



Upazila Disaster Management Plan

Upazila: Mirsarai District: Chittagong

Plan Developed by

Upazila Disaster Management Committee, Mirsarai, Chittagong

Coordinated by



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Ministry of Disaster Management & Relief**



Preface

Bangladesh is a disaster prone country in the world. Due to Geographical disadvantage, the environment, losing balance of power, are facing various catastrophe like inundation, Tornados, drought, Erosion of river, earthquake, various cyclone, fogginess, white squall and so on. Bangladesh is river mothered country. The erosion of river for over flow of water, destroy the location of river side and all the inhabitants lose their all sort of livelihood and livestock and took shelter being pauper in the hovel on the high land or roads. Not only that, but also, men and industries' created catastrophe become the bane for calamity and people use to live in alarming plight. And also, by the horrific effect, all sort of assets, lives, livelihood, livestock and other resources of the locality may fall in danger. It does not destroy only the located people, also create obstacle for National and economical resources of the country. Though it is a disaster prone country but long term 'Disaster Management plan' has not been prepared for saving the human being, their all sort of resources, livelihood, animals and other asset, rather have been given importance to rehabilitation and on relief. Recently Government of Bangladesh has taken an initiative on the subject 'Disaster Management Planning' through CDMP 2. To implement the plan in action, primarily has taken an initiative for indication 'Disaster Risk' through conversation with all sorts of local people, Union and Upazila Management Committee. For Preparedness and reducing risk 'Disaster Management Plan' has provided to **Mirsarai** Upazilla by indicating 'local disaster risks' through 'Disaster Management Plan' which will be efficacy for the forthcoming days.

At the time to providing the Plan all classes of people like male, female, cultivator, landless people, aged person, local elite persons, Union and Upazila Disaster Management Committee Members (UzDMC) were congregated. Locally this conspicuous doings have been done by the hard toiling of Shushilan Staffs and related analysis individuals. Disaster Management Committee of **Mirsarai** Upazilla under **Chittagong** District have provided this plan by efficacy toiling and restless endeavor. All kinds of important heart rending calamities as, awareness creation among family members and locality, to take preparation for facing risk would have to use local recourses, replacement of living assets and people to a safety place, rescue impediment people, necessary goods indication, and relief distribution have been included in the Upazila 'Disaster Management Plan'. If that plan come into being all kinds of calamities would be reduce and all sorts of materials of the people would be safe. Not only that, but also have included preparation before and after disaster, mitigation disaster by using Local resources, social assets, safety places, indication the causes of disaster, disaster warning sign, mostly disaster prone location, climate changes and its horrific effect, development sectors and name of the local volunteers as well as organization.

I am giving thanks from my core of heart to those very persons who have taken part and have given advice, like all Government and Non-Government Organizations and local persons to perform the conspicuous act in good manner. I am confident; this Disaster Management Plan which has prepared by the coherent cooperation of local people, Local Governances and other local organizations should help to Disaster Management Committee and other sectors (Government, International and National NGO, as well as Donor) to perform all acts as a overall plan.


মুখবন্ধ

বাংলাদেশ একটি দুর্যোগ প্রবণ দেশ। ভৌগোলিক অবস্থান, জলবায়ু ও আবহাওয়ার ভারতম্যের কারণে স্থানভেদে এদেশে প্রতি বছর বন্যা (নদীবাহিত/বৃষ্টিপাত জনিত), টর্নেডো (ঘূর্ণিঝড়), খরা/অনাবৃষ্টি, ভূমিকম্প, ঘন কুয়াশার মত বিভিন্ন ধরনের আগদ আঘাত হানে। বাংলাদেশ একটি নদীমাতৃক দেশ হওয়ায় প্রায় প্রতিবছর এলাকা ভিত্তিক নদী ভাঙনের শিকার বহু লোক ডিটেমারি ছাড়া হয়ে নিঃশ্বাস হয়ে পড়ে এবং নদী-খাল ভরাট জনিত কারণে এলাকা ভিত্তিক অধিবাসীদের সংশ্লিষ্ট নানা ধরনের আগদের সম্মুখীন হতে হয়। এ ছাড়াও মানব সৃষ্ট ও শিল্প কারখানা জনিত বিভিন্ন ধরনের আগদ প্রতিনিয়ত মানুষকে আতংকগ্রস্ত করে রাখে। এ সমস্ত আগদের প্রভাবে সহায় সম্পদসহ জ্ঞান-মাল, পশু সম্পদ ও ফসলের ব্যাপক ক্ষতি সাধিত হয়। এর ফলে শুল্ক আক্রান্ত জনগোষ্ঠী-ই ক্ষতিগ্রস্ত হয় তা নয়, জাতীয় সম্পদ এবং অর্থনীতিতেও ব্যাপকভাবে এর প্রভাব পরিলক্ষিত হয়। দুর্যোগ প্রবণ দেশ হলেও পূর্বে দুর্যোগ ব্যবস্থাপনা পরিকল্পনার মাধ্যমে মানুষের সহায় সম্পদসহ জ্ঞান-মাল, পশু সম্পদ ও ফসলের ক্ষয়ক্ষতি হ্রাস করার সুদূর প্রসারী কোন পরিকল্পনা গ্রহণ করা হয়নি। সুতরাং পরিকল্পনা ব্যতিরেকে শুধুমাত্র ত্রাণ ও পুনর্বাসনকেই বেশী প্রাধান্য দেয়া হয়েছে। সম্প্রতি বাংলাদেশ সরকার সমন্বিত দুর্যোগ ব্যবস্থাপনা কর্মসূচীর (CDMP-II) মাধ্যমে দুর্যোগ ব্যবস্থাপনা পরিকল্পনা বিষয়ক এক কর্মসূচী হাতে নিয়েছে। এই কর্মসূচীর আওতায় প্রাথমিকভাবে সমাজের বিভিন্ন স্তরের জনসাধারণ, ইউনিয়ন ও উপজেলা দুর্যোগ ব্যবস্থাপনা কমিটির সমন্বয়ে স্থানীয় ঝুঁকি চিহ্নিত করে তা পর্যালোচনার মাধ্যমে দুর্যোগ ব্যবস্থাপনা পরিকল্পনা প্রনয়ণের উদ্যোগ নেয়া হয়েছে। দুর্যোগ ব্যবস্থাপনা পরিকল্পনায় স্থানীয় আগদসমূহ চিহ্নিত করে দুর্যোগ পূর্ব প্রস্তুতি গ্রহণ ও ঝুঁকি নিরসনের জন্য মহাদেবপুর উপজেলায় কার্যকরী একটি দুর্যোগ ব্যবস্থা পরিকল্পনা প্রনয়ণ করা হয়েছে যা স্থানীয় পর্যায়ে দুর্যোগ ঝুঁকি মোকাবেলায় সুদূর প্রসারী অবদান রাখতে পারবে বলে উপজেলা দুর্যোগ ব্যবস্থাপনা কমিটি মনে করে।

কর্মপরিকল্পনাটি প্রনয়ণে এলাকার নারী-পুরুষ, কৃষক-ভূমিহীন, প্রবীণ ও তথ্য প্রদানে সক্ষম অন্যান্য স্থানীয় জনগোষ্ঠীর প্রতিনিধি, ইউনিয়ন এবং উপজেলা দুর্যোগ ব্যবস্থাপনা কমিটির (UDMC) সদস্যবৃন্দ সরাসরি সম্পৃক্ত ছিলেন। বিশেষ করে অত্র এলাকায় কর্মরত 'সুশীলম' এর কর্মকর্তা ও পবেষকদের নিষ্ঠা ও অক্লান্ত পরিশ্রম স্থানীয় পর্যায়ে পরিকল্পনা প্রণয়নে যথার্থ অবদান রেখেছে। এ কর্ম প্রচেষ্টা ও অক্লান্ত পরিশ্রমের ফলে চট্টগ্রাম জেলার মীরসরাই উপজেলা দুর্যোগ ব্যবস্থাপনা কমিটি একটি বাস্তবসম্মত দুর্যোগ ব্যবস্থাপনা কর্মপরিকল্পনা প্রণয়ন করতে সক্ষম হয়েছে। অত্র উপজেলায় প্রণীত দুর্যোগ ব্যবস্থাপনা পরিকল্পনায় দুর্যোগ মোকাবেলায় পুরুষপূর্ণ বিষয় সমূহ প্রাধান্য লাভ করেছে। তন্মধ্যে উল্লেখযোগ্য হচ্ছে পরিবার ও সমাজ পর্যায়ে দুর্যোগ ঝুঁকি সম্পর্কে গনচেতনতা সৃষ্টি, স্থানীয় সম্পদ ব্যবহারের মাধ্যমে দুর্যোগ পূর্ব প্রস্তুতি গ্রহণ এবং দুর্যোগ কালীন সময়ে অপসারণ, উদ্ধার, চাহিদা নিরূপণ, ত্রাণ ও তাত্ক্ষণিক পুনর্বাসন ব্যবস্থার জন্য স্থানীয়ভাবে প্রণীত পরিকল্পনার অনুশীলন ও প্রয়োগ, দুর্যোগ পরিকল্পনায় অংশগ্রহণ এবং কার্যকর অংশীদারীত্ব যা বাস্তবায়িত হলে আগদ সংশ্লিষ্ট স্থানীয় ঝুঁকি সমূহ অনেকাংশে হ্রাস পাবে এবং জনগণের সহায় সম্পত্তি, জানমাল এবং ফসলের ক্ষয়ক্ষতির পরিমাণ কমিয়ে আনা সম্ভব হবে। পাশাপাশি দুর্যোগ পূর্ব, দুর্যোগ কালীন ও দুর্যোগ পরবর্তী প্রস্তুতি গ্রহণ, দুর্যোগ ঝুঁকি হ্রাসে স্থানীয় অবকাঠামো ও অ-অবকাঠামো, সামাজিক সম্পদ ও নিরাপদ স্থানসমূহের তালিকা প্রনয়ন, ঝুঁকির কারণসমূহ চিহ্নিতকরণ, সর্বাধিক বিপদাপন্ন এলাকা চিহ্নিত করণ, ঝুঁকি নিরসনের উপায় চিহ্নিতকরণ, জলবায়ু পরিবর্তন এবং তার সম্ভাব্য প্রভাব নিরূপণ, উন্নয়ন পরিকল্পনার প্রধান খাত সমূহ চিহ্নিত করণ এবং বিভিন্ন সামাজিক সংগঠন সমূহের যেকোনো বাক তালিকা প্রনয়ন করা হয়েছে।

২০১৪ সালে সিডিএমপি'র সহায়তায় প্রণীত দুর্যোগ ব্যবস্থাপনা পরিকল্পনাটি প্রনয়নে যে সকল সরকারী এবং বেসরকারী সংস্থা ও ব্যক্তিবর্গ সক্রিয়ভাবে অংশগ্রহণ ও পরামর্শ প্রদান করেছেন তাদেরকে আমি আন্তরিক ভাবে ধন্যবাদ জ্ঞাপন করছি। আমি আশাবাদী, স্থানীয় জনগন, স্থানীয় প্রশাসন ও বিভিন্ন সরকারী বেসরকারী প্রতিষ্ঠানের সমন্বয়ে মীরসরাই উপজেলায় প্রণীত দুর্যোগ ব্যবস্থাপনা পরিকল্পনাটি দুর্যোগ ব্যবস্থাপনা কমিটি ও সংশ্লিষ্ট সেক্টরের (সরকারী, আন্তর্জাতিক ও জাতীয় এনজিও, দাতা সংস্থা ইত্যাদি) জন্য একটি সার্বিক পরিকল্পনা হিসেবে কাজ করবে।

সদস্য সচিব


উপজেলা দুর্যোগ ব্যবস্থাপনা কমিটি এবং
প্রকল্প বাস্তবায়ন কর্মকর্তা
মীরসরাই উপজেলা
চট্টগ্রাম জেলা

সভাপতি

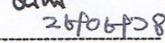

উপজেলা দুর্যোগ ব্যবস্থাপনা কমিটি এবং
উপজেলা চেয়ারম্যান
মীরসরাই উপজেলা
চট্টগ্রাম জেলা

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Chapter One

Introduction to Local Area

1.1 Background

Bangladesh is a most disaster-prone countries in the world map. Every District of Bangladesh is affected by disaster, the Mirsharai upazila of Chittagong district is one of them. Mirsharai situates at 60 km distance from Chittagong. Mirsharai consists of 16 unions on 15th july of 1917. After publishing the gazzet on 21th september in 1918 in 1st january activities of Mirsharai thana started officially. The main problem of this upazilla is the erosion of river and cyclone. Every year, flood has adversed impact on lives and livelihoods in the mirsharai Upazila. Every year, a variety of disasters, but no such plans at the upazila level were reflected. Disaster management plans is responsible for overall disaster management in this Mirsharai of Chittagong district. The adverse effect of climate changes the poor and endangers public safety and economic development of the country as well as the continuation of the Ministry of Disaster Management and Relief 'Comprehensive Disaster Management Programme (CDMP) as part of the local disaster risk preparedness plan, designing a versatile pre-decided. The district level disaster management is very important to reduce the impact of climate change, the future vulnerability and socio-economic development such as education, health, housing and other infrastructure development and implementation. In this document, the first to third chapter is descript the social, economic, natural and infrastructure description of outlines the underlying causes and potential effects of climate change of the Mirsharai upazila, different adaptation strategies to increase the capacity in disaster management and prevention of the details and the ability to attain a 3-5 year brief outline a plan of action..

1.2 Main Objectives of the plan

Climate change has the potential to change the type of natural disaster. In order to deal with climate change in the context of the disaster field present at any effective policy to optimize the initiative nationally. Comprehensive Disaster Management Program of the Ministry of Disaster and Relief (CDMP) to calculate the local population and to reduce the risk in the hands of a multi-faceted action plan. Under this program, the Government of Bangladesh-based disaster relief and rehabilitation, long-term risk is the risk that changes in coping strategies to deal with the main objectives of which are: activities undertaken.

- Through the use of local resources performing and implement development measures, removal, recovery, having needs, relief and immediate rehabilitation action plan is locally made and applied in practice.
- Strategic document for a specific area and period of time to create.
- Disaster Management Committee and the relevant sectors (government, NGO and donor nations will act as an overall plan.

- Planning and implementation of disaster management by providing guidance to its partners.
- Participate in community disaster planning in earnest, effective partnerships

1.3 Introduction to Mirsharai Upazilla

Mirsharai situates at 60 km distance from Chittagong. Mirsharai consists of 16 unions on 15th july of 1917. After publishing the gazzet on 21th september in 1918 in 1st january activities of Mirsharai thana started officially

1.3.1. Geographical Location

Mirsharai Upazila is located 50° 1' and 250° 13' north latitude and 880°-6' and 880°-38' longitude of east. North side of the Upazila is India, in the east side Patnitala upazila south porasa upazila and west India. The upazila is consisted by 06 unions and 151 of Mouza. The population of the Mirsharai upazila is 161792 (according to the Census 2011) and density of population is 588 people per square kilometre. Punarbhaba River flows through the Mirsharai upazila.

1.3.2. Area

According to the census of 2011 the area of Mirsharai is 482.88 sq. kilometer. There are 16 unions and 113 mouzas in total. There are 209 villages and about 69184 families reside here.

Table 1.1: Union wise mouza name

Upazila name and GO code	Union names and GO code	Union wise mouza name
Mirsharai (53)	Dhum (22)	Chorkolidas, Dhum, Mobarokgonj, Naherpur
	Durgapur(24)	Durgapur, Gopalpur, Hajisharai, Horohorpur, Rodhunathpur, Raypur
	Haitkandi(27)	Boliadi, Dokkhinmuradpur, Haitkandi, Jogodishpur, Kurua
	Hinguli (28)	Ajamnagar, Jamalpur,
	Ichchakhali (29)	Ichchakhali, Uttor Ichchakhali
	Mayani(53)	Poshchim union, Purba union

Upazila name and GO code	Union names and GO code	Union wise mouza name
	Mirsharai(59)	Gobania, Mithachora, Mothbaria,
	Mithanala (65)	Ginal, Rohmotbad, Syedpur, Uttor muradpur

Source: census, 2011

1.3.3 Population

According to the population census of the year 2011, total population of the upazila 370896 people, 173645 in men and women 197251, ratio of the population 99: 100 and the population density are 764 per square kilometer. Muslim population of the upazila is 343374, Hindu 49266, Christians 70, Buddhists 4852, and a variety of other tribes, such as Santal, banuya, coaches and s Rajbangshis has 1154. The population is described in following table

1.4 Infrastructure and non-infrastructure information

Mirsharai is an agricultural district. Agriculture is the main source of livelihood for the majority of people. So here is an average of several agro-based industries. All wards upazila, union rural electricity coverage. Several districts are small and cottage industries and large industries. In the meantime, poultry farms, cattle farms, auto rice mill, printed ditch, Welding Factory, cold storage, brick-kilns and cottage industries of various types. There are different types of mills and factory in Mirsharai upazila. Communication systems are very easy, including bus terminals and petrol pump have been spread largely because there is better trade.

1.4.1 Infrastructure

Dam

There are 6 embankments in Dhum, Durgapur, Ichakhali, Mirsharai, Osmanpur, saherpur unions. These helps to protect the upazila during disaster.

Sluice Gate

There are 11 sluice gates in Korerhat, Khoiyachora, Durgapur, Joyargong, Ichakhali, Mirsharai. These gates protect this upazila during flood and any kind water based disaster.

Bridge and Culverts

There are 1004 culverts in this upazila.

Roads

In Mirsharai upazilla, there are total 1273.18 kilometers road. Roads are used for shelter at the time off disaster.

Table 1.2

Road type	Number of road	Length
Upazila Road	14	103.93
Union Road	24	116.29 km
Village road A	376	920.48 km
Village road B	61	132.48 km

Irrigation System

There are 44567 hactres of Lnd in Mirsharai upazila. There are 990 DTW, 8 STW, and 632 Motor pump in this upazila. Three renowned irrigation project are ongoing in this upazila. And they are Mohamaya irrigation project, Icchakhali and Wahedpur Baoachora Irrigation project.

Hats

Table 1.3 Mirsharai upazila possesses 33 hats for people to fulfil their daily demand.

Hat-Bazar name	Address	Hat-Bazar name	Address
Ajampur Bazar	Osmanpur, mirsharai	Koyla bazar	Korerhat, Mirsharai
Abutorab Bazar	Abutorab, Mirsharai	Chowdhuryhat Bazar	Saherkhari, Mirsharai
Echak Driverhat Bazr	Purba Ichakhali, Mirsharai		
Korerhat Bazar	Katagang, Mirsharai		
Koilashgonj Bazar	Abu-torab, Mirsharai		
Choitonnohat Bazar	Hajishorai, Mirsharai		
Thakur Bazar	Moghadia, Mirsharai		
Bammon sundor darogarhat Bazar	Bamonsundor, Mirsharai		
Bortakia Bazar	Bortakia, Mirsharai		

Mithanala vorer Bazar	Mithanala, Mirsharai		
Sufia Bazar	Purba-mithanala, Mirsharai		

Source: Union Parishad, 2014.

1.4.2. Social assets

Housing

Bamboo, Tali, Tin, Brick, etc. is used for building housing. Among the housing infrastructures 9.6% are Pucca, 9.2% are semi-pucca and 79.2% are Katcha and 2.1% are cottage types.

Water

There are 4553 tubewells in Mirsharai Upazila.

Educational Institute/ Library

There are 145 primary schools, 38 secondary schools, 6 colleges, 1 Fajil Madrasa, 2 Alim Madrasa, 20 Dakhil Madrasa and 1 autonomous Madrasa in Mirsharai upazila.

Religious Institution

There, lives Hindu, Buddhist, Christian and Tribal community, though the upazila is Muslim based. The biggest festival of Hindu community is Durgapuja. They can observe their rituals without any interruption. On account of different religious festivals, different temple organization organizes traditional folk songs in their temple yard. From the pristine time people of various religions live here maintaining their social bondage. There are 520 mosques, and 26 temples, 4 churches and 9 pagodas in this Mirsharai upazila.

Health Care

There are 1 upazila health complex, 14 upazila health and family welfare centers 20 community clinics.

Sources: bounded Information Portal, 2014

Bank

Mirsharai upazila has 26 Banks. Notably Bangladesh Krishi Bank, Janata Bank, Sonali Bank, Agrani Bank, Grameen Bank, Islamic Bank, Mercantile Bank.

Post Office

Mirsharai upazila has 30 branch post offices. The currently popular as a means of communication for mobile phones has 8 towers.

Club / cultural center

There are 64 clubs and cultural centers.

NGOS and voluntary organization

There are different types of NGOs are working in the Mirsharai upazilasuch as brac, asa, caritas in education, health and micro-lending projects are formulated and conducted. Hope, resources in Atrigresana Agency (Rick), thyangamara female Green Sangha (TMSS), claims the basic development agency, shelter, BRAC, CARITAS, Web Foundation, sucking, ghasaphula, Barind land social development measures, Tree implants, medical services, education loans, health awareness about the use of latrines, prevent child marriage, not yautukake called eicaaradiesa, hamsi burala development, Social development and S B M SS Mirsharai Foundation entities, lending, medical services, plantation and arsenic test.

Playground

There are playground, generally used for sports and gathering of people and for arranging annual fair. But at the time of disaster these playgrounds are used for shelter.

Graveyard

There are 23 cemeteries but 2 of them sometimes flooded. At the time of natural disasters these are used to get rid of the dead.

Communication and transportation system

The distance of Mirsharai from the district is about 59 kilometer. By road is the main communication system of this upazila. People use rickshaw, van and motor vehicle to move from village to village in different unioins.

Forest and Afforestation

There are saherkhali coastal forest and korerhat forest in Mirsharai.

1.4.3. Weather and Climate

The annual average precipitation of this region is under 45 inch. Here summer falls in April/May and the highest temperature rises to 90 degree Fahrenheit and the lowest temperature falls to 60 degree Fahrenheit.

Rainfall

Average rainfall in this area is more than 100 inches.

Temperature

At winter the temperature is between 6-9 degree Celsius. And at summer the temperature remains between 37-41 degree Celsius.

1.4.4 Others**Land and Land Use**

Mirsharai consists of 98 moujas, 8 union offices. There are 1617.15 khash land, 1229.29 farming crop land, 387.86 barren land.

Agriculture and Food

There are 13800 ponds, 1 govt. hatchery, 1 private hatchery. Fisheries demand every year in this area is 9301 metric ton. But as the upazila is suitable for fish cultivation so every year there remains a residue of fisheries, after fulfilling the demand of mass people.

River

Mirsharai situates at the bank of river Feni and Muhuri. At rainy season in the river there are 66 km navigation.

Pond

There are 13800 ponds in Mirsharai upazila. The area of this pond is 6797.70 acres.

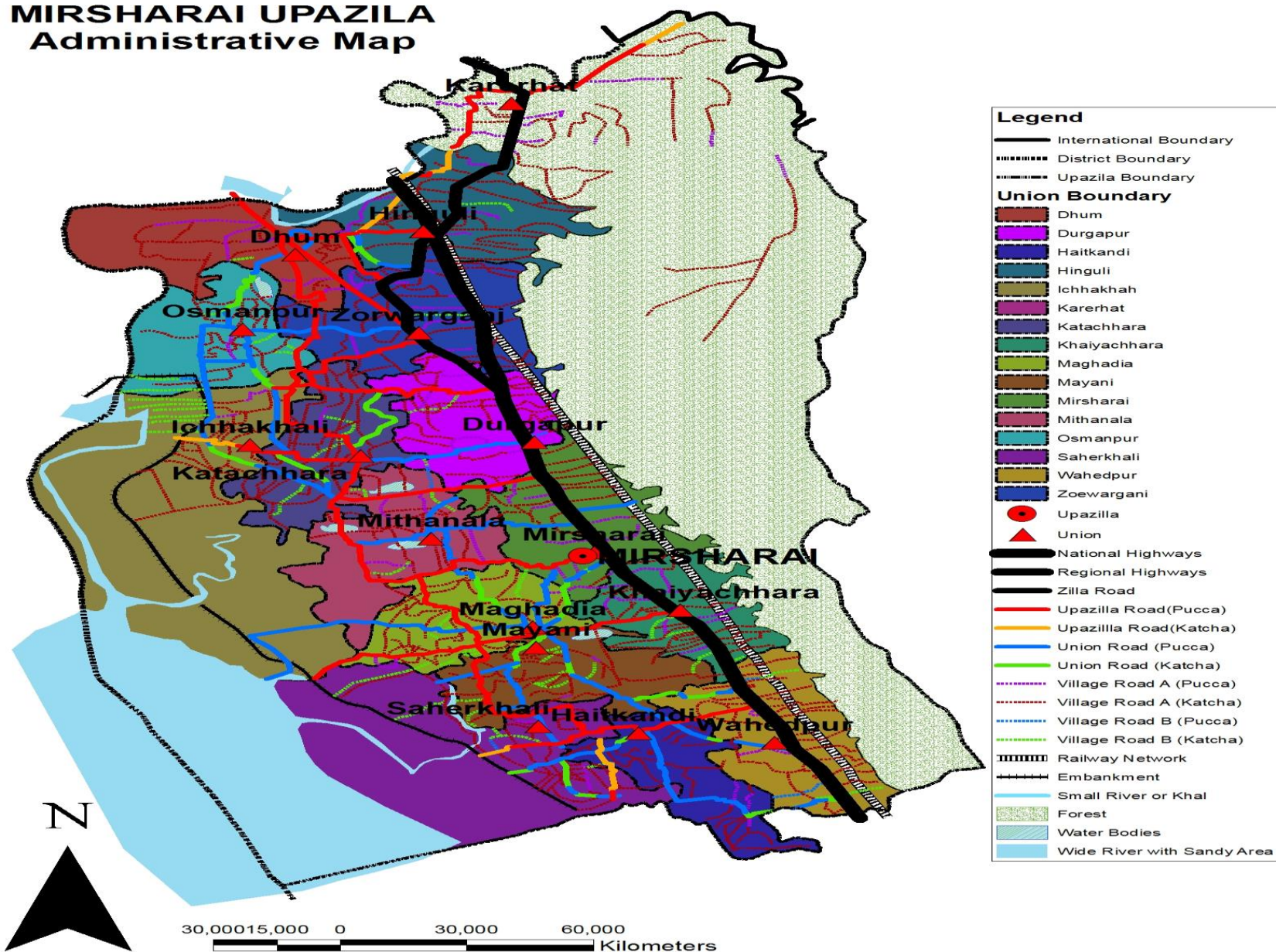
Canal

There are 50 canal in Mirsharai which combines a total length of 1075.25 KM.

Arsenic Pollution

The arsenic tendency of Mirsharai is 23%. In local laboratory Arsenic, Chloride, Iron, Manganese, PH value, Electric conductivity can be tested paying a certain fee.

MIRSHARAI UPAZILA Administrative Map



Chapter Two

Disaster, Hazard and Vulnerability

2.1 History of Disaster

Not much severe effect of disasters is seen in Mirsarai upazilla. Every year; this area gets affected by either one or another disaster. Different types of hazards including Drought, low Water Level, Seasonal Storm, River Erosion, Flood, Cold Wave Heavy Mist Pest Attack and Low Rainfall hamper normal way of life and cause huge damage of assets. The pressure of water and other descending from Indian hills flows away the banks of river Jamuna through canals and inland waterways and causes flood. As the river is shallow, it causes drought in the dry season. Owing to Seasonal Storm, both agricultural products and settlement get heavily damaged and a human lives damaging agricultural lot of people lose shelter too. River Erosion also spoils products, accommodation and infrastructure. Cold Wave and Heavy Mist cause a massive destruction for winter crops But, the hazard which affects most to lead this upazilla to fatal crisis is too low water level. It is the most affecting hazard for the people of Mirsarai upazilla. This upazilla may be affected by any disaster because of deforestation, rapid growth of population and environmental imbalance. The level of damage, year of disasters and affected sectors are shown in a table below

Table 2.1: Name of Disaster, Year, Damage and Sector

Disaster	Years	Damage	Affected Sectors/ Elements
Flood	1981, 1988, 1998	Maximum	Agriculture, Fisheries, Livestock, Human Resource, Infrastructure, Plantation
	1986, 1991, 1995,	Moderate	Agriculture, Fisheries, Livestock,
River Erosion	,1981 1986, ,1987 ,1988 ,1998 ,2005 2006	Maximum	Agriculture, Fisheries, Livestock, Human Resource, Plantation
	,2000,2004 ,1999 ,1995	Moderate	Structure, Human Resource,
Draught	1976, 1979, 1992, 1996,	Maximum	Agriculture, Fisheries, Livestock, Human Resource, Plantation
	1989, 1999, 2004	Moderate	Livestock, Human Resource, Plantation
Hail Rain	1988, 1997,	Maximum	Agriculture, Fisheries, Livestock, Human Resource, Plantation

Disaster	Years	Damage	Affected Sectors/ Elements
	1992, 1995, 2005	Moderate	Livestock, Human Resource, Plantation
Heavy Mist	1976, 1996, 1999, 2004	Maximum	Agriculture, Fisheries, Livestock, Human Resource, Plantation, Livestock
	1979, 1989, 1992,	Moderate	Agriculture,
Cold Wave	2009, 2012, 2013	Maximum	Agriculture, Fisheries, Livestock, Human Resource, Plantation
	2010, 2011	Moderate	Livestock, Plantation

Source: field Visit, Mirsarai, 2014

2.2 Hazards of the Upazilla

Hazard is an unusual event, which can occur naturally or from man-made technical faults and can damage the lives and livelihoods of human beings. Despite of being under Barindra tracts, Mirsarai upazilla has some small and big swamps and Atrai and Lottle Jamuna River flows through it. The area was rough already due to geographical reasons but it is gradually losing sustainability because of climate change. People are suffering because of irregular water flow, downward water level and climate change. The hazards responsible for the suffering are given below following the priority of damages of people:

Table2.2: Hazards and Priority of Hazards

Hazards of the unions of this upazilla		Identifies hazards and priority of hazards
Nature caused hazards		<div>1. Flood</div> <div>2. Drought</div> <div>3. River Erosion</div> <div>4. Cold Wave</div> <div>5. Heavy Mist</div> <div>6. Hail Rain</div>
1. Flood	11. Thunder	
2. Drought	12. Rat Attack	
3. River Erosion	13. Insect attacks at crops	
4. Hail Rain		
5. Heavy Mist		
6. Cold Wave		
7.Excessive rain		
8. flatulency		
9.Arsenic		
10. Earthquake		
Man-made hazards		
14. Fire	16.Land Possession	

15.Unplanned Infrastructure Establishment	17. Paddy wastes emitted from rice mills
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Source: field Visit, Mirsarai, 2014

2.3 Different types of Hazards and its present, future illustration

1. Flood

Mirsarai upazilla is an extremely flood prone area. Flood prevails here from June to October. Consequently, agriculture, fisheries, infrastructure, households, education, communication and other sectors get heavily affected by flood. Though it happens each year, the floods in 1986, 1987, 1988, 1990, 1992, 1995, 1998, 2002, 2003, 2007 were the most terrific ones.

2. Drought

Drought commonly occurs in February, March, April and May. The acuteness and duration of drought are gradually increasing. It has not been raining even in June and July for last several years. As a result, damages are increasing because of drought. If this situation continues, severe environmental disaster would appear in near future. In context of Mirsarai upazilla, low water level is the most severe hazard which affects each sector of life and accelerate drought. People of this area have to fight continuously for the most basic need of life, water. This hazard affects every development sector of Mirsarai upazilla every year. Native people of here think that immediate government interference and private aid is necessary to remove this hazard.

3. River Erosion

River erosion is a part and parcel in the lives of people of Mirsarai upazilla. It is increasing day by day. The citizens believe that low navigability causing a raise of water and a fall of current speed and water capacity consequently leads to river erosion. They stated that it would further make people suffer devouring a lot more areas if this situation goes on.

4. Cold Wave

Cold Wave occurs every year in Mirsarai upazilla. It appears here so much because of close proximity to the river Chhota Jamuna. As a result, it affects common lives and ruins the production of mango, lichee, pees and other winter crops.

5. Heavy Mist

As a result of a variety of human-made reasons and climate change, heavy mist has been observed as a frequent occurrence in Mirsarai upazilla as well as nearby areas. Usually, heavy mist happens in November, December, January and February. As a result, it affects every sphere of life causing damage in agriculture and health sector and increasing street accidents.

6. Hail Rain

According to the denizens of Mirsarai upazilla, a drastic change in rainfall is observed in this area. Hail rain occurs quite frequently. It seems like a negative effect in the weather pattern. It makes a huge damage in agriculture.

2.4 Vulnerability and Capability

Vulnerability is the possibility of a population or parts of it to be affected by hazards and the level of possible damage to common lives and society due to the hazard. It has come into light through field meeting and analysis of various information and data that two-third of the population of Mirsarai upazilla are vulnerable to hazards like flood, river erosion, drought and cold wave. Moreover, animals, fisheries and infrastructures are not out of vulnerability. The objectives of removing hazards are to identify the possibility of a hazard, when a hazard will occur, how much area will be affected. Therefore by measuring the severity of a hazard and vulnerability, they are trying to achieve capability by adopting their own ways.

In which area is vulnerable for which reasons are shown below:

Table 2.3: Hazard based vulnerabilities

Hazards	Vulnerabilities	Capabilities
Flood	<ul style="list-style-type: none">• It ruins agricultural products.• Graveyards go under water.• It harms human resource.• It damages infrastructure.• It washes away fisheries.• It causes lack of safe drinking water.• It destroys livestock.• It extremely endangers children, the pregnant, the disable and the old.	<ul style="list-style-type: none">• There are 96 high graveyards.• There are 28 tanks of pure drinking water.• There are 10 (158 hectors) effective embankments and cross dams.• There are 4 sluice gates.• There are 980 high based tubewells.
Drought	<ul style="list-style-type: none">• It ruins agricultural products.• It harms human resource.• It washes away fisheries.• It causes lack of safe drinking water.• It destroys livestock.	<ul style="list-style-type: none">• There are 358 deep tubewells.• There are 1 health complex and 5 upazilla health and family welfare centers.• There is a 20 k.m. canal for irrigation purpose.• There is a veterinary hospital.
River Erosion	<ul style="list-style-type: none">• It ruins agricultural products.• It hampers communication.	<ul style="list-style-type: none">• There are 10 (158 hectors) effective embankments and

Hazards	Vulnerabilities	Capabilities
	<ul style="list-style-type: none"> • It harms human resource. • It damages infrastructure. • It ruins fisheries. • It destroys livestock. 	cross dams.
Cold wave	<ul style="list-style-type: none"> • It ruins agricultural products. • It destroys livestock. • It harms human resource. • It extremely endangers children, the pregnant, the disable and the old. 	<ul style="list-style-type: none"> • There are 1 health complexe, 20 community clinics and 5 upazilla health and family welfare centers. • NGO responses • There is a veterinary hospital.
Heavy Mist	<ul style="list-style-type: none"> • It ruins agricultural products. • It destroys livestock. • It harms human resource. • It extremely endangers children, the pregnant, the disable and the old. 	<ul style="list-style-type: none"> • There are 1 health complexe, 20 community clinics and 5 upazilla health and family welfare centers.
Hail Rain	<ul style="list-style-type: none"> • It ruins agricultural products. • It destroys livestock. • It harms human resource. • It destroys forest resources. 	<ul style="list-style-type: none"> • There are 1 health complexe, 20 community clinics and 5 upazilla health and family welfare centers. • NGO responses

Source: field Visit, Mirsarai, 2014

2.5 Most Vulnerable Areas

Due to geographical location, lack of water is seen in Mirsarai upazilla in dry seasons. So, all the fields and lands dry up and all the people, fisheries, animals and infrastructure become vulnerable. Again, farmlands and infrastructures submerge into water while water flowing down from hills causes sudden flood. Sometimes, people living nearby riverbanks become homeless because of river erosion. Vulnerability and causes of vulnerability are not the same for everywhere of the upazilla. So, most vulnerable areas and vulnerable population based on hazard are shown by the following table:

Table 2.4: most vulnerable areas, Reasons of Vulnerability and vulnerable population:

Hazards	Most Vulnerable Areas	rabilityReasons of Vulne	Vulnerable Population
Flood	Areas adjacent to rivers	Many a piece of agricultural land are being swallowed by flood in these areas.	127600 (Tentative)

Hazards	Most Vulnerable Areas	rabilityReasons of Vulne	Vulnerable Population
Drought	Entire upazilla	Drought may cause a huge damage in the agriculture of these areas.	169772 (Tentative)
River Erosion	Areas adjacent to rivers	For long 10 years, a lot of cultivated lands have been consumed by river erosion that makes many people helpless. Besides, it also ruins agriculture, fisheries and human resource.	127600 (Tentative)
Cold wave	Entire upazilla	Cold wave may harm to agricultural products, livestock and human resource. It is also endangering for children, the pregnant, the disable and the old.	169772 (Tentative)
Heavy Mist	Entire upazilla	This areas of Mirsarai grows the maximum amount of mangoes that may get spoiled by the Heavy Mist. It is also a threat for human resource.	169772 (Tentative)
Hail Rain	Entire upazilla	Hail Rain may cause a great harm to agriculture and human resource.	169772 (Tentative)

Source: field Visit, Mirsarai, 2014

2.6 Main Development Sectors

Mirsarai upazilla depends in agricultural production. Economy of this area depends on agriculture. So, although importance is given on agriculture in development planning, importance should be given on fisheries, livestock, health, livelihood and infrastructure to reduce hazard and risk.

It is discussed by the following table:

Table 2.5: Combination with Development Sector and Disaster Risk Reduction

Main Sectors	Detail Description	terAdjustment with Disas Risk Reduction
Agriculture	In Mirsarai upazilla, 150614 metric tons of crops are produced in total 23856 hectares of land. Meeting the local demand, Mirsarai has a surplus of 103311 metric tons which brought great success for the economy of this area. As	In Mirsarai upazilla, 90% of people are depended on agriculture (50% day-laborers, 25% petite farmers, 10% middle class farmers and 5% are affluent farmers). 78.66% income comes from agriculture. A change in

Main Sectors	Detail Description	terAdjustment with Disas Risk Reduction
	a result of new initiatives in agriculture, farmers will come forward in cultivation. So in Mirsarai upazilla, agriculture is considered as one of the main sectors of development plan.	climate causing drought, heavy rainfall, hail storm, cold wave, heavy mist and flood may cause severe financial loss damaging agricultural products. So, more modification and advancement is needed in agricultural sector to cope up with DRR.
Fisheries	There are total 3443 ponds wherein 590 are public ponds. In this upazilla, annual fish production is 1267.24 metric tons and demand 1949.74 metric tons. There are four public wet lands covering 225.27 acres of area that is capable of fish production and helps people achieve financial success as well as livelihood. As a result, many people will be interested in fish cultivation that can bring huge progress in this upazilla. So in Mirsarai Upazila, fisheries can be considered as one of the main sectors of development plans.	A change in climate causing heavy rainfall and flood may harm agriculture severely. In that case, fisheries can serve with instant financial safety and solvency. So, fish cultivation is effective in DRR.
Livestock	20-25 years ago, almost every family used to have cattle in Mirsarai upazilla. Currently, because of lack of cow-food and pasture lands, livestock has decreased considerably. At present, there are 60 cattle farms, 30 broiler chicken farms and 30 hybrid chicken farms, which make people self-reliant and contribute to the economy of this area.	A change in climate causing heavy rainfall and flood may harm fisheries and agriculture severely. In that case, livestock can serve with instant financial safety and solvency. So, rearing livestock is effective DRR.
Health	There are an upazilla health complex, 5 upazilla health and family welfare center and 20 community clinics. These institutions help continue the usual activities of people of Mirsarai upazilla ensuring health services.	In Mirsarai upazilla, many diseases bring out in disaster period. Therefore, more advancement in health service is needed to be connected with disaster risk reduction.
Livelihood	In Mirsarai upazilla, 90 % of people are	When disasters like flood, drought,

Main Sectors	Detail Description	terAdjustment with Disas Risk Reduction
	involved in agriculture (50% day-laborers, 25 % petite farmers, 10% middle class farmers and 5% are affluent farmers). Among the people involved in other sectors, there are 2.52% in non-agricultural labor, 0.86% industry, 8.01% trade, 2.91% transport and communication, 0.09% religious service, 0.07% remittance and 3.25% others. There are also 10% jobholders. In Mirsarai upazilla, financial system is quite prosperous because of varied livelihoods. Most of the people are reliable because they are mostly engaged in any kind of dependable profession. Thereby lives of the people of Mirsarai go on improving.	river erosion, heavy rainfall, low rainfall etc. occur in Mirsarai Upazila, livelihood of common people gets affected by seriously damaged agriculture, fisheries and livestock. But, if people manage to alternative occupations, immediate recovery from disasters can be possible. It also help keep solvency in disaster period. So, alternative livelihood is effective in disaster risk reduction.
Plantation	Mirsarai upazilla has considerable reputation for mango cultivation. In this Upazilla, there are many mango farms that keep this region filled with greenery. There are plenty of akashmoni, mango, rain-tree, water apple, eucalyptus, arjun, akasiya, babla and plum trees. According to official record, in Mirsarai, there are 10 hectares of plantation that plays a special role in the economy of this area.	Agriculture, fisheries, livestock are seriously damaged when disasters like flood, drought, river erosion, heavy rainfall, low rainfall etc. occur in Mirsarai Upazila. Apart from this, many houses, roads and other structures are smashed in storms, which affect lives and livelihoods of people as well as environment. Plantation has no alternative to prevent this. So a movement with a slogan like “Plant trees, save environment” can play role in disaster risk reduction.
Infrastructure	In Mirsarai upazilla, there are plenty of structural assets including 10 (158 hectors) embankments, 459 bridges and culverts, an overall total of 932.17 km. of upazilla, union and village roads and currently 358 deep tubewells and 11630 tubewells for irrigation purpose. There	When disasters like floods, droughts, river erosion and heavy rainfall happen in Mirsarai upazilla, a variety of structural assets helps in many ways. The dams located on the banks of the river Jamuna protect the upazilla from river erosion. During

Main Sectors	Detail Description	terAdjustment with Disas Risk Reduction
	are also 24 hats/ bazaars meeting the needs of people by providing the basic necessities of goods. These assets of this area play leading role in economics as well as development activities in Mirsarai.	floods and heavy rainfall, the culverts are used for communication and water supply. It also would benefit a lot in agriculture. The tubewells are used for water supply in irrigation during drought and thus help produce agricultural products. Roads connect different areas and develop communication. Bazaars are also essential for the people during disasters providing their necessary elements. Infrastructural resources play important role in coping with the disasters. So there is no alternative but strengthening infrastructural resource to reduce risks of disasters.

Source: field Visit, Mirsarai, 2014

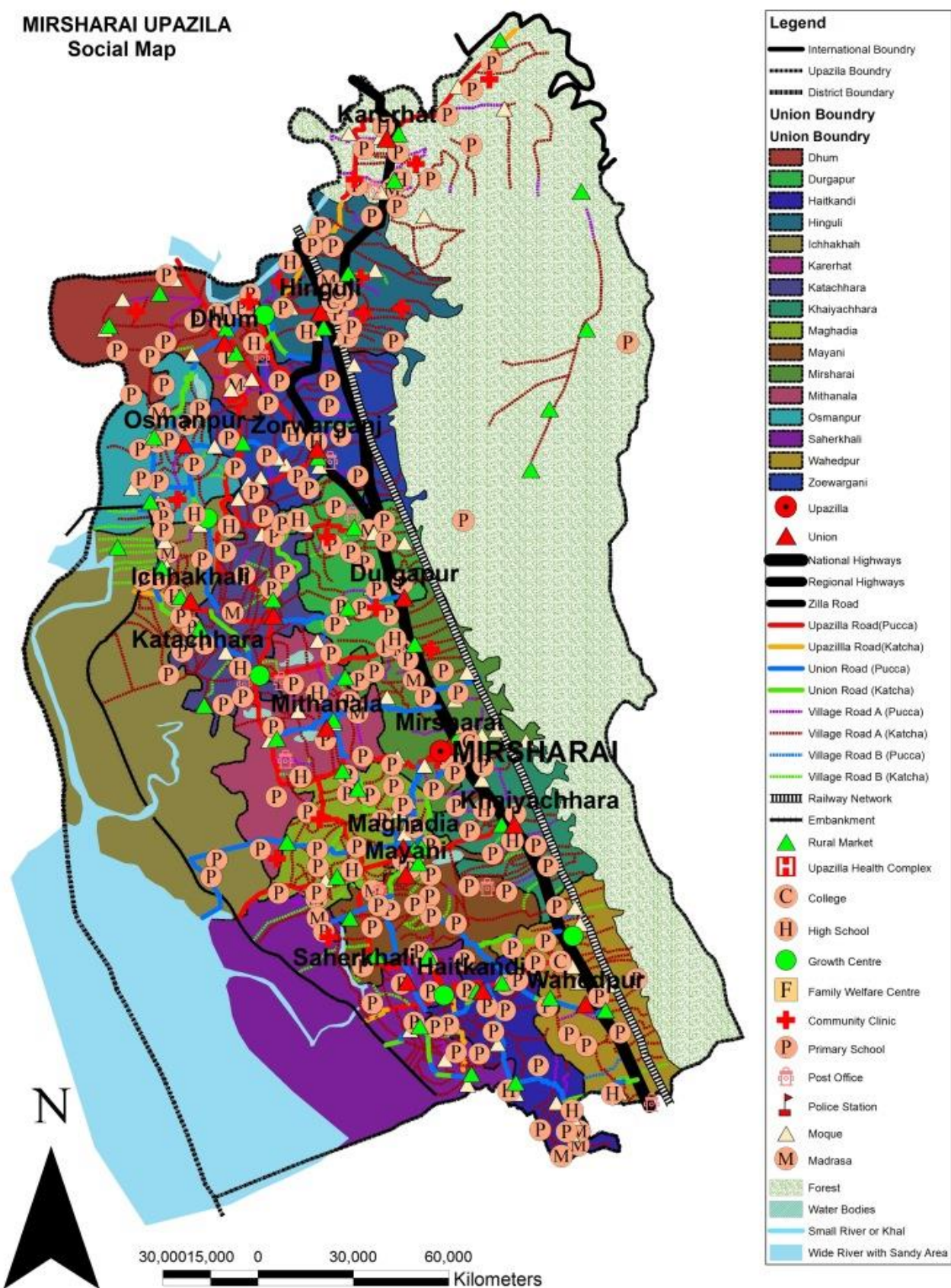
2.7 Social Map

In context of the discussion of the Mirsarai upazilla disaster management committee members' with the common people of various occupations of different villages describing the objectives and importance of making a social map, The social map of Mirsarai upazilla has been prepared with their help. The location of unions, villages, infrastuctures, different institutions, land use, roads, rivers, canals, wet lands, buildings, hospitals, embankments and other important matters are included in the social map. The entire condition of this upazilla is shown in the social map.

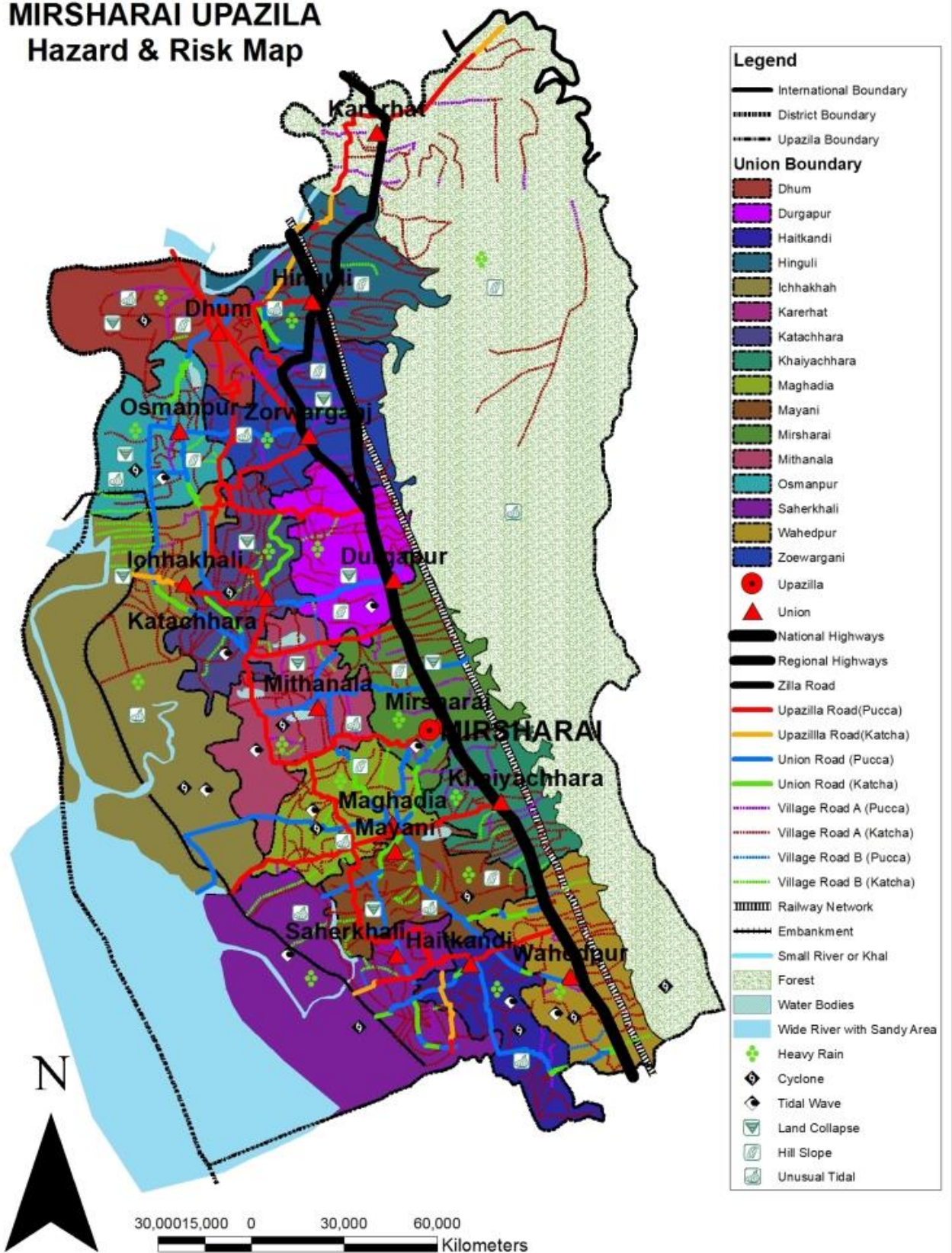
2.8 Hazard and Risk Map

In context of the discussion of the Mirsarai upazilla disaster management committee members' with the common people of various occupations of different villages showing the map of Mirsarai upazilla and describing the objectives and importance of making a Hazard and Risk Map, Hazard and Risk Map of Mirsarai upazilla has been prepared with their help to identify the hazards. Which hazard affects which union is shown in the map by the participants. Moreover, land infertility, land utilization, movement of river such matters is considered here through geographical information management. The entire condition of this upazilla is also shown in the hazard and risk map.

MIRSHARAI UPAZILA **Social Map**



MIRSHARAI UPAZILA Hazard & Risk Map



2.9 Seasonal Calendar of Hazards

Although Mirsarai upazilla is a drought prone area, different hazards are seen throughout the year. Drought continues to grow in the month of March, but it takes the extreme form in April. Field and lands dry up, no water remains in most of the tube well. At this tie, ground water level is low; therefore water can be lifted only through deep tubewell. Besides, one river runs through Mirsarai upazilla. Areas and public adjacent to the river face a huge amount of losses at any time between the months June to October in case of sudden floods. Moreover, outbreak of cold wave and heavy mist prevails from November to February which hampers winter crops production. Seasonal Calendar of Hazards is presented through the following table:

Table 2.6: Calendar of Hazards based on months

No	Hazards	April	May	June	July	August	September	October	November	December	January	February	March
1	Flood												
2	Draugh												
3	River Erosion												
4	Cold Wave												
5	Heavy Mist												
6	Hail Rain												

Source: field Visit, Mirsarai, 2014

Seasonal calendar of Hazards analysis:

In which months of a year hazards occur in this area and in which months the effects are more or less are shown in the graph of the seasonal calendar. It is known through discussions with the participants as part of the Pre-C.R:

Flood: flood generally occurs due to river filling and the lack of drainage. Rivers fill up due to sediment accumulation in the riverbed and rising of chars which causes excess water pressure to overflow and cause flood. Mirsarai upazilla is flood prone from mid-July to the end of September.

Drought: Drought is the main hazard of this area. The presence of drought is seen from mid-March to mid-June. Excessive drought causes extensive damage to agriculture here. Though the

effects of drought are moderate in early March and late June, but effects are somewhat lower during the rest of the year. Many of the crops are lost due to lack of irrigation as the effect of drought. Again, the production of crops which are getting irrigation is reduced due to lack of sufficient water. Again, water of stored pond dries up due to drought which leads to extreme shortages of drinking water.

River Erosion: homes, roads, crops, livestock and a social and educational institution of Mirsarai upazilla are disappearing every year because of river erosion. River erosion is not manifest from April to July here, but River erosion takes extreme form during early August to mid-September.

Cold Wave: Cold Wave occurs every year in Mirsarai upazilla. It appears here so much because of close proximity to the river Chhota Jamuna. As a result, it affects common lives and ruins the production of mango, lichee, pees and other winter crops.

Hill Rain: According to the denizens of Mirsarai upazilla, a drastic change in rainfall is observed in this area. Hail rain occurs quite frequently. It seems like a negative effect in the weather pattern. It makes a huge damage in agriculture.

2.10 Seasonal Calendar of Livelihood

Although this upazilla is dominated by agriculture, but fishing is also an income source here as some big and small canals are here. Besides, there are landless workers who earn their living as day laborers. As there are quite a few hats and bazars, the trader professions have arisen for exporting huge amount of agricultural products.

Seasonal Calendar of livelihood is presented through the following table:

Table 2.7: Seasonal Calendar of Livelihood

No	Source of Livelihood	April	May	June	July	August	September	October	November	December	January	February	March
1	Agriculture												
2	Fisheries												
3	Daily Labor												
4	Businessman												

Source: field Visit, Mirsarai, 2014

2.11 Vulnerability on Life and Livelihood

Pre-discussed hazards and disasters hamper the normal lifestyle. Farmers, fishermen, day laborers, businessmen all become vulnerable.

Vulnerability on Life and livelihood is presented through the following table:

Table 2.8: Vulnerability on Life and Livelihood

Sl no:	Livelihood	Hazards/ Disasters						
		Low water level	Flood	River Erosion	Drought	Seasonal Storm	Lack of rain	Cold Wave
01	Agriculture	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
02	Fisheries	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
03	Daily Labor	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
04	Businessman	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>

Source: Field Visit, 2014

2.12 Sector-wise Risks and Hazards

The vulnerable sectors of Mirsarai upazilla are crops, plants, livestock, fisheries, homes, roads, bridges, culverts, educational institutions, health care and shelter. The sectors are endangered because of the pre-discussed hazards. After performing hazard identification of each union and its corresponding vulnerable sector, elements and area selection, the list of risks have been prepared and written. Two representatives from each of the groups (farmers, landless, women and fishing) has been selected and divided into four groups. Risks have been given priority by voting on unacceptable risks (voting through Zipstick) after evaluating the risks described separately by each groups consisting of 6 members with a total of 24 representatives. The possible ways of reducing the risk to the local level including risk analysis has been set from the list of risks obtained by incorporating the highest risks voted by four groups. Following are the preferred risks. These risks have been validated later by the indirect stakeholders at the presence of the representatives of the group. The following table identifies vulnerable sectors of Mirsarai upazilla:

Table 2.9: Sector-wise Risks and Hazards

Hazard	Vulnerable Social Elements									
	Crops	Trees	Livestock	Fisheries	Homes	Roads	Bridges and Culverts	Educational institution	Health	Shelter
Flood	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Drought	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>	
River Erosion	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		

Hazard	Vulnerable Social Elements									
	Crops	Trees	Livestock	Fisheries	Homes	Roads	Bridges and Culverts	Educational institution	Health	Shelter
Cold Wave	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>	
Heavy Mist	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>	
Hail rain	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>	

Source: Field Visit, 2014

2.13 Climate Change and Its Possible Effect

Assessing the daily weather, the result of general condition of physical factors of wind sphere (air heat, air pressure, wind direction and speed, air humidity, amount and type of clouds and rainfall) of a place or region (30 years or more) is the climate of that place or region. Every day the sun reaches the earth, the earth absorbs it. Absorbed sunlight emits or reflects back to space again. Therefore, any type of exploitation of natural laws creating obstacles or barriers to this radiation process leads to climate change.

Some sectors which are affected by climate change are described in detail below:

Table 2.10: Sector Related Climate Change and Impact

Sectors	Description
Agriculture	Owing to climate change, a flood like 1988's may ruin the agricultural products of 22561 hectares of cultivable land. River erosion may cause financial loss for numerous families destroying sugarcane and paddy lands of 6 unions. Drought, as occurred in 2001, may ruin the agricultural products of approximately 16600 hectares and cause severe financial damage for 43996 families. As a result of climate change, a sudden raise of hailrain may destroy the agricultural products of 18230 hectares that consequently may create financial loss for many households. Cold wave may destroy agricultural products of 12680 hectares that may create a scarcity of food in Mirsarai upazilla. Heavy mist is also a threat that may ruin the production of a lot of mango trees (for dropping out buds) and 11925 hectares of cultivable lands.
Fisheries	Severe drought may ruin the fish cultivation in 2750 ponds that leads to financial loss and lack of protein supply in Mirsarai upazilla. 2582 cultivable ponds may get washed away by a flood as occurred in 1988. As a result, it is obvious to bring about a scarcity of food, nutrition and protein.
Plantation	As a result of climate change, a flood like 1988's may smash down many a tree in Mirsarai upazilla. It is a great hamper for environmental balance. River

Sectors	Description
	erosion also may hamper environmental balance grasping many trees into the river in 6 unions.
Health	A flood like 1988's may create lack of safe place for 60% pregnant women during the flood in Mirsarai upazilla. It may even cause death because of vulnerable communication. Besides, different epidemic may bring out. Drought like 2001's may cause different kinds of skin diseases and other problems among 65% of the population of Mirsarai upazilla.
Livelihood	Flood, drought, river erosion, heavy mist, low rainfall etc. seriously affect agriculture, fisheries, livestock and most importantly human resource. 48% people of Mirsarai upazilla may become workless because of these hazards. As a result, it throws a terrible challenge towards the economic condition of Mirsarai upazilla.
Water	Heavy drought and low level of water in Aranagar and Umar unions may cause a horrible scarcity of water in several unions of Mirsarai upazilla. As a result, damage of 20862 hectares of cultivable land may cause financial loss of numerous families. Besides, different diseases like skin disease can spread all over and agriculture, fisheries and livestock can be severely spoiled.
Infrastructure	A sudden storm like 2003's may smash down 42% of structures including academic and religious institutions, which may result in unexpected disruption of education. 80% of earthen houses can be devastated by the storm that leads to suffering and economic loss for many people. A flood like 1988's may damage almost 349.05 km. roads which may impede communication. In six unions, approximately 89 kilometers road and some schools, colleges and other structures also may be devoured by the river. 32% of earthen houses may get submerged in water leading many families to be homeless and economically fallen.

Source: Field Visit, 2014

Chapter Three

Disaster Risk Reduction

3.1. Identification of Risk Factors

The possibility of the adverse effect of 3 elements - any hazard or hazards, resources and environment, vulnerable population of Mirshari upazilla and their income that is to say the interaction of the possibility of a hazard and its degree is risk. Identified risks and risk factors of Mirshari upazilla is in the table below:

Table 3.1: Risk Factors

Description of Risk	Causes		
	Immediate	Moderate	Ultimate
A sudden flood like 1988's may ruin the agricultural products of 22561 hectors of cultivable lands causing great loss for 33895 families.	1. Extreme water pressure destroying the dams 2. Heavy ascending wave	1. Decreased navigability because of river erosion 2. Lack of sufficient dams in required places	1. Lack of government policies of dredging system
Drought, as occurred in 2001, may ruin the agricultural products of approximately 22561 hectors and cause severe financial damage for 146429 people of 33895 families.	1. Lack of irrigation system	1. Lack of deep tubewell 2. Deforestation and short of plantation 3. Low ground-water level	1. Lack of necessary repair of canals 2. Shallowness of river
River erosion may cause financial loss for many families destroying 28 square km. hectors of sugarcane and paddy lands.	1. Extreme water pressure 2. Heavy rainfall in the month of <i>Sraban</i>	1. Shallowness of rivers	1. Lack of depth of river and proper management 2. Lack of river dam monitoring and implementation committee
Cold wave is also a threat that may create	1. Monsoon wind from the	1. Climate change	1. Deforestation

Description of Risk	Causes		
	Immediate	Moderate	Ultimate
loss for 12447 families ruining crops of 12680 hectors of cultivable lands.	north-west corner	2. Cold drizzling	2. Environment pollution
Heavy mist is also a threat that may ruin the production of countless mango trees (dropping out buds) and agricultural products of 11925 hectors of cultivable lands.	1. Interruption in weather reports 2. Lack of mass awareness	1. lack of agricultural training 2. Lack of awareness in using pesticides	1. Inadequate govt. supply of pesticides 2. lack of awareness measures from national level
A sudden attack of seasonal storm may destroy the agricultural products of 18230 hectors that consequently may create financial loss for many farmer families.			
Approximately many roads and 83 academic structures may be devoured by the river. 32% of earthen houses can be devastated by the rivers leading to suffering and economic loss for many families.	1. Extreme water pressure 1. Heavy rainfall in the month of <i>Sraban</i>	1. Shallowness of river	1. Lack of depth of river and proper management 2. Lack of river dam monitoring and implementation committee
Severe drought may ruin the fish cultivation in 2750 ponds that may lead to financial loss and spoil 148 metric tons of fish production in Mirshari upazilla.	1. Lack of irrigation system	1. Shallowness of ponds	1. Lack of govt. steps in necessary repairing of ponds
80% of earthen houses can be devastated by the flood that leads to suffering and economic loss for 28924 families.	1. Extra upstream water pressure	1. Housing in low lands 2. Unplanned housing	1. Lack of govt. policies in building infrastructure
Approximately many roads and 42%	1. Soft river banks because of	1. Shallowness of river	1. Not strengthening the

Description of Risk	Causes		
	Immediate	Moderate	Ultimate
academic structures may be devoured by the river, which may result in unexpected disruption in education of 15300 students.	heavy rainfall		river banks
.Cold wave seriously affects livestock Numerouscattle may die of cold wave that maycause severe financial damage for 3530 families.	1. Weather change 2. Cold drizzling	1. Cutting down big trees/ deforestation	1. Deficiency in management of forest department
Drought may cause different kinds of skin diseases and other problems among 65% of the population and financial loss for 56540 families of upazilla Mirshari.	1. Lack of mass-awareness	1. lack of hospitals/ health centers	1. Lack of govt. measures in health sector 2. Lack of rules and planning

Source: Field Visit, 2014

3.2. Ways of Risk Reduction Identification

The possible risks and ways to mitigate the risks from the discussion of Mirshari upazilla union wise field meetings and important persons are discussed in the table below:

Table 3.2: Possible ways of the risk reduction

Description of risk	Possible ways of the risk reduction		
	Short-term	Medium	Long-term
A sudden flood like 1988's may ruin the agricultural products of 22561 hectors of cultivable lands causing great loss for 33895 families.	1. Dam management	1. Dredging the rivers 2. Strengthening the river banks with closely set stones	1. Blocking the river edges imposing government policy
Drought, as occurred in 2001, may ruin the agricultural products of approximately 22561 hectors	1. Proper irrigation system	1. Sufficient deep tubewells	1. Canal repairing 2. Dredging the rivers

Description of risk	Possible ways of the risk reduction		
	Short-term	Medium	Long-term
and cause severe financial damage for 146429 people of 33895 families.		2. Avoiding deforestation and promoting plantation	
River erosion may cause financial loss for many families destroying 28 square km. hectors of sugarcane and paddy lands.	1. Measures to prevent water pressure with tin, bamboo and sand piles	1. Raising navigability of rivers 2. Setting dams	1. River dredging and forming and managing of implementation committee 2. Constructing dams on rivers 3. Allotting budgets
Cold wave is also a threat that may create loss for 12447 families ruining crops of 12680 hectors of cultivable lands.	1. Measures for protecting crops from cold wave	1. Creating mass awareness	1. Sufficient plantation by forest department
Heavy mist is also a threat that may ruin the production of countless mango trees (dropping out buds) and agricultural products of 11925 hectors of cultivable lands.	1. Maintaining continuity in early weather reports 2. Creating mass awareness	1. Timely use of pesticides 2. Arranging training on agriculture	1. adequate govt. supply of pesticides 2. awareness measures from national level
A sudden attack of hail rain may destroy the agricultural products of 18230 hectors that consequently may create financial loss for many farmer families.	1. Maintaining continuity in early weather reports 2. Creating mass awareness	1. Timely use of pesticides 2. Arranging training on agriculture	1. adequate govt. supply of pesticides 2. awareness measures from national level
Approximately many roads and 83 academic structures may be devoured by the river. 32% of earthen houses can be devastated by the rivers leading to suffering and economic loss for many families.	1. Protecting river banks with sand piles	1. Raising navigability of rivers through dredging	1. Setting govt. rules and planning and ensuring proper implementation
Severe drought may ruin the fish cultivation in 2750 ponds that may lead to financial loss and spoil 148	1. Proper irrigation system	1. Allowing lone to fish cultivators for increasing	1. Govt. steps in necessary repairing of ponds

Description of risk	Possible ways of the risk reduction		
	Short-term	Medium	Long-term
metric tons of fish production in Mirshari upazilla.		depth of pond	
80% of earthen houses can be devastated by the flood that leads to suffering and economic loss for 28924 families.	1. Prevent water pressure with sand piles	1. Building houses on high lands	1. Forming govt. policies in building infrastructure
Approximately many roads and 42% academic structures may be devoured by the river, which may result in unexpected disruption in education of 15300 students.	1. Protecting river banks with sand piles	1. Raising navigability of rivers through dredging	1. Setting govt. rules and planning and ensuring proper implementation
Cold wave may affect livestock. 3530 families can be affected financially at the death of livestock from various diseases.	1. Talking care of cattle	1. Raising awareness among livestock cultivators	1. Constructing govt. policies in building veterinary hospitals
Drought may cause different kinds of skin diseases and other problems among 65% of the population and financial loss for 56540 families of upazilla Mirshari.	1. Creating mass awareness	1. Arranging clinics/ health centers	1. Taking govt. measures in health sector And fixing rules and planning

Source: Field Visit, 2014

3.3. NGO's Development Plan

Because of slow paced disaster in Mirshari upazilla, mitigation by identifying hazard is seemed to be neglected. Recently, however, due to climate change tend to disasters has increased. So, few NGOs have started to work on disaster which is quite scarce than necessity.

Sl. No	NGO	Disaster Related Activity	Beneficiaries	Amount number /	Project Duration
1	CCDB	Works on Providing scholarship, plantation, health service, testing	3300-3500	4000-	Running

Sl. No	NGO	Disaster Related Activity	Beneficiaries	Amount number /	Project Duration
		arsenic,raising public awareness and providing development training		5000BDT	
2	Care	Works on Health service of mother and children and birth control through “ Shurjer Hashi Clinic” all over Mirshari upazilla	3200-4000	-----	Running
3	Proshika	Provides loan to poor farmers and fishermen	1700-1900	4500-5000BDT	Running
4.	ASA	Works on Providing loan, plantation, health service, education loan,testing arsenic,raising public awareness of about sanitary latrines	2800-3000	3500-4500BDT	Running
5	Thyangamara Mohila Sobuj Sangha (TMSS)	Employment training and micro-finance activities	2500-2700	4500-5000BDT	Running
6	Ujjebon	Worls on micro-finance activities	1700-1900	4500-5000BDT	Running
7	Grameen Bank	Micro-finance, sanitation, goat rearing, sewing training and motivation activities	2400-2600	4500-5000BDT	Running
8	Ashroy	Sanitation, preventing early marriage and stopping dowry	1600-1800	5000-6000BDT	Running
9	BRAC	Microfinance activities, social, developmental activities, non-formal education activities	3000-3200	4500-5000BDT	Running

Sl. No	NGO	Disaster Related Activity	Beneficiaries	Amount number /	Project Duration
10	World vision	Social development activities, informal educational activities	1800-2000	4500-5000BDT	Running
11	PolliSree	Microfinance activities	2600-2800	3000-4000BDT	Running

Source: Field Visit, 2014

3.4. Disaster Management Action Plan

3.4.1. Pre-disaster Preparation

Table 3.4: Pre-disaster preparation activities, target level, budget, Implementation and coordination

SL	Activities	Target Level	Possible Budget	Location	Possible Date	Who & How Far				Adjustment with Development Plan
						% Upazilla	Community %	UP%	NGO%	
1	River Dredging	12 km.	10-12 crores	Different wards of each union	January-April	100				The operations will make the people in the area aware and enthusiastic to take pre-disaster preparation immediately In order to reduce the risk of disaster. As a result, damage to people's lives and property will be reduced. If the operations are properly implemented, it will contribute to the overall socio-economic and national development.
2	River Dams	12 km.	10-12 crores	Different wards of each union	February-April	35	1	25	25	
3	Deep Tubewells	30 deep tubewells (220-250 feet deep)	5-6 crores	8 unions	Anytime of the year	60	2	10	28	

SL	Activities	Target Level	Possible Budget	Location	Possible Date	Who & How Far				Adjustment with Development Plan
						% Upazilla	Community %	UP%	NGO%	
			lakhs							
4	Agricultural Training	Total 65 training ward wise	2-3 lakhs	Upazilla Agriculture Office	November-January	40	5	15	40	
5	Proper Continuity of Weather Report	Public awareness through UP members	5-6 lakhs	Different wards of each union	April- May	20	1	60	20	
6	Public Involvement in Disaster report explanation	3 day training for ward wise groups each containing 20 members	30-35 lakhs	Different wards of each union	August-September	15	05	20	60	
7	Preserving Water by Digging ponds	20 feet deep (presently 10 feet)	50-60 lakhs	Different wards of each union	March-May	19	01	70	10	
8	Employment for the Disabled	Raising self-reliance of the disabled	15-20 lakhs	Different unions of Mirshari upazilla	Anytime of the year	35	5	25	35	

SL	Activities	Target Level	Possible Budget	Location	Possible Date	Who & How Far				Adjustment with Development Plan
						% Upazilla	Community %	UP%	NGO%	
9	Mass Awareness through Govt. Policy	3 day training for ward wise groups each containing 30 members	20-25 lakhs	All wards of each union	January-February	35	5	25	35	

Source: Field Visit, 2014

3.4.2 During disaster

Table 3.5: During disaster preparation activities, target level, budget, Implementation and coordination

SL	Activities	Target Level	Possible Budget	Location	Possible Date	Who & How Far				Adjustment with Development Plan
						Upazilla %	Community %	UP %	NGO %	
1	Safe transfer of assets	Safety from damages	7-8 lakhs	Affected area	During disaster	10	20	40	30	The operations will make the people in the area aware and enthusiastic to take pre-disaster preparation immediately In order to reduce the risk of disaster. As a result, damage to people's lives and property will be reduced. If
2	Immediate and safe evacuation of pregnant women, children, the disabled and the	Safety from damages	7-8 lakhs	Affected area	During disaster	10	20	40	30	

SL	Activities	Target	Budget	Location	Possible	Who & How Far				When the operations are properly implemented, it will contribute to the overall socio-economic and national development.
	old people									
3	Immediate treatment facility	Instant life support	7-8 lakhs	Affected area	During disaster	39	1	20	40	
4	Distributing dry food and safe water	Instant life support and keep away from diseases	10-12 lakhs	Affected area	During disaster	30	1	29	30	
5	Helping the affected	Safety for lives and assets	8-10 lakhs	Affected area	During disaster	20	1	19	60	
6	Safe sanitation system	Alleviation of health problems	3-4 lakhs	Affected area	During disaster	25	5	30	40	

Source: Field Visit, 2014

3.4.3 Post Disaster

Table 3.6: Post Disaster preparation activities, target level, budget, Implementation and coordination

SL	Activities	Target Level	Possible Budget	Location	Possible Date	Who & How Far				Adjustment with Development Plan
						Upazilla %	Community %	%UP	NGO %	
1	Debris Cleaning	Enabling debris management and preventing diseases and	60-70 lakhs	Affected areas	Post-disaster period	15	15	50	20	The operations will make the people in the area aware and enthusiastic to take pre-

SL	Activities	Target Level	Possible Budget	Location	Possible Date	Who & How Far				Adjustment with Development Plan
						Upazilla %	Community %	%UP	NGO %	
		suffering in post disaster period								disaster preparation immediately In order to reduce the risk of disaster. As a result, damage to people's lives and property will be reduced. If the operations are properly implemented, it will contribute to the overall socio-economic and national development.
2	Road construction and repairing	Enabling communication system in emergency rescue, damaged crop management and relief activities in post disaster period	25-30 crores	Affected areas	Post-disaster period	40		5	55	
3	Re-construction of academic institutions	Protection of educational institution in case of floods, storms and continuation of academic progress	60-70 lakhs	Affected areas	Post-disaster period	19	01	70	10	
4	Irrigation system	Protecting crops from water logging and food	6-7 lakhs	Affected areas	Post-disaster period	35	5	25	35	

SL	Activities	Target Level	Possible Budget	Location	Possible Date	Who & How Far				Adjustment with Development Plan
						Upazilla %	Community %	%UP	NGO %	
		crisis alleviation								
5	Housing management	Assuring the shelter for affected people	70-80 lakhs	Affected areas	Post-disaster period	55	5	20	20	
6	Relief activity	re-establishing regular life	8-10 crores	Affected areas	Post-disaster period	35	1	9	55	

Source: Field Visit, 2014

3.4.4 Normal time / risk reduction time

Table 3.7: Normal time preparation activities, target level, budget, Implementation and coordination

SL	Activities	Target Level	Possible Budget	Location	Possible Date	Who & How Far				Adjustment with Development Plan
						Upazilla %	Community %	%UP	NGO %	
1	Setting dams	Protection of crops from flood, removing financial crisis	5-6 Crores	Different wards of each union	January - April	35	15	25	25	The operations will make the people in the area aware and enthusiastic to take pre-disaster
2	Establishing shelter	Safety of lives from disasters	9-10 Crores	Different wards of each	September-April	45	10	10	35	

SL	Activities	Target Level	Possible Budget	Location	Possible Date	Who & How Far				Adjustment with Development Plan
						Upazilla %	Community %	%UP	NGO %	
	house			union						preparation immediately In order to reduce the risk of disaster. As a result, damage to people's lives and property will be reduced. If the operations are properly implemented, it will contribute to the overall socio-economic and national development.
3	Deep tubewells	Water supply in dry seasons	3-4 Crores	8 unions and 1 municipality	September-April	40	10	10	40	
4	Plantation	Maintaining Environmental Balance	3 Crores 50 lakhs	8 unions and 1 municipality	July-September	20	10	50	20	
5	Repairing houses	Safety of lives and assets from disasters	1 Crore 40 lakhs	Different wards of each union	September-April	15	30	10	45	
6	Raising awareness	Environmental Balance	25-30 lakhs	8 unions and 1 municipality	Entire year	19	20	20	40	

Source: Field Visit, 2014

Chapter Four

Emergency Preparedness

4.1 Emergency Operation Center

Emergency Operation Centre serves effective integration in giving In any kind of hazard, Emergency response. During disaster period it keeps active for 24 hours and manages data and information collection, assessment, demonstration and asset management. There are an operation, a control room and a communication room in emergency operation center room

Table 4.1: Persons in charge of the emergency operations center

SL.No.	Name	Designation	Mobile
1	MD. Nurul Amin	Advisor	01817240766
2	MD. Ashraf hossen	President	01711204177
3	MD. Imtiaz Ahsan Kader	Member	01713373688
4	MD. Saiful Islam	Member	01817526862
5	MD. Jahangir Alam	Member Secretary	01711395875

Source: UzDMC, 2014

Emergency Control Room Management

4.1.1 Emergency Control Room Management

- Emergency control room has to be established by Upazilla/ Union Parishad Office immediately after disaster. It has to be ensured that there are at least 3/ 4 volunteers and village policemen always in emergency control room.
- Three groups Responsible persons of zilla/ upazilla are to be in charge of control room. Each containing three volunteers are to guide the control room alternatively for 24 hours
- Constant communication with divisional/ zilla sadar is to be maintained
- There must be a register in the control room. Persons acting in any schedule, date and information received by and sent to any persons in any specific time are to be written specifically in that register
- Positions of zilla/ upazillas, roads, canals, dams are to be marked on a map hung on the wall in identifying the most damaged areas at post wall of control room so that it may help during disaster period
- For the sake of control room activities, it is important to preserve radio, charger light, 5 big torch lights, gum boots, life jackets, batteries, raincoats and other equipment

Sl no	yActivit	Target level	When	Who	Who to Help	How	Contact
1	Preparing volunteers	Volunteer groups should be formed (two males and One female) under the guidance of UP members at union level	From warning announcement in disaster period	Local Govt.	Disaster Management Committee	Through Emergency Control Room	UzDMC
2	Warning Announcement	Every UP member is to personally ensure the matter of warning announcement in his/ her ward.	From warning announcement in disaster period	Local Govt.	Volunteer groups	Through Emergency Emerg Control Room	UzDMC
3	Preparing Boats/ cars/ vans	Sufficient numbers of boats, motor vessels, vans are to be preserved to be used in emergency.	From warning announcement in disaster period	Local Govt.	Volunteer groups	Through Emergency Control Room	UzDMC
4	Rescue Activity	preparing sufficient equipments and human resource for rescue activity assessing accurate loss of disaster	Immediately after disaster	Local Govt.	Volunteer groups	Through Emergency Control Room	UzDMC
5	First Aid/ health/ dead management	Organizing necessary treatment/ medicines/ health services assessing accurate loss of disaster	Immediately after disaster	Local Govt.	Volunteer groups	Through Emergency Control Room	UzDMC

6	Collecting and Preparing Dry Food and Life-saving Medicine	Dry food like flatten rice, puffed rice etc. is to be collected from local markets for instant distribution.	Immediately after disaster	Local Govt.	Volunteer groups, Health assistant, Family welfare assistant	Through Emergency Control Room	UzDMC
7	Treatment / Vaccine for Cattle	Collecting necessary medicines	Immediately after disaster	Local Govt.	Volunteer groups, Upazilla veterinary hospital and Health centre	Through Emergency Control Room	UzDMC
8	Shelter Management	To keep the shelter house usable maintaining necessary repairing before the disaster prone season	Pre and during disaster period	Local Govt.	Volunteer groups	Through Emergency Control Room	UzDMC
9	Relief Activity	UP chairman has to supervise the relief activity of different relief and rehabilitation assisting groups.	during and post disaster period	UP Chairman	Volunteer groups	Through Emergency Control Room	UzDMC
10	Arranging	Arranging continual rehearsals in	April and	UP	Volunteer	UP	UP

	Rehearsals	cyclone/ flood prone areas	September of each year		groups		
11	Emergency Control Room Management	Emergency control room has to be established by Upazilla/ Union Parishad Office immediately after disaster. It has to be ensured that there are at least 3/ 4 volunteers and village policemen always in emergency control room.	during and post disaster period	Local Govt.	Volunteer groups	UP	UP

Source: UzDMC, 2014

4.2.1. Preparing volunteers

- Forming volunteer groups under the guidance of UP members at ward level
- Spreading announcement and information to every villages through volunteers
- Distributing duties signals, data collection, rescue, evacuation, shelter management and arranging training on disaster risk reduction among all volunteers

4.2.2. Warning Announcement

- Every UP member is to personally ensure the matter of warning announcement in his/ her ward.
- Once in every hour, mike announcements have to be arranged up to 5 no. signals transmitted by radio, television. As soon as the great danger signal (8-9 no. signals) is announced by radio and television, mike announcement and school bell ringing have to be done constantly as danger alarm.

4.2.3. Evacuation Activity

- Every UP member is to start evacuating people to safer places with the help of volunteer groups of that ward as soon as it is announced to evacuate the people of risky areas by radio, television.
- As soon as 8 no. great danger signal is declared, mike announcements and volunteer activities have to be ensured toward every home to direct the vulnerable people to safe places. The vulnerable people must be well-informed of the shelter they belong to.

4.2.4. Rescue and First Aid

- The people of extreme risk zone are to be under the supervision of members of Zilla/ upazilla disaster management committee.
- A fixed deposit has to be run by Zilla/ upazilla disaster management committee for rescue management.
- Temporary health camps have to be set up and directed.
- The sick, the old, children and pregnant women are to be sent toward hospitals immediately.
- Every UP member together with volunteers is in charge of dead body management as well as burial of cattle.

4.2.5. Shelter Management

- To keep the shelter house usable maintaining necessary repairing before the disaster prone season
- To fix the specific shelters to be chosen by specific people in emergency
- To ensure complete safety of women, children and disable persons (in taking shelter)
- To ensure safe water supply and other services
- To help people carry their necessary assets (cattle, poultry, food etc.) to safe places

4.2.6. Preparing Boats

- Zill/ upazilla disaster management committee is to keep the account of motor-boats and settle on which ones are to be used in emergency.
- The owners of boats are to help them in this task.
- The names and mobile numbers of owners of boats are to be preserved.

4.2.7. Measuring the Damage and Need of Disaster and Sending Report

- Immediately after the disaster, 'SOS Form' is to be sent within 24 hours and 'D Form' is to be sent within 7 days to the UP chairman.
- With the help of UP secretary, UP chairman is to collect the reports of every ward and send those to the chairman of upazilla disaster management committee within the next 12 hours.

4.2.8. Relief Activity

- UP chairman has to supervise the relief activity of different relief and rehabilitation assisting groups.
- If any other relief distributor groups come from outside, it is ordered to keep a record of the amount and category of relief and rehabilitation materials and to inform control room of the groups and their assigned areas.
- Union disaster management committee is to fix and distribute the amount/ number of relief materials among people based on vulnerability and damage at ward level.

4.2.9. Collecting and Preparing Dry Food and Life-saving Medicine

- Dry food like flatten rice, puffed rice etc. is to be collected from local markets for instant distribution.
- Food materials like rice, peas, flour, oil etc. and house-building materials like tin, nylon string etc. are to be collected from local markets.
- With the help of health assistant and family planning assistant, all necessary medicines are to be listed and collected at union level.
- Union chairman is to be in charge of assimilation of necessary transportations like rickshaws, taxies and other vehicles to transport relief materials as well as relief workers.

4.2.10. Treatment/ Vaccine for Livestock

- Collecting necessary medicines from upazilla veterinary hospital and preserving those in UP building or health center according to situations
- Arranging necessary trainings on veterinary treatment for the members of union disaster management committee
- Relating experienced persons to veterinary treatment if it is necessary in disaster period

4.2.11. Arranging Rehearsals

- Arranging rehearsals on signal/ warning announcement, evacuation, rescue and primary relief management
- Arranging continual rehearsals in cyclone/ flood prone areas
- Assessing disaster preparation through rehearsals involving the population in April and September each year

- Mentioning in the rehearsals to take the sick, the disable, pregnant women and children to shelter center
- Executing rehearsals, for teaching people of risky areas, in risky villages instead of UP office

4.2.12. Emergency Control Room Management

- Emergency control room has to be established by Upazilla/ Union Parishad Office immediately after disaster. It has to be ensured that there are at least 3/ 4 volunteers and village policemen always in emergency control room.
- Union Parishad secretary and responsible persons are to be in charge of emergency control room.

4.2.13. Safe Places /Shelter Centres

- Places that do not get washed away in flood and lie away from river erosion can be used as shelter centers.
- Selected shelter centers, local schools, colleges, govt. and non-govt., organizations, high roads and dams can be used as shelter centers.

List and Description of Safe Places of Upazilla .4.3

Shelter	Name	Name of Union	Capacity	Comment
School cum Shelter	Mohajonhat govt. primary school	Dhum	Every institution has the capacity of 500-1000 people.	
	Golokerhat p. n. Govt. primary school	Dhum		
	Uttor Mobarokgonj	Dhum		
		Durgapur		
Union Parishad		Dhum, Durgapur, Haitkandi, hinguli, Mayani, Khoiyachora, Mirsharai	500-1000	
			500-1000	
			500-1000	
			500-1000	

Shelter	Name	Name of Union	Capacity	Comment
High Road		Dhum, Durgapur, Haitkandi, hinguli, Mayani, Khoiyachora, Mirsharai	25000- 3000	
Embankment		Dhum, Durgapur, Haitkandi, hinguli, Mayani, Khoiyachora, Mirsharai	25000- 30000	
School cum shelter	Hajisshori govt. primary school		500-1000	
	Uttor boliadi govt. primary school		500-1000	
	Dokkhin haitkandis govt. primary school		500-1000	
	Poshchim haitkandi govt. primary school		500-1000	
	14 no. Haitkandi govt. primary school		500-1000	
	Koromali coastal govt. center		500-1000	
	Kurua govt. primary school		500-1000	
	144 no mohalonka Shaheed memorial govt. primary school		500-1000	
	Tarakatia govt. primary school		500-1000	
	Purba-ajamnogor doulot bibi govt. primary school		500-1000	
	11 no ajampur govt. primary school		500-1000	
	Gonoksara govt. primary school		500-1000	
	Khil hingoli govt. primary school		500-1000	

Shelter	Name	Name of Union	Capacity	Comment
	Takerhat govt.primary school		500-1000	
	Poshchip icchakhali govt. primary school		500-1000	
	Moestofa shoopno academy		500-1000	
	Becgurghat govt.primary school		500-1000	
	Sufia govt.primary school		500-1000	
	Chor shanat govt.primary school		500-1000	
	Alikhan govt. primary school		500-1000	
	Shohidul haq high school		500-1000	
	Skahebdinagar govt .primary school		500-1000	
	44 no. abdur hat govt. primary school		500-1000	
	Madborhat islamia senior madrasa		500-1000	
	COktarua govt. primary school		500-1000	
	Koyla Shaheed jakir hossen govt. primary school		500-1000	
	Bamon sundor govt. primary school		500-1000	
	54 no poshchim bariakhali govt. primary school		500-1000	
	Ahmed ali govt. primary school		500-1000	
	60 no purba tataiya govt.		500-1000	

Shelter	Name	Name of Union	Capacity	Comment
	primary school			
	Katchara Abdul chattar vuiyan govt. primary school		500-1000	
	Tohomonia govt. primary school		500-1000	
	Mojidia vuiyanpara govt. primary school		500-1000	
	S. M. hajipara govt. primary school		500-1000	
	Uttorpara ambaria govt. primary school		500-1000	
	Shah abdul mojid govt. primary school		500-1000	
	Poshchim mayani govt. primary school		500-1000	
	Purba mayani govt. primary school		500-1000	
	112 no. Purba mayani solaiman govt. primary school		500-1000	
	71 no kismot jafrabad govt. primary school		500-1000	
	10 no. Mihanala union porishad		500-1000	
	85 no. rohmotabad v		500-1000	
	Maliashi v		500-1000	
	85 no. mithanala govt. primary school		500-1000	
	Batirpara S. M. govt. primary school		500-1000	
	Mehgdia n. c.		500-1000	

Shelter	Name	Name of Union	Capacity	Comment
	govt. primary school			
	Poshchim bashkhali govt. primary school		500-1000	
			500-1000	
	Batillapara govt. primary school		500-1000	
	Meghdia shishusadan govt. primary school		500-1000	
	Tingoriatola abu taher v		500-1000	
	94 no halim nagar govt. primary school		500-1000	
	Meghdia union parishad govt. primary school		500-1000	
	37 no bashkhali govt. primary school		500-1000	
	Dhumkhali govt. primary school		500-1000	
	14 no. dhumkhali govt. primary school		500-1000	
	Jamal safi govt. primary school		500-1000	
	Jafrabad v		500-1000	
	Gajiria govt. primary school		500-1000	
	16 mo sherkhali govt. primary school		500-1000	
	Uttor taherpur govt. primary school		500-1000	
	Tajpur oel ahmed govt. primary school		500-1000	
	Dokkhin shehanpara govt. primary school		500-1000	

The detailed description of each shelter center should be written. Information like foundation, date of latest repairing, number of floors, present use, number of tubewells, number of latrines, present condition of those, list and description of equipments of shelter volunteers and other necessary information should be mentioned. If possible, pictures of every shelter centers and safe places are to be attached.

4.4. Formation of Shelter Management Committee

Shelter management is a very significant part of disaster management. Because of lack of proper and suitable management, many shelter centers get useless. Shelter management:

- Saves life and assets during disasters
- Saves livestock during disasters
- Ensures proper use and management of shelter centers

Shelter Management Committee

- There are 7-9 members in shelter management committee.
- The 7-9 member committee consists of UP chairman/ members, responsible persons, social workers, teachers, NGO staffs, land provider, volunteers etc.
- This committee can act as this management committee according to approval of the denizens.
- Half of the committee members have to be females.
- This committee fixes the responsibilities of shelter management.
- It performs the complete supervision and management of shelter center with the help of the denizens.
- It arranges meetings, keeps records of decisions and fixes responsibilities and deadlines for implementation of those decisions.
- The list of shelter management committee is to be attached to Disaster Management Plan.

The places to be used as shelter centers:

- Selected shelter centers
- Local schools, colleges
- Govt. and non-govt. organization
- High roads and dams

Things to be noticed in shelter center are:

- Preserving tent/ polyether/ ORS/ filter/ necessary medicines (Paracetamol, Flagil etc.)/ water purifying tablets/ bleaching powder etc. in shelter centers
- Measures for drinking water and cooking
- Sanitation system (male-female specified)
- Bathing place (male-female specified)
- Keeping clean and waste free
- Safety

- Light
- Hygiene
- Registration of protected people, enlisting and storing of their reserved assets and returning those properly while discharging
- Distributing duties among particular staffs and volunteers for shelter management
- Managing food and treatment for the protected
- Special care for pregnant women, the old and the disable

Use of Shelter Center:

- Shelter centers are mainly used for safe shelter for vulnerable people during disasters.
- Shelter centers can be used in community development activities except disaster period.
- It can also be used as primary ailment center.
- It can be used as school and education center for elderly people.
- It can be used as wireless station.

Shelter Center Management

- Every shelter center should be properly supervised.
- Local steps should be taken to protect the shelter centers from being ruined.
- Plantation should be maintained surrounding shelter centers in a planned way.
- Shelter center should be locked except disaster period.
- Shelter Management committee should be formed according to guideline.
- The list of Shelter Management committee is to be attached to Disaster Management

Planning execution and management committee

- Chairman
- Secretary
- Female member
- Govt. co-ordinator
- NGO-Co-ordinator
- Member

Table 4.4

SL.No.	Name	Designation	Mobile
1	MD. Nurul Amin	Advisor	01817240766
2	MD. Ashraf hossen	President	01711204177
3	MD. Imtiaj Ahsan Kader	Member	01713373688
4	MD. Saiful Islam	Member	01817526862
5	MD. Jahangir Alam	Member Secretary	01711395875

Source: Upazila Disaster management committee, mirsharai, 2014

Activity of the committee

- Communication with different organization.
- Disaster management planning get passed from District disaster management committee.
- To organize the drill in the direction of Disaster management bureau.

Chapter Five

Rescue and Rehabilitation Plan

5.1

Sectors	Description
Agriculture	Owing to climate change, a flood like 1988's may ruin the agricultural products of 14746 acres of Mirsharai Upazilla. River erosion may cause financial loss for 33683 families destroying sugarcane and paddy lands of 5 unions. Drought, as occurred in 2001, may ruin the agricultural products of approximately 15454 hectares and cause severe financial damage. As a result of climate change, a sudden attack of seasonal storm may destroy the agricultural products of 39063 hectares that consequently may create financial loss for 175984 people of 43996 households. Low rainfall may destroy agricultural products of 5978 hectares that may create a scarcity of food in Mirsharai Upazilla. Heavy mist is also a threat that may ruin the production of 21543 mango trees (for dropping out buds) and 2583 hectares of cultivable lands.
Fisheries	Severe drought may ruin the fish cultivation in 3827 ponds that leads to financial loss and lack of protein supply in Mirsharai Upazilla. About 3827 cultivable ponds may get washed away by a flood as occurred in 1988. As a result, it is obvious to bring about a scarcity of food, nutrition and protein.
Plantation	As a result of climate change, a storm like 2003's may smash down many a tree in Mirsharai Upazilla. It is a great hamper for environmental balance. River erosion also hampers environmental balance grasping many trees into the river.
Health	A flood like 1988's may create lack of safe place for 60% pregnant women during the flood in Mirsharai upazilla. It may even cause death because of vulnerable communication. Besides, different epidemic may bring out. Drought like 2001's may cause different kinds of skin diseases and other problems among 50% of the population of Mirsharai upazilla.
Livelihood	Flood, drought, river erosion, heavy mist, low rainfall etc. seriously affect agriculture, fisheries, livestock and most importantly human resource. 38% people of Mirsharai upazilla may become workless because of these hazards. As a result, it throws a terrible challenge towards the economic condition of Mirsharai upazilla.
Water	Heavy drought and low level of water may cause a horrible scarcity of water in 5 unions of Mirsharai upazilla. As a result damage of 12344 hectares of cultivable land may cause financial loss of almost 33683 families. Besides, different diseases like skin disease can spread all over and agriculture, fisheries and livestock can be severely spoiled.
Infrastructure	A sudden storm like 2003's may smash down 25% of structures including academic and religious institutions, which may result in unexpected disruption of

	education. 60% of earthen houses can be devastated by the storm that leads to suffering and economic loss for 120806 people. A flood like 1988's may damage almost 275.75 k.m. roads which may impede communication. In four unions, approximately 30 kilometers road and some schools, colleges and other structures also may be devoured by the river. 16% of earthen houses may get submerged in water leading 33683 families to be homeless and economically fallen.
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Source: Field Survey, 2014

5.2 Rapid/ Early Recovery

5.2.1 Administrative Restoration

Table 5.2: Administrative Restoration Committee

SL.No.	Name	Designation	Mobile
1	MD. Nurul Amin	Advisor	01817240766
2	MD. Ashraf hossen	President	01711204177
3	MD. Imtiaz Ahsan Kader	Member	01713373688
4	MD. Saiful Islam	Member	01817526862
5	MD. Jahangir Alam	Member Secretary	01711395875

Source: Disaster Management committee Mirsharai, 2014

5.2.2 Wreckage Cleaning

Table 5.3: Wreckage Cleaning

SL.No.	Name	Designation	Mobile
1	MD. Nurul Amin	Advisor	01817240766
2	MD. Ashraf hossen	President	01711204177
3	MD. Imtiaz Ahsan Kader	Member	01713373688
4	MD. Saiful Islam	Member	01817526862
5	MD. Jahangir Alam	Member Secretary	01711395875

Source: Disaster Management committee Mirsharai, 2014

5.2.3 Public Service Resume

Table 5.3: Health recovery committee

SL.No.	Name	Designation	Mobile
1	MD. Nurul Amin	Advisor	01817240766
2	MD. Ashraf hossen	President	01711204177
3	MD. Imtiaz Ahsan Kader	Member	01713373688
4	MD. Saiful Islam	Member	01817526862
5	MD. Jahangir Alam	Member Secretary	01711395875

Source: Disaster Management committee Mirsharai, 2014

5.2.4 Emergency Livelihood Support

Table 5.5: Emergency Livelihood Support committee

SL.No.	Name	Designation	Mobile
1	MD. Nurul Amin	Advisor	01817240766
2	MD. Ashraf hossen	President	01711204177
3	MD. Imtiaj Ahsan Kader	Member	01713373688
4	MD. Saiful Islam	Member	01817526862
5	MD. Jahangir Alam	Member Secretary	01711395875

Source: Disaster Management committee Mirsharai, 2014

Annex 1

Check List of Emergency Plan Implementation

Checklist

The following 'Table' (checklist) has to be checked out immediately after the broadcast of 5 number danger signal by radio/ television and necessary measures have to be taken.

S. N.	Subject	Yes/ No
1.	If the selected members of volunteer group assigned for warning announcement have been ordered to declare the coming hazard	Yes
2.	If the responsible persons/ groups are prepared to rescue the people of vulnerable areas	Yes
3.	If the declaration to keep dry food and drinking water buried under ground for 2/1 days is announced	Yes
4.	If life jackets for the safety of volunteer groups are provided	Yes
5.	If the necessary manpower is prepared to keep Union Control Room open constantly	Yes
6.	If the necessary safety measures for union food storage/ relief storage are ensured	No
7.	Others	

N. B.

- Assessing the checklist, immediate measures should be taken for the flawed sectors.
- It is very necessary to manage life jackets for volunteer groups with union parishad deposit or any other source/ organization.

Checklist

The following 'Table' (checklist) must be filled and sent to Upazilla Nirbahi Officer and District Commissioner discussing in the meeting of Disaster Management Committee within 15th of April/May each year.

Sl. no	Subject	Mark (√)
1	If sufficient food is reserved in Union food storage	√
2	If the children of risk zones have been served with vaccines	√
3	If the children (1-6) and their mothers are served with vitamins	√
4	If sufficient amount of oral saline is reserved in UP Clinic/ Hospital	√
5	If the members of volunteers group are served with annual training	√
6	If there are necessary drugs and first aid equipment for each shelter	√
7	If there is selected village doctor for each shelter	√
8	If there is tube well for each shelter	√
9	If the doors and windows of each shelter are in proper condition	√

10	If the alternative care taker is present in each shelter	√
11	If there are separate facilities for women in each shelter	√
12	If there are selected midwives for the taking care of pregnant women in each shelter	√
13	If mound shelters are selected for the cattle	√
14	If the member of volunteers group are aware of their assigned responsibilities.	√
15	If there is sanitation facilities each shelter	√
16	If the microphones are activated to spread weather announcement and danger signals	√
17	If the people are made aware to preserved dry food and drinking water for at least 2/1 days	√
18	Others	√

Annex 2

Upazilla Disaster Management Committee

SL.No.	Name	Designation	Member	Mobile
1	MD. Nurul Amin	Upazilla Chairman	Advisor	01817240706
2	MD. Ashraf Hossen	UNO	President	01711204177
3	MD. Main Uddin	Upazilla Vice-Chairman	Member	01819949162
4	Eyasmin Akter Kakoli	Upazilla Female Vice-chairman	Member	01814325055
5	Goloam Rahman	Upazila Education Officer	Member	01713373688
6	Abul Kalam Azad	Upazila Fisheries Officer	Member	01550603300
7	MD. Josim Uddin	Upazila Social Welfare Officer	Member	01817526862
8	Mihir kanti Dutta	Upazila Cooperative Officer	Member	01818849571
9	MD. Humayun Kobir	Upazila secondary Education Officer	Member	01550603300
10	Priyo komol Chakma	Food Control Officer	Member	01825032482
11	K. M. Sayed Mahmud	Sub-assistant engineer of public health	Member	01732353844
12		Ashroy NGO	Member	01712499090
13	MD. Ataur Rahman	Upazila Rural Development Officer	Member	01814325055
14		UNO	Member	
15	MD. Lokman hossen	Upazila Health and Family Planning Officer	Member	01818849571
16	DR. Abdur Rajjak	Upazila Livestock Officer	Member	01712194783
17	Mostafijur Rahman	Upazilla engineers	Member	01732353844
18	Najnin Ferdous Mojumder	Upazila Women Affairs Officer	Member	01712194783
19	Kazi Abdul Alim	Upazila Youth Development Officer	Member	01971848126
20	A K M Josim Uddin	Upazila Ansar and VDP officer	Member	01720614576
21	Jahangir Alam	Upazila Project Implementation Officer	Member	01825032482
22	Md. Jahangir Alam	Press club President	Member	01740062771
23	Md. Sahid Mahabub	Professor	Member	01711 48380
24	Hamidur Rahman	Chairman, Aihai UP	Member	01713815382
25	Tariqul Islam	Chairman, Patari UP	Member	01718115827
26	Md. Rafikul Islam	Chairman, Mirsharai UP	Member	01712226649

SL.No.	Name	Designation	Member	Mobile
27	Md. Abdul jalil Mondol	Chairman, Goala UP	Member	01741176692
28	Abdur Rahman Kollol	Chairman, Tilna UP	Member	01718272041
29	Md. Jillur Rahman	Chairman, Shirti UP	Member	01761543060
30	Md. Motiur Rahman	Upazila Bonik somity	Member	01720507851
31	Homanna Hozda	Chairman karitqas NGo	Member	0177242119
32	Md. Moniruzzam	Rik NGO	Member	01713736571
33	Al Omor Ali	Sector comander	Member	01713736517

Source: Upazila Parishad Mirsharai, 2014

Annex 3

List of Upazilla Volunteers

SI N	Name	Father/ Husband	Word	Training	Mobile
1	Tarek Ismot jamsedi		3		01818625579
2	Nurul Alam Vola		3		01814950110
3	Kobir Ahmed		9		01719211436
4	Rowson Ara		1,2,3		01722478815
5	MD. ali				
6	Mir Hossen				
7	Bina Rani Debi				
8	Rasheda Akter		1,2,3		
9	Mosharrof Hossen		4		
10	Kalu Chondro Nath		1		
11	Bijoybalanath		3		
12	Nurul Islam				
13	Lutfor Rahman		3		
14	Saiful islam		1		01819369538
15	Pushporani		1,2,3		01817761285
16	Johurul Alam		1		01817761285
17	Topon chondro		2		
18	Bokul rani de				

Source: Upazila Parishad Mirsharai, 2014

Annex 4

List of Shelters Management Committee

Mound Shelter

Name of Shelter	Responsible Person	Mobile	Remark

Source: Upazila Disaster management committee Mirsharai, 2014

School cum Shelters

Name of Shelter	Responsible Person	Mobile	Remark
Mohajonhat Govt. primary School Goala School cum Shelters	Md. Jolil Mondol		
Golokerhat Govt. Primary School	--		
Uttor Mobarokghna Govt. primary school	--		
Durgapur govt. primary school	--		
Hajisshori govt. primary school	--		
Uttor boliadi govt. primary school	--		
Dokkhin haitkandis govt. primary school	--		
Poshchim haitkandi govt. primary school	--		
14 no. Haitkandi govt. primary school	--		
Koromali coastal govt. center	--		
Kurua govt. primary school	--		
144 no mohalonka Shaheed memorial govt. primary school	--		
Tarakatia govt. primary school	--		
Purba-ajamnogor doulot bibi govt. primary school	--		
11 no ajampur govt. primary school	--		
Gonoksara govt. primary school	--		
Khil hingoli govt. primary	--		

Name of Shelter	Responsible Person	Mobile	Remark
school			
Takerhat govt.primary school	--		
Poshchip icchakhali govt. primary school	--		
Moestofa shoopno academy	--		
Becgurghat govt.primary school	--		
Sufia govt.primary school	--		
Chor shanat govt.primary school	--		
Alikhan govt. primary school	--		
Shohidul haq high school	--		
Skahebdinagar govt .primary school	--		
44 no. abdur hat govt. primary school	--		
Madborhat islamia senior madrasa	--		
COktarua govt. primary school	--		
Koyla Shaheed jakir hossen govt. primary school	--		
Bamon sundor govt. primary school	--		
54 no poshchim bariakhali govt. primary school	--		
Ahmed ali govt. primary school	--		
60 no purba tataiya govt. primary school	--		
Katchara Abdul chattar vuiyan govt. primary school	--		
Tohomonia govt. primary school	--		
Mojidia vuiyanpara govt. primary school	--		
S. M. hajipara govt. primary school	--		

Name of Shelter	Responsible Person	Mobile	Remark
Uttorpara ambaria govt. primary school	--		
Shah abdul mojid govt. primary school	--		
Poshchim mayani govt. primary school	--		
Purba mayani govt. primary school	--		
112 no. Purba mayani solaiman govt. primary school	--		
71 no kismot jafrabad govt. primary school	--		
10 no. Mihanala union porishad	--		
85 no. rohmotabad v	--		
Maliashi v	--		
85 no. mithanala govt. primary school	--		
Batirpara S. M. govt. primary school	--		
Mehgdia n. c. govt. primary school	--		
Poshchim bashkhali govt. primary school	--		
	--		
Batillapara govt. primary school	--		
Meghdia shishusadan govt. primary school	--		
Tingoriatola abu taheer v	--		
94 no halim nagar govt. primary school	--		
Meghdia union parishad govt. primary school	--		
37 no bashkhali govt. primary school	--		
Dhumkhali govt. primary school	--		
14 no. dhumkhali govt. primary school	--		
Jamal safi govt. primary school	--		
Jafrabad v	--		

Name of Shelter	Responsible Person	Mobile	Remark
Gajiria govt. primary school	--		
16 mo sherkhali govt. primary school	--		
Uttor taherpur govt. primary school	--		
Tajpur oel ahmed govt. primary school	--		
Dokkhin shehanpara govt. primary school	--		

Source: Upazila Parishad Mirsharai, 2014

Elevated road or embankment

Name of Shelter	Responsible Person	Mobile	Remark
Dhum,			
Durgapur			
Ichakhali			
Osmanpur			
Shaherkhali			

Source: LGED, Mirsharai, 2014

Health Management Committee

Health Center	Responsible Person	Mobile	Remark

Source: Upazila Health Complex Mirsharai, 2014

Fire Safety Committee

Name of Fire Station	Responsible Person	Mobile	Remark

Engine Boats

Union	Responsible Person	Mobile	Remark

Local Dealers

Union	Name of Local merchant	Mobile	Remark
11 no meghdia	Naim Uddin	01919693114	
15 no. ohaedpur	Prodip chandranath	01811328082	
15 no wahedpur	Mejbah Uddin	01819802317	
13 no mayani	Firoj khan	01815639604	
15 no wahedpur	Firoj alam	01815607530	
8 no dogapur	Dipok das	01840531873	
Mirsharai sadar	Nur Uddin	01837770239	

Source: Upazila Parishad, Mirsharai, 2014

Annex 5

Mirsharai Upazilla at a Glance

Area	482.88	Church	4
Union	16	Eidgah	119
Mouja	113	26	7
Village	209	Post Office	30
Family	66008	Club	64
370896	161792	Hat/ Bazaar	33
Male	173645	Graveyard	887
Female	197251	Crematorium	135
Educational Institution	176	Chicken farm	330
Public Primary School	183	Weaving Industry	-
Reg. Primary School		DTW	990
Secondary school	42	STW	
College	6	Hand-operated wells	
Madrasa (Dakhil, Fazil, Ebtedayee)	27	River	2
BRAC School		Canal	50
Kinder Garten School		Wet Land	
Literacy Rate	65%	Haor	
Community Clinic		Pond	13800
Embankment	6	Water Body	
Sluice Gate	-	Earthen Road	1605.20KM
Bridge/ culvert	7	Pavement	
Mosque	520	Mobile Tower	8
Temple	26	Playground	27

Annex 6

List of Some Important Broadcast Programs of Bangladesh Betar

Radio Centre	Program	Time	Day
Dhaka-ka	Krishi Shamachar	6.55-7.00 am	Everyday
	Shukher Thikana	7.25-7.30 am	Everyday
	Shasthoi Shukher Mul	11.30-1200 am	Everyday except Friday
	Shonali Foshol	6.05-6.35 pm	Everyday
	Weather News	6.50-7.00 pm	Everyday
Chittagong	Krishi Kotha	6.55-7.00 pm	Everyday
	Krishi Khamar	6.10-6.50 pm	Everyday except Monday
	Shukhi Saongshar	8.10-8.30 pm	Everyday except Friday
Rajshahi	Khet Khamar Shamachar	6.55-7.00 am	Everyday
	Shabuj Bangla	6.05-6.50 pm	Everyday
Khulna	Shastho Tatthyo	6.55-7.00 am	Everyday
	Krishi Shamachar	4.20-4.30 pm	Everyday
	Chashabad	6.10-6.50 pm	Everyday
Rangpur	Shukher Thikana	7.25-7.30 am	Everyday
	Khet Khamare	6.05-6.35 pm	Everyday
Shylet	Ajker Chashabad	6.55-7.00 am	Everyday
	Shukher Thikana	7.25-7.30 am	Everyday
	Shymol Shylet	6.05-6.50 pm	Everyday except Friday
Thakurgaon	Kishan Mati Desh	6.05-6.25 pm	Saterday, Monday & Wednesday
Cox's Bazar	Ajker Krishi	3.07-3.45 pm	Everyday
	Sonali Prantor	3.40-3.45 pm	Tuesday & Thursday
Barishal	Krishi Kotha	3.15-3.30 pm	Everyday except Sunday, Wednesday & Friday
	Chhoto Paribar	3.35-3.50 pm	Everyday except Monday, Wednesday & Friday
Rangamati	Jiboner Jonno	1.50-1.55 pm	Everyday
	Khamar Bari	3.05-3.15 pm	Everyday

* Weather news is broadcast to all stations at 6.50 pm.

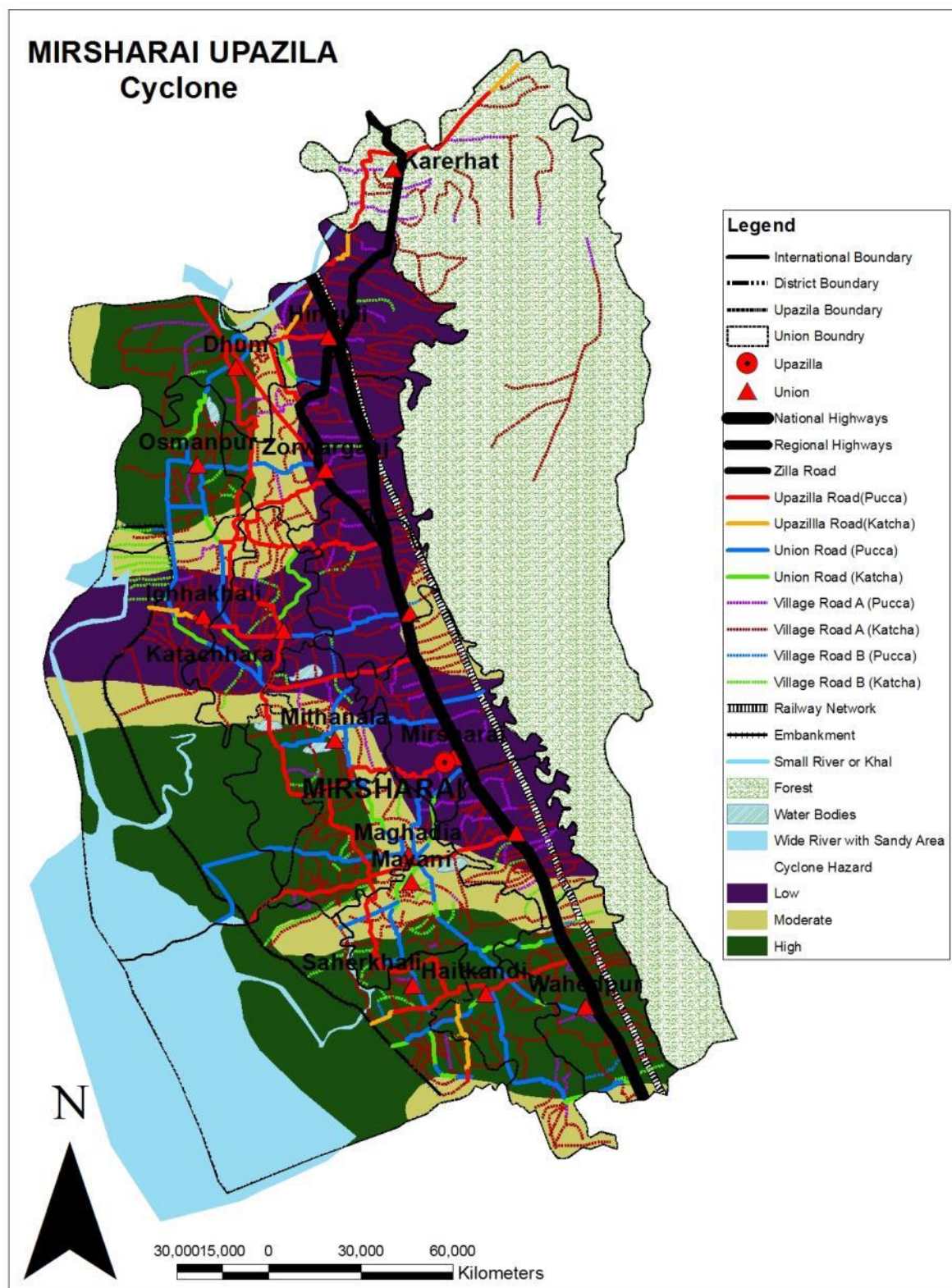
Some Important Broadcast Programs of Community Radio

Radio Centre	Program	Time	Day

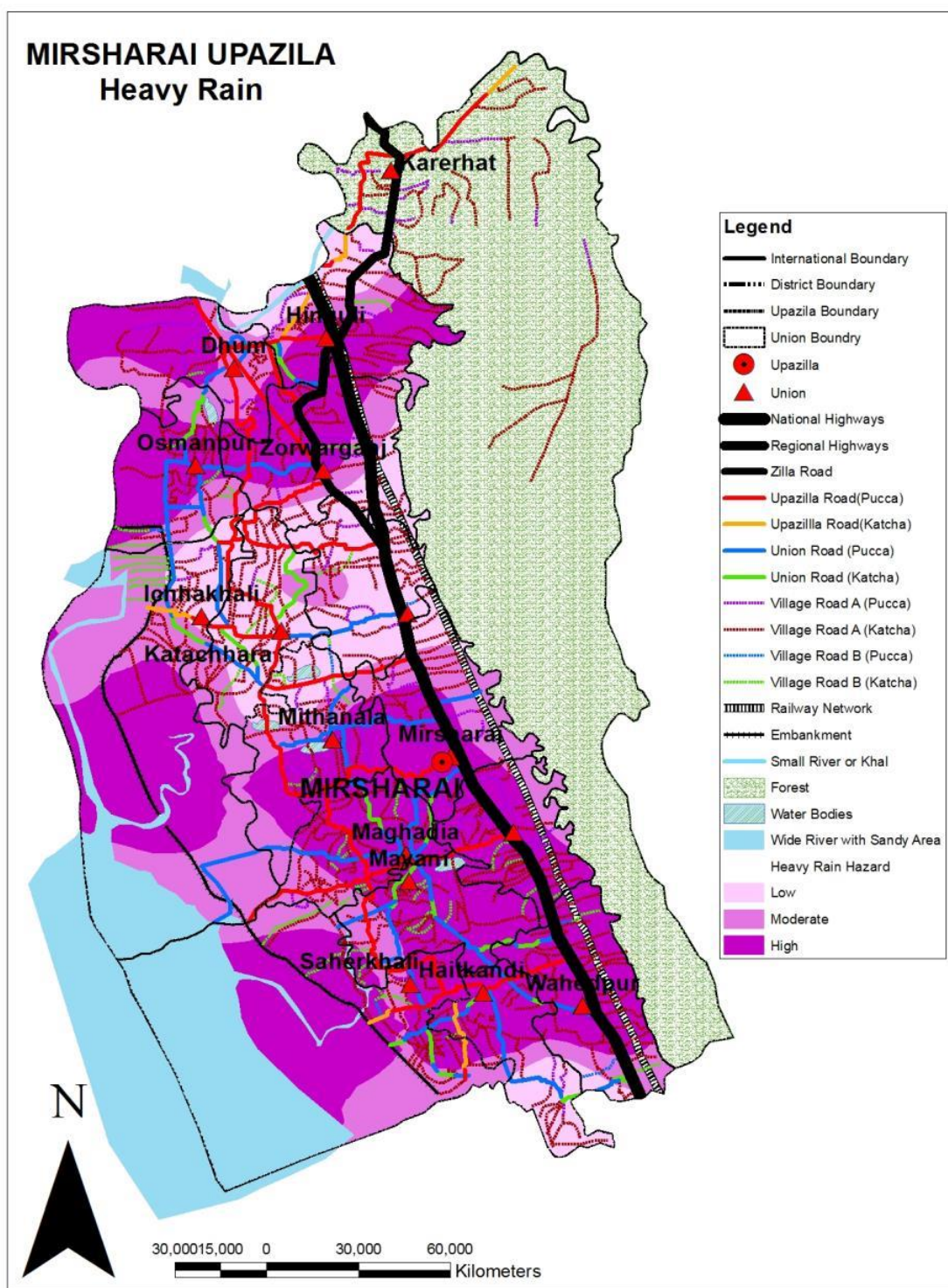
Interactive Voice Response (IVR)

Interactive Voice Response (IVR) refers to disaster early warning system that spreads disaster early warnings to common people via mobile phone. One can get weather news and early warning for flood and river ports dialing 10941.

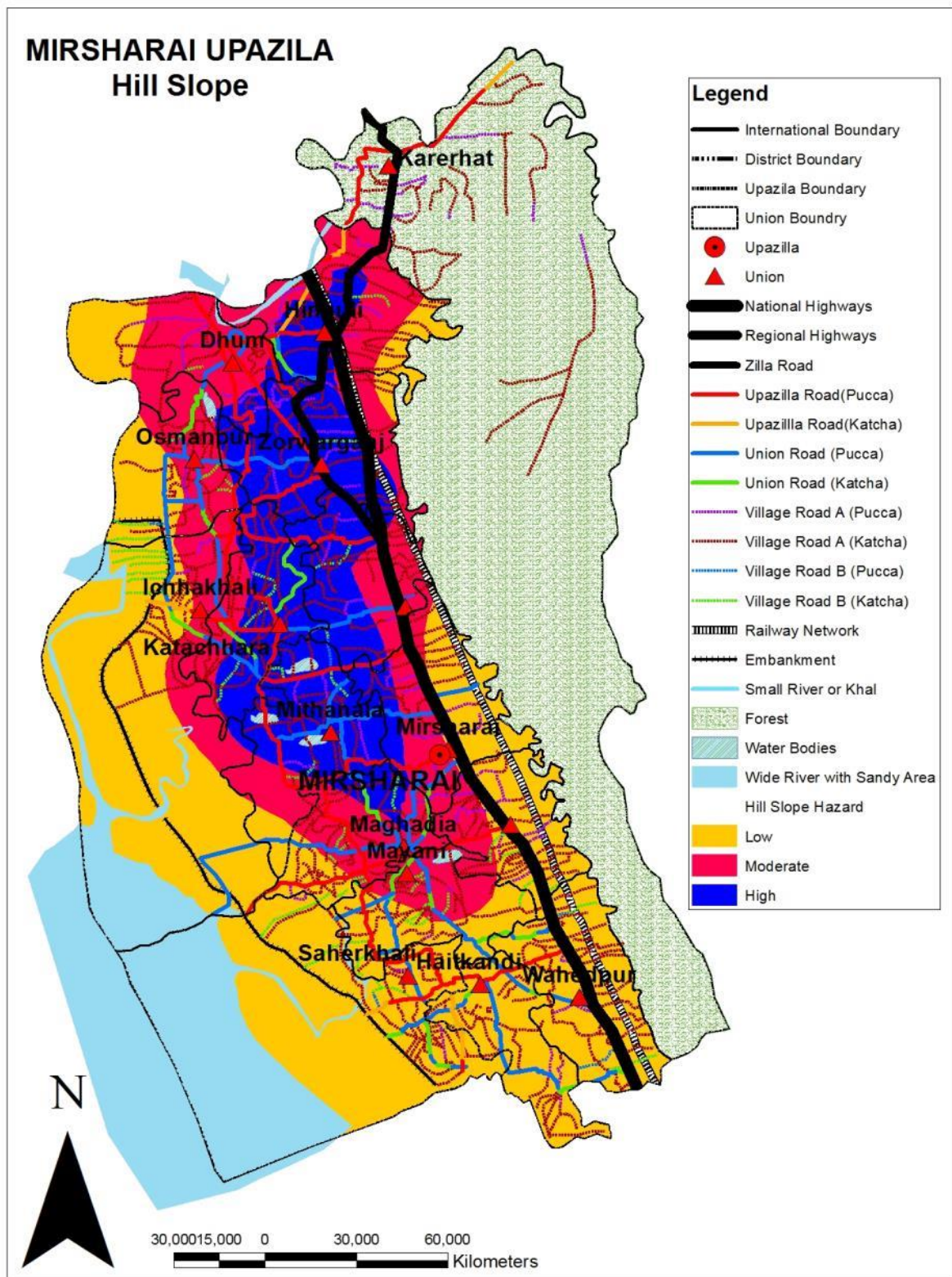
Annex 9 Hazard Map (Cyclone)



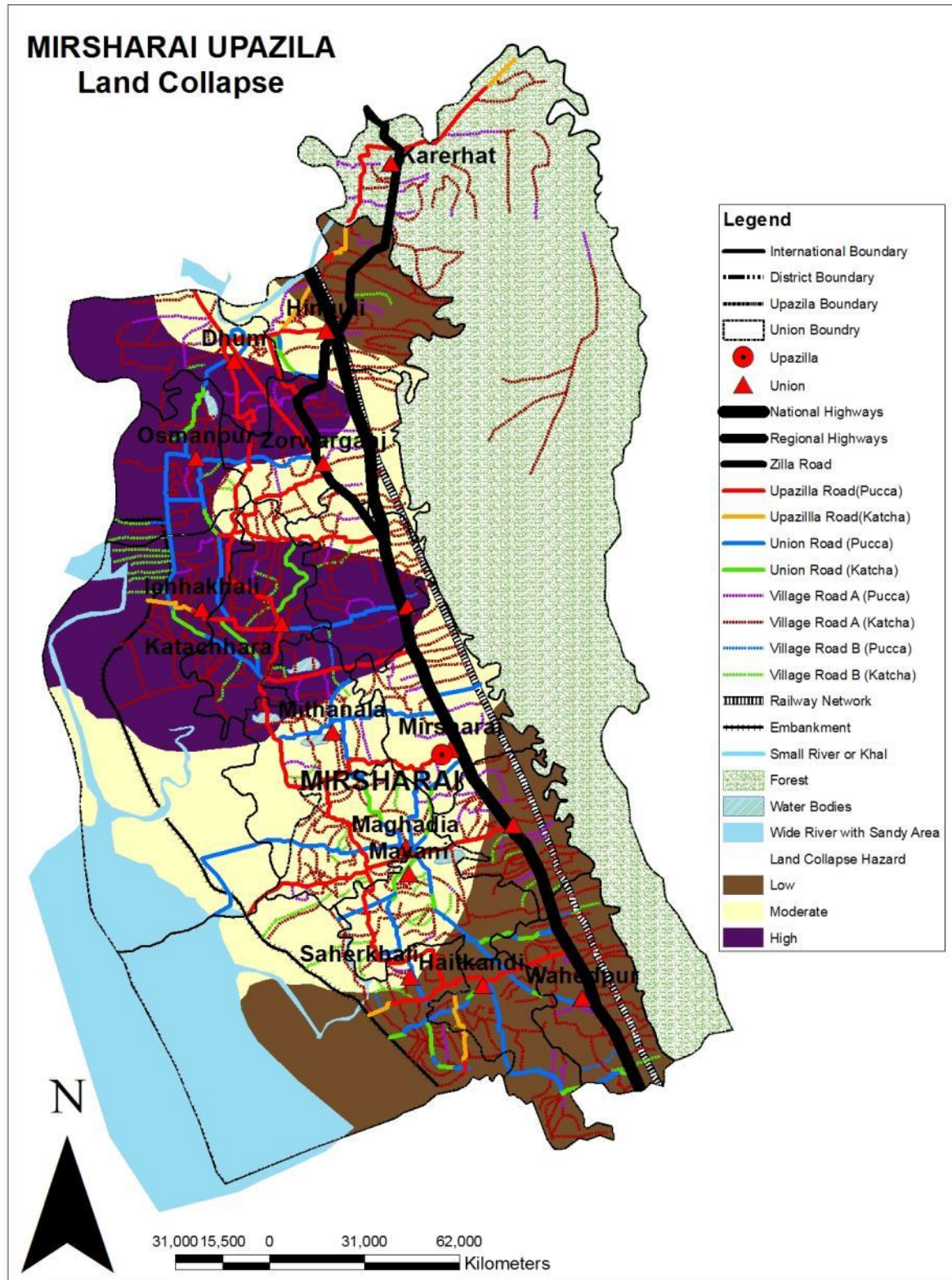
Annex 10 Hazard Map (Heavy Rain)



Annex 11 Hazard Map (Hill Slope)



Annex 12 Hazard Map (Land Collapse)



Annex 13 Hazard Map (Unusual Tidal)

