of the Ward from the Risk Points (in Kms.)

Sl.No	Danger and Risk Points	Ward No.	Distance from the ward	Remarks
1	Sea			
2.	River	8, 9, 15	4	Damodar River
3.	Weak Embankments	1,2,3,4,6,8,10,11,12,13	.5	Raner khal

BLOCK DEVELOPMENT OFFICE SINGUR

Vulnerability Analysis

1.	Name of the Gram Panchayats, with mouzas which may be affected flood/water logging :-	(A) Beraberi G.P.:- Beraberi, Singhalpathan, Chalk-Kalikaburi, Jompukur, Madhusudanpur, Khaserbheri, Dobandi. (B) Gpoalnagar G.P.:- Pairaurah, Dewanbheri, Singherbheri, Baburbheri. (C) Basubati G.P.:- Satghara, Rajarambati, Simulpukur, Sibarambati. (D) K.G.D. G.P.:- Bajemelia, Khagragachi, Gopalnagar(Part). (E) Bora G.P. :- Jhankari, Phatke, Kamalapur(east), Baharampur, Nizampur (F) Boinchipota G.P.:- Balidipa, Bhattarchalk, Harishnagar, Kiritinagar. (G) Borai-Pahalampur G.P. :- Haripur, Kamalapur, Mohammadpur. (H) Anandanagar G.P.:- Habaspota, Ganderpukur. (I) M/Bankipur G.P.:- Malipukur, Jagatnagar. (J) B/Chhinamore G.P. :- Daipukur

5.	Name of the Rivers which may cause Flood/Water logging	1. Ghia, 2. Julkia, 3. Mete Khal
6.	Name of the Canals which may cause Flood/Water logging during rainy season & the names of the affected Mouzas	1. Julkia Canal :- Beraberi, Joymolla, Singhalpathan, Benejamuna, Jompukur, Kismat Jompukur, Chakalikaburi, Dobandi, Madhusudanpur, Khaserbheri 2. Mete Khal :- Satghara, Rajarambati, Simulpukur, Shibarambati. 3. Ghia Canal :- Boinchipota, Balidhipa, Bhattarchak, Kritinagar, Habaspota, Ganderpukur, Singherbheri.

BLOCK DEVELOPMENT OFFICE HARIPAL

Natural Disaster, either in the shape of Flood, Earthquake & Cyclonic Storm affect this Block . During flood, large areas of Chandanpur GP & a few mouzas of Haripur Kinkarbati, ,Bandipur,NarayanpurBahirkhand, Jejur&Kaikala GPs are affected which cause wide-spread damages to dwelling-houses.

During flood, overflowing of Dakatia Khal affects large areas of HaripalSahadev G.P and over flowing of Julkia& Ghia Rivers affects ChandanpurG.P.and part of Bandipur G.P. & Haripur Kinkarbati G.P.

Hazard Calender

Month Name / Hazard Name	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
torm												
lood												
Cyclone												

Names of the Rivers which may cause Flood/Water-logging

Ghia, Julkia, Kana, Kaushiki, Dakatia Khal

Name of the Canals which may cause Flood/Water-logging during rainy season & the names of the affected Mouzas

Dakatia Canal - Kamdevpur, DwipaGaza,Chandbati, Parbatipur, Jaggibanpur, PaschimMalliahpur, Kanakpur, Krishna -ballavbati, Kalubati, Khajuria, Bhursit –Khajuria, Dignagar, Sepaigachi, Gabati, Radhakrishnapur, Paschim Joy Krishnapur,Baramba.

DingaBhanga Canal - Chitrasali,Kanakpur, Mirjapur, Gaja, Bamanjole, Dark Kinkarbati, BajeIslampur, Parjana.

Vulnerable G.P.	Vulnerable points at G.P.	
Chandanpur	Faridpur	Badedigoria
Champsara	Kangoi	Kumragori
Mohistikry	Harat	
	Ramchandrapur	
	Laxmanpur	
Madanmohanpur	AymaChampsara	

Vulnerable G.P.	Vulnerable points at G.P.
HaripurKinkarbati	Kinkarbati
	BajeIslampur
	Parjana
HaripalSahadeb	Khajuria
	Kalubati
	Bhursuit
	Dignagar
	Sepaigachi
	Gabati
	Radhakrishnapur
Bandipur	Chitrasali
	Kanakpur
	Mirjapur
	Gaja
	Bamanjole
	Dank
NarayanpurBahirkhand	
Kaikala	Basudevpur
Jejur	
Ashutosh	Chowtara

SUB-DIVISION SERAMPORE

BLOCK DEVELOPMENT OFFICE JANGIPARA

Scenario Of Last Year

In the year 2016 and 2017 Jangipara Development Block experienced a flood situation from during the month of July and August .Mainly Some portion of two Gram panchayat namely Rasidpur and Rajbalhat I was badly affected by the flood situation. Chitghola, Badurchak, Shibchak, Morhol , Brindabanchak, Janapara , Akna and Senpur , Poshpur was affected. The flood like situation experienced Loss of crops .Civil Defence Volunteers were engaged in relief and rescue operation with the help of local people and public representatives .One Speed boat and three country boat were deployed for the evacuation process.Gruel kitchen was opened for the distressed people. Control room was opened in Block office and Rajbalhat-I and Rasidpur Gram Panchayat to monitor and control the situation. Tarpaulin , Dry food,Drinking water,Cooked Food was supplied to the affected people.Gunny bag was supplied to repair the

damaged embankment of River Damodar. The role of Mundeswari Irrigation ,PHE, Jangipara Rural Hospital ,Jangipara Police Station ,Other line Department and the concerned Gram Panchayat was satisfactory.In 2015 the entire block area experienced flood situation.The Main disaster threat of this Block is Flood.

Vulnerable Areas

Gram Panchayat	**Village**	**Nature of Vulnerability**
Rajbalhat-I	Sibchak, Morhal, Janda, Brindabanchak, Badurchak, Chitghola, Rajbalhat	Flood Prone due to overflow of Damodar, D-I, D-II canals and Kousiki river
Furfurah	Furfura, Nilarpur, Charpur, Bhimpur,Kashipur,Chakbarada, Gopalnagar,Ramnagar,Toralpur	Flood Prone due to overflow of Dakatia Drainage canals
Rasidpur	Rasidpur,Hariharpur,Singhti, Bilaspur,Soari,Dogachia, Khandakhetra,Senpur,Pashpur Birachak, Ranjapur, Gutiatra, Aakhna	Flood Prone due to overflow of Damodar, D-I, D-II canals and Kousiki river
Radhanagar	Radhanager,Vulkul,Maheshpur, Majurkhan,Srihatta,Chandinager, Somnager, Khrishnaour, Santaspur, Jagalgori,Hijuli, Musinan,Chandrahati, Rashpur,Ghanashyampur, Neramadhabpur, Mohalpur,Mahestikuri,Amarpur, Basantapur,Dharammpur	Flood Prone due to overflow of Dakatia Drainage canals
Antpur	Ranibazar, Arabindapur,Palgacha, Mirpur,Tarajal,Kumarbazar, Gopalpur, Rajhati,Bilarah, Lohagachhi	Flood Prone due to overflow of Damodar
Rajbalhat-II	Chimonchak, Gultia, Dakshin Gultia,nabagram, Rahimpur(Paschimpara), Jabni	Floor pronedue to overflow of Damodar, D -I,D-II canals and Kousiki river
Jangipara	Jagannnathpur, Khalisani, Radhaballabpur, Ajodha, Chandanpur, Bandar.	Floor prone due to overflow of Draiaage canal
Dilakash	Nikash, Khurigachi, Dilakash,Paschimgobindapur, Kulakash, Gabtala, Budulbadalhati, Paschim-Durgapur	Floor prone due to overflow of Damodar
Kotalpur	Kotalpur, Purba-Gobindapur, Chancha-Dingalhati, Bahana, Mohanbati, Chankpur, Harirampur, Kaparpur	Floor prone due to overflow of Dakatia Drainage canal
Mundalika	Mundalika, Rajibpur, Kodalpur, Laxmanpur, Seoraberia, Panchberia, Dhitpur, Sonamaguri, Baganda	Floor prone due to overflow of Kana Damodar

List of major roads and Bridges likely to be affected during the flood

(1) Sheakhala-Jangipara Road. (2) Jangipara-Udaynarayanpur Road. (3) Jangipara-Borgachia Road.

(4) Jangipara-Haripal Road. (5) Haripal-Rasidpur via Rajbalhat Road. (6) Singti to Bokpota Road (7)Singti to Ranjapur Road (8) Dithpur to Ainya Road

Bridge over Dakatia on RT -31/Bridge over Dakatia at Srihatta Mouza / Bridge over Raner khal at Akuti Mouza. Sluice Gate at Radhanagar Gram Panchayat /Rahimpur – Akna Bridge / Bridge at Rahimpur Paschimpara on DVC.

Name of the River which may affected during flood: - Flood water through-

(1) Damodar River may affect Rajbalhat-I, Rajbalhat-II,Rasidpur, Dilakash and Antpur Gram Panchayat covering more than 50,000 populations.
(2) Dakatia Drainage canal may affect Radhanagar, Furfura, Kotalpur and part of Jangipara Gram Panchayat covering about 45, 000 populations.
(3) Kana Damodar. D-I, D-II. Canals and Kousiki River affect Mundalika, Rajbalhat-I, Rajbalhat-II, & Rashidpur Gram Panchayats.

BLOCK DEVELOPMENT OFFICE CHANDITALA-II

River System ,Drainage & Dams :

Sl No	Name of River/Canal/Dam	Details	Remarks
1	Saraswati River	Desilted totally	
2	Janai Basin Khal	Oslampur Sluicegate present at Thero point,which is an important place	
3	Dankuni Khal	Desilted due to Khaatals of Dankuni Municipality	
4	Dams	NIL	

Disaster History :

1. Flood affected this block in 1978.As most of the block under West Bengal got this effect in that particular year.
2. Flood like situation occured in 2015. As heavy rainfall occured in 2015 at Howrah and Hooghly district.Adjacent blocks like Domjur (Howrah) ,Jangipara (Hooghly) got affected due to the breach of embankments of Dakatia Khal in 2015.
3. Water logging occured every year at Naity Jalapara & Panchghara Jalapara if heavy rainfall occurs(more than 100 mm in 24 hrs) as the site is situated in between the Railway line & Durgapur Expressway(NH-2) .
4. Kalbaishakhi affected eventually
5. Fire accidents at PURTI Banaspoti Ltd occured several times.
6. As the Two Major Roads (NH2 and SH15) passes through this block, Road Accidents are very common from which Life loss also been recorded at Police Stations.

Vulnerability analysis :

- The block is mainly velnerable to Flood Like situation(Water Logging) in some particular area.
- The block has possiblity to Earthquake as Chanditala-II is lying in Zone III .Urbanisation of this block may tend to loss of life as well as infrastural loss if earthquake occurs.

- Kalbaishakhi along with Lightnening is another hazard to this block which affect mainly communication path .
- As NH-2 & SH -15 passes through this block road accidents is one of the man made disaster seen /possible in this block.
- Fire accidents in Industry and Petrol Pumps may occured.

Hazard Calender :

Sl No	Month	Name of Possible Hazard	Remarks
1	January	Road Accident,Fire Accident	
2	February	Road Accident, Fire Accident	
3	March	Kalbaishakhi / Lightening, Road Accident, Fire Accident	
4	April	DO	
5	May	DO	
6	June	Water Logging,Lightning Road Accident,Fire Accident	
7	July	DO	
8	August	DO	
9	Sept	DO	
10	Oct	DO	
11	Nov	Road Accident,Fire Accident	
12	Dec	DO	

BLOCK DEVELOPMENT OFFICE CHANDITALA-I

Risk assessment & vulnerability analysis:-

It is our experience that hot and dry weather condition generally persists in this District as well as Block from mid March and continues up to 1st week of June with the temperature varying between 35 & 38 degree Celsius. Monsoon generally commences in this Block from mid June and stays up to mid October.

Vulnerable Areas

Place		**Nature of Vulnerability**
Gram Panchayat	**Village**	
Bhagabatipur 03212- 224 230	Haranandabati	Prone to Water-logging due to Heavy Rain
	Kanaidanga	
	Singjore	
	Jalamadul	
	Bhadua	
Kumirmora 03212- 263 764	Anupnagar	Do
	Majherant	
Krishnarampur 03212- 241 207	Chuadanga	Do
Haripur 03212- 221 204	Baghati	Do
	Chak Bangla	
	Ichhapasar	
	Anantarampur	
	Radhaballavpur	

	Bonpachberia	
Aniya 03212- 241 274	Dudhkanara	Do
	Akuni (Dakshin)	
	Jiara Baro Chowghara	
	Mukundapur	
	Shyamsundarpur	
	Kalyanbati	
Masat 03212- 241 244	Masat Jeliapara & Paschimpara	Do
	Masat Dulepara & Bagdipara	
Nababpur 03212- 224 550	Dakshin Nababpur Ayamapara	Do
	Chhitpukur Bagpara	
	Alipur Tantipara	
	Dhipa Ruidaspara	
Gangadharpur 03212- 229315	Malipukur	Prone to Water-logging due to Heavy Rain
	Hozaghata	
	Bonkrishnapur	
Sheakhala 03212- 266408	Dakshin Patul	Do
	Deshmukha	
	Sheakhala Biswaspara & Harisabha	
	Sandhipur	

BLOCK DEVELOPMENT OFFICE
Serampore-Uttarpara

Most Vulnerable Areas

Gram Panchayat	Village	Nature of Vulnerability	Remarks
Kanaipur	Souryadeep	Low Land	
Pearapur	BeluMilki, PearapurPurba	Low Land	
Rishra	Natungram	Very Low Land	

SUB-DIVISION, SADAR

BLOCK DEVELOPMENT OFFICE PANDUA

Disaster History : The natural of flood is a regular phenomenon, especially during the rainy season. In the year of 2000 Pandua was witnessed a devastating flood which affected almost entire Block. And more than twenty thousand affected by this flood. As river Kuntal, Dhusi and

DVC canal flow over this Block, when heavy rain fall occur this river and DVC canal become overflow as a result adjacent Gram is to face the problem of water logging.
In 2016, this Block has witnessed a severe hailstorm which affected only one Gram Panchayat named Jayer Dwarbasini very badly. More than 500 house damaged worstl

Vulnerable areas

Sl. No.	Name of gp	Name of village	Approx no. Of people who will be affected	Name of nearest high / pry. School where flood shelter can be set up.
1	Panchgora toregram	Nial, magura, ballal dighi, nawpara, panchgora	680	Toregram flood centre panchgora high school, sandua school
2	Ilsoba daspur	Nawpara, muktikri, ansua, anchgar, dey para	510	Mondalai girls / boys high school
3	Jamgram mondalai	Gutra,	150	Gutra pry. School
4	Sarai tinna	Tinna colony, purusattampur near rail line	215	Tinna illampur pry. School & high school
5	Haral daspur	Sealagori village	335	Haral madrasa / sealagori pry. School
6	Jayer dwarbasini	Kamtai shibpur	155	Kamtai pry. School, mahanad high school
7	Sikhira champta	Champta village bele (part)	255 120	Champta pry. School haridaspur high school
8	Berela konchmali	Ammon moury gokul	280 145	Sodepur pry. School
9	Balagarh block	Mahipalpur gp	1900	1. Champta pry. School 2. Purba khanyan pry. School 3. Itachuna college 4. Khanyan library

BALAGARH BLOCK

FLOOD PRONE Gram Panchayat

a) Char Krishnabati. b) Guptipara No. II c) Sripur Balagarh. d) Guptipara No. I (Partially). e) Jirat (Partially). f)Bakulia Gram Panchayet).g) Mohipalpur Gram Panchayet . h)Dumurdaha Nityanandapur II (Partially).

- **Vulnerable Areas**

Place		Nature of Vulnerability	Local contact person (with mobile number)	Remarks
Gram Panchayat	Village			
Char-Krishnabati Gram Panchayt	Fultala (Colonypara Sialdanga)	Flood & Cyclone	Rachana Majumder, 9735216782	Highly vulnerable due

	Char-Rampur		Pramila Mazumder, 9278272266	to flood by river Ganges
	Cholardanga		Paltu Roy 9735644369	
	Roypara			
	Benalichar		Shipra Roy, 8100469755	
	Saktipur		Smt. Lakshmirani	
	Kurmipara		Sanjib Mahato	
Sripur-Balagarh Gram Panchayat	Rajbansipara	Flood & Cyclone	Ranjit Pramanik 9732401480	Highly vulnerable due to flood by river Ganges
	Kshatriyanagar		Gurupada Biswas, 9732691535	
	Khalpar		Uttam Kritaniya 9143496188	
	Bhabanipur		Sankar Ch. Das, 9609593234	
	Bhabanipur Char			
	Araji Bhabanipur		Sangita Barui, 9635115007	
	Milangarh (Madhya)		Subhas Sarkar, 9143704752	
	Milangarh (Dakshin)			
	Tinchar		Karna Das, 8116755324	
	Sripur Bazar		Poppi Mustafi, 897289896	
	Tentulia		Aloke Pramanik, 9681252462	
	Sripur			
Jirat Gram Panchyat	Char-Khayramari,	Flood & Cyclone	Susama Mondal, 8900788380	Highly vulnerable due to flood by river Ganges
	Khaserchar			
	Kaliagarh		Arun Bhattacharya, 9732427951	
	Hasimpur		Soma Ghosh, 9143426401	
Sija-Kamalpur Gram Panchayat	Gournai (Harisarpur)	Flood & Cyclone	Smt. Mala Roy, 9679520925	Highly vulnerable due to flood by river Ganges
	Dhakchhara		Sudha Ghosh, 9547216374	
	Kamalpur (Sisupara)		Madhumita Patra 9474195272	
Somra-I Gram Panchayat	Sundarpur	Flood & Cyclone	Tapasi Ghosh, 8768430908	Highly vulnerable due to flood by river Ganges
	Kamardanga			
	Abdulpur		Jhuma Sarkar, 7407416854	
	Joshra-Bakipur		Adhir Sarkar, 9800110103	
	Paigachi		Masuda Khatun, 8017703470	
Mohipalpur Gram Panchayat	Sargari	Flood & Cyclone	Pradip Malik, 9475050247	Highly vulnerable due to flood by water discharge of DVC
	Dahala			
	Gadpara		Sourav Biswas, 9474498944	
	Bonkari		Abdul Hai,	

	Balisagar		8900202034	
Dumurdaha-Nityanandapur-I G.P.	Chandigachha	Flood & Cyclone	Nemai Roy, 8583919416	Highly vulnerable due to flood by river Ganges & water discharge of DVC
	Srikanta		Putul Routh, 9800537326	
	Dadpur		Chaitali Mondal, 9474463233	
	Aschitpur		Nandalal Modak, 9477080030	
	Daspara			
	Ramnagar			

DHANIAKHALI DEVELOPMENT BLOCK

DISASTER HISTORY

In last week of July, 2015 a devastating flood was happened due to huge amount of rainfall & discharge of water from dams. Almost 13 gram panchayats out of 18 under this block were inundated. 78 nos. of gruel kitchens as well as shelter had to open. Thousands of dwell houses were washed.

Again in last week of July, 2017, the ring band of the river Damodar, at a stretch about 4.5 kms falls under Gopinathpur-II Gram Panchayats was breached so many locations under due to consecutive discharge of huge amount of water from Durgapur Barrage. Over five thousand people were marooned at Chaitanyabati, Nischintapur, Habibpur, Kumrull Moujas. However the Ring Bandh was not repaired properly by the concerned authority yet, this year it may breach the main embankment of Damodar and if it will happen then the water will flow towards the river Ganga over the block.

Name of the Vulnerable Flood prone Mouja against the Gram Panchayat:-

Sl No.	*Name of the G.P.*	*Name of the Vulnerable Flood prone Mouja*
01.	Gopinathpur – I	Ramchandrapur, Gopinagar, Dharampur, DakshinKotalpur, Ichapur.
02.	Gopinathpur – II	Chaitanyanati, Habibpur, Nischintipur, Kumrul, Jamdara, Jiara, Chautara, DakshinJagannathpur, PaschimNarayanpur.
03.	Parambua- Sahabazar	Parambua, Bishnupur, Sarampara, Beguna, Banna,Jagannathpur, Srirampur, Nimdanga, Math Srirampur, Deora, Math Bishnupur, Rauthpur, Gobindapur.
04.	Mandra	Bakjuli, Nalitajole, Jyotmahesh, Hetampur, Bajitpur, Purbakeshabpur, Hariharpur
05.	Bhastara	Bhotor, Kulbarui, Masuria, Manipur, Bashipur
06.	Khajurdaha-Melki	Saturia, BaroKhanpur, Bathangoria, Majhinan, Deluarah, Basudevpur, MelkiKutubpur,Jhuma, Balagori, Bhabanipur, Kanajuli, Shibpur.
07.	Belmuri	Radhaballavpur, Jyoteharanand, Manikpur, Chotokhanpur, Nagapara, Sarbanandapur, Uttar Moghalpur.
08.	Dhaniakhali-II	Muidipur, Gantegori, Sibaichandi, Rameswarbati, Mahamaya
09.	Gurbari-II	Madhupur, Baidyapur, Rohia, Kharua, Belgachia, Chopa
10.	Dasghara-II	Srikrishnapur, Ballavipur, Dighir, Madhpur.
11.	Dasghara-I	Rojipur, Belepota, Ganeshnagar, Dasghara, Nalthopa.
12.	Gurap	Palashi, Konsaripur, Cheragram
13.	Bhanderhati-II	Sarampara, Angaru, Chandpur

BLOCK DEVELOPMENT OFFICE
POLBA-DADPUR

Name of Important Rivers in this Block Area

1) **Saraswati 2) Kunti 3) Kedermoti 4) Ghia 5) Jhimki, 6) Illsura**

Name of Important Channels:

1) **Soa**
2) **Rosnai**

Major Vulnerable Area under this block prone to inundate during heavy rain

Name of the G.P.	**Villages**	**Source of vulnerability**
Rajhat	Atpukur, Bhaturia, Choutara,Hatua, Chatimtala	Soa Khal
Sugandha	Gotu, Narayanpara	Soa Khal
Akna	Barol, Prasadpur, Monipur, Khuspukur	Soa Khal
G-Malipara	Dantra, Deshabpur, Mirkhila	low land
Harit	Harit, Komdhara, Premnagar	Kedarmoti and Ghia river
Amnan	Senya, Dubirbheri, Amnan,	Ghia River
Dadpur	Somsara, hanral, Aima, Srirampur, Maheswarpur, Hodla, Krishnapur, Sarkhala, Chowk-Momrej	Ghia River, Illsura river
Makalpur	Kankuria, Podarpar, Purat, Kantabon, Jhowbandh, Makalpur, Paschim-Sikta, Jyot-rameswarpur, Hasnan, Mearber, Dhalarbagan, beriberi, Kagnan, Ista-Badista, Babla-pukur, Alipur North and South, Ghatampur, Jhukerpar	Ghia river, Jhumki River
Babnan	Kadipara, Danrpur, Goea, Bhabanipur, Nidkar, Ati, Mohisdanga, Poschimpara, Reopara, Amra, Teurdanga	Ghia River

BLOCK DEVELOPMENT OFFICE
CHINSURAH-MOGRA

Vulnerable Areas

Gram Panchayat	Village	Nature of Vulnerability
1	2	3
Kodalia – I	Rabindranagar	Low
Kodalia – II	Kanagarh & Banabharui	Medium
Debanandapur	Krishnapur Chandaupur & Part of Manaspur	Low
Bandel	No Vulnerable Village identified	-
Magra - II	Jangalpara, Gajaghanta	Medium

Magra – I	Sukantapally, Mathpara, Purusattampur, Hediapota, Bonermath	Medium
Digsui Heora	Naksa, Talandu, Hoera	Medium
Saptagram	Sankhanagore, Namajgarh, Choto Khejuria, Teghoria	Low
Chandrahati - I	Damra, Bispara, Raghunathpur	Low
Chandrahati - II	Bandapara	Low

BANSBERIA MUNICIPALITY

WATER LOGGING AREA :

1. **PRAVAT MANI COLONY – WARD NO. – 18.**
2. **BADAL HARI 3 NO GUMTEE INCLUDING SAHEB BAGAN- WARD NO. – 10.**
3. **SHIBTALA COLONY – WARD NO – 18.**
4. **ISLAMPARA WARD NO. – 11.**
5. **GANDHI COLONY AND SWADHIN COLONY WARD NO. – 11.**
6. **SHIBSOHAGINI COLONY -3 WARD NO. – 12.**
7. **S.N MAJUMDER ROAD WARD NO – 17.**
8. **RAIL GHAT COLONY WARD NO. – 16.**
9. **KARGIL COLONY WARD NO – 12.**
10. **DHOPA GHAT COLONY & 6 MANDIR GHAT WARD NO – 6.**

Inundation Areas of the District

Name of Block	Name of Village/ Mouza	Population	Whether likely to be partly flooded or fully?	Population Likely to be affected	Population likely to be shifted to flood shelter	Location of Flood Shelter tagged for evacuation	Within inundation prone village / mouza list of offices / Health/ Centre / Power station likely to be flooded if any	Remarks
1	2	3	4	5	6	7	8	9
Chanditala-II	**Nil**	**Nil**	**Nil**	**Nil**	**Nil**	**Nil**	**Nil**	**Nil**
Tarakeswar	Kanaria	1806	Fully	1806	1806	Kulteghori primary School, Ketera FPS, Kanaria primary schoolVivekanandaSamabay samiti	Health Centre at Keshabchak Panchayat.	
	Nachipur	1956	Fully	1956	1956	NachipurMahamaya Primary School, Nachipur primary school, BishawalaxmiNachipur Primary School. Nachipur NN SC Vidyamandir.	Tullan Sub centre	
	Mohanbati	1170	Partly	585	585	Mohanbati primary school.	Tullan Sub centre	
	KeshabChak	2245	Partly	748	478	Keshabchak GP	Health Centre at Keshabchak Panchayat	
	Naskarpur	2828	Fully	2828	2828	Naskarpur Junior Basic school, Naskarpurnetaji Primary School, naskarpur west Junior Basic School, MagrarSaraswatividyapith, muktarpur KM Primary School. Muktarpur Rabindra Primary school. MuktarpurRamkrishna Primary school	Talpur station, Talpur Sub Centre,	

						Ramnarayapur Ashutosh Ushabal primary, TalpurPathsala,Muktar pur high school		
	Sahachak	1101	Fully	1101	1101	Sahachak primary school, Champadanga High school, Middayparaprimatry School,	Sahachak Sub Centre	
	Binogram	1374	Fully	1374	1374	Binogramjr. Basic school, BinogramSreeGouranga primary school, Champadanga High school	Binogram Sub Centre	
	Ramnagore	682	Partly	285	285	Champadanga High school, Paschim Ramnagar primary school, Ananmath primary school, Netaji DihiparaChampadanga Primary School, Beremul Primary school,	Binogram Sub Centre	
	Champadanga	819	Partly	279	273	Champadanga High school	Champadanga Sub Centre	
	Santoshpur	1017	Partly	670	670	GouribatiRadharani das High school, santoshpur primary school, Binpur Primary school, mrityunjay Vidyapith,	Santoshpur Sub Centre	
	Hauli	1980	Fully	1980	1980	Hauli Madhya Primary School	Hauli Sub Centre	
	Dhaliyan	1109	Partly	428	428	DhaliyanDinanath primary school	Hauli Sub Centre	
	Natungram	2182	Fully	2182	2182	DhaliyanDinanath primary school, GP Office	Bhanjipur Sub Centre	
	Bhanjipur	1031	Fully	1031	1031	BhanjipurDeshbandhu Vidyaniketan HS	Bhanjipur Sub Centre	
	Bajitpur	730	Partly	270	270	Basudebpur Primary School	Bhanjipur Sub Centre	
	Sainta	1120	Fully	1120	1120	Sainta Jr. High school	Hauli Sub Centre	
	Bhabanipur	816	Fully	816	816	Bhabanipur Primary School,	Bhanjipur Sub Centre	
	Kunja Ban	633	Fully	633	633	Kunjabanjr. High School	Bhanjipur Sub Centre	
	Shyampur	1040	Partly	303	303	Shyampur Primary School	Shyampurpur Sub Centre	
	Khemonpur	1423	Partly	396	396	Joydurga Primary school	Tegra Sub-Centre	
	Kalaikundu	1264	Partly	488	488	Kalaikundu Primary school	Tegra Sub-Centre	
	AimaPaharpur	2845	Partly	1138	1138	AimaPaharpur Jr. High school, Buddharampur High school	AimaPaharpur Sub-Centre	
	jagannathpur	967	Fully	967	967	Buddharampur High school	Tajpur Sub-Centre	
	Belbandh	1027	Partly	496	496	Buddharampur High school	Naita Sub- Centre	
	Ranabandh	1158	Partly	353	353	Ranabandh primary School	Naita Sub- Centre	
	Ramchandrapur	425	Fully	425	425	Ramchandrapur primary school,	Malpaharpur Sub Centre	

						NeelkantaHazraMSK ,		
	Panchgachia	926	Fully	926	926	Panchgachia Primary school	Malpaharpur Sub Centre	
	Timna	1076	Fully	1076	1076	Timna Primary school, GP ,	Naita Sub-Centre	
	Malpaharpur	1218	Fully	1218	1218	MalpaharpurAdibasi Primary school	Malpaharpur Sub Centre	
	Baidyapur	2066	Partly	516	516	Basudebpur Primary school	Bajitpur Sub-Centre,	
	Mirzapur	4120	Partly	623	623	North Jr. High school	Mirjapur Sub-Centre	
	Bajitpur	781	Partly	217	217	Basudebpur primary school, BaligoriAdharmaniBidyaniketan	Bajitpur Sub-Centre,	
	Basudebpur	702	Partly	117	117	Basudebpur primary school, BAligoriAdharmaniBidyaniketan	Baligori –I Panchayat sub-Centre	
	Aligori	1262	Partly	720	720	JCB primary school,	Baligori-I GP	
	Jyotshambhu	688	Partly	428	428	Jyotsambhu South primary school,	Bajit Sub- Centre	
	Baligori	2113	Partly	704	704	AdharmaniBidyaniketan	Baligori-I GP	
	Akhnapur	2195	Partly	731	731	Akhnapur primary school,	Mirzapur Sub Centre	
	Joynagar	2987	Partly	497	497	Joynagar Jr. High school	Baligori-I GP	
	Kalapukur	1116	Fully	1116	1116	NazipurHanspukurKCSPrimary School	Madpur Sub-Centre	
	Madpur	1203	Fully	1203	1203	Madpur Jr High school, Madpur primary school,	Madpur Sub-Centre	
	Kanaipur	1647	Fully	1647	1647	Kulut Jr. High school, Kulut primary school,	KulutSamserpur sub-Centre	
	Sardarpur	1903	Partly	470	470	Kulut Jr. High school, Kulut primary school, Mahespur high School	Sardarpur Sub- Centre	
	Daluipara Colony	2000	Partly	586	583	Daluipar Primary school,	Paschim Astara Sub-Centre	
	Chakdah	1000	Partly	380	380	Chakdah primary School, Maujpur High School.	Dutta Sub Centre	Chakdah
Chanditala-I	Bashati	2045	Fullv	2045	450	Bashati FP	NIL	
	Haripur	1561	Fully	1s61	350	Haripur	NIL	
						Durgapada		
						Memorial		
	Aniya	3506	Fully	3506	450	Akuni	Aniva BPHC	
						BGBL		
						Institution		
	Bonpanchbera	1 802	Fully	1802	200	Bonpanch	NIL	
						beria FP		
	Anantarampur	3s00	Fully	3500	300	Anantaram	NIL	
						pur MSK		
	Ichapasar	2429	Fully	2429	200	Ichhapasar	NIL	
	Radhaballabhpur	2552	Partlv	800	NA	NIL	NIL	
	Dudhkumra	4t02	Partly	500	NA	NIL	NIL	
	Jasamohanour	2509	Partlv	320	NA	NIL	NIL	
	Chotchoushaa	2002	Partly	400	NA	NIL	NIL	
	Mamudour	2t08	Partlv	300	NA	NIL	NIL	
	Badesola Uttar	1948	Partly	250	NA	NIL	NIL	
	Radhaballabhpur	2552	Partlv	800	NA	NIL	NIL	
	Chitghola	280	Fully	280	200	Chitghola	Chitghola ICDS center	Pashpur

Jangipara	Badurchak (Mouza-Rajbalhat)	1000	Partly	1000	100		and ChitgholaMllickpara SSK	primary school, Bilaspur Pry School, Ranjapur Pry School are used as temporary flood shelter
	Brindabanchak (Mouza-Rajbalhat)	1800	Partly	1800	50			
	Morhal (Mouza-Morhal)	3780	Partly	3780	10			
	Sibchak (Mouza-Sibchak)	1051	Partly	1051	15			
	Bilaspur	1600	Partly	1600	150			
	Atra	1200	Partly	1200	50			
	Dogachia	1800	Partly	1800	100			
	Ranjapur	3500	Partly	3500	100			
	Akna	1000	Fully	1000	600			
	Senpur	300	Fully	300	250	Singti		
SDO, Sadar	Hooghly Chinsurah	-	Nil	Nil	Nil	Nil	Nil	
	Bansberia	-	Nil	Nil	Nil	Nil	Nil	
INUDATION PROJECTION INFORMATION FOR RIVER MUNDESWARI								
NAME OF DAM : DURGAPUR BARRAGE.								
Khanakul- I	Daspur of Balipur G.P.	984	Fully	All	100-150	Balipur Flood Shelter	BalipurMelatala High School, Balipur Trekker Stand, Daspur Primary School,PurbaRadhanagar Primary School,	Low land Area
	PurbaRadhanagar of Balipur G.P.	1153	Fully	All	100-150	Balipur Flood Shelter		Vulnerable River Embankment
	Udna of Tantisal G.P.	973	Fully	All	200-250	UdnaKaderia High Madrasah	UdnaKaderia High Madrasah	Vulnerable River Embankment
	Durgapur of Tantisal G.P.	866	Fully	All	200-250	Tantisal Jr. High School	Tantisal Jr. High School	Vulnerable River Embankment
	Sola asta of Arunda G.P.	834	Fully	All	100-150	sola asta pry. School	sola asta pry. School	Vulnerable River Embankment
	Par chabbishpur of Arunda G.P.	862	**Fully**	All	200-250	Par chabbishpur high school	Par chabbishpur high school	Vulnerable River Embankment
INUDATION PROJECTION INFORMATION FOR RIVER DWARAKESWAR								
Khanakul – I	Paschim Ghoshpur of Ghoshpur G.P.	984	Fully	All	150-200	Paschim GhoshpurRamkrishna Vidyapith	Paschim GhoshpurRamkrishna Vidyapith	Vulnerable River Embankment
	Raghunathpur of Ghoshpur G.P.	973	Fully	All	200-240	Raghunathpur Saradamoni Balika Vidyalaya	Raghunathpur Saradamoni Balika Vidyalaya	Vulnerable River Embankment
	Ghoshpur of Ghoshpur G.P.	1134	Fully	All	250-300	Ghoshpur Union Netaji Bidyapith	Ghoshpur GP office,Ghoshpur Union Netaji Bidyapith	Vulnerable River Embankment
	Dakshin Ghoshpur of Ghoshpur G.P.	878	Fully	All	150-200	Dakshin Ghoshpur Primary School	Dakshin Ghoshpur Primary School	Vulnerable River Embankment
	Madhabkundu of Ghoshpur G.P.	742	Fully	All	120-130	Madhabkundu Primary School	Madhabkundu Primary School	Vulnerable River Embankment
	Bamankhana of Kishorepur-I GP	785	Fully	All	120-140	Bamankhana Primary School	Bamankhana Primary School	Vulnerable River Embankment
	Niranjanbati of Kishorepur-I GP	780	Fully	All	150-175	Niranjanbati Primary School	Niranjanbati Primary School	Vulnerable River Embankment
	Ghasua of Kishorepur-IIGP	854	Fully	All	200-220	Ghasua Jr. High School	Ghasua Jr. High School	Vulnerable River Embankment
	Kishorepur-IIGP	790	Fully	All	150-170	Kishorepur – II Gram Panchayat Office	Kishorepur – II Gram Panchayat Office	Vulnerable River Embankment

	Thakuranichak GP	980	Fully	All	200-230	Thakuranichak Balika Vidyalaya	Thakuranichak Balika Vidyalaya	Vulnerable River Embankment
	Thakuranichak GP	760	Fully	All	130-150	Thakuranichak Union High School	Thakuranichak Union High School	Vulnerable River Embankment
	Mainan of Thakuranichak GP	975	Fully	All	120-140	Mainan Khan Para Primary School	Mainan Khan Para Primary School	Vulnerable River Embankment
Darakeswar, Amodar Nod, Tarajuli river, Debkhal								
Goghat I	BALI	4141	Fully	4141	1118	**Bali old flood shelter**, Bali H.S., Bali Saradamani Girls H.S.		
	DAMODARPUR	3166	Fully	3166	855	Damodarpur HS		
	DIGHARA	2312	Fully	2312	624	No flood shelter. Gruel kitchen runs in the concern Pry. School		
	GOHALISANRA	763	Fully	763	206	No flood shelter. Gruel kitchen runs in the concern Pry. School		
	JAGATPUR	1090	Fully	1090	294	No flood shelter. Gruel kitchen runs in the concern Pry. School		
	KALAGACHHIA	827	Fully	827	223	No flood shelter. Gruel kitchen runs in the concern Pry. School		
	KANAIPUR	937	Fully	937	253	No flood shelter. Gruel kitchen runs in the concern Pry. School		
	KHILGRAM	473	Fully	473	128	No flood shelter. Gruel kitchen runs in the concern Pry. School		
	LAKSHMIPUR	927	Fully	927	250	No flood shelter. Gruel kitchen runs in the concern Pry. School		
	MIRZZAPUR	710	Fully	710	192	No flood shelter. Gruel kitchen runs in the concern Pry. School		
	PENCHERA	646	Fully	646	174	No flood shelter. Gruel kitchen runs in the concern Pry. School		
	RADHABALLABHPUR	1905	Fully	1905	514	No flood shelter. Gruel kitchen runs in the concern Pry. School		
	SYAMBALLABPUR	4999	Fully	4999	1350	No flood shelter. Gruel kitchen runs in the concern Pry. School		
	UDAYRAJPUR	1586	Fully	1586	428	Udayrajpur H.S.		
	ADRA	495	Fully	495	134	No flood shelter. Gruel kitchen runs in the concern Pry. School		
	ARAZI SURJYAPUR	443	Fully	443	120	No flood shelter. Gruel kitchen runs in the concern Pry. School		
	BELI	485	Fully	485	131	No flood shelter. Gruel kitchen runs in the concern Pry.		

						School		
	BHADUR	2706	Fully	2706	731	No flood shelter. Gruel kitchen runs in the concern Pry. School		
	BHANJAPARA	504	Fully	504	136	No flood shelter. Gruel kitchen runs in the concern Pry. School		
	BIRAMPUR	844	Fully	844	228	No flood shelter. Gruel kitchen runs in the concern Pry. School		
	MANDALGHANTI	1670	Fully	1670	451	No flood shelter. Gruel kitchen runs in the concern Pry. School		
	METHUL	2748	Fully	2748	742	No flood shelter. Gruel kitchen runs in the concern Pry. School		
	SURJYAPUR	340	Fully	340	92	No flood shelter. Gruel kitchen runs in the concern Pry. School		
	UTTAR BALARAMPUR	2351	Fully	2351	635	No flood shelter. Gruel kitchen runs in the concern Pry. School		
	BALLABHBATI	945	Fully	945	255	No flood shelter. Gruel kitchen runs in the concern Pry. School		
	DHULEPUR	1474	Fully	1474	398	No flood shelter. Gruel kitchen runs in the concern Pry. School		
	HARIHARPUR	1132	Fully	1132	306	No flood shelter. Gruel kitchen runs in the concern Pry. School		
	KHORDA KANPUR	1516	Fully	1516	409	No flood shelter. Gruel kitchen runs in the concern Pry. School		
	MATHURA	1510	Fully	1510	408	No flood shelter. Gruel kitchen runs in the concern Pry. School		
	PURBBA AMARPUR	1035	Fully	1035	279	No flood shelter. Gruel kitchen runs in the concern Pry. School		
	SHYAMBATI	1137	Fully	1137	307	No flood shelter. Gruel kitchen runs in the concern Pry. School		
	DARINAKUNDA	2047	Fully	2047	553	No flood shelter. Gruel kitchen runs in the concern Pry. School		
	DEWAN CHAK	150	Fully	150	41	No flood shelter. Gruel kitchen runs in the concern Pry. School		
	DUMURPARA	345	Fully	345	93	No flood shelter. Gruel kitchen runs in the concern Pry. School		
	GOHALPOTA	567	Fully	567	153	No flood shelter. Gruel kitchen runs in the concern Pry. School		
	KOTA	2716	Fully	2716	733	No flood shelter.		

						Gruel kitchen runs in the concern Pry. School		
	KULIA	1658	Fully	1658	448	**Kulia (old) Flood Shelter**		
	NAKUNDA	4126	Fully	4126	1114	No flood shelter. Gruel kitchen runs in the concern Pry. School		
	RAUTARA	397	Fully	397	107	No flood shelter. Gruel kitchen runs in the concern Pry. School		
	BELEKUSUMA	2178	Fully	2178	588	No flood shelter. Gruel kitchen runs in the concern Pry. School		
	DAKSHIN BALARAMPUR	734	Fully	734	198	No flood shelter. Gruel kitchen runs in the concern Pry. School		
	GOALPARA	1188	Fully	1188	321	No flood shelter. Gruel kitchen runs in the concern Pry. School		
	JOT MAHABAT	247	Fully	247	67	No flood shelter. Gruel kitchen runs in the concern Pry. School		
	MUKTARPUR	1044	Fully	1044	282	**Govt. Flood Shelter**		
	SAORA	4205	Fully	4205	1135	No flood shelter. Gruel kitchen runs in the concern Pry. School		
	KURMANA	1463	Partly	521	141	No flood shelter. Gruel kitchen runs in the concern Pry. School		
	SUNIA	2327	Partly	452	122	No flood shelter. Gruel kitchen runs in the concern Pry. School		
	DAHIAKANDA	1856	Partly	753	203	No flood shelter. Gruel kitchen runs in the concern Pry. School		
	BIJALKONA	1691	Partly	353	95	No flood shelter. Gruel kitchen runs in the concern Pry. School		
Inundation Projection Information for River :Darokeswar								
Arambagh	SalepurPaschimpara, Salepur Mouza, Parbatichak, Manikpat, Raipur	17100	Partly and Fully	1100	550-600	Salepur High School, RamnagarAbinash High School	PHC-1 & Post Office-3	
	Inundation Projection Information for River :Silai and Darokeswar							
	Basantabati, Rangtakhali, Atapur, Sekhpur, Berabere, Barodongal, Daharkundu	12500	Partly and Fully	950	450-500	Basantabati Primary School, BarodongalSushilaValika Vidyapith, DahorkunduPratikshalaya	PHC-1, Post Office-1	
	Inundation Projection Information for River :Mundeswari							

	MadhurpurPatrapara, AshanpurSayerpara, BakhorchakSahebdanga, GolamichakGhatgora	1600	Partly and Fully	750	150-200	Sayerpara Flood Shelter, Madhurpur High School, Haraditya Flood Shelter	PHC-1, Madhurpur Paschim Primary School	
Inundation projection information for river Mundeswari								
Khanakul - II	Marakhana	5526	Fully	3500	150	Marokhana PHC / Marokhana High School	Marokhana High School, Marokhana Gram Panchayat Office, Marokhana Health Sub Center, 5	
	Manikdwip	300	Partly	200	20	Marokhana PHC / Marokhana High School	Manikdwip Primary School	Manikdwip
	Joariachak	259	Partly	160	30	Marokhana PHC / Marokhana High School		Joariachak
	MahishnalaDamkunda	117	Partly	117	20	Marokhana PHC / Marokhana High School	MahishnalaDamkunda Primary School	MahishnalaDamkunda
	KamdebChak	550	Partly	450	30	Marokhana PHC / Marokhana High School		KamdebChak
	Sasapota	2414	Partly	1200	100	Marokhana PHC / Marokhana High School	1 Junior Basic School, 1 Primary School	Sasapota
	Hanua	3407	Fully	3407	50	Marokhana PHC / Marokhana High School	1 SSK, 1 Primary School, 1 SSK	Hanua
	Dakshin SudamChak	7	Partly	7	0			Dakshin SudamChak
	Mansuka	13	Partly	13	0			Mansuka
	Inundation projection information for river Rupnarayan							
	Banhijli	3298	Fully	2500	200	Hanua Flood Shelter	3 Nos Primary Schools, 1 Library, 1 SSK	
	Chand Kundu	2884	Fully	2884	50	Hanua Flood Shelter	1 Primary School, 1 SSK	
	Dhaldanga	2972	Fully	2972	100	Hanua Flood Shelter	3 Primary Schools	
	Marakhana	5526	Fully	5526	200	Marokhana PHC	Marokhana High School, Marokhana Gram Panchayat Office, Marokhana Health Sub Center, 5 Nos. of Primary Schools, 1 SSK	

3 Reducing Risk; Enhancing Resilience

3.1 Background

The Disaster Management Act, 2005 and the National Policy, 2009 marks the institutionalization of paradigm shift in disaster management in India, from a relief-centric approach to one of proactive prevention, mitigation and preparedness. While it is not possible to avoid natural hazards, adequate mitigation and disaster risk reduction measures can prevent the hazards becoming major disasters. Disaster risk arises when hazards interact with physical, social, economic and environmental vulnerabilities. A multi-pronged approach for disaster risk reduction and mitigation consisting of the following:

- Integrating risk reduction measures into all development projects
- Initiating mitigation projects in identified high priority areas through joint efforts of the Central and State Governments
- Encouraging and assisting State level mitigation projects
- Paying attention to indigenous knowledge on disaster and coping mechanisms
- Giving due weightage to the protection of heritage structures

In the terminology adopted by the UNISDR, the concept and practice of reducing disaster risks involve systematic efforts to analyse and manage the causal factors of disasters, including through reduced exposure to hazards, lessened vulnerability of people and property, wise management of land and the environment, and improved preparedness for adverse events. Mitigation consists of various measures required for lessening or limiting the adverse impacts of hazards and related disasters.The DM Act 2005 defines "Mitigation" as measures aimed at reducing the risk, impact, or effects of a disaster or threatening disaster situation."Goal of mitigation is to minimize risks from multiple hazards and the threats from individual hazards need not always occur in isolation. At times, a hazardous event can trigger secondary events. For example, a cyclone often lead to flooding and various other cascaded events spread over an area wider than the primary event. In addition, demographics, nature of human settlements, and effects of global climate change can magnify the vulnerability of the communities at risk. The DM Plan, therefore, focuses on enhancing the mitigation capabilities for multiple hazards, their likely cascading effects.

The effectiveness in disaster risk reduction will depend on coordination mechanisms within and across sectors and with relevant stakeholders at all levels. For each hazard, the approach used in this plan incorporates the four priorities enunciated in the Sendai Framework into the planning framework for Disaster Risk Reduction under the five thematic areas for action:

1. Understanding Risk
2. Inter-Agency Coordination
3. Investing in DRR – Structural Measures
4. Investing in DRR – Non-Structural Measures
5. Capacity Development

For each of these thematic areas for action, a set of major themes have been identified for inclusion in the planning framework.

3.1.1 Understanding Risk

This thematic area for action focuses on understanding disaster risk, the Priority-1 in the Sendai Framework integrates into it numerous actions needed for strengthening disaster resilience. The major themes for action are: a) Observation Networks, Information Systems, Research, Forecasting, Zoning / Mapping, c) Monitoring and Warning Systems, d) Hazard Risk and Vulnerability Assessment (HRVA), and e) Dissemination of Warnings, Data, and Information. Having adequate systems to provide warnings, disseminate information, and carry out meaningful monitoring of hazards are crucial to disaster risk reduction, and improving resilience. They are also an integral part of improving the understanding of risk.

3.1.2 Inter-Agency Coordination

Inter-agency coordination is a key component of strengthening the disaster risk governance - Priority-2 of the Sendai Framework. The major themes for action required for improving the top-level interagency coordination are a) Overall disaster governance b) Response c) Providing warnings, information, and data and d) Non-structural measures.

3.1.3 Investing in DRR – Structural Measures

Undertaking necessary structural measures is one of the major thematic areas for action for disaster risk reduction and enhancing resilience. These consist of various physical infrastructure and facilities required to help communities cope with disasters. The implementation of these measures is essential to enhance disaster preparedness, a component of Priority-4 of the Sendai Framework. It is also an important component of investing in disaster risk reduction for resilience, which is Priority-3 of Sendai Framework.

3.1.4 Investing in DRR – Non-Structural Measures

Sets of appropriate laws, mechanisms, and techno-legal regimes are crucial components in strengthening the disaster risk governance to manage disaster risk, which is Priority-2 of the Sendai Framework. These non-structural measures comprising of laws, norms, rules, guidelines, and techno-legal regime (e.g., building codes) framework and empowers the authorities to mainstream disaster risk reduction and disaster resilience into development activities.

3.1.5 Capacity Development

Capacity development is a theme in all the thematic areas for action. The Sendai Priority-2 (Strengthening DRR governance to manage DR) and Priority-3 (Investing in DRR for resilience) are central to capacity development. The capacity development includes training programs, curriculum development, large-scale awareness creation efforts, and carrying out regular mock drills and disaster response exercises. The capability to implement, enforce, and monitor various disaster mitigation measures has to be improved at all levels from the local to the higher levels of governance. It is also strengthening the DRR governance at all levels to better manage risk and to make the governance systems more responsive.

3.1.6 Hazard-wise Responsibility Matrices for Disaster Risk Mitigation

For the DM plans to succeed, it is necessary to identify various stakeholders/agencies and clearly specify their roles and responsibilities. At all levels - from local to the district - the relevant authorities must institutionalise programmes and activities at the department levels, and increase inter-departmental and inter-agency coordination and networking. They must also rationalise and augment the existing regulatory framework and infrastructure. This section covers the hazards listed below:

1) Floods
2) Seismic
3) Drought
4) Chemical (Industrial) Disasters
5) Fires

1.Floods

1. Understanding Risk

Floods		Understanding Risk			
	Major Themes	Agencies and their Responsibilities			
		District	Responsibilities	Block	Responsibilities
1.	Observation Networks, Information Systems, Research, Forecasting	I irrigation	Flood Information System	B.D,O., PRI, ULB	Support and coordination
		DMCD	Promote research and studies		
		Agril.	Rainfall Data, Drought Information System		
2.	Zoning, mapping, and classification flood prone areas	DMCD, NDRMS	preparation of hazard maps of vulnerable using best tools	B.D,O., PRI, ULB	preparation of detailed maps
3.	Studies and monitoring of rivers flowing from neighbouring districts	Irrigation Dept., DMCD	Inter district cooperation for studies and forecasting	B.D,O., PRI, ULB	Support and coordination

4	Research and Development	Irrigation Dept., DMCD, relevant disrict-level technical institutions	•River basin studies •Studies on flood related problems such as soil losses caused by flooding of rivers, sediment transport, river course •changes, and appropriate use of embankments •Studies on support systems for people living in flood prone areas	B.D,O., PRI, ULB	Support and coordination
5	Hazard Risk Vulnerability Assessment	DMCD, Irrigation Dept., ARD, Fisheries, Agril.	Undertake HRVA as part of preparing and periodic revision of DM plans	B.D,O., PRI, ULB	Support and coordination
6	Monitoring, Forecasting and Warning Systems	DMCD, Irrigation Dept, Agril.	data collection and updates	B.D,O., PRI, ULB	Support and coordination
7	Dissemination of warnings, data, and information	DMCD, Irrigation Dept, Agril, Police	•Dissemination of warnings to all, down to the last mile – remote, rural or urban; Regular updates to people in areas at risk •Ensure facilities and infrastructure for the implementation of adequate access to communities at risk •Warnings using all types of options, types of technologies, and media •Monitoring compliance by various network operators and service providers	B.D,O., PRI, ULB	Support and coordination

2. Inter-Agency Coordination

Flood		Inter-Agency Coordination			
	Major Themes	Agencies and their Responsibilities			
		District		Block	
1	Overall disaster governance	Irrigation Dept., DDMA, DDMC, other concerned deptts, Panchayats, ULBs, IAG	Preparation and implementation of DM plans and ensure the functioning of agencies with DM tasks	B.D,O., PRI, ULB	Support and coordination
2	Response	Do	Organising the immediate response and seeking assistance of state agencies, if required	B.D,O., PRI, ULB	Support and coordination
3	Warnings, Information, Data	Do	Dissemination of warnings to all, down to the last mile – remote, rural or urban; Regular updates to people in areas at risk	B.D,O., PRI, ULB	Support and coordination
4	Non-structural measures	Do	Adapting the norms/ codes as per State's requirement, enforcement, monitoring	B.D,O., PRI, ULB	Support and coordination

Investing in DRR–Structural Measures

Flood Measures		Investing in DRR–Non Structural			
	Major Themes	Agencies and their Responsibilities			
		District		Blocks	
1	• Regulation and enforcement of laws, norms, regulations, guidelines • Integrated Water Resources Management	Irrigation & Waterways Dept., DDMA, DMCD	• Implementing and-use regulation for low lying areas as per flood control norms • Regulation of inhabitation of low-lying areas along the rivers, nallas and drains • Sponsor state-specific efforts; support local efforts; Cooperate with central efforts • Prevention and removal of encroachment into the	B.D,O., PRI, ULB	Support and coordination

			waterways and natural drainage systems		
2	Regulations to promote flood resilient buildings and infrastructure	DDMA, DMCD, Local bodies	Support and coordination	B.D,O., PRI, ULB	Support and coordination
3	Catchment Area Treatment/ Afforestation	Do	Implementation of watershed management including catchment area treatment and afforestation programmes	B.D,O., PRI, ULB	Support and coordination

4. **Investing in DRR–Non-Structural Measures**					
Flood					Investing in DRR–Structural Measures
	Major Themes	Agencies and their Responsibilities			
		District		Block	
1	Flood control measures such as construction of embankments and levees	Irrigation, DDMA, PWD, Panchayats, ULBs	• Identification safe buildings and sites to serve as temporary shelters for people and livestock • Construction of Flood shelters in flood prone areas • Proper maintenance of drainage system and river embankments	B.D,O., PRI, ULB	•Identification safe buildings and sites to serve as temporary shelters •Construction of Flood shelters in flood prone areas •Proper maintenance of drainage system and river embankments
2	Social Housing Schemes	Relevant Govt. Deptt., Panchayats, ULBs	Ensure that flood-resistant features are incorporated in planning and execution of social housing schemes	B.D,O., PRI, ULB	Ensure that flood-resistant features are incorporated in planning and execution of social housing schemes
3	Multi-purpose Flood Shelters	DMCD	Advisory	B.D,O., PRI, ULB	Ensure availability of shelters, undertake proper maintenance, and make arrangements to support the people shifted to temporary shelters
5	Waterways and drainage systems for roads,	Irrigation, PWD,	Ensure proper alignment and design in all state projects	B.D,O., PRI, ULB	Support and coordination

4	Public Private Partnerships	Do	Promote private participation in disaster management facilities	B.D,O., PRI, ULB	Support and coordination

	highways, and expressways				
6	Hazard resistant construction, strengthening, and retrofitting of all lifeline structures and critical infrastructure	Panchayats, ULBs, all relevant Departments/ Agencies	Collaboration with technical agencie and implementations	B.D,O., PRI, ULB	Support and coordination

1. Capacity Development

Flood					Capacity Development
	Major Themes	Agencies and their Responsibilities			
		District		Blocks	
1	Training	DDMA, ATIs, , SIPRD, CD Training Institute, Police Training Academies	Training and orientation programs for govt. staff, , proF&Ssionals for veterinary care and support to disaster- affected animals	B.D,O., PRI, ULB	Support and coordination
2	Awareness Generation	DMCD, ATI, Line Deptts., Govt. Agencies, NGOs	• Carry out mass media campaigns • Promote culture of disaster risk prevention, mitigation, and better risk management • Promote attitude and behaviour change in the awareness campaigns/ IEC • Promote Community Radio • Strengthening network of civil society organizations for awareness generation about DRR and DM • Information on care and protection of disaster-affected animals	B.D,O., PRI, ULB	Support and coordination
3	Mock Drill		Joint planning and execution of emergency drills	B.D,O., PRI, ULB	Support and coordination
4	Vocational Training/ Skill development	DMCD, Govt. Dept., state level skill development agencies	• Conduct training programmes • Develop a team of Trainer-of-Trainers for different trades relevant to flood- resistant construction	B.D,O., PRI, ULB	Support and coordination

2. Seismic

Understanding Risk:
In reducing seismic risk, the role of the district is mainly supporting state projects, coordinating with different agencies, Ensuring implementation, enforcement, compliance and monitoring; awareness creation, share information widely, and periodic revision of DM plans.

Inter-Agency Coordination:
Organising the immediate response and seeking assistance of state agencies, Adapting the norms/ codes as per State's requirement, enforcement, monitoring

Investing in DRR–Structural Measures:
- Ensure that earthquake resistant features are incorporated in planning and execution of social housing schemes
- Ensure compliance with relevant building codes
- Implementation strengthening and seismic retrofitting as per state by public, private and individuals

3. Drought Risk Mitigation

Understanding Risk:

- Annually, after the end of the South-West monsoon, carry out comprehensive assessment of water availability for drinking and irrigation in all the drought-prone areas in the district to demarcate blocks and preferably villages.
- Prepare maps of areas likely to face water deficit before onset of next monsoon (demarcate blocks and preferably villages)
- Undertake village-wise assessment of water storage in the vulnerable blocks
- At the end of monsoon, prepare and update a robust database of micro-level details on rainfall, reservoir/ lake water levels, surface water/ ground water, soil moisture, sowing/ crop conditions and socio-economic factors
- At the end of monsoons, prepare comprehensive water conservation, re-distribution, and management plan for the areas in the district that are likely to experience water deficit
- Drought Declaration

After monitoring key indicators for drought , State Govt. to issue a formal declaration of drought affected areas after which Collector will notify the district and moujas affected and initiate drought response measures

- Undertake HRVA as part of preparation/ revision of DM plans including change in vulnerability and risk considering climate change scenarios
- Estimate vulnerability of crops to rainfall uncertainties

Inter-Agency Coordination:

- Preparation and implementation of DM plans and ensure the functioning of agencies with DM tasks
- Organising the immediate response
- Dissemination of warnings to all, down to the last mile
- Regular updates to people in areas at risk

Investing in DRR–Structural Measures:

- Drinking water storage and distribution facilities
- Fodder storage facilities to maintain fodder banks
- Rain water harvesting systems – individual and community
- Groundwater recharge augmentation systems

Investing in DRR–Non-Structural Measures

- Improve the implementation of watershed development programmes
- Risk management for rainfed farmers through agricultural extension, and financial institutions based on assessments at the end of monsoon
- Drought-Proofing
- Promote water conservation, harvesting, efficient irrigation, afforestation

Capacity Development

- Formulate and implement training and capacity building programme for drought management, especially, better water conservation, integrated water management (surface and ground water), and cropping systems
- Implement different training programmes for officials at various levels, elected representatives, community leaders, civil society organizations, animal welfare organizations
- ProF&Ssionals for veterinary care and support to drought-affected animals
- Awareness Generation
- Empowering women, marginalised communities, and differently abled persons
- Mainstreaming drought management in developmental plans-All state govt. departments/ agencies will mainstream disaster management efforts in their developmental plans

4. Chemical (Industrial) Disasters

- Monitoring compliance with safety norms for HAZCHEM and proper disposal of hazardous waste
- Undertake HRVA as part of preparing and periodic revision of DM plans
- Ensuring water storage facilities and sources for water for accident containment and firefighting operations
- Establish decontamination facilities for off-site emergencies
- Strengthen the conduct of safety audits and enforcement of disaster prevention norms
- Training and orientation programs for state govt. staff, and other direct stakeholders incorporating disaster response, search and rescue in the training programs of youth such as village volunteers, civil society, village/ward level leaders

- Strengthen ability of communities to manage and cope with disasters based on a multi-hazard approach
- Training for panchayat, SHG, NCC, NSS, Youth, local community organizations

5. Fire Risk Mitigation

Fire		
Major theme	**Agencies and their Responsibilities**	
Understanding Risk	DMCD, F& S, PRI, ULBs	• Applying the classification system for hazardous industries in rural and urban areas on the basis of norms Vulnerability analysis of densely population clusters prone to high risk of fire • Mapping of hazardous sites that pose fire and explosion risks • Assess and fix the requirement of equipment and manpower
Capacity Development		• Identify the gaps in existing capabilities, equipment, infrastructure, and human resources • Address the capability gaps – human, institutional, infrastructure, equipment, personal protective equipment • Action plan for modernization and meeting future needs • Strengthening and standardizing response mechanisms • Proper scaling of equipment • Procurement of equipment for firefighting as per the requirement • Enhance the multi hazard response capabilities taking into account local hazards and vulnerabilities
Enforcement of Fire Safety Rules and Regulation		• Legal regime for mandatory fire clearance from F&S for different types of buildings, colonies, industries and other installations • Strict implementation of fire safety rules • Strict procedures for fire safety certification should be followed before issuing building use permissions • Ensure frequent inspection for fire safety system and equipment in public utilities
Awareness Generation		• Promoting culture of awareness, alertness and preparedness • Awareness generation programs for public, utilities, ULBs, Panchayats, and industries • IEC materials and ensure wider disseminate to general public through all medium • Information on safety, care and protection of disaster-affected animals
Training		• Basic training on disaster management • Training of Trainers (ToT) programs on various aspects such as firefighting, managing collapsed structure, and search and rescue

4 Preparedness and Response

4.1Background

Response measures are those taken immediately after receiving early warning from the relevant authority or in anticipation of an impending disaster, or immediately after the occurrence of an event without any warning. The primary goal of response to a disaster is saving lives, protecting property, environment, and meeting basic needs of human and other living beings after the disaster. Its focus is on rescuing those affected and those likely to be affected by the disaster. The UNISDR defines response as "the provision of emergency services and public assistance during or immediately after a disaster in order to save lives, reduce health impacts, ensure public safety and meet the basic subsistence needs of the people affected."

Preparedness, as defined by UNISDR, consist of "the knowledge and capacities developed by governments, proF&Ssional response and recovery organizations, communities and individuals to effectively anticipate, respond to, and recover from, the impacts of likely, imminent or current hazard events or conditions." Based on the preparedness, the response process begins as soon as it becomes apparent that a disastrous event is imminent and lasts until the disaster is declared to be over. It is conducted during periods of high stress in highly time-constrained situations with limited information and resources. It is considered as the most visible phase amongst various phases of disaster management. Response includes not only those activities that directly address the immediate needs, such as search and rescue, first aid and temporary shelters, but also rapid mobilization of various systems necessary to coordinate and support the efforts. For effective response, all the stakeholders need to have a clear vision about hazards, its consequences, clarity on plans of action and must be well versed with their roles and responsibilities.

Any emergency requires a quick response to save lives, contain the damage and prevent any secondary disasters. In most cases, first responders such as block, or other agencies (medical fire, police, civil supplies, municipalities) manage emergencies immediately at the local level. If an emergency escalates beyond their capabilities, the local administration must seek assistance from the district administration. If district considers it necessary, it can seek State assistance.

The immediate response in the event of a disaster lies with the district/local authorities with the support of the State Government. The Union Government supplements their efforts through providing logistic and financial support, deploying NDRF, Armed Forces, and other specialized agencies like in case of CBRN disaster.

4.2 Institutional Framework

No single agency or department can handle a disaster situation of any scale alone. Different departments have to work together to manage the disaster with an objective to reduce its impact. The DM Act, 2005 mandates that Departments of Government prepare disaster management plans keeping mitigation, preparedness and response elements into consideration.

4.3 Coordination of Response

The district will activate the IRTs at District, or block level and ensure coordination with the SEO. The SDMA will provide the technical support needed to strengthen the response system.
It is essential that the first responders and relief reach the affected areas in the shortest possible time. Often, there are inordinate delays due to real constraints imposed by the location, nature of disaster and, most regrettably, due to inadequate preparedness. In many situations, even a delay of six to twelve hours will prove to be too late or unacceptable. From an operational perspective, the challenges are similar across most hazards. The implementation of IRS Guidelines by the States will help in standardisation of operations, bring clarity to the roles of various departments and other agencies, which are common to most disaster response situations.

4.4 Fire and Emergency Services (F&S)

The primary role of Fire and Emergency Service (F&S) is of responding to fire incidents. However, besides fire fighting, F&S attends to other emergencies such as building collapse, road traffic accidents, human and animal rescue, and several other emergency calls. F&S also takes part in medical emergencies. The role of F&S has become multi-dimensional. The role of F&S extends to the domain of prevention, especially in urban areas. F&S is an integral part of the group of agencies responding to disaster situations. F&S is one of the first responders during the Golden Hour after a disaster and plays a vital role in saving lives and property. Therefore, it is imperative to adequately equip and develop the capacities of F&S. Further, continuous training should also be provided to the fire staff in using and maintaining the equipment.
F&S is a key element in the emergency response system. It comes under the 12thschedule of the Constitution dealing with municipal functions.

4.5 Major Tasks and the Responsibilities:

While there are disaster-specific aspects to the post-disaster response, the emergency functions are broadly common to all disasters and there are specific departments, or agencies that can provide that emergency response. Besides, very often, there are multiple hazards and secondary disasters that follow a major disaster. Hence, response intrinsically follows a multi-hazard approach.
All departments/agencies responsible for response should follow the NDMA's IRS guidelines, which will help in ensuring proper accountability and division of responsibilities. Different departments have to provide specialized emergency support to the response effort. Certain agencies will play a lead role, while others will be in a supporting role. The DDMA is the nodal agency for coordination of response at District level. Various central ministries, departments, agencies, and state governments have to prepare their own hazard specific response plans as per guidelines of the NDMA and in line with the DDMP. They need to ensure preparedness for response at all times and must carry out regular mock drills and conduct tests of readiness periodically, and the departments must report the status to the SDMA. The major tasks of response are:

1. Early Warning, Maps, Satellite inputs, Information Dissemination
2. Evacuation of People and Animals
3. Search and Rescue of People and Animals
4. Medical care
5. Drinking Water / Dewatering Pumps / Sanitation Facilities / Public Health
6. Food & Essential Supplies
7. Communication
8. Housing and Temporary Shelters
9. Power
10. Fuel
11. Transportation
12. Relief Logistics and Supply Chain Management
13. Disposal of animal carcasses
14. Fodder for livestock in scarcity-hit areas
15. Rehabilitation and Ensuring Safety of Livestock and other Animals, Veterinary Care
16. Data Collection and Management
17. Relief Employment
18. Media Relations

5 Recovery and Building Back Better

5.1 Scope

Globally, the approach towards post-disaster restoration and rehabilitation has shifted to one of betterment reconstruction. While disasters result in considerable disruption of normal life, enormous suffering, loss of lives and property, global efforts consider the recovery, rehabilitation and reconstruction phase as an opportunity to "Build Back Better" (BBB) integrating disaster risk reduction into development measures, and making communities resilient to disasters. The Sendai Framework expects that after a disaster, the stakeholders will be prepared for BBB. Existing mechanisms may require strengthening in order to provide effective support and achieve better implementation. Disaster recovery tends to be very difficult and long-drawn out. The reconstruction will vary depending upon the actual disaster, location, pre-disaster conditions, and the potentialities that emerge at that point of time. The DDMP provides a generalized framework for recovery since it is not possible to anticipate every likely element of betterment reconstruction.

The reconstruction and rehabilitation plan are designed keeping in view the worst case scenarios in which the capacity of the District administration would be overwhelmed and require assistance from the State Government for re-establishing normalcy in the disaster affected areas. Much of this support will involve the coordinated working of multiple agencies – Government and Non-Government. All the agencies are required to closely monitor response activities and to obtain valuable data regarding the severity and intensity of the event, the affected geographical area and the potential unsatisfied critical needs of the affected population in order to evolve a comprehensive recovery plan.

5.2 Recovery Process

Disaster recovery process is not a set of orderly actions triggered by the impact of a disaster upon a community. It will consist of several related activities such as the following:

- Damage assessments
- Debris clearance, removal and its environmentally safe disposal
- Restoration and even upgrading utilities including communication networks
- Re-establishment of major transport linkages
- Temporary housing
- Detailed building inspections
- Redevelopment planning
- Environmental assessments
- Demolition
- Reconstruction
- Integrating DRR into various development initiatives
- Financial management
- Economic impact analyses

The major steps/ processes of the recovery process and the processes involved are :

1. Post Disaster Needs Assessment
2. Build Back Better
3. Recovery process integrated with sustainable development
4. Recovery to resilience
5. Mainstreaming recovery with other sectors

5.3 Early, Mid and Long-term Recovery

According to UNISDR (2009), recovery is "the restoration, and improvement where appropriate, of facilities, livelihoods and living conditions of disaster-affected communities, including efforts to reduce disaster risk factors." It is an important component of risk reduction strategy and if implemented systematically, the recovery process prevents the affected community from sliding into further poverty and deprivation. The disaster recovery programmes usually proceed in three distinct stages to facilitate a sequenced, prioritized, and flexible multi-sectoral approach. Three recovery stages, in which appropriate policies and programmes tend to be planned and implemented are: a) Early, b) Mid-Term, and c) Long-Term.

The salient provisions of the recovery framework include the following:

1) Institutional arrangements: Ensuring institutional mechanisms at the district, and local (urban and rural) levels that clearly defines roles and responsibilities in recovery
2) Coordination: There is considerable interdependence between stakeholders – government, different agencies, private sector, civil society organizations – in realizing the objectives of recovery and inter-agency coordination is extremely important
3) Information and Communication Technology (ICT): Effective use of ICT in recovery programme, disseminating messages among all stakeholders, and providing information on all aspects of recovery programme
4) Decision Support System (DSS): Setting up an adequate DSS that includes Management Information System (MIS), databases, deployment of spatial data management technologies
5) Community Participation: Ensuring the pro-active involvement of communities, proper community outreach, empowerment, and gender equity in programme formulation and implementation
6) Monitoring and Evaluation (M&E): M&E is an important component required for promoting transparency in the recovery processes and it should include technical and social audits.

5.4 Reconstruction

Long term recovery efforts must focus on redeveloping and restoring the socio-economic viability of the disaster area(s). The reconstruction phase requires a substantial commitment of time and resources by the Governments and other agencies. It is important to note that much of this commitment would be beyond the scope of traditional emergency management programmes. These reconstruction efforts include:

- Reconstruction of public infrastructures and social services damaged by the disaster, which can be completed over the long-term
- Re-establishment of adequate housing to replace that has been destroyed
- Restoration of jobs/ livelihood that was lost
- Restoration of the economic base of the disaster areas

5.5 Co-ordination of Reconstruction

Recovery efforts require the coordination at several levels of government and the stakeholder institutions having specific responsibilities for central, state, private sector, voluntary organizations, and international aid agencies.

5.6 Rehabilitation

5.6.1 Background

Rehabilitation, an integral part of disaster recovery; other being reconstruction, could be defined as an overall dynamic and intermediate strategy of institutional reform and reinforcement, reconstruction and improvement of infrastructure and services; aimed towards support to the initiatives and actions of the affected populations in the political, economic and social domains, as well as reiteration of sustainable development. Generally, rehabilitation package includes total reconstruction of damaged physical and psychological infrastructure, as well as economic and social rehabilitation of the people in the affected region. The rehabilitation is classified into the following:

- Physical
- Social
- Economic and
- Psychological

5.6.2 Physical Rehabilitation

Physical rehabilitation is a very important facet of rehabilitation. It includes:

- Reconstruction of physical infrastructure such as houses, buildings, railways, roads, communication network, water supply, electricity, and so on
- Short-term and long-term strategies towards watershed management, canal irrigation, social forestry, crop stabilization, alternative cropping techniques, job creation, employment generation and environmental protection
- Rehabilitation of agriculture, artisan work and animal husbandry
- Adequate provision for subsidies, farm implements, acquisition of land for relocation sites, adherence to land-use planning, flood plain zoning, retrofitting or strengthening of undamaged houses, and construction of model houses

5.6.3 Relocation

Relocation is a very sensitive part of the physical rehabilitation process and it must be ensured that need based considerations and not extraneous factors should drive the relocation policy. The local authorities, in consultation with the affected population and under the guidance of the State Government shall determine relocation needs taking into account criteria relevant to the nature of the calamity and the extent of damage. Relocation efforts should invariably include activities like:

- Avoid secondary displacement as far as possible
- Gain consent of the affected communities
- Clearly define land acquisition process
- Take into consideration urban/ rural land use planning before moving ahead
- Provide customized relocation packages
- Decentralize powers for undertaking the relocation process
- As far as possible, ensure relocation site is near to their agricultural lands and/or sources of livelihood, as applicable
- Ensure provision of livelihood rehabilitation measures for relocated communities, wherever necessary, to the extent possible

5.6.4 Social Rehabilitation

Social rehabilitation is also an important part of disaster rehabilitation. The vulnerable groups such as the artisans, elderly, orphans, single women and young children would need special social support to survive the impact of disasters. The rehabilitation plan must have components that do not lose sight of the fact that the victims have to undergo the entire process of re-socialization and adjustments in a completely unfamiliar social milieu. Thus, this type of rehabilitation would include various activities such as:

5.6..5 Revival of Educational Activities

Educational facilities may suffer greatly in a major disaster placing considerable stress on children. Therefore, the following steps will be helpful in helping children to recover and cope with the situation:

- Give regular counselling to teachers and children
- Encourage children to attend the schools regularly
- Provide writing material, and work books to children
- Make children participate in all activities pertaining to resurrection of normalcy in the school
- Try to inculcate conducive attitudes to enable the students to play a positive role in self-development
- Establish village level education committees
- Identify local groups that could conduct smooth functioning of education activities

5.6.6 Rehabilitation of the Elderly, Women and Children

The elderly, women, and children are more vulnerable after a major disaster. Hence the following measures will help in their rehabilitation:

- Identify familiar environs to rehabilitate elderly, women and children
- Make efforts to attach destitute, widows and orphans with their extended family, if that is not possible then identify foster families
- Organize regular counselling to strengthen the mental health of women and children
- Initiate various training programmes to make the women economically self-sufficient
- Give due attention to health, nutrition and hygiene in the long-term rehabilitation package for women and children
- Activate/reactivate the *anganwadis* (day-care centres), and old-age homes within the shortest possible time
- Set up at least one multi-purpose community centre per village
- Make efforts to build residential female children homes at the block level
- Set up vocational training camps to improve the skills of orphans and children
- Promote self-help groups

5.6.7 Economic Rehabilitation

The major components of economic rehabilitation are livelihood restoration and ensuring the continuity of businesses, trade, and commerce. Restoring employment and income generating opportunities to disaster affected communities is a vital component of post-disaster reconstruction. Livelihood opportunities are severely disrupted by the destruction or loss of essential assets; with the result that people are unable to engage in normal income generating activities; become demoralized and dependent on humanitarian aid. Economic recovery should be based on**:**

- Analysis of existing livelihood strategies and sustainability of businesses
- A comprehensive analysis of existing and future risks
- The vulnerabilities of the affected families
- The accessibility of linkages to external influences and institutions including skills and knowledge
- Access to functioning markets

As per the Para 9.5.1 of NPDM – the State governments will have to lay emphasis on the restoration of permanent livelihood of those affected by disasters and special attention to the needs of women-headed households, artisans, farmers and people belonging to marginalized and vulnerable sections.

5.6.8 Psychological Rehabilitation

Another crucial dimension of disaster rehabilitation is psychological rehabilitation. Dealing with victim's psychology is a very sensitive issue and must be dealt with caution and concern. The psychological trauma of losing relatives and friends, and the scars of the shock of disaster event can take much longer to heal than the stakeholders in disaster management often realize. Thus, counselling for stress management should form a continuous part of a disaster rehabilitation plan. Efforts should be made to focus more on:

- Psycho-therapeutic health programmes
- Occupational therapy
- Debriefing and trauma care
- Tradition, values, norms, beliefs, and practices of disaster-affected people